Health System Benefit Package Design & Provider Payment Mechanisms

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Essential Health Benefits Package
Technical Report

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EBD
EconomicsByDesign

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Glossary

WHO – World Health Organisation
NHIF – National Health Insurance Fund
FMOH – Federal Ministry of Health
PHC – Primary Health Care
DG – Director General
AfDB – African Development Bank
EHBP – Essential Health Benefits Package
PPM – Provider Payment Mechanisms
UHC – Universal Health Coverage
WHO EMRO – World Health Organisation Eastern Mediterranean Regional Office
SMOH – State Ministry of Health
NGO – Non-governmental organisation
NMPB – National Medicinal Plants Board
CBP – Comprehensive Benefits Package
ABP – Additional Benefits Package
JLN – Joint Learning Network
MCDA – Multi Criteria Decision Analysis
UHC-PBP - Universal Health Coverage-Priority Benefits Package
VPD – Vaccine Preventable Diseases
DALYs – Disability Adjusted Life Years
QALYs – Quality Adjusted Life Years
DCP3 - Disease Control Priorities 3
GPEI – Global Polio Eradication Initiative
GRADE - Grading of Recommendations, Assessment, Development, and Evaluation.
GDP – Gross Domestic Product
AI – Artificial Intelligence
UEA – University of East Anglia

Key Points

Economics by Design (EBD) has been commissioned by the WHO Sudan to design an Essential Health Benefits Package (EHBP) and Provider Payment Mechanism (PPM) for the Health System of Sudan.[1] These are **two** inter-connected projects funded by the European Union, which together will accelerate Universal Health Care (UHC) for the citizens of Sudan.

Findings from the EHBP project are presented in this report. The report has drawn information from a variety of documents and previous reports as well as from discussions, workshops, and site visits held with stakeholders from the Ministry of Health, the National Health Insurance Fund, and the Public Health Institute between December 2019 and September 2020. In summary;

- The Project Team has reviewed a number of **international frameworks** for designing the EHBP and has agreed a practical approach for this project with local stakeholders. This Sudan framework involves setting **objectives**, comparing locally available services with **international best practice**, and subject to **affordability** selecting services to include in the new EHBP.

- A current state assessment has been completed. The **current EHBP** is broad and there is political commitment to deliver UHC and inter-sectoral co-operation. However, in practice, included services are not necessarily based on evidence of effectiveness or value and there are significant challenges with financial protection and delivery on the ground including; poor and inequitable coverage, variable access (both geographically and for different population and socio-economic groups), and quality.

- Common reform **objectives** have been synthesized from the various reform documents and prioritized by local stakeholders. There is a clear consensus that the EHBP should prioritize financial protection, coverage, quality and safety, and equity.

- A **categorizing framework** of programmes and sub-programmes for the EHBP has been developed and a list of **candidate interventions** have been agreed based on draft guidance on UHC from the WHO EMRO and input from local Clinical Expert Teams.

- Interventions have been **prioritized** based of how well they each address three criteria: need, strength of evidence, and potential value for money. Intervention **costs** prepared by a dedicated team from NHIF and FMOH inform an assessment of **affordability** and assignment of the interventions to one of three **Health Benefits Packages** to be implemented in stages over time, as health system capacity and capability develops in Sudan.

- The EBD Project Team has developed proposals for the **Institutional and Governance Arrangements** for the EHBP going forward and an associated **Road Map** for implementation.

- **Training** has been delivered and online training materials have been developed for the on-going development and implementation of the EHBP.

This work has been prepared within the constraints of budget and time available to do the work. The limitations of the work undertaken to date are documented in the report. Importantly, the work will need to be taken forward via on-going institutional arrangements and developed and refined as data, capability, capacity, and stakeholder engagement permit.

[1] An overview of the Project Team is provided in Appendix 1.

Chapter 1: Introduction

The Health System of Sudan is undergoing significant change. The new Government are currently refreshing the National Health Plan and is committed to working towards Universal Health Coverage.[2]

EHBP + PPM Projects

Two key projects have been commissioned by the World Health Organisation (WHO) Sudan to support the Government of Sudan on this journey.

Project 1 involves the design of an **Essential Health Benefits Package** – Box 1. This will involve the establishment of three packages; a (basic) package of essential services for all citizens, a comprehensive package for the formal sector and the poor, and an additional package available to those who pay a premium contribution.

> **BOX 1: What is an Essential Benefits Package in the context of Universal Health Care?**
>
> *'a core [and explicit] set of good-quality health services to which all eligible citizens are entitled regardless of their circumstances '&' an [affordable] benefit package includes not only the work of designing a technically sound benefits package, but also updating, monitoring, evaluating, and implementing it.' (Amanda Glassman, 2016)*
>
> The optimal package depends on local health needs, robust evidence, system capacity and capability, and the size and sustainability of the financing pool.

Project 2 builds on the work undertaken for the Health Financing Plan.[3] It involves the implementation of **Provider Payment Mechanisms** for use by the National Health Insurance Fund (NHIF) – Box 2.

> **Box 2: What is a Provider Payment Mechanisms in the context of Universal Health Care?**
>
> *The money which is transferred from a payer to a provider as fair and sustainable compensation for the delivery of the essential benefits package. Methods include cost-based payments for the use of health care resources directly, through to value-based payments for the achievement of population health outcomes. Each method will result in funds being focused on different parts of the system and care pathway; clever design can strongly influence local decisions about delivery priorities.*
>
> The optimal method(s) will depend on the priorities and objectives of the payer and the capacity and capability of the provider.

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[2] (Federal Ministry of Health, Republic of Sudan, 2017)

[3] (Public Health Institute, Federal Ministry of Health, Republic of Sudan, 2016)

The successful implementation of both projects should generate strategic benefits for Sudan:

- Accelerate progress to Universal Health Coverage.
- Increase population coverage for health services.
- Improve access to services.
- Improve the quality of health services.
- Reducing fragmentation of health care.
- Reduce health inequalities.
- Increase efficiency, utilization and value for money from health resources (workforce, facilities, medicines, and digital health technology).
- Reward providers for sustaining efforts to improve efficiency and effectiveness of services.
- Improve health outcomes and healthy life expectancy – healthy population = healthy economy.

Both projects will support strategies for investing in the health system of Sudan. Establishing an 'evidence-based' Essential Benefits Package, and associated Payment Mechanisms that encourages and rewards providers to deliver improved health and care, will provide clarity of information and evidence for:

- Making the business and economic case for Government investment in health: healthier population → wider economic benefits.

- Making the business case to the citizens for prioritizing pooled spending on health and care compared to other programs.

- International Donors to support programs of investment in new and better services by answering the question "how can we help?" clearly and robustly.

Project Objectives

The main objective of the EHBP project is to redesign the Health System Health Benefit Package with a pro-poor approach to achieve Universal Health Coverage (UHC). The specific objectives are to:

- Create a framework and identify/construct tools for reviewing current benefit package;

- Evaluate what is currently provided in the backdrop of the Universal Health Coverage vision and the detailed elements outlined in the Health Financing strategy; and

- Guide the development of new categorized packages that meet the needs of various population segments in the future.

Discussion with Health System Leaders helped the Project Team to develop some key principles to guide the approach. Namely that recommendations should be: Practical, Achievable, As Simple as Possible, Quick, Skill Building, Impactful, Popular.

Report Outline

This Technical Report presents the work undertaken in relation to the development of the EHBP. Chapter 2 provides an assessment of the current context for the development of the EHBP for Sudan, and Chapter 3 provides an analysis of potential frameworks for undertaking the work. The proposed framework for Sudan is described at the end of Chapter 3. Chapter 4 presents a more detailed description of the steps taken to develop the EHBP proposals. Chapter 5 provides details of the recommended institutional approach required to take this work forward. Chapter 6 includes a proposed implementation road map and the associated next steps.

A large bibliography has been referenced and used to inform this report and is presented in Appendix 1.

Chapter 2: Current State Assessment

Introduction

The current health services offered by the Government of Sudan entitles its beneficiaries to a range of free healthcare, mainly primary care, including medical consultations from primary health care providers, GPs and specialists, routine and special laboratory investigations, and imaging (including CT Scan and MRI). Service users are required to pay 25% of the medicines cost.[4] Certain health services are excluded from the benefit package such as cosmetic surgery, open-heart surgery, and organ transplantation. The current package is in principle very broad with few services explicitly excluded from coverage. There is a comprehensive list of Essential Medicines that is updated each year by the Pharmacy Directorate at the Ministry of Health in consultation with the NHIF. There are also separate medicines lists held at State level by the SMOH.

However, as will be discussed in the following paragraphs, there are many challenges and issues which affect the delivery of the current package and which goes some way to explain the scale of out-of-pocket expenditure on health. Whilst coverage is broad, in practice there is huge geographic variation in the quality and availability of supply of many basic health care interventions and local stakeholders face huge challenges in fulfilling commitments to the population.

Context

The following provide some high-level indicators of the current population and epidemiology of Sudan.

The population of Sudan is estimated at 44 million in 2020 and is growing at around 2.9% per year (2018 est.); it is expected to increase to 55 million by 2030.[5] Sudan comprises a Federal Government with 18 States covering an area of 1.7m square kilometres, the largest State by population being Khartoum (in excess of 8 million population) and the smallest being Central Darfur (circa 751,000).[6] There is huge diversity across the country with approximately 145 different languages spoken (70 native languages), reflecting the rich cultural history of the geography and its populations.[7]

The population is predominantly rural (65% rural) and, although the urban population is growing relatively quickly, it is still only expected to account for 39% of the total population by 2030. Estimates suggest that around 80% of the population work in the agriculture sector.[8]

Fertility rates remain high (ranked 17 in the world) at 4.85 children born per woman.[9] Infant mortality is relatively high at 42 per 1000 live births and maternal mortality is also relatively high at 295 per 100,000 births.[10] Life expectancy at birth is relatively short in global terms at 66.5 years (ranked 186 in the world).[11] It is a relatively young population with a median age of 19.7, growing to 21.6 by 2030.[12] The youth dependency ratio is 75 per 100 working adults.[13]

There remains a very high risk of major infectious disease including food or water borne diseases such as typhoid, vector borne diseases such as malaria, water contact (schistosomiasis), animal contact (rabies), and respiratory

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4 Salim, Anas Mustafa Ahmed, and Fatima Hashim Mahmoud Hamed. "Exploring health insurance services in Sudan from the perspectives of insurers." *SAGE open medicine* vol. 6 2050312117752298. 11 Jan. 2018, doi:10.1177/2050312117752298 p5

5 United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019: Data Booklet (ST/ESA/SER.A/424) p16

6 *https://www.citypopulation.de/en/sudan/*

7 Young African Leaders Initiative https://yali.state.gov/country-of-the-week-sudan/

8 *Source CIA World Factbook, Sudan, 2017*

9 *Source CIA World Factbook, Sudan, 2017*

10 *Source CIA World Factbook, Sudan, 2017*

11 *Source CIA World Factbook, Sudan, 2017*

12 *http://data.un.org/CountryProfile.aspx/_Images/CountryProfile.aspx?crName=Sudan*

13 *Source CIA World Factbook, Sudan, 2017*

diseases. Malnutrition is a major issue with 34% of children under the age of 5 underweight (ranked 5 in the world).[14] Major communicable disease and complications of pregnancy and birth features heavily in the top 10 causes of premature death Respiratory infections, diarrheal diseases, malaria, HIV/AIDs, pre-term birth complications, neonatal sepsis, neonatal encephalopathy, protein energy malnutrition, and meningitis feature as the top 9 causes of premature death followed closely by road injury and congenital anomalies.[15] Chronic diseases are beginning to grow, with stroke and ischemic heart disease also featuring in the top 20 causes of premature mortality.

In 2017, Gross Domestic Product was growing at 1.4% per year, slower than population growth. This puts pressure on per capita GDP, which was already relatively low at $4300 per annum in 2017.[16] The human development index which combines life expectancy, education, and income shows a relatively low score of 0.502.

Estimates suggest total health expenditure is around 5.3% of GDP (below the global average of 10%) and per capita current health expenditure is US$132. (2015 estimates).[17] Government health expenditure is much lower at 0.75% of GDP; household out-of-pocket expenditure as a percentage of current health expenditure is relatively very high at 80%.[18]

Until April 2019, Sudan was governed via a Federal Republic, however following a power-sharing deal between civilians and the military, the country is now undergoing a three-year transition to a new democratic political system led by an 11-member Sovereignty Council and a civilian Prime Minister. There appears to be strong political commitment on the part of the new leadership to improve healthcare as well as clear inter-sectoral agreement to support health-in-all policies: there is a new willingness to work collaboratively across traditional boundaries. The new Government is in the process of refreshing and renewing policies and strategies and have made a commitment to significant increases in funding for healthcare in 2020 that will be protected in 2021 and 2022.

Current Health Services

Early discussions with stakeholders suggested that there are severe challenges associated with the availability of current health services for the citizens of Sudan, namely:

- Services included are not necessarily priority services and/or based on solid international evidence of cost effectiveness.
- Services, whilst free in theory, may not be available at all, may only be available in part, may be of poor quality, and may be unsafe.
- There is wide ranging disparity in access across geographies, rural and urban, and between socio-economic groups. The distribution of health workers does not match population need, either geographically (38% work in Khartoum), or urban / rural (70% of the population resides in rural areas yet 70% of health workers work in the urban areas).[19]
- There is a predominance of secondary care, 67% of the staff works in secondary and tertiary care.[20]
- Access to safe and effective pharmaceuticals, medical devices, and digital health technologies remains variable across and within states and quality is not systematically assured.

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14 *Source CIA World Factbook, Sudan, 2017*
15 IHME analysis of premature mortality in Sudan, 2010, all ages, all causes, rates per million population
16 Source CIA World Factbook, Sudan, 2017
17 National Health Accounts 2015
18 National Health Accounts 2015
19 Directorate General of Human Resources for Health Development, Federal Ministry of Health, Government of Sudan *Situation Analysis for Strategic Plan for Sudan 2017-2021,* p18
20 Directorate General of Human Resources for Health Development, Federal Ministry of Health, Government of Sudan *Situation Analysis for Strategic Plan for Sudan 2017-2021*,p18

- Patients are expected to pay 25% of their medication costs, although regulated, the monitoring of prices is not closely controlled.[21]
- Patients may be required by local centres to make additional financial contributions towards services in order to keep things going.
- The separation of roles to NHIF as Payer and MOH as Provider is still underway and there is still confusion about what is funded by NHIF and what is funded by subsidy from MOH.
- Public health prevention programmes remain a top priority but are fragmented and funding does not seem to be systematically incorporated and protected strategically as part of the NHIF program.
- Vaccination levels have improved but there are still issues around management of cold chain.
- Wider determinants of health (e.g. environment) remain significant drivers of disease and ill-health.

Since these early discussions, more in-depth discussions have identified specific challenges and opportunities for improvement. These are discussed in more detail in the remaining paragraphs.

Prevention

Public health prevention programmes remain a top priority for Sudan. Many programmes are delivered through primary care with wider determinants of health being addressed by Localities (Municipalities). Challenges here included fragmented funding sources (many are part of programmes funded by Donor agencies) and a lack of clarity about the role of the Purchaser in paying for services that impact on population and community health (as opposed to the behaviour of individuals). The development of the three health benefits packages provides an opportunity for clarity and coherence around funding for effective and cost-effective prevention services, as well as an opportunity to reconsider service delivery through programmes.

Clinical Practice

Local stakeholders advise that where services are available, whilst meeting a pressing health need, they are not necessarily targeting the highest health priorities. This can be evidenced from the predominance of secondary care; 67% of the staff work in secondary and tertiary care.[22] There is some evidence from the visit to North Kordofan State that there has been a concerted shift towards primary care in recent years, with reduced reliance on secondary care facilities and some consolidation of secondary facilities into fewer larger units. Many primary care services have developed as a result of specific local initiatives, often funded by NGOs to address a specific problem, rather than strategic national considerations of the priority health needs and epidemiology. It has been further reported by stakeholders that the current services generally do not meet the needs of special population groups such as the homeless, nomads, and refugees.

The predominance of communicable disease as a leading contributor to morbidity and cause of premature mortality presents its own challenges in terms of current health services. Epidemics present enormous challenges in terms of logistics and costs, quite apart from the health impacts. Addressing the problems associated with communicable disease remains a top priority for the health system and must drive priorities for the NHIF in its new role as purchaser of health care. Whilst the risk of epidemics continues to take centre stage this will undermine the ability of the country to invest in health interventions to support longer, healthier, more productive lives that are essential for the economy to grow and thrive.

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21 Salim, Anas Mustafa Ahmed, and Fatima Hashim Mahmoud Hamed. "Exploring health insurance services in Sudan from the perspectives of insurers." *SAGE open medicine* vol. 6 2050312117752298. 11 Jan. 2018, doi:10.1177/2050312117752298 p5
22 Directorate General of Human Resources for Health Development, Federal Ministry of Health, Government of Sudan *Situation Analysis for Strategic Plan for Sudan 2017-2021*, p18

Local health professionals are delivering care in the most challenging of contexts. The challenges facing the system has meant that there is an absence of clear and consistent clinical practice guidance across Sudan based on evidence of efficacy, effectiveness, and value for money.

Pharmaceuticals

There is relative clarity about the Essential Medicines list. This is prepared by the General Directorate of Pharmacy and approved each year, procured by the National Medicines Supplies Fund, and regulated by the National Medicines and Poisons Board. However, these pharmaceuticals are not necessarily linked with and/or aligned with the services that are being delivered on the ground to patients. There are some challenges involved in the procurement of medicines as a result of shortages of hard currency and the need to align payment and manufacturing timescales within tight procurement timelines. There are also some national challenges with the availability of laboratory services able to test and validate the quality and compliance of medicines and gaps in the regulations (particularly in relation to biosimilars). Despite this, local stakeholders advise that over 97% of medicines are registered with NMPB and prices benchmark well with international standards. There is also considerable scope to develop local manufacturing in the coming years. This would improve access and reduce costs further.

Whilst there is an impressive supply chain management function from Federal to State, the efficient and effective distribution and storage of medicines from State to "last mile" is challenging. As a result, the availability of approved medicines at the front line of service delivery is not consistent, access is variable, and quality is not assured. That said, vaccination levels have improved and much has been achieved to implement immunisation programmes across Sudan. Remaining challenges are centred on the quality of facilities and management of the cold chain.

Workforce

Sustained, significant and chronic shortages of health professional staff is a major challenge for Sudan across all disciplines, specialties, and grades. In the context of a "global" shortage of health professional staff, salary levels in Sudan are very low and uncompetitive; newly qualified staff are tempted by financial incentives to move to tertiary centres in the city, Khartoum, and ultimately to work overseas. As a result, the numbers of qualified health staff are relatively low for the size of the population. The distribution of health workers does not match population need geographically (38% work in Khartoum), or in terms of urban / rural (70% of the population resides in rural areas yet 70% of health workers work in the urban areas).[23] There have been various initiatives to address workforce issues through upskilling and developing new roles for health assistants and support staff. However, these have created their own disparities on account of the sizeable pay gap between different types of health and care professionals particularly in primary care, itself causing problems with recruitment and retention. The availability of trained professional staff will place a major constraint on the pace of change within Sudan and the rate at which new benefits packages can be implemented consistently across the country.

Facilities

Health care facilities and equipment are also of variable quality and suitability, many simply do not provide the right "platform" for the delivery of the healthcare interventions. This is not simply about physical buildings without access to electricity and basic infrastructure, it is also about limited access to laboratory services and equipment to support diagnostics, properly equipped pharmacy, information technology, and telecommunications. A current survey of facilities is underway which should provide some insight into the extent to which investment in facilities is needed before improvements can be made in terms of access to services. This

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23 Directorate General of Human Resources for Health Development, Federal Ministry of Health, Government of Sudan *Situation Analysis for Strategic Plan for Sudan 2017-2021*, p18

was due to report in April 2020. As with workforce, the pace of investment in the "rehabilitation" of facilities will constrain the pace at which new benefits packages can be implemented consistently across the country.

Information Technology

Whilst there has been some investment in electronic information technology in healthcare in Sudan and a strong commitment to do more, currently most facilities record all activities using paper-based records systems (including for NHIF claims). Electronic data that are recorded are primarily captured for the purposes of reporting KPIs and/or analytics. With the exception of a few well developed primary care centres, the majority of health clinics do not have computing capability on site. In this environment it is extremely difficult to embed complex clinical practice guidelines within clinical operating protocols and to monitor compliance through clinical audit. Because information technology is not generally used for primary data capture as part of process such as "admissions management", "pharmacy management" etc. there is no opportunity for the use of these data to develop an electronic health record. Health professional staff therefore rely on often incomplete manual records to support clinical decisions. Crucial, timely, electronic information about the health status of patients in terms of diagnosis, treatments, and outcomes are not available for the effective clinical management of patient populations and the optimal utilisation of resources. Not only does this impact on the feasibility of implementing a comprehensive range of effective health interventions, but it also places serious constraints on the use of health informatics to inform payment mechanisms.

Digital Health

Many countries are starting to see the potential for digital health solutions to empower the population and to enhance the workforce in terms of productivity and effectiveness of prevention and treatment services. The use of AI to support virtual primary care, digital human diagnostics, telemedicine, and remote professional support for the delivery of treatment programmes in rural areas are increasingly being adopted to address issues relating to staff and workforce shortages and the paucity of health care facilities. There is great potential for "digital human" solutions to support the system in Sudan, but this would require investment in basic infrastructure and information technology (data are crucial) as well as 4G telecommunications and secure cloud platforms, and digital training for citizens and staff. It would also require a process for the NHIF to include digital healthcare interventions alongside more traditional treatment interventions in its health benefit packages.

Health Delivery System

The historic fragmentation of service delivery across various ministries and the NHIF is considered to have amplified the impact of these challenges. The adopted policy to separate and refocus the roles of the NHIF as the purchaser of health services on behalf of the Government, and MOH as a provider of Government Health Services provides a real opportunity for re-alignment and focus. However, the implementation of this policy remains 'work in progress'. There is confusion about what is funded by NHIF and what is funded by subsidy from MOH. Current financing flows from the State to health care delivery facilities and outlets are opaque and overly complex. There is also considerable historical disparity between the range and quality of primary care services and facilities previously (and mainly still) provided by NHIF, and the equivalent MOH facilities. This is acting as a barrier to change as NHIF stakeholders remain reluctant to pass oversight of these facilities to SMOH stakeholders. Misalignment in the planning and distribution of properly trained staff, functional buildings, modern equipment and effective medicines across health and care facilities results in system inefficiencies, with the irony of under-utilised facilities sitting alongside crowded clinics with long waiting lines.

The transition to NHIF as a purchaser and MOH as a provider of health services will need a clear implementation strategy and plan, which builds on the strengths and achievements of both organisations in order to recreate a safe health delivery system and associated facilities which can support the three new health benefit packages.

Reform Objectives

A workshop was held with stakeholders from NHIF, MOH and PHI to identify and rank reform objectives. The objectives are shown in the inset box.

In summary, where trade-offs exist between options for the EHBP, highest priority should be given to:

- Improving financial protection for the population of Sudan and reducing the reliance of out-of-pocket expenditure.
- Increasing coverage of health services, and ensuring the population have access to essential services.
- Improving quality of health services and safety, including the adoption of clinical protocols, suitably trained staff, and facilities which are fit-for-purpose.
- Increasing equity and ensuring that all those living in Sudan have access to basic health care.

Ranked Reform Objectives
Increase Financial Protection
Increase Number of People Covered
Improve Quality & Safety
Increase Equity
Ensure Sustainability of the Health System in the medium term
Increase Scope of Services Covered
Improve Efficiency
Improve the Measurement of Health Outcomes, Improved Health Outcomes & Reduce Unwarranted Variations in Health Outcomes
Increase Emphasis on 1 & 2 Disease Prevention
Implement the Political or Legal Mandate
Respect Consumer & Professional Preferences

That being said, all objectives are considered important and none should be ignored. Overall, it remains a priority for progressive universalism to be used in relation to the Essential Health Benefits Package, to expand the services available to all which are free at the point of use and promote health in all policies through inter-sectoral actions and fiscal policies.

Health System Map

In order to contextualise the project and ensure the EHBP Framework would meet the requirements of the wider health system in Sudan, the EBD Team developed a conceptual map of the proposed new Sudan Health System from the perspective of service eligibility, financing, commissioning, and delivery. This map is shown in Appendix 2.

The map comprises five components:

Health Financing

The source of funding, the funding pools for each package, and the risk pooling arrangements across those funds at Federal and State level.

Payment Mechanisms

The methods used by the NHIF to pay providers of health services, and the methods used by SMOH to distribute funds across the MOH outlets / facilities.

Provider Systems

The connectivity between the MOH outlets as a system at primary, secondary, and tertiary level.

Packages of Care

The services provided and associated care pathways as part of the benefits package.

Benefit Package Eligibility

Showing the basis of eligibility for the Essential Benefits Package (EHBP), the Comprehensive Benefits Package (CBP), and the Additional Benefits Package (ABP).

Appendix 2 is best viewed poster size.

Please note that Policy, Governance, and Regulation functions are not included within this system overview but are essential to its successful operation.

Summary

Overall, delivery of the current package is not consistent or comprehensive and, where services are available, there is a risk that they are provided in the wrong care setting or without access to the right level of health care professional. So, whilst free in theory, many services may not be available at all, may only be available in part, may be of poor quality, /or may be unsafe. Partly as a result of the challenges mentioned above, citizens are not clear about what they are entitled to and providers appear to charge co-payments or full payments for services to enable access and to supplement the funds they receive from the SMOH, NHIF and NGOs.

The health system ranked reform objectives provide a strong sense of whether the priorities should be for the development of the EHBP and these focus on financial protection, access, equity and quality, and safety. The EHBP is only one part of the overall health system reform programme and should be considered alongside health financing, payment mechanisms, provider systems, care pathways, and benefit package eligibility.

Chapter 3: Framework for Developing Health Benefits Package

Introduction

In order to develop a framework for developing an EHBP for the citizens of Sudan, it was necessary to:

- Identify, analyse, and compare existing frameworks to evaluate existing benefit package(s).
- Consider relevance of same frameworks to define and develop new essential benefit packages.
- Define initial information requirements and secure necessary information.
- Identify indicative common steps between frameworks.
- Define proposed framework approach.
- Win support for proposed framework approach from local stakeholders.

The results of this work are presented in this chapter. The chapter concludes with the EHBP Framework which is proposed for Sudan.

Analysis of Existing Frameworks

Four frameworks were identified and examined for consideration in the development of an EHBP for Sudan.

- Rannamae & Hag Mousa (2017): Redesign the National Health Insurance Fund's Health Benefit Package with a pro-poor approach to achieve Universal Health Coverage (2017) for NHIF, Sudan.

  This follows framework of:

- Glassman et al (2016): Designing a Health Benefit Package: What are the necessary processes?

- Joint Learning Network (2018): Designing Health Benefits Policies: A Country Assessment Guide (in particular, Writing the Assessment Report, page 13ff).

- WHO EMRO (2019 draft): Universal Health Coverage-Priority Benefits Package (R UHC-PBP) as set out in WHO EMRO Guide to Develop Universal Healthcare Coverage – Priority Benefits Package.

They have many common characteristics:

- They all emphasise the need for a **"holistic" "whole system" approach** to understanding and evaluating the existing and potential new BPs.

- They all emphasis the need to **"ground"** the work in **clear** and **agreed reform objectives.**

The first two approaches, *(Dr Andres Rannamäe, Redesign the National Health Insurance Fund's Health Benefit Package with a pro-poor approach to achieve Universal Health Coverage., December 2017)* following *(Amanda Glassman, 2016)* have the same common core steps:

1. Setting goals and criteria
2. Operationalizing general criteria and defining methods for appraisal
3. Choosing the "shape" of the HBP(s)
4. Compiling existing and collecting new evidence
5. Undertaking appraisals and budget impact assessments
6. Deliberation on evidence/appraisals
7. Making recommendations and taking decisions
8. Translating decisions into resource allocation and use (including payment mechanisms)
9. Managing and implementing the HBP
10. Reviewing, learning, and revising the HBP

The JLN approach *(Joint Learning Network for Universal Health Coverage, 2018)* approach is structured as follows:

1. Introduction
    a. Assessment context and unit of analysis

2. Health Benefits Policy Objectives

3. Formulation of the PHC Benefits Package
    a. Primary beneficiaries
    b. Scope of the benefits package
    c. Processes used to develop the benefits package
    d. Criteria for determining included services
    e. Major stakeholders involved in designing the benefits package

4. Engagement with the Six Implementation Domains
    a. Financing: Mobilizing and Pooling Resources
    b. Financing: Payment Mechanisms
    c. Supply-side Strengthening
    d. Generating Demand
    e. Protocols and Pathways
    f. Accountability Mechanisms

The draft framework being developed by WHO EMRO suggests using local data and working with internal and external stakeholders (including citizens) to review coverage against international benchmarks and make shared decisions about which services to include. This includes building on what is already in place by doing an assessment of which interventions are already in place, which are recommended by WHO EMRO (Green) and should therefore continue, which interventions are recommended and not yet included and should be considered (Yellow), as well as interventions which are currently provided but which are not supported by WHO EMRO due to evidence that they do not provide effective services or good value for money (Red). There may be other local interventions which haven't been considered by WHO EMRO, but which should be reviewed as candidate interventions (Grey).

Domain 1 Management Process Use Glassman et al (2015) and Rannamae & Hag Mousa (2016)	Domain 2 Economic analysis Use WHO EMRO UHC – PBP Framework (2019 draft) as foundation of evidence and conduct MCDA
Domain 4 Implementation Use six JLN Framework Implementation Domains	Domain 3 Health Systems Strengthening Implications and issues

In summary, the frameworks each address four different domains of an EHBP programme namely: management process, economic analysis, implementation, and health systems strengthening:

The Rannamae and Hag Mousa (2017) Framework, following Glassman et al Framework (2016), provides the main organising framework.

The WHO EMRO (2019 draft) Universal Health Coverage-Priority Benefits Package (UHC-PBP) helps to define, cost, and price the EHBPs.

The 6 implementation domains of the JLN Framework to establish the context for and confirm feasibility from the perspectives of implementation and sustainability.

EHBP Development Activities

An examination of the frameworks suggests a number of core (usually sequential) tasks are required for the development, review, and revision of an EHBP. We have organised these across the four function “nerve centre” approach to managing transformational change in times of “crisis”: discover, design, decide, deliver.[24]

These are shown on the table overleaf.

There are a number of skills required to undertake these activities. Amongst other things, these include:

- Public health
- Clinical practice
- Health data analytics and insight
- Health economics
- Health finance
- Health planning
- Human resources
- Capital investment
- Public private partnerships
- Communications and engagement

These activities also need to be supported by comprehensive and reliable data and health intelligence, which can be used to model requirements and prepare forecasts.

The development of the EHBP should also be governed by a process of engagement and consensus building with stakeholders including local health and care professionals, patients and service users, wider public sector, those paying premiums for health insurance, and the wider citizens of Sudan.

[24] McKinsey online Coronavirus Briefing dated 3 April 2020 - See slide 58

Part 1	Part 2	Part 3	Part 4
“Discover”	**“Design / Review / Revise”**	**“Decide”**	**“Deliver”**
Obtain current and projected demography, geographic, and socioeconomic data Gather, collate and maintain all available evidence on disease burden, disease risk, and associated projections Gather and collate available key information on the health system capacity, capability, and performance including clinical outcomes Identify existing and potential key gaps and constraints in the current system including: • Information and IT Resources • Human Resources • Financial Resources • Equipment and Supplies (including Pharmacy) (stocks and supply chains) • Built Resources (inpatient, outpatient, primary, community) • Health system management and governance • Care pathways • Models of care • Quality and safety • Clinical and patient reported outcomes • Determine 3-5 year government mandated financing range	Determine clinical portfolios / programmes, candidate sub-programmes, and identify candidate clinical interventions Determine / confirm evaluation methods and sources of information re costs and effectiveness and outcomes Evaluate and prioritise candidate interventions according to their expected clinical impact and value for money Group candidate interventions into models of care and align with candidate sub-programmes and re-evaluated expected clinical impact. Calculate the cost and budget impact of the interventions Evaluate willingness and ability of some citizens to buy additional interventions through supplementary insurance or out of pocket Evaluate the impact and resource implications of additional interventions – develop policy and regulations to manage additional interventions accordingly (incentivize, encourage, allow, control via regulation, or disallow) Recommend affordable package(s) of interventions Provide draft implementation plan	Set goals Review recommendations Agree EHBP package, budgets and associated activities Plan for and oversee consultation on the EHBP with the public, civil society, professional bodies, and international agencies	Define and undertake Real World Trials and/or test sites for selected elements of the EHBP Prepare policies and regulations required for the delivery and oversight of the EHBP Prepare and oversee the execution of implementation plans for capacity, capability development and stakeholder engagement Oversee the development of facilities, human resources, information technology, supplies, and digital health products plans

EHBP Development Framework for Sudan

The focus of the EBD Project is on the "Design" aspects of the activities listed in Part 2 of the table shown on the previous page.

In this context, and having reviewed the above frameworks with local stakeholders, the EBD Project Team proposed a six step approach to identify candidate interventions as priorities for inclusion in the Health Benefits Package. This is discussed in more detail in the next Chapter.

Local stakeholders were asked to review the proposed framework and comment on the potential benefits and challenges. The results are shown in the table below.

Benefits of applying EHBP Framework	Challenges with applying EHBP Framework
• Uses an evidence-based approach • Systematic and logical • Strategic approach to health service programmes • Dynamic stepwise approach to support expanding included services over time • Will allow for needs-based priorities • Uses international benchmarks • Makes a clear link between epidemiology and economic evaluation – links the problem with the solution • Takes account of costs and financial capacity • Supports costing, budget setting and planning • Will improve efficient allocation of resources across services • Will support increased citizen satisfaction with health services	• Availability of data on population, epidemiology, and utilization • Quality of data, under-reporting, poor data flow • Ensuring the full context of Sudan is incorporated • Adapting it to reflect regional differences • Ensuring relationship with actions on the wider determinants of health • Shrinking the existing package and removing ineffective programmes (red) • Different stakeholders will have different priorities in terms of their objectives for UHC • Setting up an on-going process to ensure sustainability • Financial constraints (size of the funding pool) • Communications and engagement required to persuade local stakeholders to change behaviours and practice

Chapter 4: EHBP Development: Detailed Framework

Introduction

The EBD Project Team has been working through the EHBP Development Framework for Sudan with the support of local stakeholders. To reiterate, there are 6 steps:

Step 1: Agree a categorizing framework to group interventions into programmes of care
Step 2: Agree the candidate program interventions
Step 3: Rank the interventions to reflect how well they score against key differentiating criteria
Step 4: Cost the benefits packages and assess affordability
Step 5: Assign the interventions to benefits packages
Step 6: Evaluate the packages against objectives and refine package coverage at the margin

This Chapter reports each of the Steps in the Framework and how they have been applied for this project.

The work has been overseen by the Technical Working Group. In addition, in February 2020 the FMOH established Clinical Expert Teams to provide clinical advice and support to the development of the EHBP.

Step 1: Categorizing Framework

For the purpose of this exercise, local stakeholders have agreed to adopt the categorizing framework used by in the draft UHC-PBP WHO EMRO proposals namely:

- Women & Children
- Older & Disabled
- Communicable Disease
- Non-Communicable Disease
- Planned Procedures, Surgery, and Emergency Care.

The programmes and sub-programmes are shown in the table below.

Programmes	**Woman & Children**	**Older & Disabled**	**Communicable Disease**	**Non-Communicable Disease**	**Planned Procedures**
Sub Programmes	• Reproductive health • Maternal & Newborn Health • Child Health • Nutrition • School Age & Development • Adolescent Health	• Elderly • Rehabilitation	• Anti-microbial Resistance & Infection Prevention & Control • HIV & AIDS • Sexually Transmitted Diseases • Malaria • Neglected Tropical Diseases • Pandemic & Emergency Prep • Tuberculosis • Vaccine-preventable diseases	• Cancer • Cardiovascular & Respiratory Disease • Congenital & Genetic Disorder • Injury Prevention • Mental Health & Drug Abuse • Musculoskeletal Disorders	• Surgery • Emergency Care

Having agreed the categorising framework, the FMOH established Clinical Expert Teams to review the EMRO list of interventions and adapt it to the needs of Sudan. The initial plan was to set up 21 teams, one team for each sub-programme, however further discussions with the FMOH leadership teams resulted in 13 teams covering:

Clinical Expert Teams

1. Women and Children
2. Injury Prevention, Elderly and Disabled
3. Communicable Diseases – HIV/Sexually Transmitted Infections
4. Communicable Diseases – Tuberculosis
5. Communicable Diseases – Malaria
6. Communicable Diseases – Neglected Tropical Diseases
7. Communicable Diseases – Health Emergencies
8. Communicable Diseases – Immunization and VPD
9. Communicable Diseases – Anti-Microbial Resistance/Infection Prevention Control
10. Non-Communicable Diseases – Cardiovascular and Respiratory Diseases
11. Non-Communicable Diseases – Cancer
12. Non-Communicable Diseases – Mental Health and Drug Abuse
13. Planned Procedures – Surgery and Emergency Care

Each team comprised of local clinical experts, one focal point from WHO, and one focal point from the FMOH. Terms of Reference were issued for each group to support the EHBP programme.

Step 2: Candidate Interventions

The starting point for the development of Candidate interventions were based on a draft recommended intervention list provided by the EMRO office. For each intervention the following information was provided by the EMRO office:

- Package (program and sub-program)
- Intervention description
- Minimum qualification for service provider (health care professional)
- Preferred or minimum level of care (care setting / outlet)
- Commentary
- Proposed by (source of the evidence base)

A total of 553 unique interventions are included in the database.[25]

The Clinical Expert Teams were asked to:

- Review the EMRO intervention list.
- Identify those interventions which are provided in Sudan but are missing from the list.
- Identify those interventions which are included in the EMRO list, but which would not be appropriate for Sudan.
- Assess current coverage and potential for implementation and/or expansion by 2020 and 2023 for each of the remaining candidate interventions.
- Review the intervention scores and ranks generated by the prioritisation exercise – see below.

[25] Master Interventions profile 2019.11.06.xlsx

Limitations

There have been some important lessons in relation to the workings of the Clinical Expert Teams. In general, participants have shown strong support for the goals of the project and the nature of the discussion. It is also clear that there is high quality local expertise available and teams have suggested additional participants whose views should be sought. However, there is clearly a demand from the experts for the process to be **formalised, properly resourced and funded**, and for **sustainable institutional arrangements** to be put in place to take this forward over the longer term. This is consistent with the draft UHC-PBP WHO EMRO guidance. The process of deciding the Health Benefit Package requires a **clear governance structure** with support mechanism. This is needed to ensure that there is a systematic and transparent process for arriving at recommendations to FMOH and NHIF about which interventions should be included within each of the packages. These institutional requirements are discussed later in this report.

Step 3: Score and Rank Interventions

The interventions were ranked by the EBD Project Team with the support from health economists from the University of East Anglia in the UK. The following paragraphs describe the methods used to develop the ranking.

Priorities for interventions to be included in the EHBP have been assessed using a Multi-Criteria Decision Analysis approach in line with the WHO EMRO (2019 draft): Universal Health Coverage-Priority Benefits Package (R UHC-PBP) as set out in WHO EMRO Guide to Develop Universal Healthcare Coverage – Priority Benefits Package.

As a starting point, local stakeholders agreed three differentiating criteria which will enable the interventions to be compared, one with another. The criteria are:

- **Meets Health Need (and Population Impact)**– addresses high priority need in terms of the epidemiology of Sudan in terms of causes of morbidity and mortality, and scale of impact.[26]
- **Quality of Evidence** – is likely to be effective in the context of Sudan.
- **Likely Value for Money** – is likely to be good value in the context of Sudan.

Not all criteria are equal. Following a stakeholder workshop it was established that, all other things being equal, interventions which meet health need and have high population impact are to be preferred over interventions with high quality evidence of effectiveness and good value for money. The main reason for assigning lower weights to effectiveness and value for money is a general acceptance that there is little local contextual evidence for Sudan in terms of intervention effectiveness, efficacy and costs. Hence the stakeholders would not want to put undue weight on evidence which necessarily comes from other countries.

The mean average weights generated at the stakeholder workshop are shown below. As can be seen, quality of evidence and value for money are assigned equal importance of 20% each, with population health need and population impact attracting a weight of 60%. On the basis of these weights, interventions which attract high scores for health need and population impact but low scores for quality of evidence and likely value for money will rank higher than interventions which attract high scores for quality of evidence and value for money, but attract low scores for health need and population impact.

Weights	Meets Health Need + Population Impact	Quality of Evidence	Likely Value for Money	Total
Mean	60	20	20	**100**
%	0.60	0.20	0.20	**1**

Each intervention has been assigned a score to reflect how well they achieve each of these criteria.

[26] These were originally two separate criterion but once the scoring schema was established, they were combined to avoid double counting.

The scoring was based on independent data sources and evidence. Each intervention was assigned a score of 1 = very low to 5 = very high, using pre-defined scoring “schemas” to determine which score to adopt based on the evidence. The schemas were developed in a one-day workshop with the whole Project Team as well as economists and statisticians from UEA. All interventions were scored twice by two separate independent researchers, with discrepancies referred to an arbitrator researcher for resolution.

The scoring schema was as follows:

Meets Health Need and Population Impact: In the absence of comprehensive needs assessments and projections for the population of Sudan, the team used data from the Global Health Data Exchange to estimate levels of need and population impact. Specifically, data were extracted to show the percentage of total DALYs attributed to different disease areas, specifically for Sudan for 2017. The percentage of DALYs for each disease area was transformed into logits so as to run a logistic regression. This was then graphed into a histogram and, in order to see the variations between scores, standard deviations were created. The standard deviations were plotted into a new histogram and the limits were used to create a distribution of DALYs which could be used to measure need and population impact. Each disease area was mapped into one of the following 5 categories based on the percentage of total DALYs accounted for by that disease area. Interventions were then mapped to each disease and assigned a score of 1-5 depending on which disease area they related to.

Intervention Score	Sudan DALY	Minimum	Maximum
1	% of total DALYs less than a	0.00%	0.04%
2	% of total DALYs between a and <b	0.05%	0.19%
3	% total DALYs between b and <c	0.21%	0.87%
4	% total DALYs between c and <d	0.96%	3.37%
5	% of total DALYs d and above	4.32%	16.30%

A mean score was attributed to interventions that mapped to more than one disease area.

There are risk-hazards and public health interventions that do not map directly to a specific disease area. These include, for example COVID-19 and other potential new pandemics and floods. For these interventions an attempt was made to match the intervention to the expected health impact of the hazard. These health impacts are likely to be multiple rather than specifically related to one particular disease. For example, for interventions relating to cleaning, such as advice for washing hands, a score of 4 was given because these interventions could lead to the avoidance of many different types of communicable diseases, many of which attracted a DALY related score of 4. Interventions which are targeted at controlling risky behaviours linked to the onset of chronic diseases, such as to improve physical activity, diet, or reducing smoking were given a score of 3 on account of the relatively low burden of chronic disease in the population. This is of course expected to take on a higher priority once communicable disease and injury related DALYs are reduced and there is a longer life expectancy for the population. Other non-specific intervention and interventions related to media campaigns for population awareness, which were not related to a disease area, were generally given a score of 2.

Ideally these scores should be regularly reviewed once more robust needs-based epidemiological projections (and projected risk hazards) are available.

Quality of Evidence: The project team considered the feasibility of developing a scale of evidence and/or adapting an existing one.[27] However, when reviewing the EMRO database it was clear that many of the interventions had been proposed as a result of existing evidence review processes. For these reasons a more pragmatic approach was adopted based on the likely reliability of the source of the evidence included in the database. The table below shows the schema adopted by the Project Team.

Intervention Score	Evidence
1	Any other evidence
2	Non-randomised observation studies
3	Peer reviewed journal (RCT study)
4	Peer reviewed journal (High quality Systematic Review), Lancet or DCP3[28] or GPEI[29]
5	WHO Official Recommendation

Likely Value for Money: The Project Team considered using standard databases of cost-effectiveness[30] to inform the scoring of the interventions in terms of likely value for money. However, the standard databases of cost-effectiveness were not considered suitable for this purpose at this stage of the development of the methodology, for the following reasons:

- There are a variety of possible definitions of cost-effectiveness included in these databases which make them hard to compare. These range from:
  - simple cost efficiency studies (the most efficient way of delivering an outcome measured in natural units – e.g. number of deaths)
  - cost utility studies (the most efficient way of delivering an outcome measured using standard utility metrics such as the QALY)
  - cost benefit studies (to demonstrate the ratio or value of benefits to costs measured in monetary units)

- For health interventions (pharmacological, devices and / or treatment interventions), cost-effectiveness is usually calculated measuring the "marginal" impact of the intervention compared with usual care or a "standard of care". There is considerable heterogeneity of definition of usual care / standard of care in databases, which are also context specific and vary by geography and health system. For this purpose - development of the Health Benefits Package – the usual care should be "no care" and this is rarely the comparator in the economics databases.

- There is considerable variation in intervention costs which are very context specific. This means that local economic evaluation, which is specific to the intervention in context, is needed to inform local decision making.[31]

- There is variation in the value associated with the Quality Adjusted Life Year (QALY), which is often used as the standard utility metric to compare the technical efficiency of different interventions.[32] This is also context specific.

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27 See for example GRADE which forms part of the UK NICE guidance on methods https://www.nice.org.uk/process/pmg20/chapter/glossary#GRADE
28 Disease control priorities network funded by the Bill and Melinda Gates Foundation
29 Global Polio Eradication Initiative.
30 See for example the Tufts Cost-Effectiveness Analysis (CEA) Registry https://cevr.tuftsmedicalcenter.org/databases/cea-registry
31 https://www.eupati.eu/health-technology-assessment/economic-evaluation-in-hta/
32 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5193154/

For these reasons, most "payers" who use cost-effectiveness as a decision tool develop their own database of evidence. Sudan does not yet have these measures available. It might be useful for Sudan to commission some carefully considered cost-efficiency studies to inform decision making and gain direct experience in this type of analysis.

As an alternative interim solution, the Project Team considered the feasibility of looking at the key components of value for money and what is likely to drive changes in these.

The main components of cost-effectiveness include:

- The intervention unit cost - all other things being equal, the lower the intervention cost per patient, the higher the value,

- The cost consequences of the intervention on the health and care system - all other things being equal, the higher the savings in terms of treatments avoided by adopting the intervention, the higher the value,

- The health utility impact of the intervention on the patient (e.g. the QALY) - all other things being equal, the more that the intervention can improve healthier life expectancy, the higher the value; and

- The wider societal impact of the intervention (e.g. employment etc.) – all other things being equal, the more that the intervention increases the likelihood that the patient can continue to make an economic and societal contribution, the higher the value.

Based on the experience of the health economists at UEA and the Project Team Director, all of whom have conducted many cost effectiveness studies, it was agreed that a very crude predictor of likely cost-effectiveness from interventions is the 'care setting / stage of care' for the intervention. Care settings / stage of care in this context were defined broadly to include interventions which take place:

- Outside of hospitals, which are targeted at primary prevention and addressing the wider social determinants of health.
- Outside of hospitals but which are designed primarily for prevention such as vaccination.
- In a variety of outlets but which are designed to deliver early diagnosis and stabilization of a condition.
- In a variety of outlets but which are life-saving treatments.
- Generally, in hospital and providing effective planned secondary intervention.
- Generally, in a specialist hospital and which provide effective planned tertiary intervention.

Mapping these two dimensions together and ranking each on a score of 1-5 in terms of likely impact on value, as shown in the table, produced an average rank for each care setting. These were then mapped to the scoring schema:

Intervention Score	Care Setting
1	Effective Tertiary Intervention
2	Effective Secondary Intervention
3	Early Diagnosis + Treatment
4	Vaccination + Life Saving Treatment
5	Primary Prevention & Wider Determinants of Health

The resultant, and very crude, scoring schema presented here for potential value for money, shows that interventions relating to primary prevention and wider social determinants of health are likely to score the highest in terms of having the potential to provide relatively high value for money. This is closely followed by vaccination and life-saving treatment, which is then followed by early diagnosis and treatment services, secondary interventions, and tertiary interventions.

Schema of likely cost effectiveness of care settings in Sudan

	The Intervention Unit Cost	The Health & Social Care System Cost Consequences of the Intervention	The Health Utility Impact of the Intervention	The Wider societal Benefits of the Intervention	Average Rank
Effective Planned Tertiary Intervention	1	1	1	1	1
Effective Planned Secondary Intervention	2	2	2	2	2
Life Saving Treatment	2	2	4	4	3
Early Diagnosis + Stabilisation	3	3	3	3	3
Vaccination	4	4	5	5	4.5
Primary Prevention & Wider Determinants of Health	5	5	5	5	5
	Rank *1 – highest unit cost* *5 – lowest unit cost*	*Rank* *1- lowest savings* *5- highest savings*	*Rank* *1- lowest QUALY change* *5- highest QUALY change*	*Rank* *1- lowest economic activity impact* *5- highest economic activity impact*	

This method is not as strong as using individual estimates for cost-effectiveness but is a useful proxy, especially where, as in this case, many of the candidate interventions have already been established (and selected) on the basis that they are relatively cost effective in of themselves.

There are some important lessons from this exercise which can be built on as the work continues.

These are as follows:

- Based on the morbidity data for Sudan and the associated DALY information, the scoring schema for "need" will:
  - Favour interventions which address problems of maternal and child health, and communicable disease.
  - Not sufficiently reflect risk, particularly for those interventions that are currently in place and working and which are targeted on preventing communicable disease.
  - Not sufficiently reflect future demand (the data are retrospective).

  These factors will need to be considered as part of any short-term refinement of the scores by local clinical experts. Over time, data will need to be captured and incorporated into the scoring schema to underpin any review and update of the scoring of the interventions in future years. Improving data quality for the baseline, producing robust estimates of future need, and developing comprehensive epidemiological models which include risks and hazards, are absolute priorities for the teams who will be working on this as part of the institutionalisation. Equally important will be a much deeper engagement with clinical and public health experts than has been possible for this phase of the work. These actions may not fundamentally alter the selection of interventions for the three packages, but they will improve the legitimacy of the exercise and will certainly alter the ranking of interventions at the margins.

- The scoring schema for "evidence" does not encourage the early adoption of new and innovative solutions, particularly in the field of digital health, where local evidence may be generated of effectiveness.

- The scoring system for "value" is a very crude approach and will not work well for high cost primary prevention interventions, high-cost vaccine programmes, or low-cost secondary care interventions.

It is recommended that a cost-effectiveness database is created for Sudan for future iterations of the Health Benefits Package design.

These short comings must be considered as part of the process of refreshing this activity moving forward.

Over time, the health system in Sudan will need to develop, or buy in, more capability for systematic primary research, secondary research, and evidence review capability, to enable a local schema (such as GRADE) to be in a review and update of the scoring of the interventions in future years. This will also generate a "pipeline" of new interventions to be considered for inclusion in the Health Benefits Package. As the process for developing the Health Benefit Packages matures in Sudan it is clear that local capability is required to build a database of health economics studies to support development revision and refinement going forward.

Ranking interventions: Once all the interventions have been assigned a score against each of the three criteria, it is possible to combine the scores and the criteria to create a weighted score.

Here is an example using a hypothetical Intervention X.

Interventions	Criteria			Average Score
	Need	Evidence	Value	
X	5.0	4.0	3.0	**4.0**
Y	3.0	4.0	5.0	**4.0**

Intervention X has been assigned the following scores: Need = 5; Evidence = 4; and Potential Value for Money = 3. If you simply add the three scores you get an overall score of 12 out of a possible maximum of 15. In other words, an average score of 4 across the three criteria.

Intervention Y has been assigned the following scores: Need = 3; Evidence = 4; and Potential Value for Money = 5. If you simply add the three scores you again get an overall score of 12 out of a possible maximum of 15. In other words, an average score of 4 across the three criteria.

The criterion "need" is more important than the other two and scores against this criterion should be weighted more highly. If the scores are weighted as Need = 60%, Evidence = 20%, and Potential Value for Money = 20% then the average weighted score for Intervention X becomes 4.4, compared with 3.6 for Intervention Y.

Interventions	Criteria & Weights			Weighted Score
	Need	Evidence	Value	
	60%	*20%*	*20%*	
X	5.0	4.0	3.0	**4.4**
Y	3.0	4.0	5.0	**3.6**

So, on a simple comparison of average scores the two interventions would be ranked the same. However, once consideration has been given to the relative importance of Need as a criterion, Intervention X ranks higher than Intervention Y.

By calculating the weighted scores for all of the interventions, it is possible to rank the interventions with the highest weighted score attracting the highest rank, or priority.

The detailed results of the scoring and ranking of interventions are summarised in the form of a spreadsheet which shows the detailed combined results of the expert groups and the prioritisation work for all interventions. This spreadsheet is available separately and is too large to reproduce in this report.

Step 4: Cost the Benefits Packages and Assess Affordability.

Costing interventions in the context of Sudan presents a number of challenges. The absence of a standard chart of accounts for each health outlet, standard costing templates and associated data dictionaries, and standard informatics on clinical activity means that obtaining consistent "bottom-up" costs to drive programme estimates is not possible.

As the health system matures, the development of a consistent financial measurement and reporting strategy and its implementation will gradually enable the development of a consistent database of local reference costs that will form the basis for unit cost analysis for new interventions.[33]

Against this background, an NHIF/ FMOH costing team was identified to support this project and assigned to provide estimates of the potential costs of adopting each intervention at scale in Sudan. The approach taken included a "bottom-up" costing:

1. An assessment of the protocols and associated activities required for each intervention.
2. An assessment of the population epidemiology associated with each intervention.
3. An assessment of the staffing requirements (type and time).
4. An assessment of the care setting and hence physical infrastructure required.
5. An assessment of consumables required to support the delivery of the intervention.
6. An assessment of overheads associated with the above.

As well as a "top-down" programme budget approach where appropriate, based on international benchmarks. The WHO OneHealth Tool was used where data were available and where local protocols for interventions did not already exist.

The output of the costing exercise is a cost of delivering each intervention. By combining this with the ranking it is possible to calculate the cumulative cost of delivering the interventions, starting with the highest priority interventions.

EBD has been supporting this costing exercise to help with local capacity development and progress is good. At the time of writing this draft report, the work of the NHIF / FMOH costing team is not yet complete.

The Essential Health Benefits Package will involve the establishment of three packages:

1. A (basic) package of essential services for all people living in Sudan (the Essential Health Benefits Package). Here eligibility will include all citizens, residents, regular and irregular migrants.

2. In addition to the Essential Health Benefits Package, the formal sector who pay a compulsory insurance premium will also have access to the Comprehensive Health Benefit Package. Here eligibility will include

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33 See for example the PSSRU Unit Costs of Health and Social Care used to cost interventions in the NHS. https://www.pssru.ac.uk/project-pages/unit-costs/unit-costs-2019/

everyone employed in Sudan (citizens and residents) who are paying mandated contributions, and the registered poor. Others may receive the benefits on the basis of a voluntary contribution.

3. In addition to the Essential and Comprehensive Health Benefits Package, those who pay an additional voluntary insurance premium will have access to an Additional Health Benefit Package. This will be available for all people living in Sudan who pay the additional voluntary premium.

It is assumed that visitors on business or holiday visas will have their own insurance or pay direct.

There are a number of funding sources for each of these packages.

- The Essential Health Benefits Package will be financed from Federal and State taxation and from contributions from international donors.

- The Comprehensive Health Benefits Package will be financed from mandated compulsory insurance premiums and from Zakat.

- And the Additional Health Benefit Package will be financed from voluntary compulsory insurance premiums.

Donations from international agencies direct to providers are likely to continue, but ideally they will form part of the Essential Health Benefits Package funding.

Patients may be asked for small co-payments for the Comprehensive and Additional Health Benefit Packages. They may also pay direct for interventions where they are not eligible to receive benefits.

These funding sources will determine the available budgets for each package. Funding will vary over time and will be determined by a combination of:

- Growth (or decline) in GDP per capita.
- Growth (or decline) in tax revenue.
- Growth (or decline) in the priority given to health in setting spending priorities across government.
- Growth (or decline) in the salaries received in the formal sector.
- Compliance with the mandated insurance premium requirements by the informal sector.

It will be important to have a forward view of finances so as to fund interventions and also invest in new capacity development where needed.

Step 5: Assign the Interventions to Benefits Packages

Using the interventions ranked by priority and the associated cumulative cost, it is possible to allocate the high priority interventions to the Essential Health Benefits Package based on what can be afforded from the sources of finance (general taxation and donor funding), and the next high priority interventions to the Comprehensive Package, based on what can be afforded from the compulsory premiums and Zakat, and the remaining interventions to the Additional Benefits Package based on the willingness to pay of those paying voluntary premiums. It is likely that many of the interventions in the Essential Health Benefits Package will be prevention and primary and community interventions, whilst secondary and tertiary services are more likely to fall within the Comprehensive and Additional Benefits Packages.

However, consideration must also be given to the current capacity and capability of the system to deliver these interventions. For these reasons it is necessary to assess, for each intervention, the system capability in terms of workforce, built environment, digital health technologies, consumables, and supply chains. Those interventions which can be delivered within the next 12-18 months would be given priority over those interventions where universal coverage will take longer to achieve. For these reasons, the interventions included in each Package should be

introduced in "waves", depending on how likely it is that the intervention can feasibly be delivered to more than 75% of the population across Sudan.

This table provides an overview of how it works, with Wave 1 being those interventions which can be delivered to more than 75% of the population from January 2022, Wave 2 being those interventions which can be delivered from January 2024, and the remainder being considered for a third Wave beyond 2025.

Package	Source of Finance	January 2022 (Wave 1)	January 2024 (Wave 2)	After January 2025 (Longer Term)
Essential Health Benefits	General Taxation Other Government Sources Donor Funds	Priority Interventions by Rank where coverage is largely already in place for 75% of the population which can be afforded in accordance with source of finance	Priority Interventions by Rank where coverage can be achieved for 75% + of the population which can be afforded in accordance with source of finance	Priority Interventions by Rank where coverage can be achieved for 75% + of the population which can be afforded in accordance with source of finance
Comprehensive Health Benefits	Mandated Premium Contributions Zakat	Next highest Priority Interventions by Rank where coverage is largely already in place for 75% of the population and which can be afforded in accordance with source of finance	Priority Interventions by Rank where coverage can be achieved for 75% + of the population and which can be afforded in accordance with source of finance	Priority Interventions by Rank where coverage can be achieved for 75% + of the population and which can be afforded in accordance with source of finance
Additional Health Benefits	Voluntary Premium Contributions	Next highest Priority Interventions by Rank where coverage is largely already in place for 75% of the population and where there is willingness to pay by contributors - requires a willingness to pay review.	Priority Interventions by Rank where coverage can be achieved for 75% + of the population and where there is willingness to pay by contributors - requires a willingness to pay review.	Priority Interventions by Rank where coverage can be achieved for 75% + of the population and where there is willingness to pay by contributors - requires a willingness to pay review.

This does not mean that high priority interventions that are currently only available in certain parts of Sudan and which would form part of the benefit packages in Wave 2 or Wave 3 should be discontinued. These services should receive transitional funding as part of a nationwide investment programme to build that capacity for the majority of the population in the future.

Step 6: Evaluate the Packages against Objectives and Refine Package Coverage at the Margin

This final step involves assessing the extent to which the priority objectives have been addressed by the resulting packages and whether any further refinements are needed. Considerations here include:

1. The scope of the package – for example, have budget constraints meant that too many high priority interventions can only be funded through the Additional Benefit Package? In this case, should further negotiations be embarked upon with those in control of the source of finance for the packages.

2. Dominance of a high priority but high cost intervention – for example, is one of the interventions included in the Essential or Comprehensive Package, which whilst high priority, is so expensive that it is crowding out a number of other interventions, the combined impact of which will create greater health benefits for Sudan? In that instance, should the intervention be moved to the next package.

3. Care pathways – for example, do interventions which naturally "sit together" as part of a care pathway fall into different benefit packages, and will this create unnecessary complexity? In this case should some of the interventions be "grouped" for package allocation.

4. Do the overall packages address the priority objectives, namely:

    5. Improving financial protection for the population of Sudan and reducing the reliance of out-of-pocket expenditure.

    6. Increasing coverage of health services, and ensuring the population have access to essential services.

    7. Improving quality of health services and safety, including the adoption of clinical protocols, suitably trained staff, and facilities which are fit-for-purpose.

    8. Increasing equity and ensuring that all those living in Sudan have access to basic health care.

It is recommended that this is validated as part of a **National Consensus Workshop** which will bring together all of the Clinical Expert Groups, other stakeholders from the NHIF and the FMOH, and wider representatives of the Sudan health and care system. This workshop will be used to review and validate the proposed packages.

Chapter 5: Institutional Arrangements

Introduction

This chapter includes recommendations for governance conventions and management actions and resources necessary to "institutionalize" the ongoing development, revision, and review of the health care benefit package through the period 2020 to 2025.

EHBP Lifecycle

The first step in any Essential Health Benefits Package lifecycle is to **develop** a new Essential Health Benefits Package from zero, model, or prior Benefit Package. The Sudan EHBP has used draft guidance and associated recommended candidate interventions developed by WHO Eastern Mediterranean Regional Office (EMRO) in 2019 as a starting point.
The second step is to establish the institutional arrangements needed to confirm the Essential Health Benefits Package and then, after a period of 2 years to **revise** the proposals each year to enable additions to programmes, sub-programmes / models of care, or individual interventions; where appropriate it should enable substitution too.

Proposals to remove interventions should come as a result of monitoring and evaluation findings that the services are not effective or not implemented as intended. Furthermore, the Federal Minister of Health can, based on a set/formalized procedure, at any time authorize (and the Federal Minister of Labour and Social Development can also request) an **Exceptional Revision or Review** of the Essential Health Benefits Package for either economic or clinical reasons.

EHBP and wider Health System Governance

The Essential Health Benefits Package will become such a central mechanism of the Sudanese health system that its institutionalization and governance should, ideally, not be considered separately from the wider high-level governance mechanisms of the Sudanese health system. This includes political oversight; policy, strategy and planning; and risk and performance management. The separation of Essential Health Benefits Package and wider health system governance would be inefficient and risk significantly increasing fragmentation of governance both within FMOH, and across the Government of Sudan.

The development of the Essential Health Benefits Package provides opportunities to strengthen both "**healthcare governance**" and the "**governance of health**" across all Government departments and sectors (but particularly the Ministry of Finance and the Ministry of Labour and Social Development). This "whole of Government" approach is essential to achieve objectives and policy coherence across these Government sectors. Strengthening this approach will help to achieve Universal Health Coverage.

This strengthening of the role of the Government of Sudan should not inhibit the development of relevant civil society organisations (e.g. professional medical and nursing associations), but rather the opposite. The Government would indeed be wise to support the development of such organisations, to complement and further enhance the core work and networked (and increasingly transparent) knowledge of government.

The development of the Health Benefits Packages over the next two years should complement and not at least intentionally "crowd out" other FMOH led annual and longer term/strategic planning processes. In return FMOH policies and plans should fully incorporate the clinical and financial plans agreed for the Health Benefits Packages in the near term and in the longer term, taking proper account of the clinical and economic analyses that inform the systematic development, revision, and review of the Health Benefits Packages.

It is envisaged that within two / three years the substantial majority of health services financed through Government funding in Sudan will be within the scope of the Health Benefits Packages and disbursed through the NHIF. For this

reason, the high-level governance of Health Benefits Packages should become a central component of the top-level governance of the Sudanese health system.

Changes in roles and responsibilities resulting from separation of payer and provider functions in the Sudan Health System

The table below shows the current and future responsibilities of the primary agencies in the Sudan Health System.

	Short Term	Long Term
FMOH	Federal Health Policy, Strategy, Governance, Regulation Vertical Healthcare Programme Policy + Funding and resource allocation to States Long-term investment planning and management	Federal Health Policy, Strategy Governance, Regulation EHBP Budget negotiations with MOF and donors (Jointly with FNHIF) Long-term healthcare need and capacity planning and management Agree annual Federal Health Benefits Packages with FNHIF Propose Health Intervention Guidelines/ Protocols with FNHIF Agree Federal PPM negotiations with FNHIF
FNHIF	Federal Insurance Finance, Health Insurance Benefits	Long-term healthcare financing and investment planning and management (sources of finance, Fund Management and Risk Equalisation to SNHIF) Propose annual Federal Health Benefits Packages with FMOH Agree Health Intervention Guidelines/Protocols with FMOH Propose Federal PPM negotiations with FMOH
SMOH	State Health Policy, Strategy, Governance State vertical programmes, finance and resource allocation to localities/ outlets State long-term investment planning and management	Manage State Provision of EHBP Complete annual Benefits Packages contract negotiations and management with SNHIF (and perhaps FNHIF for tertiary services). Propose State Resource allocation (PPMs) to provider outlet performance management (agree with SNHIF and perhaps FNHIF for tertiary services)
SNHIF	State insurance finance and management of health insurance benefits, and claims (where benefits are delivered by other non-MOH providers)	Manage State Health Benefits Packages Fud, Lead annual Benefit Package contract negotiations and management with SMOH Management of PPMs to SMOH
Providers	Delivery (quality and volume), patient payments, claims	Benefit Package Delivery (quality and volume), patient payments, PPM KPI returns to SMOH

As can be seen, the FMOH is currently responsible for:

- Federal health policy
- Strategy
- System governance and
- System regulation
- Long term investment planning and management
- The vertical healthcare programme policy and funding and associated resource allocation to States

Going forward, the vertical health care programme responsibilities will be replaced by responsibility, with support from FNHIF, for negotiating the budgets for the Essential Health Benefits Package with the Ministry of Finance and Donors (together with the publicly financed component of the Comprehensive Benefit Package); and to agree the Health Benefit Packages more generally with the FNHIF, including proposals for health interventions, guidelines, and protocols.

The FNHIF is responsible for Federal insurance finance and health insurance benefits. Going forward, its responsibilities will broaden to include long-term healthcare financing and investment planning and management, including sources of finance, Fund Management and Risk Equalisation across the FNHIFs. They will jointly develop with and formally propose the Federal Health Benefit Packages to the FMOH and reciprocally reach agreement with FMOH regarding the related Health Intervention Guidelines/Protocols (which will be formally proposed by the FMOH in response). Finally, they will lead the negotiations on the Provider Payment Mechanisms with FMOH.

These transfers and development of roles will be mirrored at State level. For Providers the focus of delivery will shift from historical service profiles to responsibility for delivering the new Health Benefit Packages in accordance with the

protocols and guidelines and providing the required information to trigger payments from the new Provider Payment Mechanisms.

The proposed institutional arrangements reflect the new roles and responsibilities of the Ministry of Health and NHIF, rather than what is current practice at both Federal and State levels.

Distinguishing Governance and Management – and outlining the role of Boards

It is important to distinguish the terms and functions of Governance and Executive Management. The table below, outlines the respective functions of Governance and management.[34]

Governance	Management
• Set strategic aims • Review, amend, and adopt strategic plan • Define performance metrics • Monitor company performance • Review, amend, and adopt risk register • Review and accept (or reject) formal accounts following audit	• Produce draft strategic plan • Produce and implement operational plans • Produce performance metrics • Develop and maintain risks register • Prepare formal accounts

Proposed Governance for the Health Benefits Package

The Health Benefits Packages institutional arrangements are designed to be embedded within a proposed structure of Board governance which collectively will have wider responsibility for the overall health system than just the Health Benefits Packages.

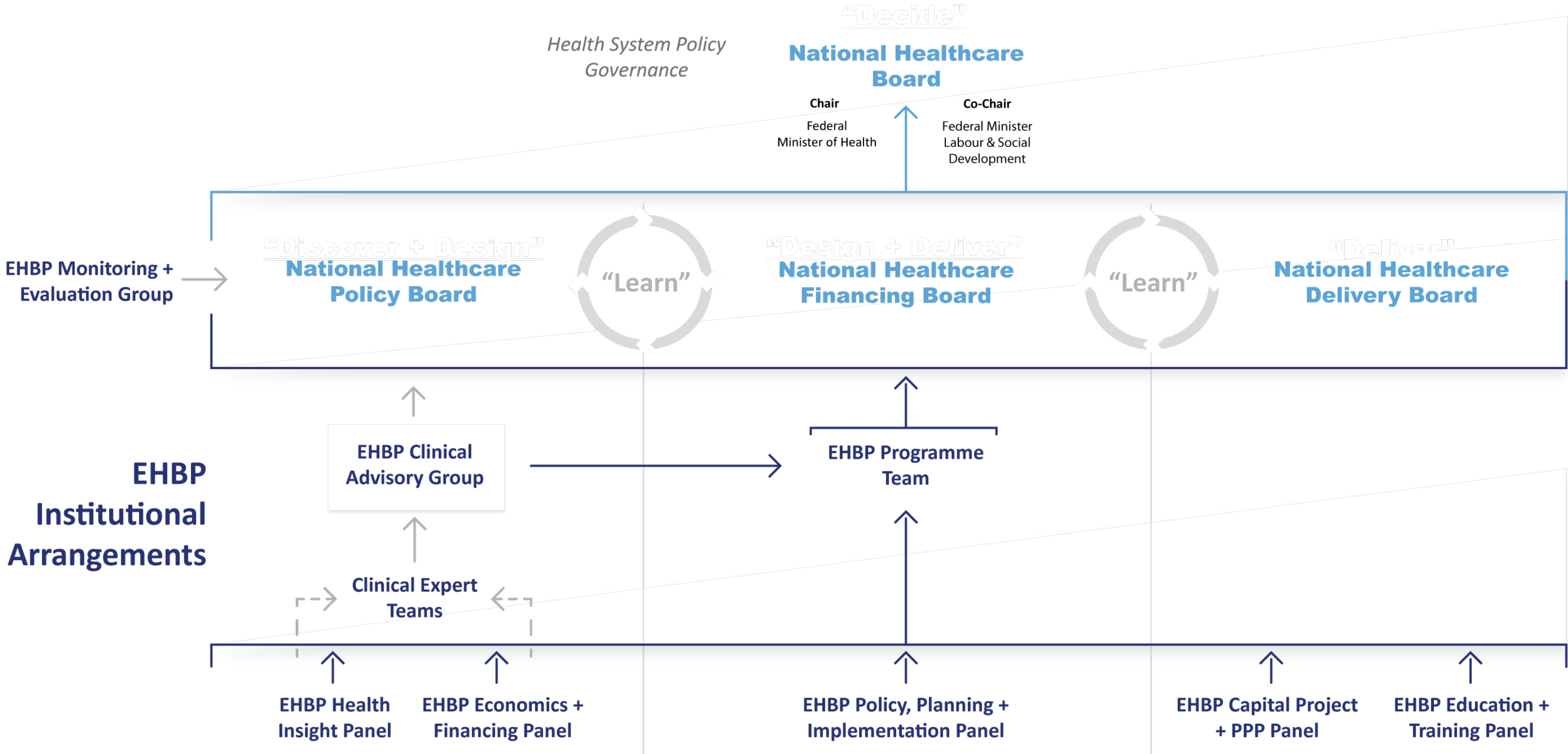
As can be seen, it is proposed that the overall responsibility for the health system sits with a **National Healthcare Board** or equivalent (chaired by the Federal Minister of Health, co-chaired by the Federal Minister of Labour and Social Development). This Board could provide the overall governance structure for Universal Health Coverage.

The National Healthcare Board would be supported by **three subordinate Boards** or equivalent, for Policy, Financing and Delivery respectively. Each of these Boards will have responsibility for the Essential Health Benefits Packages again in relation to Health Benefits Packages Policy, Health Benefits Packages Financing, and Health Benefits Packages Delivery respectively.

The institutional arrangements pertaining to the management and execution of the activities relating to the Health Benefits Packages will report into these Boards according to whether they relate to Policy, Financing, or Delivery issues.

The figure overleaf provides an overview of the proposed arrangements:

[34] Smart, A. and J. Creelman (2013) Risk Based Performance Management: Integrating Strategy and Risk Management, Palgrave Macmillan, UK and USA



Health System Policy Governance
“Decide”
National Healthcare Board
Chair
Federal Minister of Health
Co-Chair
Federal Minister Labour & Social Development
EHBP Monitoring + Evaluation Group
“Discover + Design”
National Healthcare Policy Board
“Learn”
“Design + Deliver”
National Healthcare Financing Board
“Learn”
National Healthcare Delivery Board
EHBP Institutional Arrangements
EHBP Clinical Advisory Group
EHBP Programme Team
Clinical Expert Teams
EHBP Health Insight Panel
EHBP Economics + Financing Panel
EHBP Policy, Planning + Implementation Panel
EHBP Capital Project + PPP Panel
EHBP Education + Training Panel

Proposed Management Arrangements for the Health Benefits Package

At a national level, the Health Benefits Packages activities will be managed and co-ordinated by a dedicated **Health Benefits Package Programme Team** which will be the team of senior executives (Senior Responsible Officers) charged with managing and delivering the cycle of activities relating to the development, review, and revision of the Essential Health Benefits Package. Members of Programme Team will each lead Health Benefits Packages Programme **Panels of Experts** charged with managing relevant activities. The Chair of this team will be appointed by the Chair of the National Healthcare Policy Board.

Explicit reference and recognition need to be made regarding the involvement of citizens and civic society in these activities. This should be discussed and agreed with the NHIF and MOH as part of the establishment of the programme team and its support.

The Health Benefits Packages Programme Team will also be supported by a **Clinical Advisory Group (CAG),** the chair of which will also be appointed by the Chair of the National Healthcare Policy Board. The Chair will also represent the Clinical Advisory Group on the National Healthcare Policy Board in recognition of the primary purpose of the Health Benefits Packages, namely to meet health needs. The Clinical Advisory Group would be supported by Clinical Expert Teams. The Clinical Advisory Group will need to take a holistic view of need, priorities, and challenges rather than simply representing different clinical perspectives.

Finally, there should be a **Monitoring and Evaluation Group** also reporting separately to the National Healthcare Policy Board (or equivalent). It is important that this is independent from the Health Benefits Packages Programme Team so that it can provide un-biased reporting on the successes, challenges, barriers and enablers of the arrangements.

Draft Terms of Reference for the proposed Boards and Panels have been provided separately.

EHBP Monitoring + Evaluation Group →

National Healthcare Board

Chair
Federal
Minister of Health

Co-Chair
Minister FMLSD

Minister of Finance
Minister of Education
Deputy/ Asst Federal Minister of Health

Functions
Overall direction and control of the health system
GOS wide "Governance for Health"

National Healthcare Policy Board

Chair
Asst Federal
Minister of Health

Co-Chair
Asst Federal
Minster of LSD

DG (Policy and Planning) FMoH
DG PHI
DG FNHIF
DG Ministry of Education

Functions
"Discover + Design" services

National Healthcare Financing Board

Chair
Federal
LSD

Co-Chair
Asst Federal
Minster of Health

Selected State
Ministers of Finance or LSD *(cluster leads)*

DG FNHIF
Director Economics Ministry of Finance
Director Economics FMinistry of Health

Functions
"Design + Deliver" financing

National Healthcare Delivery Board

Chair
Federal
Minister of Health

Co-Chair
Asst Federal
Minster of LSD

Selected State
Ministers of Health
(cluster leads)

Functions
"Deliver" services

An outline of the functions and membership of the Advisory Groups and Panels is shown in the table below.

Proposed Panels	Functions	Sources of members *(and Chair)*	Meetings
EHBP Clinical Advisory Group	An independent group of clinical and public health experts who can advise on the clinical criticality of services to include in the EHBP. The panel would be supported by the 13 Clinical Expert Teams already established.	**Nominations from National Healthcare Policy Board Chair: NHIF**	*1 x monthly*
EHBP Monitoring + Evaluation Group	An arms-length team of executives who can undertake independent monitoring and evaluation of the EHBP.	**WHO EMRO/Sudan Others tbc Chair FMOH**	*1 x month*
Economics + Financing Panel	A team of executives who can deliver all economic and financial activities required for the EHBP programme and related financing mechanisms.	**FMinistry of Finance FMLSD NHIF FMoH WHO EMRO/Sudan Chair NHIF**	*1 x bi-week*
EHBP Health Insight Panel	A team of executives who can deliver all health intelligence and health observatory analysis required to understand clinical need, intervention effectiveness, and care pathway design.	**FMoH, NHIF, Chair NHIF**	*1 x bi-week*
EHBP Policy, Planning + Implementation Panel	A team of executives to lead the piloting of elements or programmes for the EHBP and related policy planning and implementation activities required for the EHBP programme.	**FMoH FMLSD/NHIF Chair FMoH**	*1 x bi-week*
EHBP Capital Projects + PPP Panel	A team of executives who can deliver all activities related to capital investment and public – private partnerships required for the EHBP programme.	**FMinistry of Finance FMLSD NHIF FMoH WHO EMRO/Sudan Chair tbc**	*1 x bi-week*
EHBP Education + Training Panel	An executive team responsible for co-ordinating Healthcare Manpower, Education, and Training Policy and Planning including Engagement as required.	**FMoH Ministry of Education Chair MoE**	*1 x month*

Technical Assistance

The Panels will need access to specific skills and capabilities. This will include for example:

1. Health statistics and modelling skills
2. Health Atlas skills and capabilities
3. Systematic Reviews and Rapid Evidence Assessment
4. Health Technology Appraisal
5. Economic Decision Analysis Modelling
6. Health financing, costing and pricing
7. Programme management
8. Capital investment appraisal
9. Procurement
10. Health workforce planning
11. Design & Communication

This list is not exhaustive.

It will be important to do a skills requirement assessment and skills audit for each panel and to put in place specialist training programmes and/or technical support as needed.

Chapter 6: Implementation Road Map and Next Steps

Introduction

This chapter provides an overview of the transformation agenda for the Sudan Health System and the need for a Dual Transformation Approach that balances the need to invest in the long-term, whilst focusing also on immediate improvements and implementation of priority interventions. It includes a road map for 2021 for the strategic transformation, and a road map for 2021 for the delivery of the Health Benefits Package and associated payment mechanisms in 2022.

A Dual Transformation Approach

It is important to consider the immense transformation which will be involved as Sudan moves its health system from its current state, towards its long-term goals. This transformation will take place in waves, probably three-year implementation and review cycles. It will be important to consider how best to ensure that the current system continues to improve and develop whilst the investment is made to enable the longer-term changes envisaged by the transformed health system. This will include investment in workforce training and development, investment in the physical environment (health clinics and hospitals), investment in digital infrastructure and digital health technologies, and investment in equipment, supplies, and supply chains. Parallel investments will be needed in operational and financial management capabilities and capacity.

There is a risk that the improvement and development of current services dominate the agenda and that little focus is given to investment in the longer-term, conversely there is a risk that all the attention and focus goes on the investment agenda, and little attention is paid to improving current services. A Dual Transformation Approach recognises that both are needed and that both need to progress separately, but in tandem.

We recommend an implementation road map for the near-term tactical transformation required to improve current services (Transformation A), as well as a road map which sets out the steps needed to establish a long-term plan for strategic transformation, Transformation B, and associated investment requirements. Both should proceed along three year “waves” or planning cycles. During the first Wave, the Transformation A Roadmap will focus on achieving the first Wave of implementation of the Health Benefits Package and associated Provider Payment Mechanisms. The Transformation B Roadmap will put in place the steps required for the longer-term sustainability of the programme and associated investment, as well as planning the investment requirements for the Health Benefit Package interventions planned for Wave 2.

This is illustrated in the figure below:

A - Tactical

Ai: Actions to develop and deliver Wave 1 EHBP

Aii: Actions to develop and deliver Wave 2 EHBP

Aiii: Actions to develop and deliver Wave 3 EHBP

B - Strategic

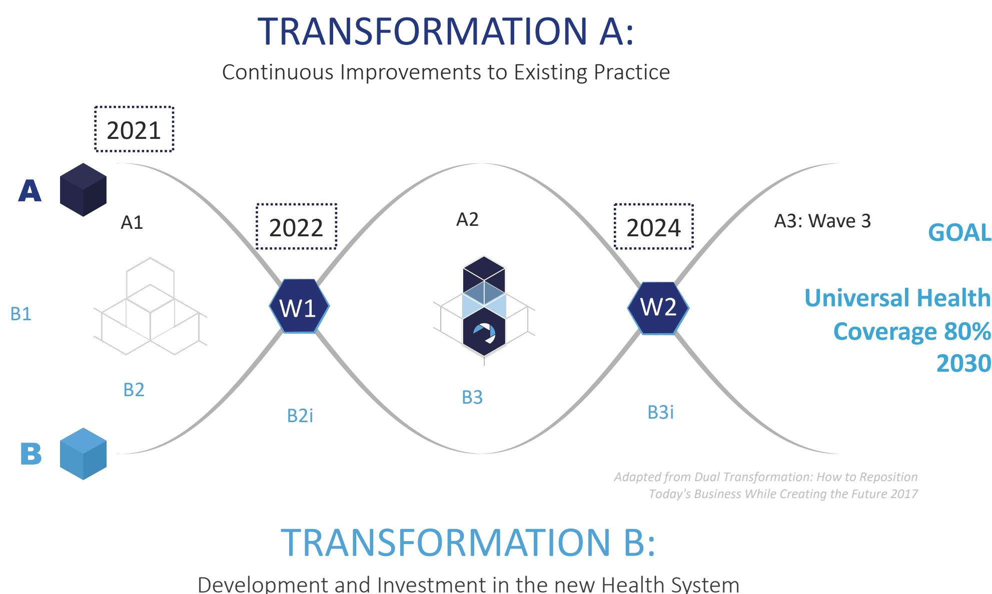
B1: Roadmap for design and development of capacity and capability to achieve 2030 Goal

B2: Actions to develop capacity for Wave 2 EHBP

B2i: Review of roadmap for design and development of capacity and capability to achieve Goal for 2030

B3: Actions to develop capacity for Wave 3 EHBP

B3i: Repeat WAVE 4, 5…. LT Goals move forward to 2035



Road Map: Preparing for Sudan Health System Transformation

Two road maps have been developed to support the Sudan Health System Transformation. The first relates to the steps required to put in place the building blocks for the long-term strategic transformation. There are 17 steps required for the next 18 months for the Transformation B - Strategic roadmap.

These are shown in the figure below:

Q1	Q2	Q3	Q4	Q5	Q6
1. FMOH & NHIF develop a shared and agreed distribution of roles and responsibilities for the long term for FMOH, SMOH, FNHIF, SNHIF, State Providers. And supporting governance. 2. FMOH and FNHIF to negotiate sources of finance for 2021-2025 and associated budgetary parameters. 3. FMOH to start to translate the EHBP into models of care(MOC) by programme, taking a "Digital First" approach.	4. Governance Arrangements established for Health System new roles and responsibilities. 5. FMOH to develop vertical and horizontal system design (primary, community, secondary, tertiary) for efficient and safe delivery of MOC. 6. FMOH to quantify need, and capacity requirements for 2021-2025 for each programme for each element of the system. 7. FNHIF confirms business processes against JLN checklist.	8. FMOH to prepare plan to address capacity gap: health care and management workforce; digital health technologies; built environment; IT; supplies and logistics. 9. FMOH and FNHIF develop provider accreditation requirements for benefits package delivery and associated regulation requirements. 10. FMOH and FNHIF to prepare Joint Business Case for the funding of Health System Investment required for 2022-2025 and a strategic case for investment to 2030.	11. FMOH and FNHIF Negotiate Business Case with FMOF and make revisions, refinements as necessary for Ministerial Approval 12. FMOH and FNHIF develop a joint strategic risk register by risk type and associated risk management strategy	13. FMOH (with SMOHs assistance) develops detailed plans for the state-by state and national development of capacity required for 2022-2025 and 2030 in terms of workforce, digital health technologies, built environment, IT, supplies and logistics. 14. FNHIF develops detailed plan for the evolution and strategic management of the Benefits Package and associated Funds, risk equalisation measures, and re-insurance requirements. 15. Ministerial approval sought for 9 & 10.	16. FMOH initiates agreed plan for the investment in the capacity required for 2022-25. 17. FNHIF initiates agreed plan for the evolution and strategic management of the Benefits Package and associated Funds.

The second road map relates to the steps required to implement the Wave 1 Health Benefit Package, namely Transformation A - Tactical road map.

These are shown in the table below:

Q1	Q2	Q3	Q4	Q5	Q6
1. FMOH translate Wave 1 EHBP into stage 1 of the Model of Care development (see Strategic Step 3) 2. FMOH and NHIF Finalise the affordability analysis and allocation of interventions to the three benefit packages for Wave 3. NHIF launch a Willingness To Pay Review for the Additional Health Benefits Package and for voluntary enrolees in the comprehensive package. 4. FMOH finalise analysis of existing capacity (built, workforce, digital health technologies, consumables and supply chains.) 5. FMOH and FNHIF jointly develop a communications and engagement plan. 6. "Green Paper" setting out proposed EHBP launched for consultation.	7. FMOH develop a detailed operational plan for the implementation of Wave 1 to upscale services state-by-state. 8. FMOH and FNHIF jointly prepare Business Case for Wave 1 budgets and source of funds. 9. FMOH and FNHIF negotiate with FMOF for business case approval. 10. FNHIF launch consultation with enrolees for the additional health benefits package regarding interventions for inclusion. 11. FNHIF prepares a risk register associated with management of Wave 1 interventions and associated risk management arrangements and re-insurance requirements, with support from FMOH.	12. FMOH move forward to initiate plan for implementation of Wave 1 upscaling of services 13. FMOH and FNHIF Preparation of "White Paper" containing final proposals for Wave 1, eligibility, interventions by package, source of funds etc. (Essential, Comprehensive, Additional) 14. FMOH and FNHIF Launch of public communications programme on contents of White Paper. 15. FNHIF to propose PPMs for Wave 1 interventions and any adjustments to the PPM pilots. (This covers comprehensively: Federal to State, State to State, and State to provider outlet PPMs and resource transfers)	16. FMOH move forward to work on a State-by-State basis to build for Wave 1 upscaling of services 17. FNHIF set up PPMs on a state-by-state basis for Wave 1 interventions and associated flows of funds.	18. FMOH move forward to work on a State-by-State basis to operate "beta stage" Wave 1 services 19. FNHIF to implement shadow PPMs on a state-by-state basis.	20. Wave 1 : Benefits Package Launched

Many of the steps included in these two road maps have been discussed earlier in this report or are covered in the related Provider Payment Mechanisms Technical Report.

However, it is useful to elaborate a little more on some of the steps.

Taking a "digital first" approach to models of care:

The range and capabilities of digital health technology solutions is moving faster than is currently reflected in the evidence cycle which underpins the selection of interventions for the Health Benefits Package. Moreover, some technologies are positively disrupting traditional models of care, resulting in very new protocols for delivering prevention and treatments.[35]

Digital health technologies fall into a number of different classifications:[36]

Clients	Healthcare Providers	Health Systems Managers	Data Services
Targeted client communication	Client identification and registration	Human resource management	Data collection management and use
Untargeted client communication	Client health records	Supply chain management	Data coding
Client to client communication	Healthcare provider decision support	Public health event notification	Location mapping
Personal health tracking	Telemedicine	Civil registration and vital statistics	Data exchange and interoperability
Citizen based reporting	Healthcare provider communication	Health financing	
On-demand services to clients	Referral co-ordination	Equipment and asset management	
Client financial transactions	Health worker activity planning and scheduling	Facility management	
	Healthcare provider training		
	Prescription and medication management		
	Laboratory and diagnostics imaging management		

Many of the digital health technology solutions are providing valuable support and empowerment to health care professional staff, helping them to give the "gift of time" to make the right clinical decisions, helping them to manage patients more effectively, and helping to support patients remotely.[37]

It will be very important for the FMOH to develop a strong and robust digital health strategy to cover all aspects of digital health. In this context, the use of digital health technologies in the development of new models of care and care pathways will be essential. Workforce challenges are serious and severe in Sudan and to the extent that digital health technologies can upskill staff, increase the number of patients they can support, and can improve the quality of diagnostics and care management, including medicines compliance meaning they should be baked in the design from the start.

The Joint Learning Network business process checklist:

In its Guide to Common Requirements for National Health Insurance Information Systems, the Joint Learning Network for Universal Healthcare has produced a very valuable checklist of business processes for health insurers. The checklist includes 11 functional areas. The business processes of particular relevance to Sudan are shown in the table below:

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[35] Some examples can be found https://www.who.int/health-topics/digital-health#tab=tab_1
[36] https://www.who.int/reproductivehealth/publications/mhealth/classification-digital-health-interventions/en/
[37] See for example the Topol Review 2019 which can be found here: https://topol.hee.nhs.uk

Functional Area	Business processes required (will vary by health benefit package)
Beneficiary Management	Enrol beneficiary or insured (will need to assess whether it is individual, family or household units, and the term of the insurance - short or long term) Assign insured to relevant provider (preferably primary care unit) Eligibility inquiry by provider Eligibility inquiry by insured Pre-authorisation requirements
Provider Management	Empanel/re-empanel health provider – this will be done by SMOH using Accreditation requirements agreed by FMOH and agreed with NHIF Provider agreement Established Provider Payment Rates – see Provider Payment Mechanisms Technical Report
Premium Management	Premium collection Premium collection scheduling Cost Sharing
Claims Management	Claims Processing – will depend on the provider payment mechanism Claims Status Inquiry Claims disputes and appeals Claims adjustments and voids
Utilisation Management	Utilisation management – will depend on the provider payment mechanism Pharmacy benefits management
Provider quality management	Provider quality management – will link to the accreditation and empanelment process above and role of SMOH
Financial Audit Management	Actuarial management – RES and Reinsurance Provider payment rates management Set premiums and premium rate management – are these premiums flat rate, age, or risk rated – what will be the levels of deductibles and co-payments Reserve fund management
Medical Loss	Manage medical loss ratio
Admin and Fraud	Identify fraudulent cases Manage fraudulent cases

It will be very helpful for the NHIF to review its current operating policies against this checklist at an early stage in the roadmap and build a plan for ensuring capabilities are in place for 2022.

Development of a joint Business case for health system funding:

Essentially, a Business case is a value proposition for investing in something. It will be important for the Government of Sudan to articulate clearly why it wants to invest in the health service, what value it will generate and for whom (tangible and intangible), how much it will cost and whether economic benefits can be generated later, and how it can be delivered. These are in themselves all helpful challenges, and are an integral part of the planning process which helps to improve the chances of benefits being realised

For this purpose, we would recommend the use of a "five case model".[38] The five cases are set out here:

Case 1: Strategic
What is the context for this investment and what problem are we trying to solve?

Case 2: Economic
Will the solution provide best value for money?

Case 3: Financial
How much budget is needed and when will we see a return?

Case 4: Commercial
How will we deliver the solution? Are there elements we have to procure commercially, or can we build it ourselves?

Case 5: Management
Can we manage the change and deliver the expected benefits?

The Business case can be developed in stages, focusing initially on making the case for change, identifying the best strategy for solving the problems face, and showing how it can be afforded. As work progresses with staged agreements, more detail can be added and focus can shift towards elaborating on how the investment and solutions might be delivered and what management resource it will take.

Development of a joint health system risk register:

Finally, it will be important for the FMOH and the NHIF to jointly develop a health systems risk register. This will need to include health insurance risks.

An example risk register should identify the sources of risks, the actual risks, the impact of these risks, the likelihood of them occurring, and the management action (if any) that can be taken to reduce the likelihood or impact of the risk. The following high-level example draws on the risks outlined in the World Bank, Health Financing Revisited, which are specific to low to middle income countries.[39]

38 See for example:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/749086/Project_Business_Case_2018.pdf

39 See for example Annex 3.1 of *Health Financing Revisited; A Practitioners Guide*, World Bank 2006.

Risks	Potential Impact on Health System Goals	Potential Financial Impact	Likelihood of Risk Occurring	Severity (based on combination of impact and likelihood	Risk Management Action	Risk Owner
Public Policy Risks						
Poor economy, low and unstable growth						
High and unstable burden of disease						
Demography – dependent population increasing						
Unclear or unstable public policy context and allowed roles						
Unstable or heavy regulation						
Low control over the composition of the benefit package						
Low control over the price of the benefit package and/or low loading						
Market Structure Risks						
Low concentration of supply						
Poor regulation of providers						
Poor management capacity amongst providers						
Poor capability amongst providers						
Behavioural Risks						
Abuse and fraud						
Moral hazard						
Adverse selection						
Commercial Risks						
Low risk aversion						
High diversity of preferences						
Low pool size						
Low control over utilisation						
Low control over provider payments						
Low density of provision						
High density of provision						
Bargaining power providers						

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Appendix 2: System Map

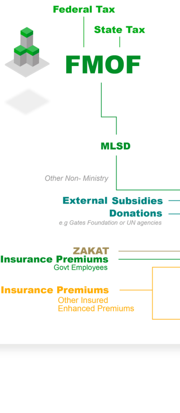
Federal Level

All Levels

State Level

Health Financing

Sources of Finance



Federal Tax

State Tax

FMOF

MLSD

Other Non- Ministry

External Subsidies

Donations

e.g Gates Foundation or UN agencies

ZAKAT

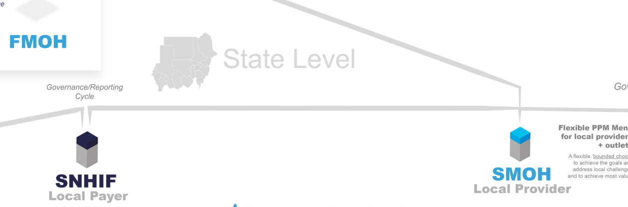
Insurance Premiums

Govt Employees

Insurance Premiums

Other Insured

Enhanced Premiums



Pool Manager

NHIF

National Pool

EHBP Pool

Rules-based Risk Pool

CHBP Pool

Rules-based Risk Pool

AHBP Pool

NHIF/FGov Redistribution Mechanism

Risk Equalization Mechanism

STATE Tax

State Level Contribution

SNHIF

Local Payer

State Budget

Payer Provider Contract

EHBP Fund — Payment Goals Risk

Rules-based Risk Pool

CHBP Fund — Payment Goals Risk

Rules-based Risk Pool

AHBP Fund — Payment Goals Risk

SMOH

Local Provider

Flexible PPM Menu for local providers + outlets

A flexible bounded choice to achieve the goals and address local challenges and to achieve most value.

Payment Mechanisms

Nationally Predefined & Fixed Payment Mechanisms

Organising Principle	Provider Payment Mechanism	Majority of volume/financial risk	Description
Need	Capitation	Payer — Risk — Provider	Providers are paid a fixed amount in advance to provide a defined set of services for each enrolled individual for a fixed period.
Capacity	Global Budget	Payer — Risk — Provider	Providers receive a fixed amount for a specified period to cover aggregate expenditures to provide an agreed-upon set of services. Budget is flexible and not tied to individual items.
Capacity	Line Item Budget	Payer — Risk — Provider	Providers receive a fixed amount for a specified period to cover specific input expenses.
Activity	Fee for Service	Payer — Risk — Provider	Providers are paid for each individual service provided. Fees are fixed in advance for each service or group of services.
Activity	Price per Episode	Payer — Risk — Provider	Prices-per-episode is the reimbursement of health care providers based on expected costs for episodes of care.
Activity	Case-based	Payer — Risk — Provider	Hospitals are paid a fixed amount per admission or discharge depending on a combination of patient and clinical characteristics and associated resource use, which may include age, condition code, treatment code, length of stay.
Performance	Pay for Performance	Payer — Risk — Provider	Providers receive a financial reward for delivering predefined performance improvement targets. Providers can be penalized for not hitting performance standards.

Payment Goals Risk

Capitation (per capita) — Capitation based on catchment population

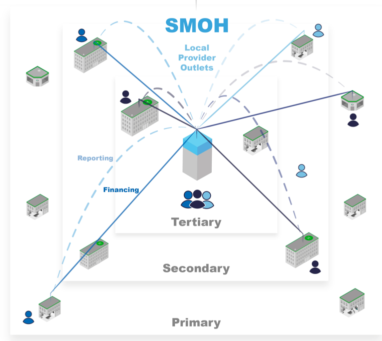
Other Provider/s

Locality Health Units — as required to deliver goals

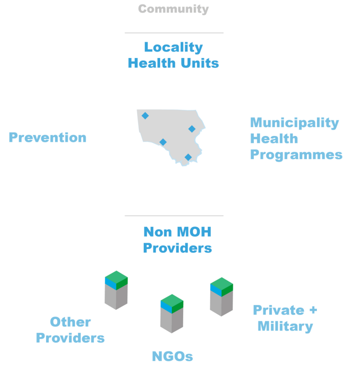
Case Based — Case-based payments based on episodes of care

Non MOH — as required to deliver goals

Health & Care System



Community



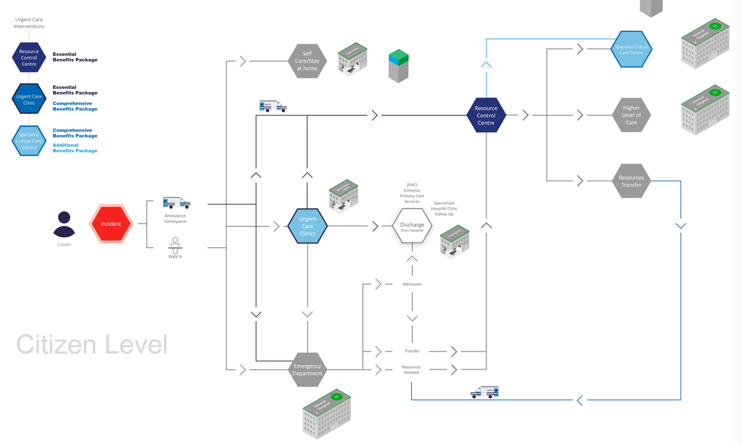
Packages of Care

Pathways + Interventions

Woman & Children	Older & Disabled	Communicable Disease	Non-Communicable Disease	Planned Procedures
• Reproductive health • Maternal & Newborn Health • Child Health • Nutrition • School Age & Development • Adolescent Health	• Elderly • Rehabilitation	• Anti-microbial Resistance & Infection Prevention & Control • HIV & AIDS • Sexually Transmitted Diseases • Malaria • Neglected Tropical Diseases • Pandemic & Emergency Prep • Tuberculosis • Vaccine-preventable diseases	• Cancer • Cardiovascular & Respiratory Disease • Congenital & Genetic Disorder • Injury Prevention • Mental Health & Drug Abuse • Musculoskeletal Disorders	• Surgery • Emergency Care

Illustrative

Urgent Care Pathway



Citizen Level

The following paragraphs provide a description of the EHBP and PPM Health System Map.

The EHBP and PPM system will comprise several core elements:

The first of these is **Health Financing**. This element of the system relates to the sources of funding for Universal Health Coverage in Sudan. It includes the sources of money for the system, how that money will be organised into funds for each of the three health care packages, and risk pooling arrangements across those funds and between the Federal Government and the State Government.

Provider Payment Mechanisms are used by the payer of health services to pay providers of health services, and by state providers to distribute funds across their health care outlets and facilities.

Provider Systems will be developed to benefit from efficient and effective care pathway and clinical network connectivity between the health care outlets at primary, secondary and tertiary level. Provider Payment Mechanisms can be used to enable and facilitate provider outlets to work effectively at a system level.

There are three **Packages of Care** proposed for to citizens and patients as Sudan moves towards Universal Health Coverage. These packages describe the services and treatments which eligible citizens and patients can expect to access, across the whole of Sudan.

Finally, the whole system will require Governance from the perspective of health policy, system performance and accountability, regulation, and reporting. This is the subject of a separate project and is not covered here.

Health Financing

Let's start by looking at health financing. As can be seen, there are a number of funding sources. These include:

1. Federal taxation
2. State taxation
3. Zakat
4. External Subsidies
5. Donations from National and International Agencies and other Non-Profits
6. Compulsory Insurance Premiums received from Government employers / employees
7. Compulsory Insurance Premiums received from other employees
8. Voluntary Premiums for additional services / features

These funding sources will be used to create the funding pool for each package. It is anticipated that with the exception of the compulsory and voluntary insurance premiums, other funding sources will be used to service the requirements of the Essential Health Benefits Package. The Comprehensive Health Benefit Package will be funded mainly from compulsory insurance premiums, and the Additional Health Benefit Package will only be funded from voluntary premiums.

It is anticipated that the Federal National Health Insurance Fund will manage the three funds at Federal level and will have some flexibility for managing risk across the three funds within pre-agreed rules. For example, it is envisaged that:

- The three funds will each have separate respective books of accounts, showing clearly annual income and expenditure, profit and loss.

- Each fund will steadily develop and maintain defined solvency levels – which can only be drawn upon in defined circumstances with required approvals.

- Some defined and bounded transfers of revenues and profits will be permitted - generally from the Comprehensive Benefit Package Fund to the Essential Health Benefit Package Fund (for example, to cover the costs of the Essential Health Benefits Package for people paying compulsory insurance premiums) or from the Additional Health Benefits Package fund to the Comprehensive Health Benefit Package or Essential Health

Benefit Package funds. Such transfers should be occasional and strategic. They will require strict approvals from defined stakeholders.

In practice, these funds are likely to be accounted for at State level; since much of the finance is likely to be generated at State level. The National Health Insurance Fund will need to operate a Risk Equalisation Scheme, across states. This will be needed to ensure equity of access across Sudan. The Federal National Health Insurance Fund will need to maintain modest (but solvent) Essential Health Benefit Package and Comprehensive Benefit Package funding pools at the Federal level to manage these Risk Equalization Schemes. State Essential Benefit Package and Comprehensive Benefit Package funds will pay into and receive money from the associated Federal funding pools, as directed by the National Health Insurance Fund and the Federal Ministry of Health.

It is recommended that the Federal Ministry of Finance provide carefully defined and strictly supervised re-insurance facilities for the National Health Insurance Fund. Re-insurance claims should take account of, but be distinct from, from the Risk Equalisation Scheme (RES) payments. The RES payments should reflect known gaps between need and ability to pay. Re-insurance should protect again major unforeseeable or population level catastrophic risks (e.g. sudden epidemics such as Covid-19).

The governance of all three funds, and associated Risk Equalisation Schemes and re-insurance mechanisms, at Federal and State levels should all be completely transparent. Summary accounts with explanatory notes, for all funds and Risk Equalisation Schemes and re-insurance mechanisms, should be published quarterly online. Full annual accounts for each fund and mechanism should be externally audited and published online within six months of the end of accounting year – together with an audited summary of the overall position nationwide. This is only possible if the summary accounts for each fund and mechanisms are prepared in a consistent digital format at both State and Federal levels.

Payment Mechanisms

A number of payment mechanisms have been proposed for use in the Sudan Health System. These include:

Capitation Here providers are paid a fixed amount in advance to provide a defined set of services for each enrolled individual for a fixed period of time.

Global budget Here providers receive a fixed amount for a specified period to cover the costs of an agreed upon set of services. The budget is flexible and not tied to individual episodes of service delivery.

Line-item budgets involve providers receiving a fixed amount for a specified period of time to cover specific input expenses. These include, for example, the costs of hiring clinical staff, the costs of buying medicines, the costs of buying consumables, and the costs of paying for and maintaining infrastructure.

Fee-for-service payment mechanisms providers are paid for each individual service provided. Fees are fixed in advance for each service or group of services. These are often paid on the basis of providing service for a fixed volume of patients.

Price-per-episode payment mechanism are used to reimburse healthcare providers based on expected costs for delivering episodes of care. It helps to target payments relating to the numbers of patients receiving an episode of care for a specific treatment or condition.

And finally, Case-based provider payment mechanisms such as those based on diagnostic related groups, hospitals are paid a fixed amount per admission or discharge depending on a combination of patient and clinical characteristics and the associated resource use. This might include, for example, age, condition code, treatment code, and length of stay.

These payments can be linked in full or in part to pre-defined targets or Key Performance Indicators (KPIs). Capitation payments, for example, can include a fixed payment with associated penalties and/or rewards associated with the achievement of health system performance targets and/or population health outcomes.

Some key objectives have been agreed in applying these Payment Mechanisms in Sudan. Priorities are for Payment Mechanisms to be used to:

1. Improve Access to services
2. Improve Quality and Safety of services
3. Improve the Efficiency of services
4. Improve the Availability of services
5. Improve the Utilisation of health system resources

The ambition is that there should be a common taxonomy and standard set of metrics for Provider Payment Mechanisms which are adhered to nationally. And that there should be standard and consistent Provider Payment Mechanisms used by the National Health Insurance Fund to pay State Ministries of Health as providers of health care.

Under the new separation of payer and provider within Sudan, each SMOH is considered as a single provider of MOH services within each State, and each SMOH will have a contract with NHIF for the provision of health care for the eligible population. Pilots are currently being conducted that explore the use of four payment mechanisms for providing funding for services under contract between the National Health Insurance Fund and each State:

- Capitation for the provision of primary care by SMOH across the State based on catchment population

- Global budget to cover a proportion of costs to provide stability and a specific range of core services as required (e.g. emergency hospital care, ambulance services, laboratory services). This may include payments to cover defined costs of starting and developing new services.

- Case-based payments based on episodes of care – which could mature to Diagnostic Related Groups as informatics permit to address the need to increase coverage and access.

- Performance payments to reward efficiency and quality and safety improvements

Consideration might also be given for the inclusion of Pharmacy for prescription medication within the State Ministry of Health contract; currently prescription medications are funded by the National Health Insurance Fund directly. Consideration will also need to be given to the channelling of payments to health providers who host continuing education and training services.

The National Health Insurance Fund could, in addition, fund Localities on a capitation basis to fund community-based population health initiatives; alternatively, these funds can be channelled through the State Ministry of Health who could oversee these programmes against a set of performance targets. This would position the State Ministry of Health as a Population Health Management provider. Whichever funding route is selected, it is important that these community-based health promotion funds are "ring-fenced" and used for their intended purpose rather than health care services for individual beneficiaries.

Payments by National Health Insurance Fund to other non-State Ministry of Health providers could be case-based for service delivery with prescription medication for eligible individuals funded directly by National Health Insurance Fund on the basis of claims. Alternatively, these funds can be channelled through the State Ministry of Health who could oversee these programmes against a set of performance targets. This would align the use of the third sector and private sector providers to the strategic needs of the State Ministry of Health providers and reinforce the benefits of collaborating where scarce resources would otherwise be duplicated.

The use of a standard payment model will help to keep the payment system simple and equitable across the country.

The State Ministries of Health will be responsible for distributing funds to individual outlets / facilities. It is evident that each State within Sudan will face unique challenges in relation to the population, epidemiological, geographical, and the local health infrastructure. For these reasons, therefore, each SMOH will be given flexibility in the distribution of funding to its outlets. Each SMOH, by prior agreement with SNHIF, will use the nationally defined Provider Payment Mechanisms in a unique and flexible way to allocate resources to each outlet. This way State Ministries of health can put together the optimum mix of Provider Payment Mechanisms to address specific local challenges and can keep these under review over time.

This flexible "bounded choice" model will enable some consistency across Sudan but ensure maximum agility locally to meet local health goals as fast as possible.

It is unlikely that capitation (population based) payments can be used for payments direct to primary care outlets within States at this stage. The experience of previous pilots in selected states suggests that there is insufficient alignment of populations of beneficiaries to particular outlets to bound payments in this way. Many patients will attend whichever outlet they perceive to provide the best service.

The Federal Ministry of Health and the State Ministries of Health will need to give some consideration to the design of the health system, pathways and clinical networks. Health care provision is complex, multi-dimensional, and innovative. There are relationships which exist "horizontally" across providers of services at similar stages of the care pathway and "vertically" across providers of services at different stages of a care pathway. Increasingly, payers are looking to encourage providers to operate clinical networks for the management of population health and patient centred care. Providers are organising to deliver integrated care, particularly for people living with chronic disease. The development of Accountable Care Organisations or Integrated Care Systems funded to deliver improved population health is a growing international phenomenon.

Health Systems

The optimal delivery system will ultimately be driven by the interventions included within each of the Health Benefit Packages. However, as Universal Health Coverage grows in Sudan, consideration be given to:

- The explicit co-ordination of primary care services, perhaps linked to super clinics or "polyclinics" with a clear strategy to invest in clusters of outlets with staff that are formally networked for the purpose of clinical training, primary care specialization, cross-primary care referral for diagnostic services, and community care services.

- The creation of primary and secondary delivery systems, with secondary care providers working across pathways with primary care counterparts (possibly through the polyclinics) to up-skill primary and community health professionals, and provide opportunities for prevention and care management to be delivered closer to home. This could be formally part of each State developing the corporate capacity to effectively operate as an Accountable Care Organization for the State.

- A strategy for any further development of regional tertiary care centres to be clearly part of a national tertiary care strategy operating to common protocols to ensure efficiency of service and improved access – and to operate at Federal level promoting access through regional hubs.

- The early establishment of formal clinical networks to link care delivery across pre-defined priority care pathways (e.g. Maternal and Child Health).

In Sudan, Localities are responsible for delivering many of the services that impact on health and wellbeing as "wider determinants of health". In many countries these functions fall to Municipalities and some have also taken on additional roles in the delivery of long-term health care for older people and people living with disabilities. The use of "place-based" strategies to improve population health, prevention, and to co-ordinate and manage community care should also be considered further as part of the Sudan delivery system – better aligned resources at Locality level could have a significant impact on population health.

Packages of Care

The health delivery system will be funded to provide a pre-defined range of services to the eligible population. This will involve the establishment of three packages; a (basic) package of essential services for all people living in Sudan (the Essential Health Benefits Package), a comprehensive package for the formal sector who pay a compulsory insurance premium (the Comprehensive Health Benefit Package), and an additional package available to those who pay an additional voluntary insurance premium (the Additional Health Benefit Package).

The selection of priority interventions to be included in the Essential Benefits Package, involves a systematic process guided by criteria including; readiness for implementation, impact on health need, scale of impact, strength of evidence, value for money, and affordability.

It will be important to specify clearly and, for the avoidance of doubt in some detail, who is eligible for which package. Eligibility will need to be clearly communicated. It is intended that all Sudan citizens and residents will be entitled to the Essential Benefits Packages. All of those employed in the formal sector who have paid a mandated premium will be entitled to the Comprehensive Benefits Package, as will the designated poor. However, all other entitlement will be based on voluntary premiums. Refugees and undocumented migrants will have access to the Essential Benefits Package, but individuals with tourist or business visas are likely to have access to the Essential and Comprehensive Health Benefits Packages based on a mandated contribution levied at entry.

It will be important to establish the identification requirements needed for individuals seeking access to care. Serious Consideration should be given to the establishment of a unique lifelong National Health Identification Number for each individual.