



SYSTEM OF HEALTH ACCOUNTS REPORT 2018



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ABBREVIATIONS

CHE	Current Health Expenditure
CMS	Central Medical Supplies
CNCD	Communicable and Non-Communicable Diseases
FMOH	Federal Ministry of Health
FMOF	Federal Ministry of Finance
FR	Financing Revenues
GDP	Gross Domestic Product
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GGE	General Government Expenditure
GGHE	General Government Health Expenditure
GHE	Government Health Expenditure
HC	Healthcare Functions
HF	Financing Agents
HH	Household
HI	Health Insurance
HP	Healthcare Providers
INGOs	International Non-Government Organizations
MOH	Ministry of Health
MOI	Ministry of Interior
MOD	Ministry of Defense
NCD	Non-Communicable Diseases
NGOs	Non-Government Organizations
NHA	National Health Accounts
NHIF	National Health Insurance Fund
OOP	Out-Of-Pocket
PHC	Primary Health Care
SDG	Sudanese Pound
SHI	State Health Insurance
SHHUES	Sudan Household Health Utilization And Expenditures Survey

SIAs	Supplementary Immunization Activities
SMOH	State Ministry of Health
TB	Tuberculosis
THE	Total Health Expenditure
UNDP	United Nations Development Program
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

IMPORTANT TERMS AND DEFINITIONS

Financing Revenues: Defined as Revenues that enter initially into the health system for health goods and services, whether from tax-based, social security, other private entities such as firms, NGOs, households, or other entities (principally funding from external resources).

Financing Schemes: Defined as structural components of health care financing systems: they are the main types of financing arrangements through which people obtain health services. Health care financing schemes include direct payments by households for services and goods and third-party financing arrangements. Third party financing schemes are distinct bodies of rules that govern the mode of participation in the scheme, the basis for entitlement to health services and the rules on raising and then pooling the revenues of the given scheme.

Financing agents: Defined as institutions receiving and managing funds from financing sources to pay for or purchase health goods and services, including social security schemes, ministries of health, medical private insurance, NGOs and firms. Households, who bear a large share of the total health bill, are added to round-up to total expenditure although they do not exert an intermediary function.

Providers: Defined as entities who receive financial resources and use those resources to produce health goods and services, include public and private hospitals, clinics, nursing homes, community health centers, private practices, etc.

Functions: Defined as the categories of goods and services consumed, include inpatient services, ambulatory services, public health interventions, etc. Health related functions, part of the total, refer to investment, training and R&D.

Cost of Factors of Production (often referred to as "line items"): Defined as the type of resources allocated to health care. It includes variables such as labor, drugs and pharmaceuticals, medical equipment, etc.

Beneficiaries: Defined through distributional tables in which the value of goods and services produced are classified according to: geographic boundaries, demographic characteristics, economic strata and disease categories/interventions.

SECTION I: BRIEF COUNTRY BACKGROUND

Introduction

Health systems in both developing and developed countries are facing serious challenges to improve their performance including efficiency and quality of care. Moving toward UHC requires a strong health system with sustainable financing, which countries strive to achieve through various approaches appropriate to their country contexts¹. One of the key areas of the reforms processes has been the financing of health care services for both public programs and clinical services. In developing, as well as in the developed industrialized countries, health and health services are considered as one of the essential and necessary resources to the community, which should be managed to achieve the highest benefit to the community.

One of the greatest challenges consists in finding a fair match between ever-increasing medical needs and possibilities on the one hand and finite health care budgets on the other hand². System of Health Accounts considered as essential tools for improving the quality of the health system financial information³. It is not only taking into account the magnitude of the inputs and the resources consumed during the implementation of the various health activities and programs, however, extended to include evaluation of the outputs and outcomes produced as consequences of those health activities produced by different health providers.

Curative care usually consumes high percentage of the total resources allocated to health activities. Evidences found that the public hospitals spending, in Sudan, consume 50 to 80% of the public sector health resources in the last decade. Thus, the public health facilities financial management bears the responsibility of providing health care services needed by society at an acceptable level of quality and the lowest possible cost.

Sudan health sector, not different from most of other developing countries, is suffering from the shortage of the financial resource accompanied with an increased community demand for health services. The level of public health spending for 2018 is about 7.2% of the government budget and 1.5% of the GDP. The analysis of the Ministry of health spending on health for the year 2018 showed that much of those resources were allocated to hospitals (47.2%).

Through conducting several rounds of SHA (2011, 2013, 2015 and 2016) and previously two rounds of National Health Accounts (NHA), in 2008 and 2011, the department of health economics has developed strong capacity in providing accurate and timely information to support evidence-based decision making and planning. To take these efforts further and with the overall objective of better understanding of country health financing system and to fulfil health services delivery responsibilities in the light of aforementioned alarming figures and contexts, national and sub-national levels need adequate support to conduct expenditure assignments and improve efficiency. This report describes the methodologies used to accomplish a round of System of Health Accounts (SHA) for the year 2018, with the purpose of

¹ A. Chu, S. Kwon and P. Cowley; 2019, Health Financing Reforms for Moving towards Universal Health Coverage in the Western Pacific Region, Health Systems and Reform Journal.

² J. Luyten, R. Kessels, P. Goos, P. Beutels, Public Preferences for Prioritizing Preventive and Curative Health Care Interventions: A Discrete Choice Experiment, Value in Health, 2015.

³ A System of Health Accounts 2011, revised edition, OECD, European Union, World Health Organization, 2017.

establishing robust and sustainable SHA activities as part of institutionalizing process of the SHA in the country.

Country Overview

Geography and ecology

With land area of 1.8 million square kilometres, traversed by the Nile and its tributaries, Sudan shares its borders with Southern Sudan, Central African Republic, Chad, Libya, Egypt, Eritrea and Ethiopia. It has access to the Red Sea with 853 kilometres long coastline. Its terrain is generally flat, featureless plain, mountains in northeast and west, while desert dominates the north.

Sudan's climate is tropical in the south, arid desert to the north, and the rainy season varies by region from April to November. Vast distances, poor roads, and transport infrastructure affect the access to and coverage of health services.

Emergency and disasters

Sudan faced conflicts since its independence. Conflict in Darfur states, Blue Nile and South Kurdofan states bordering the South is a remnant of the post Peace Agreement. As a result, the country's social service institutions including health were affected, directly or indirectly. That is, while some areas witnessed war, others suffered due to the effects of war by hosting the displaced or on account of the diversion of resources meant for development.

Demography

With total population 41,984,512 people in 2018, growing at a rate of 2.8% annually, 88% are settled, including 49% in urban areas, while 8% are nomads. Almost 2% of the population is internally displaced, 1.4% resides in institutions, and the remaining 0.6% lives in cattle camps. There has been increasing urbanization, with natural disasters, civil conflicts and poor conditions in rural areas, contributing to this.

Average household size is 5–6 persons, while fertility rate is 3.9; crude birth rate is 31.2; and crude death rate is 16.7 per 1,000 (17.2 males, 16.3 females). 43.2% of the population is young under 15 years including 15% under 5 years, 53.4% is in age group of 15-64 years, and 3.4% are 60 years and above⁴. Life expectancy at birth is 64.1 years (62.4 years for males and 65.9 years for females). About 83 out of every 1000 children do not live to see their fifth birthday.⁵

Economy

Economically, Sudan was categorized as middle-income country (2,899 US\$ GDP per capita in 2017). However, in 2018 the country economy went through sever financial crises manifested in the high inflation rates, devaluation of the national currency with scarcity in hard cash and the GDP per capita fell to 977 US\$ which again categorize Sudan as Low-income country⁶.

“The country faces severe financial crises with High inflation rate, more than 60% in 2018, and the GDP per capita shrank to 977 US\$”

⁴ Sudan Population Census, 2008, Central Bureau of Statistics Khartoum

⁵ Sudan Household Health Survey-2 (2010)

⁶ World Bank Database

Political landscape

Sudan comprises 18 states each divided into localities, which in total are 184, but varies with time due to redrawing the boundaries of the existing ones. Sudan with its multiparty system is a federated republic with powers devolved to states under Local Government Act (2003), often referred to as the Decentralisation Act. However, precise legislative and organisational arrangements may vary from state to state.

Socio-cultural scene

Sudan is a multicultural society with hundreds of ethnic and tribal divisions and languages. A large majority of population are Arabic-speaking Muslims. Sudan ranks 165, on human development index in 2018. Employment to population ratio (percentage ages 25 and older) is 59.4%⁷. 46.5% of population lives below poverty line earning less than US\$ 1 a day, and 8% are in extreme poverty. Those hardest hit are the rural dwellers, particularly the women and internally displaced people⁸. Adult literacy rate (percentage ages 15 and older) is 58.6%, while gross primary and secondary school enrolment is 71%

and 30%, respectively⁹. 81.1% of population has access to potable drinking water, while 27% enjoy improved sanitation¹⁰.



Figure 1: Sudan Country Map

⁷ Human Development Report, 2015

⁸ CBS (2010), Sudan National Baseline Household Survey, 2009

⁹ WHO: Regional Health Observatory, <http://rho.emro.who.int/rhodata>, 2015

¹⁰ Sudan Multiple Indicator Cluster Survey 2014

The Sudan Health Sector

Health Challenges

The main health status indicators are shown below in Table (1). Sudan with an increasingly ageing population faces a double burden of disease with rising rates of communicable and Non-Communicable Diseases (NCDs). Sudan Household Survey 2010 showed that 26.8% of children aged 5 to 59 months had diarrhoea, while 18.7% were sick due to suspected pneumonia in the two weeks prior to the survey. Protein

energy malnutrition and micronutrient deficiencies remain a major problem among children under five, with 12.6% and 15.7% suffering from severe underweight and stunting, respectively. The most common micronutrient deficiencies are iodine, iron and vitamin A.

Indicators	Values
Crude birth rate (%)	33.3
Crude death rate (%)	7.5
Total fertility rate (per woman)	4.4
Life expectancy at birth (years)	64.4
Infant mortality rate (per 1000 live births)	47.6
Under-five mortality rate (per 1000 live births)	70.1
Maternal mortality ratio (per 100 000 live births)	311
Source: http://www.who.int/gho/countries/sdn	

Table 1: Sudan's main health status indicators

The Health System Organization

Health is high on the country's agenda for social development. The transition government constitutional document requires, "the State shall promote public health and guarantee equal access and free primary health care to all citizens".

Public health in Sudan is threatened, in addition to the continuing sanctions and trade embargos, by the political instability, natural disasters, epidemics, and armed conflicts. As a result, often resources meant for social sector, including health are diverted to combating these threats, adding to the fragility of the health sector. The health services are provided in addition to the ministries of health (federal and state), by the health sub-systems like insurance schemes, armed forces, and private providers.

"Health system in Sudan has remarkable shortage in information while there are Multiple health financing schemes"

The public sector, for the organisation and management of health services has a three-tiered structure: (i) Federal Ministry of Health (FMOH); (ii) the State Ministry of Health (SMOH) in each state; and (iii) Locality Health Management Authority (LHMA) in each locality. For the provision of service, the health care is organised at three levels: primary, secondary and tertiary level. The National

Health Insurance Fund (NHIF), in addition to being an actor for financing, has its own health facilities. The armed forces and parastatal organisations like railways and Sudan Air etc. have their own network of health facilities and insurance schemes. The private sector is growing at a rapid pace and concentrated in major cities focusing on curative care.

The financing of health

The major financing schemes include; Ministries of Health, National Health Insurance Fund, Armed Forces Health Insurance Schemes, Out of Pocket expenditures and International Donors scheme. According to the System of Health Accounts (2018), 69.3% of funding is from the private sources, of which about 69.23% is OOP expenditure. Rest of the world or contribution from the partners was 6.63% of CHE, while public sector funding in 2018 was 24.06%, which is lower by almost 5% compared to in 2008.

Fund flows to the public and private facilities in a complex manner (Figure 2). User fees are charged at all public health facilities, and is paid either OOP or co-payment through insurance if covered or exempted/ waived, although the mechanisms and eligibility criteria are not well defined.

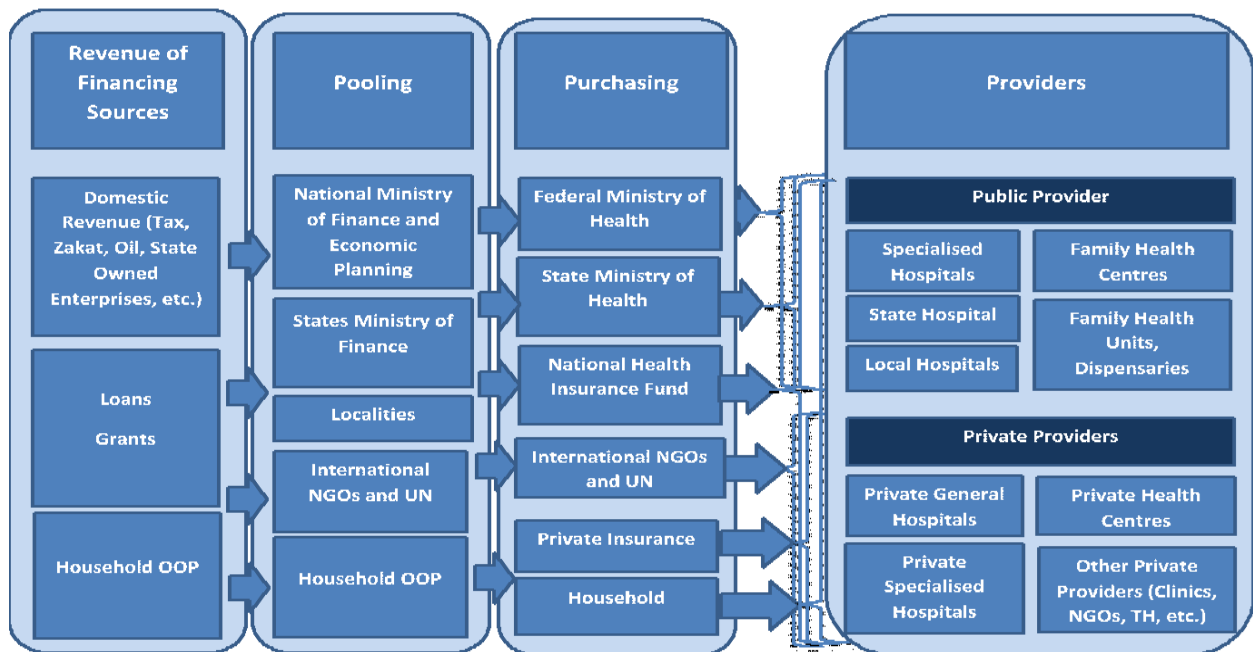


Figure 2: Health Spending Flow of Fund

“Fragmentation of the country health financing system is clearly apparent, while a lot of coordination needed between existing pools. Provider-Purchaser split should be addressed seriously to minimize the featuring inefficiencies.”

SECTION 2: SYSTEM OF HEALTH ACCOUNTS 2018; METHODOLOGY

SHA 2018 General Background

“The Health Financing and Economics Department (HFED) in the Federal Ministry of Health is the main body in the country that has been responsible for providing reliable information regarding the country health financing system throughout the last decade.”

The Health Financing and Economics Department (HFED) with its position in the planning directorate in FMOH, and in collaboration with local partners and national technical assistance, succeeded to build reasonable information database regarding health accounts and institutionalization of a System of Health Accounts all over the country. However, still there are areas of weaknesses and gaps where the department need more support specially how to better manage the information and conducting further in-depth and sophisticated analysis of data.

The SHA 2018 has compiled data from multiple sources including providers of health services and financing sources. Those was the main source of funding data and the details of inputs used by the providers such as staff salaries, medical consumables, etc. All data was organized and tabulated to obtain final results of health spending. Also, data collected from different sources used for cross checking.

For the distribution of Disease Specific Accounts (DSA), the methodology incorporates estimating the direct medical cost calculations by diseases and the prevalence-based methods with mix of two approaches; top-down allocation approach and bottom-up estimations approach as following:

Top-Down approach:

The team used the data available to conduct a top-down attribution of spending, in which the aggregate expenditure is distributed according to distribution keys that indicate percentage share by disease functions and ensure that the diseases breakdown is consistent with total expenditure amount. To reach the results, the team has followed four steps as illustrated in figure below.

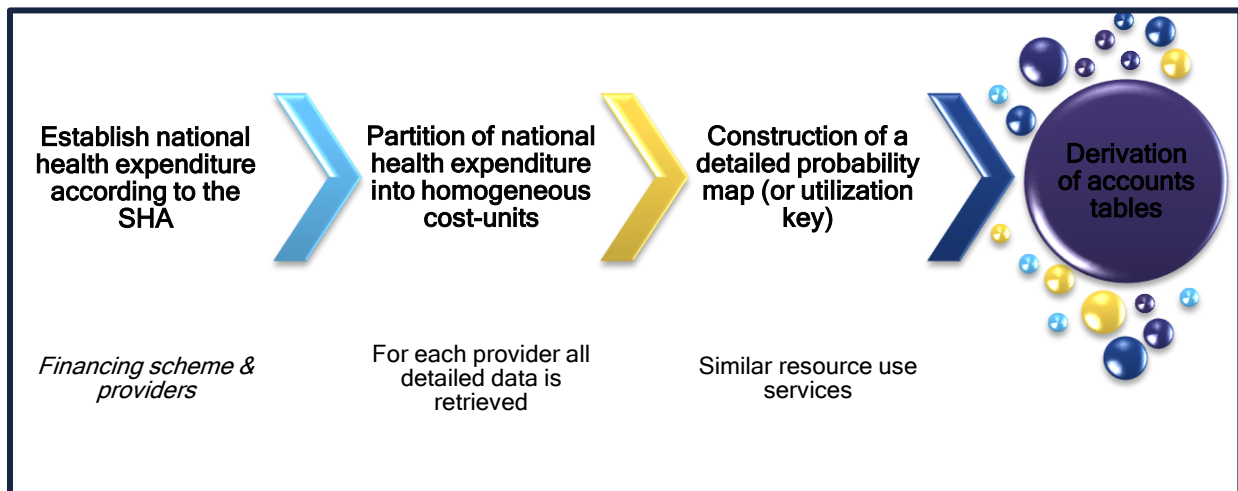


Figure 3: Top-Down approach steps

Bottom-up approach:

For bottom-up approach the team estimated diseases specific spending by multiplying the quantities (No. of inpatient days/ No. of outpatient visits ...etc) by costs of health services generated from specific diseases costing studies. These estimates were used as keys to calculate aggregate expenditure.

System of Health Accounts 2018 Objectives

In order to produce yearly health accounts, WHO recommend using the production and analysis tools, enshrined as the system of health accounts 2011 (SHA2011) framework. This tool has the capacity to generate health expenditure, which is disaggregated (disease, inputs), automate the process and produce health accounts with less cost, as well as links results to other data (macroeconomics and health) sources and annual budget for robust analysis. The aim of this assignment was to collect and collate data on health financing schemes, healthcare providers and functions operating within defined boundaries of the overall health system of Sudan and in details for the specific diseases targeted for the year.

Specifically, this SHA 2018 round aims to:

- Use System of Health Accounts, 2011 (SHA 2011) methodologies to produce country health accounts on 2018 as part of regular/annual producing of SHA;
- Institutionalize the production of health accounts at national and sub-national levels; and
- Generate different health accounts reports and conduct in-depth accounts analysis upon request.
- Generate diseases specific health accounts for the year 2018.

Health System Boundaries and Classification of Financing Entities:

An exercise was conducted to map the borders of the country's health system. For the purpose of this exercise, all activities performed in the Sudanese health system whose primary purpose is to improve the health of the people, were included and assessed.

As a part of the SHA round six, health system boundaries were identified, and the financing schemes and providers of health services, in addition to the functions of the health care services were mapped. In addition to the core accounts, SHA 2018 team extend the health accounts for further dimension of specific diseases expenditure breakdown, which was linked with the core health accounts and gives opportunity to develop more detailed accounts. For international comparison and analytical purposes, all dimensions of the accounts were mapped using set of classifications of financial flow known as the International Classification of Health Accounts (See Annex 1). This work was updated and accomplished with participant of the State Directorates of Planning and Health Economics who will be responsible of data collection at state level, and the FMOH departments and programs representatives will responsible of data collection at federal level. All teams will work collectively to avail relevant selected diseases data.

Disease Mapping & Selection:

To derive expenditure data by diseases categories, a significant resources and data sources required in addition to the regular work on producing health accounts. An exercise was conducted with team to map the disease according to certain selection criteria. The selection criteria cover the following aspects:

- Epidemiology of disease;
- Disease Morbidity;
- Disease Mortality;
- The Severity of disease;
- Public profile;
- Importance of disease for public health policy;
- Known high cost;
- In addition of availability of disease costing data

The Detailed Data Collection Plan

The SHA is an exercise that was implemented in 2011 for the first time in the country. In 2015, another round for the year 2013 accounts was conducted. Many difficulties and complexities were faced while accomplishing the two rounds, since the health information system of the country has suffered in the past from decades of neglect and mismanagement; the information that was available was hard to be reached, and is of low reliability.

Data Collection

The team prepared a tentative list of data sources so as to develop data collection plan at the national and 18 states level. Although the primary focus is to extract expenditure information, also costing and non-financial data were complementing. For compiling and constructing the agreed upon diseases data, more detailed data needed. So, the team-built strategy to collect data from primary and secondary sources.

In general, data collection plan targeted the following goals:

1. To use all suitable existing data;
2. To adjust existing data to bring them closer to suitability;
3. To arrange for collection or generation of “missing” data.

What are the Entities Targeted by the Study?

In this study, the flow of funds was tracked through the different entities of the health system in Sudan, and according to the classification exercise conducted at the preparatory stage.

Table (2) below provide list of entities involved in the study and the potential sources of data:

Data collection tools:

A set of questionnaires or data collection tools for the different financial entities, including sections to collect information from specific diseases, were designed. Table-1 summarizes the targeted different entities to gather the data. In most cases, data collection tools were structured questionnaires to be filled in by the data collectors with information from multiple respondents.

Table 2: Data sources for SHA with disease Specific 2018:

ENTITIES	DATA SOURCES
SECONDARY DATA	
FEDERAL MINISTRY OF FINANCE	Annual financial report 2018
STATES MINISTRY OF FINANCE	Annual financial report 2018
	Financial performance accounts 2018
FEDERAL MINISTRY OF HEALTH	Annual Statistical Report 2018
	Annual department performance report 2018
	States financial performance accounts 2018
STATE MINISTRY OF HEALTH	Annual Statistical Report 2018
	Annual department performance report 2018

SOCIAL HEALTH INSURANCE	Annual performance report 2018
DONORS	Donor Mapping Survey
MINISTRY OF DEFENSE	FMOF Annual financial report 2018
MINISTRY OF INTERIOR	FMOF Annual financial report 2018
MINISTRY OF EDUCATION	FMOF Annual financial report 2018
HOUSEHOLD	Household Health Utilization & Expenditure Survey 2012
PRIMARY DATA	
FEDERAL & STATES MINISTRIES OF HEALTH DEPARTMENTS	Departments /programs data collection form Admin and finance data collection form
HOSPITALS	Hospitals data collection form Hospital inpatient cost data collection form
SPECIALIZED HEALTH CENTERS	Specialized Health Centers data collection form
HEALTH CENTERS	Health Centers data collection form
LOCALITY	Localities data collection form

Training of SHA data collection teams

Three days Training was held at Khartoum (5-7 of November) for the teams from federal level as well as all 18 states. The training was conducted by Health financing and economics core team with technical support of the national consultant covered the following topics:

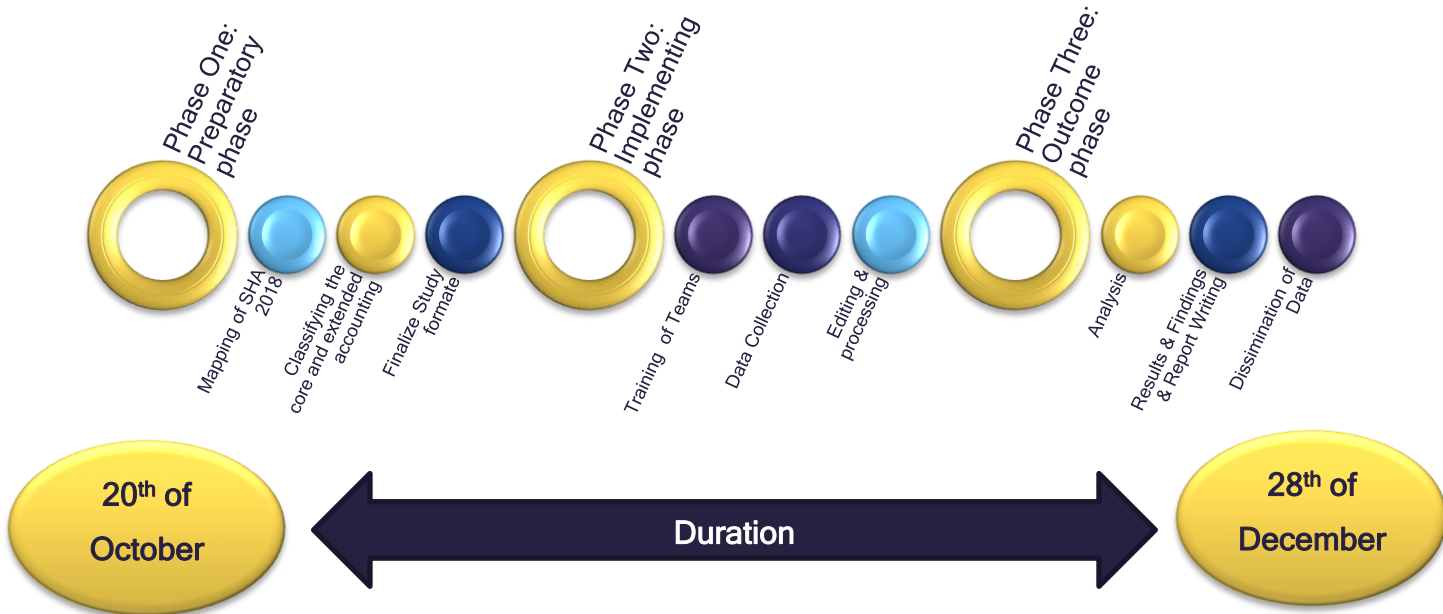
- Background on Health Financing Atlas; National, Regional and Global Trends
- Health Accounts Framework and SHA 2011 methodology
- Diseases Accounts; Methodology and Analysis
- Institutionalization of SHA; Country Situation
- Study design;
- Job description of team members;
- Orientation to the questionnaires;
- Common mistakes and omissions during fieldwork and how to avoid those;

SYSTEM OF HEALTH ACCOUNTS 2018; FIELD WORK

Primary data was collected at federal and states levels from entities/data sources listed in table (1) above. Simultaneously, secondary data sources listed below were collected and archived for reference and triangulation.

The time frame planned for data collection was three weeks but due to different logistics issues and budget execution constraints, and the delays in renting the cars for data collection and supervision, more time was actually needed than was planned.

Data was collected from all states and all entities at the national level were handled to data editors, and rigorous editing process was executed, the tasks illustrated in the diagram below.



Data collection teams:

There are data collection teams at both federal & state levels. The federal teams will collect information from all federal institutions and Federal ministry of health department with a comprehensive work to extract the diseases expenditure and costing data. The states' teams will be mainly concerned with collection of expenditure data from all institutions at the states in addition to special costing studies will be carried in each state to find out the cost of outpatient visits and day bed costs. The team will be guided by a national consultant who will be responsible of all technical support to FMOH team in designing protocols, data collection and editing tools, Assist in addressing the operational problem and enquires, Ensure quality, validity and reliability of collected data and extracting the final findings tell the dissemination of results. The consultant will supervise data management team responsible of editing and validation of all expenditure and costing data. In addition, the consultant with the data management team will conduct in-depth analysis of household utilization and expenditure survey data. The data management team is composed of high knowledgeable and expert on health accounts.

SYSTEM OF HEALTH ACCOUNTS 2018: FINDINGS

The national health accounts through a systematic, comprehensive and consistent monitoring of resource flow in a health system, provides policy-makers with evidence to make better and informed decisions on allocation of resources with the aim to improve health system performance.

As mentioned, this is the fifth round of producing SHA in the country. In this section salient findings of exercise are presented below. Firstly, after presenting summary results of funds flow in the health system in the country, expenditure by schemes of financing, providers and functions will be presented. The section will conclude by an insight into policy implications.

Summary results

Total Current Health Expenditure (CHE) in 2018 was US\$ 2.4 billion, of which almost 69.2% was OOP contributions. Per capita health expenditure dwindled to US\$ 58.8 from US\$ 132.3 in 2015, showing sharp decrease of almost US\$ 73.5, and less than 2011 records with US\$ 62. International donors' expenditure was 6.63% of CHE, which is almost three doubles the percentage compared to 2015.

Table 5: National Health Accounts Summary Results, 2011

Category	SDG	\$US
Total population of the Sudan 2018	41,984,512	
Exchange rate 2018 (SDG/\$US)	23.8	
Country's total GDP, 2018	1,228,900,000,000	51,634,453,781.51
GDP per capita, 2018	29,270.94	1229.8
Current Health Expenditure (CHE) 2018	58,790,154,259.56	2,470,174,549
CHE as % of GDP	4.78%	
Per capita health expenditure	1,400	58.84
Total GGHE	14,144,149,560	594,291,998
GGHE as % of GDP	1.15%	
GGHE per capita	336.98	14.15
GGHE as % of CHE	24.06%	
GGHE as % of GGE	9.01%	
SHI as % of CHE	6.65%	
SHI as % of GGHE	27.6%	
Federal GGHE as % of Federal GGE	3.4%	
States GHE as % of States GGE	15.56%	
Household Out-Of-Pocket expenditure as % of CHE	69.23%	
Out-of-pocket health expenditure per capita	969.44	40.73
Total private health expenditure as % of CHE	69.31%	
Total Donors Expenditure as % of CHE	6.63%	

The public health expenditure increased to 24.06% of CHE compared with almost 14.9% in 2015. Government health expenditure as percentage of GDP was 1.15%. The increase in public expenditure percentage in Current Health Expenditure (CHE) compared with 2015 was almost 9.9%. Although the increase in government CHE in local currencies with almost 94%, there was sharp decrease in the amount of government CHE in US dollars with almost 50%. This reflects the significant effect of local currency devaluation in the last three years.

Financing Revenues: who pays for the health care?

With a total population of about 42 million and 51.6 billion US\$ GDP or 1,230 US\$ per capita in 2018, the Current Health Expenditure (CHE) was over 2.4 billion US\$. The CHE was 4.78% of the GDP or 58.84 US\$ per capita. The total General Government Health Expenditure (GGHE) was 594,2 million US\$ or 24.06% of CHE, translate to per capita GGHE of 14.15 US. The main revenues of GGHE are Federal and States government expenditure, which contribute 6.62% and 7.84% of CHE respectively. Total private health expenditure is 69.31% of CHE, out of which nearly 69.23% is Out-Of-Pocket (OOP) and translates to 40.73US\$ per capita.

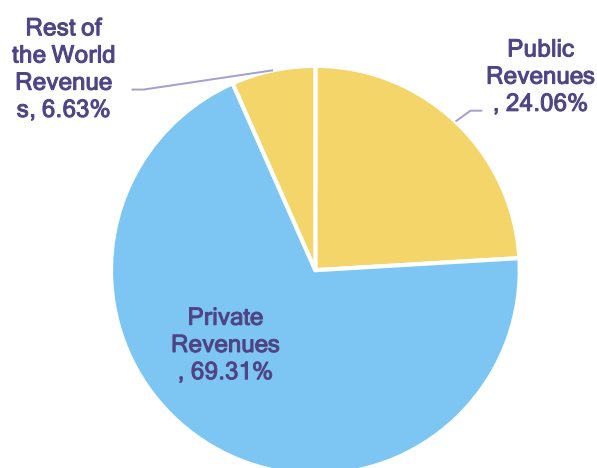


Figure 5: Health Financing Revenues, 2018

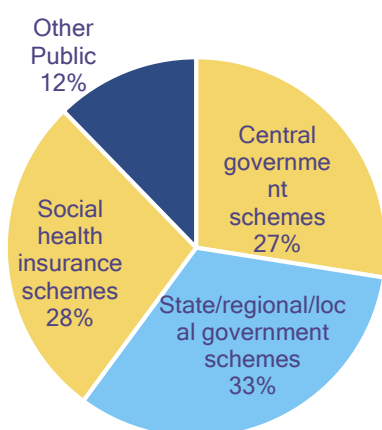


Figure 6: Public Financing Schemes 2018

The financial contribution public sector is seen in table (6). That is in absolute figures, public sector contributed a little over 594,2 million US\$, while about 1.7 billion US\$ was the share of private sector and US\$163 million were financed by donors.

Public sector funds represent 24.06% of total health care revenues, while private sector share is 69.31%. The rest of the world or international assistance forms 6.63% of financing revenues for the health care (figure 5). The major contributors to the public sector share of health care financing are the Federal and states ministries of finance, with former paying a little over 27% and the latter a little less than 33%. Other Public is revenue for 12 % and Social Health Insurance (National Health Insurance Fund) contribute about 28. % (figure 5). Details of the

Table 6: Health Financing Revenues, 2018

Financing Revenues	Amount USD	Percent	Amount SDG	Per Capita \$US
Public Revenues	594,291,998	24.06%	14,144,149,560	14.16
Central government schemes	163,506,941.89	6.62%	3,891,465,217.01	3.89
State/regional/local government schemes	193,702,269.59	7.84%	4,610,114,016.28	4.61
Social health insurance schemes	164,231,229.87	6.65%	3,908,703,271.00	3.91
Other Public	72,851,556.98	2.95%	1,733,867,056.03	1.74
Private Revenues	1,712,022,465	69.31%	40,746,134,674	40.78
Household funds	1,710,145,794.74	69.23%	40,701,469,914.88	40.73
Other Private funds	1,876,670.55	0.08%	44,664,759.03	0.04
Rest of the World	163,860,085.10	6.63%	3,899,870,025.33	3.90
Rest of the World	163,860,085.10	6.63%	3,899,870,025.33	3.90
Total CHE	2,470,174,549	100%	58,790,154,259.56	58.84
Capital Expenditure	98,611,647.67		2,346,957,214.58	2.35
THE	2,568,786,196		61,137,111,474	61.2

Providers of Health Care Services in Sudan

Health care providers are the entities that receive funds from financing agents in exchange for or

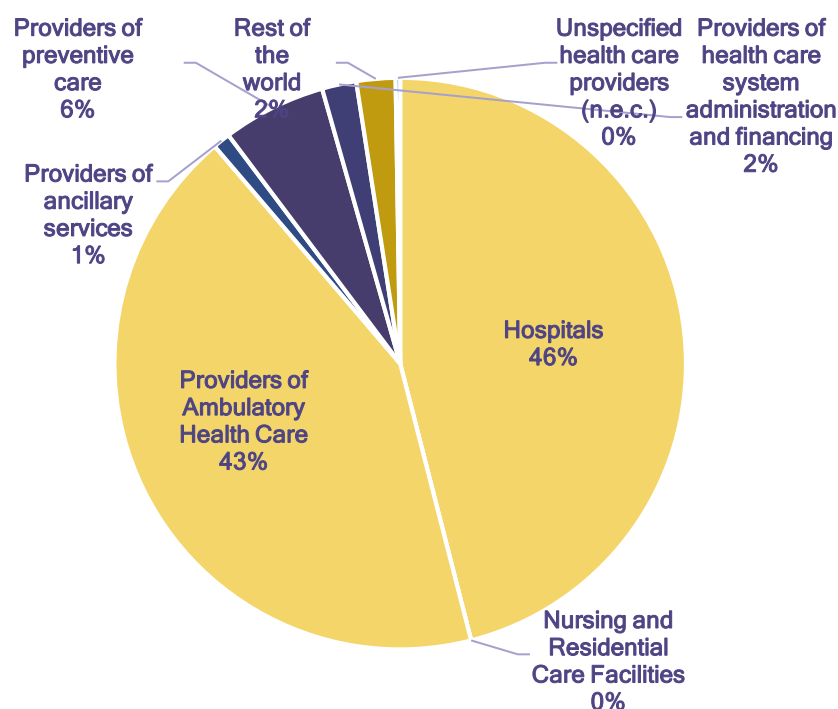


Figure 7: Health Care providers, 2018

in anticipation of providing the required health care services. Hospitals and providers of ambulatory care use most funds (89%), i.e. about 46% and 43% respectively. The providers of health care system administration and financing, which include both government administration of health and social health insurance administration, consumes about 2%, while 6% of the health funds are spent by providers of preventive care. The providers of ancillary services (medical laboratories and diagnostic complexes that stand alone or outside health facilities) use only 1%. The rest of the world, which includes office of bilateral organizations and international NGOs, consumed about 2% of funds in providing direct services. The detail on the use of health funds in absolute amounts is given in table (7), below.

Table 7: Health Care Provider, 2018

Providers of Health Services	Amount SDG	Percent	Amount \$US	Per Capita
Hospitals	27,046,692,933.9	46.0%	1,136,415,669.5	27.1
General hospitals	24,066,547,227.1	40.9%	1,011,199,463.3	24.1
Specialized hospitals	2,835,233,781.7	4.8%	119,127,469.8	2.8
mental Hospital	144,911,925.1		6,088,736.3	0.1
Nursing and Residential Care Facilities	-	0.0%	-	-
		0.0%	-	-
Providers of Ambulatory Health Care	25,130,437,494.5	42.7%	1,055,900,735.1	25.1
Offices of Medical Specialists	7,000,652,825.4	11.9%	294,145,076.7	7.0
Dental Practices	7,853,690.0	0.0%	329,987.0	0.0
PHC Health Centers	14,173,888,397.4	24.1%	595,541,529.3	14.2
Other Medical Practices	3,948,042,581.7	6.7%	165,884,142.1	4.0
Providers of ancillary services	580,262,581.0	1.0%	24,380,780.7	0.6
Medical and diagnostic laboratories	580,262,581.0	1.0%	24,380,780.7	0.6
Other Providers of Ancillary Services		0.0%	-	-
Providers of preventive care	3,443,813,628.2	5.9%	144,698,051.6	3.4
Providers of preventive care	3,443,813,628	5.9%	144,698,051.6	3.4
Providers of health care system administration and financing	1,142,022,355.8	1.9%	47,984,132.6	1.1
Government health administration agencies	807,710,339.7	1.4%	33,937,409.2	0.8
Social health insurance agencies	334,312,016.1	0.6%	14,046,723.4	0.3
Other administration agencies		0.0%	-	-
Rest of the world	1,296,577,299.2	2.2%	54,478,037.8	1.3
Rest of the world	1,296,577,299.2	2.2%	54,478,037.8	1.3
Unspecified health care providers (n.e.c.)	150,347,967.0	0.3%	6,317,141.5	0.2
Unspecified health care providers (n.e.c.)	150,347,967.0	0.3%	6,317,141.5	0.2
Total	58,790,154,259.56	100%	2,470,174,548.72	58.84

Health Care Services (Functions) in Sudan

Health care services or functions are the goods that are provided and services that are performed by health care providers for health purposes and are within the boundaries of the health accounts.

Sudan health care delivery system is curative biased and it is evident from the fact that almost 88.8% of the CHE is for curative services. Curative care services include both inpatient and outpatient services provided in all type of health facilities. The services expenditure includes consultation fees, investigations requested (laboratory and imaging) and Pharmaceuticals and other medical consumables. The share of the preventive and other public health programmes is about 5.9%, while health care functions related to governance and health system and financing

administration accounted for just 1.9%. Further details about health expenditure by the type of health services is in table (8).

Table 8: Health Care Expenditure by Functions, 2018

Health Care Functions	Amount SDG	Percent	Amount \$US	Per Capita
Curative care	52,177,130,428	88.8%	2,192,316,405	52.22
Inpatient curative care	21,637,354,347	36.8%	909,132,536	22
General inpatient curative care	19,253,237,782	32.7%	808,959,571	19.27
Specialised inpatient curative care	2,268,187,025	3.9%	95,301,976	2.27
Unspecified inpatient curative care (n.e.c.)	115,929,540	0.2%	4,870,989	0.12
Outpatient curative care	30,539,776,081	51.9%	1,283,183,869	31
General outpatient curative care	4,813,309,445	8.2%	202,239,893	4.82
Dental outpatient curative care	7,853,690	0.0%	329,987	0.01
Specialised outpatient curative care	7,567,699,582	12.9%	317,970,571	7.57
Unspecified outpatient curative care (n.e.c.)	18,150,913,364	30.9%	762,643,419	18.16
Home-based curative care		0.0%	0	0
Unspecified curative care (n.e.c.)		0.0%	0	0
Ancillary services (non-specified by function)	580,262,581	1.0%	24,380,781	0.58
Laboratory services	580,262,581	1.0%	24,380,781	0.58
Preventive care	3,443,813,628	5.9%	144,698,052	3.45
Epidemiological surveillance and risk and disease control programmes	3,443,813,628	5.9	144,698,052	3.45
Unspecified preventive care (n.e.c.)			83,367,865	2
Governance, and health system and financing administration	1,142,022,356	1.9%	47,984,133	1.14
Governance and Health system administration	807,710,340	1.4%	33,937,409	1
Administration of health financing	334,312,016	0.6%	14,046,723	0
Unspecified governance, and health system and financing administration (n.e.c.)	1,899,460,466	0.0%	0	0
Other health care services not elsewhere classified (n.e.c.)	1,446,925,266	2.5%	60,795,179	1.45
TOTAL	58,790,154,260	100%	2,470,174,549	58.84

Household Out-Of-Pocket Expenditure on Health

Household Out-Of-Pocket (OOP) spending on health is the expenditure which the household has to pay out of his pocket in case of illness of any member of the household. In the following, it is segregated into two categories: by providers, and by type of services.

OOP health expenditure segregated by providers of services is seen in table (11), as absolute amount, and in figure (8) as percentages.

Accordingly, over 36% of OOP is spent at the primary health care centres, mainly for paying user fees and cost of medicine, while 40.8% is spent at general hospitals. Over 16% is paid at the physician's private clinics and other 0.17% at specialised hospitals.

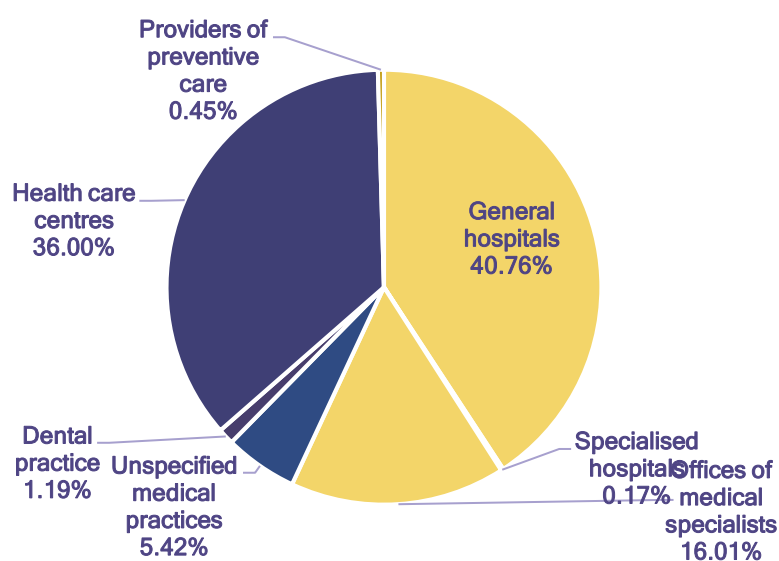


Figure 8: OOP Expenditure by Provider of Service

The spending on dental care practices is little more than 1%. These findings have policy implications in that if government, as obliged by the constitutional provisions, is to provide free primary care, it will need to generate additional resources at least equivalent to 8.4 billion SDG.

Table 9: Household Direct Out-Of-Pocket Expenditure by Service Providers

Provider Description	Amount
General hospitals	16,590,693,955
Specialized hospitals	70,917,978
Offices of medical specialists	6,516,985,511
Unspecified medical practices	2,205,702,887
Dental practice	484,719,890
Health care centres	14,651,096,618
Providers of preventive care	181,353,075
Total	40,701,469,915

The household use 99.5% of health expenses on curative care, while preventive received less than 0.5%. That is, the awareness of the importance for preventive care activities and healthy life style is quite low amongst population in Sudan. Curative care services utilized by the household include mainly Outpatient Curative care services, which is mounting to almost 92% of total OOP spending. Inpatient curative care consumed 5.4% of total OOP expenditure.

DISEASES SPECIFIC ACCOUNTS

As part of this round of System of Health Accounts, 2018, diseases specific accounts were generated for several diseases including EPI preventable diseases, Malnutrition, ARIs, HIV, Tuberculosis, Malaria and Injuries. The national team and the national consultant, who had experience of conducting limited Specific Diseases Accounts in 2015, Public Expenditure Review (PER), Public Expenditure Tracking Survey (PETS) and National AIDS Spending Assessment (NASA), used all those experiences to draft the methodology, including sampling and study protocols.

Summary Results

The team used different methods to calculate spending on different diseases in Sudan. The total health spending in 2018 was distributed among different diseases using specific rules applied on both Top-Down and Bottom-Up approaches. In most of the cases those rules were based on costing evidences, statistical data and information collected from relative MOH departments.

The table below gives summary of the CHE in 2018 and its distribution among different diseases.

	Disease	Amount Spent in 2018 US\$
<i>DIS.1 Infectious and Parasitic Diseases</i>		
DIS.1.1	AIDS and other Sexual Transmitted Diseases	9,170,902.56
DIS.1.2	Tuberculosis	7,950,603.94
DIS.1.3	Malaria	55,344,765.09
DIS.1.4	Respiratory infections	To be calculated
DIS.1.5	Diarrheal diseases	To be calculated
DIS.1.6	Neglected Tropical Diseases and Bilharziasis	
DIS.1.7	Vaccines Preventable Diseases	64,888,791.71
DIS.1. nec	Other Infectious and Parasitic Diseases	To be calculated
<i>DIS.2 Reproductive Health</i>		
DIS.2.1	Maternal Conditions	1,964,542.15
DIS.2.2	Perinatal Conditions	51,084,747.26
DIS.2.3	Contraceptive management (family planning)	To be calculated
DIS.2.nec	Other reproductive health conditions (n.e.c.)	
<i>DIS.3 Nutrition Deficiencies</i>		
DIS.3.1	General Nutrition Deficiencies	20,696,030.97
<i>DIS.4 Non-Communicable Diseases</i>		
	Renal Failure	46,888,901
	Other Non-Communicable Diseases	
<i>DIS.5 Injuries</i>		
		184,174,690

DIS.5.1	Road Traffic Accident Injuries	173,383,783
DIS.5.2	Other Injuries	10,790,907
DIS.6	Non-disease specific	54,093,582
DIS. nec.	Other diseases / conditions (n.e.c.)	54,840,441
<i>Total Diseases Accounts</i>		2,470,174,549

HIV/AIDS Specific Accounts

Sudan has a low-level HIV epidemic that varies geographically and is concentrated among key populations at higher risk of HIV. The Eastern Zone of the country is experiencing a higher concentration, and data from the integrated bio-behavioural survey suggest a higher prevalence among Female Sex Workers (FSWs) and Men who have Sex with Men (MSM).

The estimated national prevalence is 0.24%, however among FSWs the estimated mean prevalence is 1.5% and 2.1% for MSM. Besides these key populations other vulnerable groups who are at higher risk of acquiring HIV due to their occupations or social factors include prisoners, youth, uniformed services, populations of humanitarian concern, tea and food sellers, and truck drivers.

Calculation Methodology

Secondary data from different sources were collected including GF Program Management Unit (PMU) at the United Nation Development Fund (UNDP) country office, Communicable and Non-Communicable Diseases Department at FMOH and HIV/AIDS program units at SMOH. Further estimations for government share were calculated for Case Management, Drugs and Consumable Supply System, VCTs staff and PMTCT staff. The data collected for SHA 2018 is different from data usually collected for National AIDS Spending Assessment (NASA) as it measures only health and health related spending and not all country AIDS control interventions and responses.

SHA 2018 with DSA is different from NASA as it captures only spending on health or health related activities and not all responses and activities to control AIDS (e.g. social responses)

Summary results

The total spending on HIV/AIDS in Sudan reached the peak in 2011 and then showed sharp declining pattern from US\$ 24 million to US\$ 14.6 in 2013. In 2018, the total spending mounted to US\$ 9,17 million. The table below showed summary results of current 2018 specific HIV/ AIDS accounts.

Table 10: HIV Spending Summary,2018

Category	SDG	\$US
Total HIV spending	218,267,481.02	9,170,902.56
Total HIV Patients 2018	1,068,506	
Country GDP 2018	1,228,900,000,000	51,634,453,781.51
HIV spending as a share of GDP	0.02%	0.02%
Per capita HIV spending	5.20	0.22
Public spending as a share of total HIV spending	23.59%	
International spending as a share of total HIV spending	63.79%	
Private spending as a share of total HIV spending	12.62%	

HIV Spending by Revenue

The total spending on HIV/ AIDS in 2018 was US\$ 9, 17 million. The main financers of HIV/ AIDS activities were the international donors with 63.7% of total HIV/AIDS expenditure. The private revenues for HIV/AIDS were mainly from HIV patients Out- Of- Pocket (OOP) expenditure (12.6%). Public funds represented 23.59% of total HIV/AIDS spending in 2018.

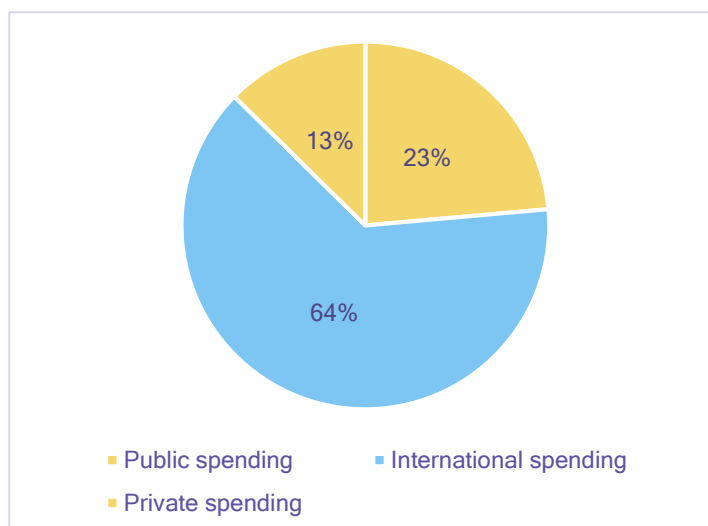


Figure 9: HIV Revenue, 2018

Tuberculosis Specific Accounts

Sudan reported 21,054 cases of TB in 2018 (including new, relapse and previously treated patients). The incidence rate was 71 (including HIV+TB) and mortality rate 11 cases per 100,000 population. The case detection rate for all forms of TB is 44%, while total annual new caseload (2012) was estimated to be around 18,096 and mortality (excluding HIV+TB) is 11 per 100,000 population. Treatment success rate (2017) was 80% for new and relapse cases while MDR/RR-TB cases started on second-line treatment in 2016 was 84%. In 2012 burden of multi-drug resistant –TB was 1.8% of the new and 19% of retreatment cases. Total MDR-TB cases among notified new pulmonary TB cases are estimated at 240 and 330 retreatment cases.

The Department of Communicable and Non-Communicable Diseases (C&NCD) responsible of all activities related to control the disease in the country. The FMOH, together with State Ministries of Health (SMOH) in Sudan, developed its national strategic plan with the aims to reduce morbidity, mortality and transmission of disease until it no longer poses a threat to public health. In this context, TB specific accounts is produced to provide in-depth analysis of the flow of funds and resources encountered to compact the disease.

Calculation Methodology

Secondary data were collected from the C&NCD department and GF unit at the UNDP (PMU). The WHO country office provided secondary data on OOP expenditure by TB patients. Estimations were made to calculate program management costs and government spending on TB Management Units (MUs).

Summary results

In 2018, the Total TB Expenditure (TTBE) in Sudan was almost US\$ 7.9 million, representing 0.015% of the GDP and 0.32% of Current Health Expenditure (CHE) in the same year. Table (11) gives summary statistics on TB health expenditures for 2018.

Table 11: Summary of TB Health Expenditures, 2018

Category	SDG	\$US
Total TB Expenditure 2018	189,224,374	7,950,603.94
Total TB Patients 2018	22,500	
TTBE as Percentage of GDP	0.015%	
Per capita TB Expenditure	4.51	0.05
Per patient TB Expenditure	8,410	93.2
TB Total Expenditure as Percentage of CHE (%)	0.32%	
Public Funds as % of TTBE	24.13%	
International Donors Funds as % of TTBE	66.13%	
Patients Out-of-Pocket Expenditure as % of TTBE	9.74%	

Financing Revenues of TB

Figure 10, provides a breakdown of financing revenues for TTBE in 2018. Accordingly, the donors provided the highest share of TB revenues in 2018 (almost 66%, while the public sector was 24%. The main financing donor revenue for TB was the Global Fund to fight HIV/AIDS, Tuberculosis and Malaria (GFATM). Private sector, which is essentially the households' OOP

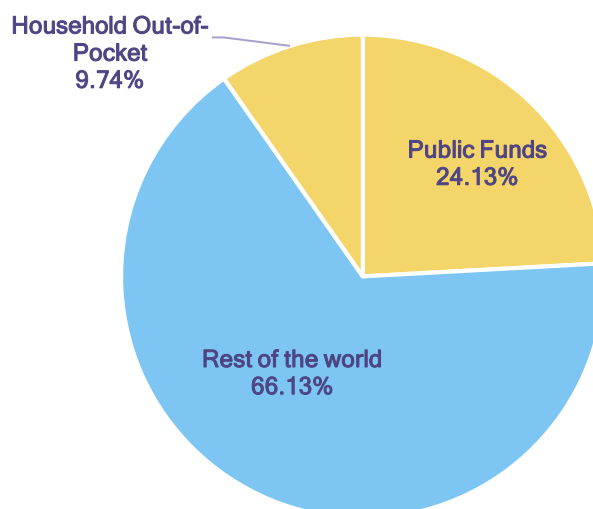


Figure 10: TB Financing Sources

expenditure, spent little more than 9% of the TTBE. The share of public funds for TB has witnessed significant declining from 36.9% in 2015 to 24.1% in 2018. That was mainly due to the devaluation of local currency as the government share was directed towards program management and operational costs of the MUs.

Malaria Specific Accounts

Malaria continue to be one of the most challenging public health problems in Sudan. Based on climate and epidemiological models, it is estimated that 75% of the population (30 million) are at risk of malaria, with 25% at risk of malaria epidemics. The annual incidence is 2,780 per 100,000 population and death rate is 2.1 per 100,000 population. During the period 2005–2009, malaria prevalence dropped from 3.7% to 1.8%, while reported cases were reduced from 7.5 million (in 1990) to 2.3 million (in 2009).

With focus on monitoring the outputs and outcomes, tuning plans for the National Malaria Program and continuity of donor support, there is every likelihood that the program would remain on track to meet the corresponding strategic program targets.

Malaria Summary results

Total Malaria Expenditure (TME) reported in 2018 is SDGs 1,317,205,409 (US\$ 55,344,765.09), which amounts to 0.11% of the country's GDP and 2.24% of CHE. The international donors followed by public sector and household are major partners contributing 60.64%, 33.15% and 6.2% of TME respectively. Details can be seen in the table below.

Table 12: Summary of Total Malaria Services Expenditure, 2018

Category	SDG	\$US
Total Malaria Expenditure 2018	1,317,205,409	55,344,765.09
Exchange Rate 2018 (SDG/\$US)	23.8	
Total Population of the Sudan 2018	41,984,512	
Total Malaria Patients 2018	1,028,955	
Country GDP 2018	1,228,900,000,000	51,634,453,781.51
TME as Percentage of GDP	0.11%	0.11%
Per capita Malaria Expenditure	31.4	1.32
Per patient Malaria Expenditure	1,280.14	53.79
Malaria Total Expenditure as Percentage of THE (%)	2.24%	
Public Funds as % of TME	33.15%	
International Donors Funds as % of TME	60.64%	
Patients Out-of-Pocket Expenditure as % of TME	6.20%	

Vaccines Preventable Diseases Specific Accounts

Sudan has witnessed a remarkable improvement in routine vaccination coverage during the last few years. There are vaccines that have achieved the targeted coverage of more than 90% since 2008 (BCG, Penta3 and polio3) with Dropout Rate (DOR) between first and third dose more than 5%. 2017 witnessed great improvement in measles vaccination that was stagnant for several years, where MCV1 reached 90% for the first time and MCV2 reached 72% at national level. The program has reached all the planned targeted coverage with slight increase for Pentavalent (94.7%), Rota (95.2%) and PCV (94.6%)¹¹. The coverage rate of pentavalent vaccine third dose reached 93% and measles coverage rate was 87%. This was a result of the stable implementation of routine immunization for the prevention and control of vaccine-preventable childhood diseases.

Since 1993 the Sudan's Expanded Program on Immunization (EPI) adopted measures to eradicate poliomyelitis, control measles, and eliminate neonatal tetanus included government financing of vaccine purchase, decentralization of EPI operations, a shift from a mobile to a less expensive fixed-site vaccine delivery strategy, installation of a solar cold chain network, resumption of managerial in-service training, and social mobilization.

Calculation Methodology

A secondary data on Vaccine Preventable Diseases (VPD) expenditure and statistics were collected from FMOH/ EPI to obtain the expenditure on disease prevention, the large majority of VPD expenditure are for prevention (immunization). The Data was track the contributor (GAVI, UNICEF, WHO, FMOF and SMOF) funds amounts and the flow of money according to type of services. The data for estimating the expenditure on VPD treatment was calculated based on costing exercise to calculate the VPD cased management and obtain the medical cost of inpatient/ outpatient of VPD from study of "Disease Specific Cost study at Ahmed Gasim And Mohammed Alamin Hamed Paediatric Hospitals, 2018". The calculations of VPD treatment includes Meningitis, Diphtheria, Whooping Cough and measles. The expenditure on Tetanus and Hepatitis B were not included.

Summary results

In 2018, the Total Vaccines Preventable Diseases Expenditure (VPD) in Sudan was 64,888,791.71US\$, representing 0.13% of the GDP, 2.63% of Current Health Expenditure (CHE) and amount US\$ 1.55 per capita expenditure in the same year. Table (13) gives summary statistics on VPD health expenditures for 2018.

Table 13: Summary of vaccine preventable Diseases (VPD) Expenditure, 2018

Category	SDG	\$US
Total VPD Expenditure 2018	1,544,353,243	64,888,791.71

¹¹ Joint Appraisal report 2018, FMOH, Sudan

Exchange Rate 2018 (SDG/\$US)	23.8	
Total Population of the Sudan 2018	41,984,512	
Total VPD Patients 2018	0	
Country GDP 2018	1,228,900,000,000	51,634,453,781.51
TVPDE as Percentage of GDP	0.13%	
Per capita VPD Expenditure	36.8	1.55
VPD Total Expenditure as Percentage of THE (%)	2.63%	
Public Funds as % of T VPD E	15.90%	
International Donors Funds as % of TVPDE	83.61%	
Patients Out-of-Pocket Expenditure as % of TVPDE	0.49%	

Financing Revenues of VPD

Figure 11, provides a breakdown of financing revenues for VPD in 2018. Accordingly, the majority of the funding comes from Rest of the world (Donors) which they provided highest share of PVD revenues in 2018 (almost 83.61%, while the public sector spent 15.9%. the household share on VPD about 0.49%. The main financing donor revenue for VPD was the GAVI, UNICEF and WHO. In 2018 GAVI contribute the largest proportion of funds (70%), followed by UNICEF (19%) and 11% was the WHO contribution from Donors revenues.

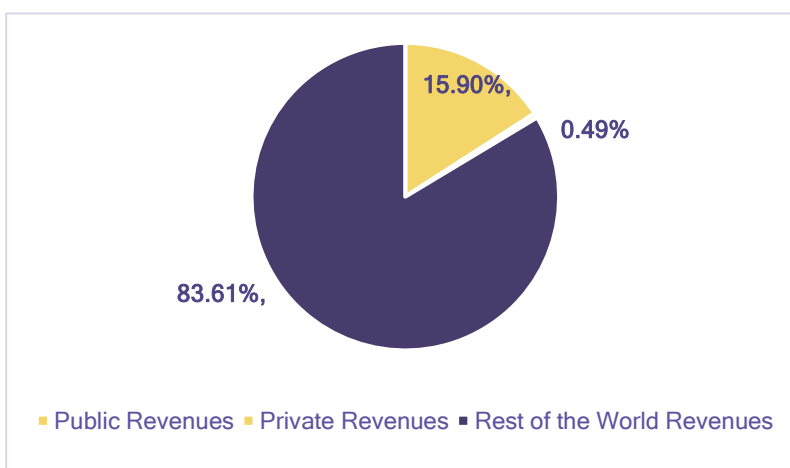


Figure 11: vaccine preventable Diseases (VPD), financing Sources, 2018

Providers of VPD Services

As shown in Table (14), 66.5 % of PVD expenditure were provided through ambulatory health care services which includes the services provided by office of medical specialist, and routine immunization services in PHC health centres, outreach and mobile services. The prevention of PVD utilize 29.1% of fund which cover the expenses of additional campaign, surveillances and the administration cost of EPI staff. The hospitals encounter the least utilization share (4.4%).

Table 14: vaccine preventable Diseases (VPD) services providers, 2018.

Providers of Health Services	Amount SDG	Percent	Amount \$US	Per Capita
Hospitals	67,252,068.7	4.4%	2,825,717.17	0.1
General hospitals	67,252,068.7		2,825,717.17	0.1
Specialized hospitals			-	

Nursing and Residential Care Facilities	-	0.0%	-	-
	-	0.0%	-	-
Providers of Ambulatory Health Care	1,027,316,268.4	66.5%	43,164,549.09	1.0
Offices of Medical Specialists	377,058.6	0.0%	15,842.80	0.00
Dental Practices		0.0%	-	-
PHC Health Centers	486,444,888.8	31.5%	20,438,860.87	0.49
Other Medical Practices	540,494,320.9	35.0%	22,709,845.42	0.54
Providers of ancillary services	-		-	-
Medical and diagnostic laboratories			-	-
Other Providers of Ancillary Services		0.0%	-	-
Providers of preventive care	449,784,825.7	29.1%	18,898,522.09	0.5
Providers of preventive care	449,784,825.7		18,898,522.09	0.45
Providers of health care system administration and financing	-	0.0%	-	-
Government health administration agencies	-	0.0%	-	-
Social health insurance agencies			-	-
Other administration agencies			-	-
Rest of the world	-		-	-
Rest of the world			-	-
Unspecified health care providers (n.e.c.)	-		-	-
Unspecified health care providers (n.e.c.)			-	-
Total	1,544,353,163	100%	64,888,788.35	1.55

Functions of PVD Services

Most of the PVD expenditure is for preventive services, amount 99%. While Curative care services include both inpatient, outpatient services is just 0.9%. Further details about health expenditure by the type of health services shown in table (15).

Table 15: PVD Services functions expenditure.2018

Functions of Health Services	Amount SDG	Percent	Amount \$US	Per Capita
Curative care	13,579,695	0.9%	570,575	0.013
Inpatient curative care	13,202,637	0	554,733	0.013
General inpatient curative care	13,202,637	0.9%	554,733	0.013
Specialized inpatient curative care		0.0%	0	0.00
Unspecified inpatient curative care (n.e.c.)	0	0.0%	0	0.00
Outpatient curative care	377,059	0	15,843	0.0004
General outpatient curative care	377,059	0.0%	15,843	0.0004
Dental outpatient curative care	0	0.0%	0	0.00

specialized outpatient curative care		0.0%	0	0.00
Unspecified outpatient curative care (n.e.c.)	0	0.0%	0	0.00
Home-based curative care		0	0	0
Unspecified curative care (n.e.c.)		0	0	0
Ancillary services (non-specified by function)	0	0.0%	0	0.00
Laboratory services		0	0	0
Preventive care	1,530,773,467	99%	64,318,213	1.53
Immunization Programs	1,530,773,467	99%	64,318,213	1.53
Unspecified preventive care (n.e.c.)	0	0	0	0
Governance, and health system and financing administration	0	0.0%	0	0.00
Governance and Health system administration	0	0	0	0
Administration of health financing		0	0	0
Unspecified governance, and health system and financing administration (n.e.c.)		0	0	0
Other health care services not elsewhere classified (n.e.c.)		0.0%	0	0.00
Total	1,544,353,163	100.0%	64,888,788	1.55

Expenditure on VPD Activities:

Figure 12 Shows that the main source of funding routine immunization activities is GAVI which is amount 80.30%, followed by government (11.1%) and UNICEF with 8.5%. the fund of supplementary immunisation activities is funded by UNICEF, WHO and GAVI, about 48%, 41.6% and 10% respectively. 55% of treatment of vaccine preventable diseases covered by household out of pocket expenditure.

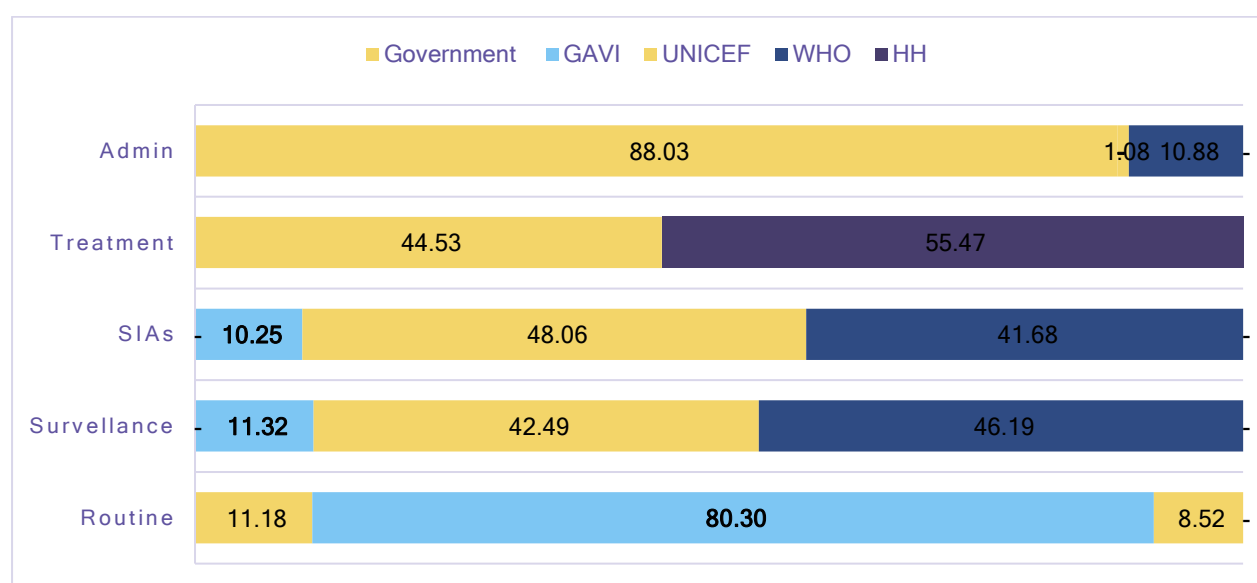


Figure 12: Expenditure on VPD activities, 2018

Road traffic Accident Specific Accounts

Road traffic injury is a global public health problem, in Sudan RTIs are the third cause of death, where in 2018 there are 1959 sever crashes occur result in 2477 deaths and 3835 major crashes result in 6074 major injured persons and 8706 minor crashes with 13504 injured persons. Prevalence of RTA in 2018 are 4.7/100,000 for sever crashes, 9.1/100,000 for major one and 20.7/100,000 for minor injuries. For the same year prevalence of road traffic deaths was 5.9/100,000, persons with major injuries were 14.5/100,000 and 32.2/100,000 for persons with minor injuries. The average death per day was 7 deaths, 17 major injured persons and 37 minor injured persons. RTAs fatality rate for Sudan in 2018 were 25.7 and 50% of disabilities in country were due to RTAs.

Calculation Methodology

A secondary data on road traffic accident were collected from FMOH/ Directorate of communicable and non-communicable disease to obtain the expenditure on disease prevention, and disease statistics. The data for estimating the expenditure on road traffic accident treatment was calculated based on costing exercise to calculate the injury case management and obtain the medical cost from study of “Analysis of Road Traffic Accident Costs in Sudan Using the Human Capital Method”. The household utilization and expenditure survey used as a keys to distribute the out of pocket and others share on disease treatment. For out of pocket specific Expenditure for ARTI all item of household expenses was summated and calculate with median to find a much representative number for the sample.

*“(Total public expenditure on Prevention of road traffic injuries Total donor expenditure on Prevention of road traffic injuries) + (No of disability cases caused by Road Traffic Injuries * Average medical cost of road traffic disability case) +(No of Road Traffic Serious Injuries cases* Average medical cost of road traffic Serious injuries) + (No of Road Traffic minor Injuries cases* Average medical cost of road traffic minor) + (No of Road Traffic Injuries cases* case management cost of road traffic injuries)”*

Summary results

In 2018, the Total Road Traffic Accident Injuries (RTAI) in Sudan was 173,381,339 US\$, representing 0.34% of the GDP, 7.02% of Current Health Expenditure (CHE) and amount US\$ 4.13 per capita expenditure in the same year. Table (16) gives summary statistics on RTAI health expenditures for 2018.

Table 16: Summary of Roads Traffic Accident Injuries (RTAI) Expenditure, 2018

Category	SDG	\$US
Total RTA injuries Expenditure 2018	4,121,373,718	173,166,962.95
Exchange Rate 2018 (SDG/\$US)	23.8	
Total Population of the Sudan 2018	41,984,512	
Total RTA injuries Patients 2018	19,578	
Country GDP 2018	1,228,900,000,000	51,634,453,781.51
Total RTA injuries Expenditure as Percentage of GDP	0.34%	0.34%
Per capita RTA injuries Expenditure	98.16	4.1
Per patient RTA injuries Expenditure	210,510	8,845
RTA injuries Total Expenditure as Percentage of THE (%)	7.01%	
Public Funds as % of Total RTA injuries Expenditure	19%	
International Donors Funds as % of Total RTA injuries Expenditure	80.90%	
Patients Out-of-Pocket Expenditure as % of Total RTA injuries Expenditure	0.01%	

Financing Revenues of RTAI

Figure (14) provides a breakdown of financing revenues for RTAI in 2018. Accordingly, the Household provided the highest share of RTAI revenues in 2018 (almost 81%, while the public sector spent 19.08%. The main financing donor revenue for RTAI was the WHO.

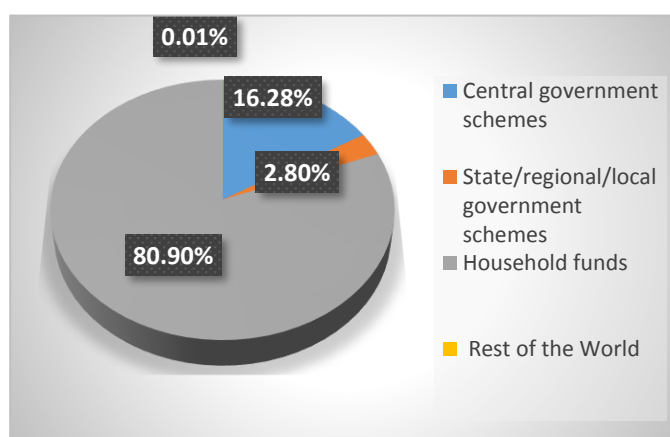


Figure 13: financing revenue of RTAI

Providers of RTAI Services

Hospitals and providers use most funds (77.9%), the providers of ancillary services which includes medical laboratories and diagnostics services medications and medical equipment use 15.7%, which is 6% and 9.7% respectively. The provider of preventive care use only 0.02% which includes public and WHO contributions. The detail on the use of health funds in absolute amounts is given in table (17), below.

Table 17: RTAI services providers Expenditure, 2018.

Providers of Health Services	Amount SDG	Percent	Amount \$US	Per Capita
Hospitals	3,198,550,964.5	77.6%	134,392,898	3.20
General hospitals	3,198,550,964.5	77.6%	134,392,898	3.20
Specialized hospitals	-	-	-	0.00
Nursing and Residential Care Facilities	-	0.0%	-	0.00
	-	-	-	0.00

Providers of Ambulatory Health Care	276,377,547.1	6.7%	11,612,502	0.28
Offices of Medical Specialists	25,167,563.6	0.6%	1,057,461	0.03
Dental Practices		0.0%	-	0.00
PHC Health Centers		0.0%	-	0.00
Other Medical Practices	251,209,983.5	6.1%	10,555,041	0.25
Providers of ancillary services	645,602,718.5	15.7%	27,126,165	0.65
Medical and diagnostic laboratories	247,298,668.4	6.0%	10,390,700	0.25
Other Providers of Ancillary Services	398,304,050.0	9.7%	16,735,464	0.40
Providers of preventive care	900,643.2	0.02%	16,150	0.00
Providers of preventive care	900,643.2	0.02%	16,150	0.00
Providers of health care system administration and financing	-	0.0%	-	0.00
Government health administration agencies		0.0%	-	0.00
Social health insurance agencies		0.0%	-	0.00
Other administration agencies		0.0%	-	0.00
Rest of the world	516,278.0	0.013%	21,692	0.00
Rest of the world	516,278.0	0.013%	21,692	0.00
Unspecified health care providers (n.e.c.)	-	-	-	0.00
Unspecified health care providers (n.e.c.)		0.0%	-	0.00
Total	4,121,431,873	100%	173,169,406	4.12

Functions of RTAI Services

Almost 41% of the road traffic accident injuries expenditure is for curative services. Curative care services include both inpatient, outpatient services and rehabilitation services (physiotherapy) provided in all type of health facilities. The share of ancillary services is about 29.8%, while health care functions related to disease prevention accounted for just 0.02%. Further details about health expenditure by the type of health services is in table (18).

Table 18: RTAI Services Functions Expenditure.2018

Health care functions	Amount SDG	Percent	Amount \$US	Per Capita
Curative care	835,169,487	40.72%	35,091,155	0.84
Inpatient curative care	816,489,603	14.73%	34,306,286	0.82
General inpatient curative care	816,489,603	14.73%	34,306,286	0.82
Specialized inpatient curative care		0.00%	0	0.00
Unspecified inpatient curative care (n.e.c.)		0.00%	0	0.00
Outpatient curative care	18,679,883.89	0.34%	784,869.07	0.02
General outpatient curative care	18,679,883.89	0.34%	784,869.07	0.02
Dental outpatient curative care	0	0.00%	0	0.00
Specialized outpatient curative care		0.00%	0	0.00

Unspecified outpatient curative care (n.e.c.)	0	0.00%	0	0.00
Home-based curative care		0.00%	0	0.00
Unspecified curative care (n.e.c.)		0.00%	0	0.00
Rehabilitative Care	1,422,435,751	25.66%	59,766,208.	1.42
Inpatient Rehabilitative Care	998,314,999	18.01%	41,946,008	1.00
Day Rehabilitative Care	251,209,983.5	4.53%	10,555,041	0.25
Outpatient Rehabilitative Care	172,910,767.9	3.12%	7,265,158	0.17
Home-Based Rehabilitative Care		0.00%	0	0
Ancillary services (non-specified by function)	1654128084	29.84%	69501179.99	1.66
Laboratory services	92,519,028	1.67%	3,887,354	0.09
Imaging Services	541,096,136	9.76%	22,735,132	0.54
Patient Transportation		0.00%	0	0.00
Medical Goods (Non-Specified By Function)	1,020,512,919	18.41%	42,878,694	1.02
Preventive care	900643.1698	0.02%	37,842.	0.001
Epidemiological surveillance and risk and disease control programs	900,643	0.02%	37,842	0.001
Unspecified preventive care (n.e.c.)	0	0.00%	0	0.00
Governance, and health system and financing administration	0	0	0	0
Governance and Health system administration	0	0.0%	0	0
Administration of health financing		0.0%	0	0
Unspecified governance, and health system and financing administration (n.e.c.)		0.0%	0	0
Other health care services not elsewhere classified (n.e.c.)	208,797,908.4	3.77%	8,773,021.36	0.21
Total	4,121,431,873	100.0%	173,169,406	4.12

Figure 14

Annex 1: SHA 2018 with disease Specific Classifications

1. Classification of revenue of financing schemes:

Code	Description
FS.1	Transfers From Government Domestic Revenue (Allocated To Health Purposes)
FS.1.1	Internal Transfers And Grants
FS.1.1.1	Central Government
FS.1.1.1.1	Federal Ministry Of Finance
FS.1.1.1.2	Ministry Of Defense
FS.1.1.1.3	Ministry Of Interior Affair
FS.1.1.1.4	Ministry Of Education
FS.1.1.1.5	Ministry Of Higher Education
FS.1.1.2	Regional & Municipal Government
FS.1.1.2.1	State Ministry Of Finance
FS.1.1.2.2	Localities
FS 1.2	Transfers By Government On Behalf Of Specific Groups
FS 1.2.1	Zakat
FS 1.2.2	Other
FS.1.3	Subsidies
FS.1.4	Other Transfers From Government Domestic Revenue
FS.2	Transfers Distributed By Government From Foreign Origin
FS.3	Social Insurance Contributions
FS.3.1	Social Insurance Contributions From Employees
FS.3.2	Social Insurance Contributions From Employers
FS.3.3	Social Insurance Contributions From Self-Employed
FS.3.4	Other Social Insurance Contributions
FS.3.4.1	Khartoum State Health Insurance
FS.6	Other Domestic Revenues
FS.6.1	Other Revenues From Households
FS.6.2	Other Revenues From Corporations
FS.6.3	Other Revenues From Non Profit Institutions Serving Households
FS.7	Direct Foreign Transfers
FS.7.1	Direct Foreign Financial Transfers
FS.7.1.1	Direct Bilateral Financial Transfers
FS.7.1.2	Direct Multilateral Financial Transfers
FS.7.1.3	Other Direct Foreign Financial Transfers
FS.7.2	Direct Foreign Aid In Kind
FS.7.2.1	Direct Foreign Aid In Goods

FS.7.2.1.1	Direct Bilateral Aid In Goods
FS.7.2.1.2	Direct Multilateral Aid In Goods
FS.7.2.1.3	Other Direct Foreign Aid In Goods
FS.7.2.2	Direct Foreign Aid In Kind: Services (Including Technical Advise)
	FS.7.3 Other Direct Foreign Transfers (N.E.C.)
FS.7.3	Other Direct Foreign Transfers (N.E.C.)

2. Classification of HEALTH Care Providers:

Code	Description
HP.1	Hospitals
HP.1.1	General Hospitals
HP.1.1.1	Ministry Of Health General Hospitals
HP.1.1.1.1	Federal Ministry Of Health General Hospitals
HP.1.1.1.2	State Ministry Of Health General Hospitals
HP.1.1.2	Ministry Of Defense General Hospitals
HP.1.1.3	Ministry Of Interior General Hospitals
HP.1.1.4	Ministry Of Education General Hospitals
HP.1.1.5	Ministry Of Higher Education General Hospitals
HP.1.1.6.1	Social Health Insurance General Hospitals
HP.1.1.6.2	Private Health Insurance General Hospitals
HP.1.1.7	Private Hospital General Hospitals
HP.1.1.8.1	Local NGOs General Hospital
HP.1.1.8.2	International NGOs General Hospitals
HP.1.1.9	Other General Hospital
HP.1.2	Mental Hospitals
HP.1.2.1	Federal Ministry Of Health Mental Hospitals
HP.1.2.3	Ministry Of Interior Mental Hospital
HP.1.3	Specialized Hospitals
HP.1.3.1.1	Federal Ministry Of Health Specialized Hospitals
HP.1.3.1.2	State Ministry Of Health Specialized Hospitals
HP.1.3.2	Ministry Of Defense Specialized Hospitals
HP.1.3.3	Ministry Of Interior Specialized Hospitals
HP.1.3.4	Ministry Of Education Specialized Hospitals
HP.1.3.5	Ministry Of Higher Education Specialized Hospitals
HP.1.3.6	Health Insurance Specialized Hospitals
HP.1.3.7	Private Hospital Specialized Hospitals
HP.1.3.8.1	Local NGOs Specialized L Hospital
HP.1.3.8.2	International NGOs Specialized L Hospital
HP.2	Residential Long –Term Care Facility

HP.2.1	Long Term Nursing Care Facility
HP.2.1.7	Private Long Term Nursing Care Facility
HP.2.2	Mental Health And Substance Abuse Facilities
HP.2.2.3	Interior Mental Health And Substance Abuse Facilities
HP.2.2.7	Private Mental Health And Substance Abuse Facilities
HP.2.9	Other Residential Long –Term Care
HP.2.9.7	Private Other Residential Long –Term Care
HP.2.9.9	Other Residential Long –Term Care
HP.3	Providers Of Ambulatory Health Care
HP.3.1	Medical Practices
HP.3.1.1	Offices Of General Medical Practitioners
HP.3.1.2	Offices Of Mental Medical Specialist
HP.3.1.3	Offices Of Specialized Medical Specialist
HP.3.2	Dental Practices
HP.3.3	Other Health Care Practitioners
HP.3.4	Ambulatory Health Centers
HP.3.4.1	Family Planning Centers
HP.3.4.1.8.1	Local NGOs Family Planning Centers
HP.3.4.1.8.2	International NGOs Family Planning Centers
HP.3.4.2	Ambulatory Mental Health And Substance Abuse Centers
HP.3.4.3	Free-Standing Ambulatory Surgery Centers
HP.3.4.4	Dialysis Care Centers
HP.3.4.4.1.1	Federal Ministry Of Health Dialysis Care Centers
HP.3.4.4.1.2	State Ministry Of Health Dialysis Care Centers
HP.3.4.4.5	Ministry Of Higher Education Dialysis Care Centers
HP.3.4.4.7	Private Dialysis Care Centers
HP.3.4.4.8.1	Local NGOs Dialysis Care Centers
HP.3.4.9	All Other Ambulatory Centers
HP.3.4.9.1	Ministry Of Health Centers
HP.3.4.9.2	Ministry Of Defense Health Centers
HP.3.4.9.3	Ministry Of Interior Health Centers
HP.3.4.9.4	Ministry Of Education Health Centers
HP.3.4.9.5	Ministry Of Higher Education Health Centers
HP.3.4.9.6	Health Insurance Health Centers
HP.3.4.9.7	Private Health Centers
HP.3.4.9.8.1	Local NGOs Health Centers
HP.3.4.9.8.1	International NGOs Health Centers

HP.4	Providers Of Ancillary Services
HP.4.1	Providers Of Patient Transportation And Emergency Rescue
HP.4.2	Medical And Diagnostic Laboratories
HP.4.9	Other Providers Of Ancillary Services
HP.5	Retailer And Other Provider Of Medical Good
HP.5.1	Pharmacies
HP.5.2	Retail Sellers And Other Suppliers Of Durable Medical Goods And Medical Appliances
HP.5.9	All Other Miscellaneous Sellers And Other Suppliers Of Pharmaceuticals And Medical Goods
HP 6.	Providers Of Preventive Care
HP 7.	Providers Of Health Care System Administration And Financing
HP 7.1	Government Health Administration Agencies
HP 7.2	Social Health Insurance Agencies
HP 7.3	Private Health Insurance Administration Agencies
HP 7.4	Other Administration Agencies

3. Classification of HEALTH care Functions:

Code	Description
HC.1	Curative Care
HC.1.1	Inpatient Curative Care
HC.1.1.1	General Inpatient Curative Care
HC.1.1.2	Specialized Inpatient Curative Care
HC.1.3	Outpatient Curative Care
HC.1.3.1	General Outpatient Curative Care
HC.1.3.2	Dental Outpatient Curative Care
HC.1.3.3	Specialized Outpatient Curative Care
HC.1.4	Home-Based Curative Care
HC.2	Rehabilitative Care
HC.2.1	Inpatient Rehabilitative Care
HC.2.2	Day Rehabilitative Care
HC.2.3	Outpatient Rehabilitative Care
HC.2.4	Home-Based Rehabilitative Care
HC.4	Ancillary Services (Non-Specified By Function)
HC.4.1	Laboratory Services
HC.4.2	Imaging Services
HC.4.3	Patient Transportation

HC.5	Medical Goods (Non-Specified By Function)
HC.5.1	Pharmaceuticals And Other Medical Non-Durable Goods
HC.5.1.1	Prescribed Medicines
HC.5.1.2	Over-The-Counter Medicines
HC.5.1.3	Other Medical Non-Durable Goods
HC.5.2	Therapeutic Appliances And Other Medical Goods
HC.5.2.1	Glasses And Other Vision Products
HC.5.2.2	Hearing Aids
HC.5.2.3	Other Orthopedic Appliances And Prosthetics (Excluding Glasses And Hearing Aids)
HC.5.2.9	All Other Medical Durables, Including Medical Technical Devices
HC.6	Preventive Care
HC.6.1	Information, Education And Counseling Programs
HC.6.2	Immunization Programs
HC.6.3	Early Disease Detection Programs
HC.6.4	Healthy Condition Monitoring Programs
HC.6.5	Epidemiological Surveillance And Risk And Disease Control Programs
HC.6.6	Preparing For Disaster And Emergency Response Programs
HC.7	Governance, And Health System And Financing Administration
HC.7.1	Governance And Health System Administration
HC.7.2	Administration Of Health Financing
HC.9	Other Health Care Services Not Elsewhere Classified (N.E.C.)

4. SHA 2018 diseases with detailed accounts classifications

Classifications	Disease Name
DIS 1 Infectious and parasitic diseases	
DIS.1.1	HIV/AIDS And Other Sexually Transmitted Diseases (STDS)
DIS.1.2	Tuberculosis (TB)
DIS.1.3	Malaria
DIS.1.6	Neglected Tropical Diseases
DIS.1.6.1	Bilharzias
DIS.1.7	Vaccine Preventable Diseases (10 Diseases)
DIS.1.7.1	Measles
DIS.1.7.2	Polio
DIS.1.7.3	Diphtheria
DIS.1.7.4	Tetanus

DIS.1.7.5	Whooping Chough
DIS.1.7.6	Hepatitis
DIS.1.7.7	Haemophlous Influenza
DIS.1.7.8	Rota Virus Diarrhea
DIS.1.7.9	Meningitis
DIS.1.7.10	Tuberculosis (<i>Will Be ACOUNTED IN Dis1.2</i>)
DIS 2 Reproductive Health	
DIS.2.1	Maternal Conditions
DIS.2.2	Perinatal Conditions
DIS 3 Nutritional Deficiencies	
DIS3.1	Nutritional Deficiencies
DIS 4 Non Communicable Diseases	
DIS.4.7	Diseases Of The Genito-Urinary System
DIS 4.7.1	Renal Failure
DIS 5 Injuries	
DIS 5.1	Road Traffic Injuries

Annex: TORs of Survey Teams

National consultant (NC) TORs

The NC has authority over all the structures involved in the survey. The NC responsibilities included:

- Drafting an action plan for the survey,
- Communicating with WHO and Health Financing & Economics technical team to guarantee approval to the set study plan.
- Working with the national HF&E Technical team to conduct a Training for the data collectors at all levels;
- Overseeing implementation of the SHA with disease Specific study ;
- Working with the WHO and HFE/FMOH. Technical team to closely monitor the study activities and take necessary actions to manage emerging obstacles; and
- Reporting survey findings to WHO and HFE/FMOH.

State Supervisors TORs

State supervisors are responsible for:

- Receive training for the study supervision/data collection;
- Develop a logistic plans in the assigned states for the fieldwork including, detailed movement plan for data collection teams; and transportation and provision of supplies for the fieldwork
- Ensuring the receipt, of all study teams, of necessary logistics for data collection;
- Making sure, on daily basis, that data collection is done according to survey protocols and guidelines;
- Delivering, to the Data managers the survey filled in questionnaires;

Federal Data Collectors TORs

At the federal level, there were eight data collectors to collect data at the federal level entities.

- Report to the NC for fieldwork in their respective entities at federal level;
- Receive training for data collection.
- Receive blank and coded questionnaires from the NC;
- Enter findings in the questionnaire at the space provided for the purpose following the instructions;
- Hands-over the filled-in questionnaires to the Data Managers; and
- Any other assignment agreed with the NC.

State Data Collectors TORs

There were two data collectors for each state. One of them will be the State Director for Health Planning and another was a health economics mangers.

- Report to the Supervisor for fieldwork in their respective entities at states level;
- Receive training for data collection.
- Keep adequate stationary and other material required during fieldwork;
- Receive blank and coded questionnaires from their respective Supervisor;
- Enter findings in the questionnaire at the space provided for the purpose following the instructions;
- Hands-over the filled-in questionnaires to the Supervisor;
- Any other assignment agreed with the Supervisor.

Data Management TOR

- Receive from Supervisors and federal data collectors the filled-in questionnaires;
- Keep record of the received filled-in questionnaires;
- Process the data for the following:
 - Ordering the data i.e. arranging the filled-in questionnaires;
 - Cleansing the data i.e. the filled-in questionnaires according to the principles laid down for the purpose;
 - Entering data from the cleansed filled-in questionnaires;
 - Validating accuracy of data after entry into computer database; and
 - Assists in developing SHAs tables concerning Financing Agents and Health Providers.

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