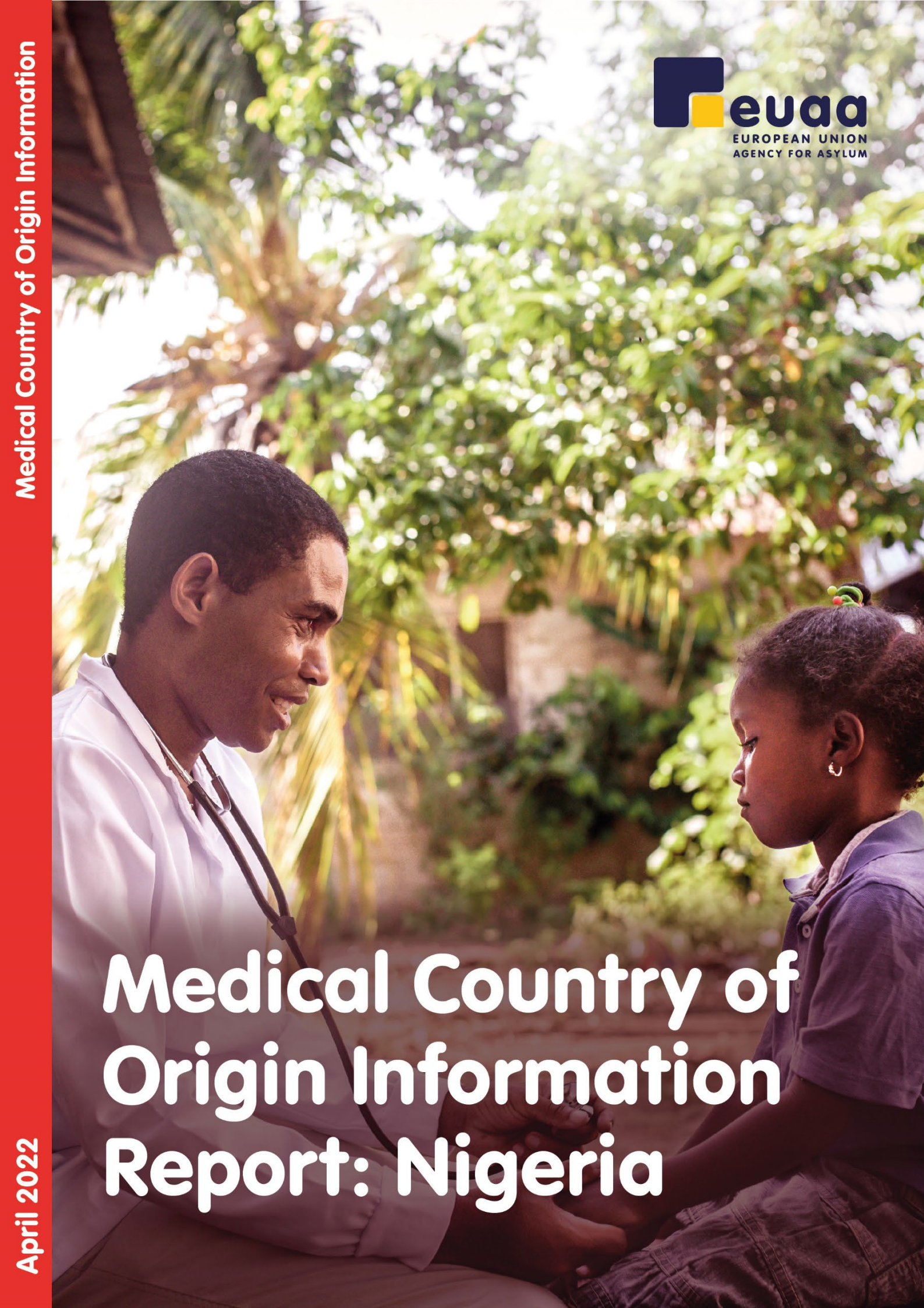




# Medical Country of Origin Information Report: Nigeria



# NIGERIA

## Medical Country of Origin Information Report

**April 2022**



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# Acknowledgements

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- Country of Origin Information (COI) Sector, Country Information and Guidance Unit, Asylum Knowledge Centre; and
- Medical Country of Origin Information (MedCOI) Sector, Country Information and Guidance Unit, Asylum Knowledge Centre.





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# Disclaimer

This report was written according to the EASO COI Report Methodology (2019).<sup>1</sup> It is based on carefully selected publicly available sources of information, as well as on anonymous sources based in Nigeria. The sources used are appropriately referenced.

The information contained in this report has been researched, evaluated, and analysed with utmost care within a limited time frame. However, this document does not claim to be exhaustive. If a particular event, person, or organisation is not mentioned in the report, this does not imply that the event has not taken place or that the person or organisation does not exist. Any event taking place during and after the finalisation of this report is not included. Furthermore, this report is not conclusive as to access to medical care in Nigeria nor is it conclusive as to the determination or merit of any particular application for international protection. Terminology used should not be regarded as indicative of a particular legal position.

‘Refugee’, ‘risk’ and similar terminology are used as generic terminology and not in the legal sense as applied in the EU Asylum Acquis, the 1951 Refugee Convention and the 1967 Protocol relating to the Status of Refugees.

Neither EUAA nor any person acting on its behalf may be held responsible for the use that may be made of the information contained in this report.

The drafting of this report was completed in July 2021. Any event taking place after this date is not included in this report. More information on the reference period for this report can be found in the methodology section of the [Introduction](#).

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<sup>1</sup> EASO, Writing and Referencing Guide for EASO Country of Origin Information (COI) Reports, June 2019, [url](#)





# Glossary and Abbreviations

|                 |                                          |
|-----------------|------------------------------------------|
| <b>AIDS</b>     | Acquired Immunodeficiency Syndrome       |
| <b>APC</b>      | All Progressives Congress                |
| <b>BHCPF</b>    | Basic Health Care Provision Fund         |
| <b>BMPHS</b>    | Basic Minimum Package of Health Services |
| <b>BOI</b>      | Bank of Industry                         |
| <b>CABG</b>     | Coronary Artery Bypass Grafting          |
| <b>CAD</b>      | Coronary Artery Disease                  |
| <b>CAP</b>      | Common African Position                  |
| <b>CBHI</b>     | Community-Based Health Insurance         |
| <b>CD4</b>      | Cluster of Differentiation 4             |
| <b>CHAI</b>     | Clinton Health Access Initiative         |
| <b>CHEW</b>     | Community Health Extension Worker        |
| <b>CHO</b>      | Community Health Officer                 |
| <b>COI</b>      | Country of Origin Information            |
| <b>COVID-19</b> | Coronavirus Disease 2019                 |
| <b>CRF</b>      | Consolidated Revenue Fund                |
| <b>CVD</b>      | Cardiovascular Disease                   |
| <b>DAN</b>      | Diabetes Association of Nigeria          |
| <b>DM</b>       | Diabetes Mellitus                        |
| <b>DT</b>       | Diphtheria and Tetanus                   |
| <b>EASO</b>     | European Asylum Support Office           |
| <b>ECA</b>      | Employee Compensation Act                |
| <b>EOC</b>      | Emergency Operations Centre              |
| <b>EPHS</b>     | Essential Package of Healthcare Services |





|               |                                                   |
|---------------|---------------------------------------------------|
| <b>FCT</b>    | Federal Capital Territory                         |
| <b>FGoN</b>   | Federal Government of Nigeria                     |
| <b>FMoH</b>   | Federal Ministry of Health                        |
| <b>FSI</b>    | Fragile States Index                              |
| <b>FSSHIP</b> | Formal Sector Social Health Insurance Programme   |
| <b>GDP</b>    | Gross Domestic Product                            |
| <b>HBV</b>    | Hepatitis B Virus                                 |
| <b>HCV</b>    | Hepatitis C Virus                                 |
| <b>HIV</b>    | Human Immunodeficiency Virus                      |
| <b>HMO</b>    | Health Maintenance Organisation                   |
| <b>HPV</b>    | Human Papillomavirus                              |
| <b>HRH</b>    | Human Resources for Health                        |
| <b>HSB</b>    | Health-Seeking Behaviour                          |
| <b>ICU</b>    | Intensive Care Unit                               |
| <b>IDP</b>    | Internally Displaced People                       |
| <b>IEC</b>    | Information, Education and Communication          |
| <b>IHR</b>    | International Health Regulations                  |
| <b>IPC</b>    | Infection Prevention Control                      |
| <b>ISSHIP</b> | Informal Sector Social Health Insurance Programme |
| <b>JCHEW</b>  | Junior Community Health Extension Worker          |
| <b>LGA</b>    | Local Government Area                             |
| <b>MDAs</b>   | Ministries, Departments and Agencies              |
| <b>MDDC</b>   | Mega Drug Distribution Centre                     |
| <b>MedCOI</b> | Medical Country of Origin Information             |
| <b>MNCH</b>   | Maternal, Newborn and Child Health                |
| <b>MSP</b>    | Minimum Service Package                           |





|                 |                                                       |
|-----------------|-------------------------------------------------------|
| <b>NAFDAC</b>   | National Agency for Food and Drug Administration      |
| <b>NASCP</b>    | National AIDS and STDs Control Programme              |
| <b>NBS</b>      | National Bureau of Statistics                         |
| <b>NCDC</b>     | Nigeria Centre for Disease Control                    |
| <b>NCDs</b>     | Non-Communicable Diseases                             |
| <b>NCMPRP</b>   | Nigeria COVID-19 Multisectoral Pandemic Response Plan |
| <b>NDHS</b>     | Nigeria Demographic and Health Survey                 |
| <b>NGN</b>      | Nigerian Naira                                        |
| <b>NGO</b>      | Non-Government Organisation                           |
| <b>NHA</b>      | National Health Accounts                              |
| <b>NHAct</b>    | National Health Act                                   |
| <b>NHIS</b>     | National Health Insurance Scheme                      |
| <b>NMEP</b>     | National Malaria Elimination Programme                |
| <b>NPHCDA</b>   | National Primary Health Care Development Agency       |
| <b>NSTG</b>     | National Standard Treatment Guidelines                |
| <b>NTD</b>      | Neglected Tropical Disease                            |
| <b>NTLCP</b>    | National Tuberculosis and Leprosy Control Programme   |
| <b>NSHDP II</b> | Second National Strategic Health Development Plan     |
| <b>NSITF</b>    | National Social Insurance Trust Fund                  |
| <b>OOP</b>      | Out-of-Pocket                                         |
| <b>PFC</b>      | Pension Fund Custodian                                |
| <b>PHC</b>      | Primary Healthcare                                    |
| <b>PHCC</b>     | Primary Healthcare Centre                             |
| <b>PHCUOR</b>   | Primary Health Care Under One Roof                    |
| <b>PHEIC</b>    | Public Health Emergency of International Concern      |





|                |                                                    |
|----------------|----------------------------------------------------|
| <b>PLWHA</b>   | People living with HIV/AIDS                        |
| <b>PRA</b>     | Pension Reform Act                                 |
| <b>PTF</b>     | Presidential Task Force                            |
| <b>SARA</b>    | Service Availability and Readiness Assessment      |
| <b>SCD</b>     | Sickle Cell Disease                                |
| <b>SDDC</b>    | State Drug Distribution Centre                     |
| <b>SIDCAIN</b> | Strategies for Improving Diabetes Care in Nigeria  |
| <b>SMoH</b>    | State Ministries of Health                         |
| <b>SKF</b>     | Sonny Kuku Foundation                              |
| <b>STI</b>     | Sexually Transmitted Infection                     |
| <b>SOP</b>     | Standard Operating Procedure                       |
| <b>SRH</b>     | Sexual and Reproductive Health                     |
| <b>SSA</b>     | Sub-Saharan Africa                                 |
| <b>TB</b>      | Tuberculosis                                       |
| <b>TT</b>      | Tetanus Toxoid                                     |
| <b>UHC</b>     | Universal Health Coverage                          |
| <b>UK</b>      | United Kingdom                                     |
| <b>UN</b>      | United Nations                                     |
| <b>UNAIDS</b>  | Joint United Nations Programme on HIV and AIDS     |
| <b>USA</b>     | United States of America                           |
| <b>USD</b>     | United States Dollar                               |
| <b>VGSHIP</b>  | Vulnerable Group Social Health Insurance Programme |
| <b>WDF</b>     | World Diabetes Foundation                          |
| <b>WHO</b>     | World Health Organization                          |





## Introduction

The purpose of the report is to provide information on access to healthcare in Nigeria. This information is relevant to the application of international protection status determination (refugee status and subsidiary protection) and migration legislation in EU+ countries. In addition, this report aims to provide information about access to healthcare for specific diseases and population groups.

## Methodology

This report is produced in line with the EASO COI Report Methodology (2019)<sup>2</sup> and the EASO COI Writing and Referencing Style Guide (2019).<sup>3</sup>

## Defining the Terms of Reference

The terms of reference for this MedCOI Report are based on the Belgian Desk of Accessibility's 'Researcher's Guide', developed in the framework of the MedCOI4 project. The guide includes a list of questions to be addressed in the report. This was used to develop a 'Questionnaire on access to healthcare', which included a medication and consultation price list containing common treatment and medication questions.

For the specific terms of reference see [Annex 2: Terms of Reference](#) of this report.

## Collecting information

EUAA contracted Intl.SOS to manage the report delivery including data collection. Intl.SOS recruited and tasked a public health lead to author the report and two local consultants to collect data. The public health lead was selected from Intl.SOS' existing pool of consultants. The consultants were selected based on their experience in leading comparable projects and on their experience working in Nigeria.

The 'Questionnaire on Access to Healthcare' was completed based on the knowledge of the local consultants and two medical doctors in Nigeria, as well as through literature review.

### Key Informant Interviews:

Key informant interviews were carried out by the local consultant in Nigeria, between April and July 2021. Interviews were conducted with two medical doctors who work in varied roles related to healthcare delivery. This included individuals within the partner organisations with adequate contextual knowledge of Nigeria's healthcare system, including clinic coordinators. An anonymised list of interviewees is given in Table 1, which describes the core functions of their roles.

| Key Informant Code | Role Description                                                                                         |
|--------------------|----------------------------------------------------------------------------------------------------------|
| EUAA1              | Medical Doctor and local consultant responsible for in-country data collection of the report.            |
| EUAA2              | Medical Doctor and local consultant responsible for supporting in-country data collection of the report. |

Table 1: Anonymised key informants

<sup>2</sup> EASO, EASO Country of Origin Information (COI) Report Methodology, June 2019, [url](#)

<sup>3</sup> EASO, Writing and Referencing Guide for EASO Country of Origin Information (COI) Reports, June 2019, [url](#)





## Literature review

The local consultant collected and compiled relevant policy documents and research publications, for the process of report writing, in line with different sections of the questionnaire. Supplementary information was gathered by the report author from publicly available resources. Resources included national strategies, policies, grey literature, and journal articles. The sources were carefully selected following the EASO COI Report Methodology (2019) and are referenced in footnotes on each page and included in the bibliography.

## Medication and treatment prices

A comprehensive, although non-exhaustive, list of medication prices is given in each of the topical reports. The data presented in these were collected by the local consultant between April and June 2021 (although valid during the period of data collection medication and treatment prices may undergo fluctuations). Medication and treatment prices are reported in United States Dollars (USD) throughout the report to make it easier for information users who are unfamiliar with the Nigerian naira (NGN), the focus country's local currency, to comprehend the costing component and compare with other contexts where necessary.<sup>4</sup>

Prices of medications were gathered from six private pharmacies and eight hospitals (three public and five private facilities) across three geopolitical zones – south-south, north-central and south-west. Medicines that are only available in the informal market have been excluded.<sup>5</sup> The cost of medications was observed to be higher in the north as compared to the south. Medications land at the southern ports and after clearance, these are transported northwards, which incur more costs leading to increased drug prices.<sup>6</sup> The range of prices and the average obtained for each medication, from the different regions, have been described in each topical report. Therefore, given that the upper limit of the price range includes the logistics costs of drug supply to the farthest northern regions, it can be assumed that the approximated prices from the three regions reflect the true situation in Nigeria during the reference period.<sup>7</sup> The treatment costs were obtained from eight health facilities – five privately owned facilities and three government facilities – across the north and south regions of the country. The average cost from the facilities and price ranges (minimum to maximum) were computed and incorporated into the report. No regional variations were noted as these concern treatment cost; rather differential cost across visited facilities were attributed to management decision informed by contextual factors.<sup>8</sup>

More information on the working methodology can be found in the Standard Operating Procedures (SOPs) and the Accessibility Guidelines published on the EUAA MedCOI website<sup>9</sup> and in the EASO COI Report Methodology.<sup>10</sup>

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<sup>4</sup> Prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>5</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, August-November 2021

<sup>6</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>7</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>8</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>9</sup> EUAA MedCOI, [url](#)

<sup>10</sup> EASO, Country of Origin Information (COI) Report Methodology, June 2019, [url](#)





## Quality control

Quality control of the report was carried out on both content and form.

The accuracy of information included in the report was reviewed, to the extent possible, using information provided by the local expert through other contacts, reports, scientific publications and articles.

Form and content were reviewed internally by EUAA (see [Acknowledgements](#) section).

## Structure and use of the report

The report starts with a general introduction to the country and the healthcare system organisation. Separate sections are dedicated to human resources in healthcare, the pharmaceutical sector, patient pathways, insurance aspects and out-of-pocket expenditures. Lastly, separate chapters contain accessibility information on specific disease groups: cardiovascular diseases, diabetes, hepatitis, HIV/AIDS, psychiatry, neurology, nephrology, pulmonology, haematology, and finally paediatric diseases.

## Referencing

Recommended referencing for this report: 'EUAA MedCOI, Medical Country of Origin Information Report: Nigeria, March 2022, [hyperlink]'.



## Map



Figure 1: Map of the Federal Republic of Nigeria<sup>11</sup>

<sup>11</sup> Australian Government, Department of Foreign Affairs and Trade, DFAT Country Information Report: Nigeria, December 2020, [url](#), p. 2



# 1 Context

## 1.1 Geography and demographics

Nigeria is the 32<sup>nd</sup> largest country in the world and 13<sup>th</sup> in Africa with an estimated area of 923 768 square kilometres and a landmass of 910 770 square kilometres, which is about thrice the size of Italy.<sup>12</sup> It is located in the western coast of Africa and it is bordered by four countries: Niger to the north, Chad and Cameroon to the east, and Benin to the west, while the southern border is formed by the Gulf of Guinea of the Atlantic Ocean.<sup>13</sup>

In Nigeria, the main rivers are the Niger and the Benue, which converge at Lokoja and flow into the Niger Delta. The climate is tropical, with wet and dry seasons associated with the movement of the Intertropical Convergence Zone, north and south of the Equator.<sup>14</sup> Nigeria is made up of five broad ecological zones – Swamp Forest, Tropical Rainforest, Guinea Savannah, Sudan Savannah, and Sahel. Of the five zones, northern Nigeria is composed of three: Guinea Savannah, Sudan Savannah, and Sahel. Southern Nigeria comprises Swamp forest and Tropical rainforest. Northern Nigeria is characterised by low rainfall and drought-like conditions contrary to the situation in the South.<sup>15</sup>

Nigeria is the most populous African country with a 2019 projected population of 201 million with a 2.6 % annual rate of population change and a high fertility rate of 5.32 live births per woman.<sup>16</sup> Current projections estimate the total population would surpass that of the United States of America to emerge as the third largest country in the world by 2050.<sup>17</sup> More importantly, Nigeria has an enormous young population base – more than 54 % of all males and more than 51 % of all females are younger than 20 years of age.<sup>18</sup> This ‘youth bulge’ has the potential of yielding significant economic benefit – gains arising from a substantial increase in the ratio of working-age adults relative to young dependants.<sup>19</sup> According to the National Bureau of Statistics (NBS), the average Nigerian household comprises 5.06 persons per family; in rural areas, the number is higher – 5.42 individuals compared to 4.50 in urban areas. The total national dependency ratio – a measure of the number of dependants aged 0 to 14 and over the age of 65 – stands at 0.97; highest in Jigawa state (1.40 of dependants/1 working-age individual) and lowest in Lagos (0.63 of dependants/1 working-age person).<sup>20</sup>

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<sup>12</sup> Worldometer, Largest Countries in the World (by area), n.d., [url](#)

<sup>13</sup> Britannica, Nigeria, 2021, [url](#)

<sup>14</sup> RGS with IBG, Climate 4 classrooms: National futures, Nigeria, n.d., [url](#)

<sup>15</sup> Macaulay, B.M., Land degradation in Northern Nigeria: The impacts and implications of human-related and climatic factors, 2014, [url](#), pp. 267-268

<sup>16</sup> UNDESA, Population Division, World Population Prospects 2019, Volume II: Demographic Profiles, Nigeria, 2019, [url](#), p. 1

<sup>17</sup> UNDP, Press release, World population projected to reach 9.8 billion in 2050, and 11.2 billion in 2100 – says UN, 2017, [url](#), p. 1

<sup>18</sup> Nigeria, NBS, Nigeria Living Standards Survey: A Survey Report by the Nigerian National Bureau of Statistics (2018-2019), July 2020, [url](#), p. 6

<sup>19</sup> WEF, Prospects for Reaping a Demographic Dividend in Nigeria: A case study by the World Economic Forum's Global Agenda Council on Population Growth, May 2014, [url](#), p. 3

<sup>20</sup> Nigeria, NBS, Nigeria Living Standards Survey: A Survey Report by the Nigerian National Bureau of Statistics (2018-2019), July 2020, [url](#), p. 5





Nigeria is rapidly undergoing rural to urban migration. In 2003, the urban population stood at 49.2 million<sup>21</sup> and more than doubled by 2019 with an urbanisation rate of 4.2 %.<sup>22</sup>

Nigeria is among the five countries in the world with the lowest life expectancy at birth; others are Central Africa Republic, Chad, Lesotho and Sierra Leone.<sup>23</sup> Nigeria's life expectancy of 54.7 is lower than the global average of 73.2 years; there is a small variation between men and women, which stands at 53.8 and 55.6 respectively.<sup>24</sup> Also, Nigeria performs poorly across multiple indicators.<sup>25</sup> According to the 2018 Nigeria Demographic and Health Survey (NDHS), the infant mortality rate was 67 deaths per 1 000 live births for the 5-year period prior to the survey, while under-5 mortality stood at 132 deaths per 1 000 live births. This implies that more than one in eight children die within five years after birth.<sup>26</sup> Nigeria's estimated maternal mortality ratio for the 7-year period before the 2018 NDHS is estimated at 512 maternal deaths per 100 000 live births; therefore, for every 1 000 live births in Nigeria during this period, approximately five women died during pregnancy, during childbirth or within two months after delivery.<sup>27</sup>

The high maternal and under-5 mortality rate can be attributed to the three-phases of delay posited by Thaddeus and Maine – two researchers who articulated the conceptual framework for evaluating the majority of deaths that could have been prevented with prompt medical intervention. These barriers encompass delay in deciding to seek care, delay in reaching care and delay in receiving high-quality care upon arriving at the health facility, including facilitated referral when required.<sup>28</sup>

## 1.2 Historical background

In 1885, at the Berlin Conference, the political map of Africa was reorganised by colonial forces to resolve their conflicts of interest by allotting areas of occupation amongst the leading European powers using the principle of “Dual Mandate” – which means that Europe's and Africa's interests would be better served through ensuring that the African continent was accessible for trade and what was described as “Europe's civilising mission”. The conferees formally acknowledged the British claims to the Niger Basin; subsequently, in 1900, Lord Fredrick Lugard was appointed to the position of High Commissioner to the Northern Protectorate, an office he held for six years before his resignation and redeployment to Hong Kong. On 1 January 1914, Lord Lugard, who had been reappointed two years earlier to oversee the northern and southern protectorates went on to amalgamate the two territories into the modern-day Nigeria.<sup>29</sup>

On 1 October 1960, through an act of the British Parliament, Nigeria emerged an independent nation under a parliamentary system of government. The country held its first post-independence election in December 1964; this was truncated two years later by a coup,

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<sup>21</sup> The World Bank, Urban Population – Nigeria, 2021, [url](#)

<sup>22</sup> The World Bank, Urban Population Growth (annual %) – Nigeria, 2021, [url](#)

<sup>23</sup> Worldometer, Life expectancy of the world population, 2021, [url](#)

<sup>24</sup> UNDP, Human Development Reports, Nigeria, 2021, [url](#)

<sup>25</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>26</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 163

<sup>27</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), pp. 371, 374

<sup>28</sup> Thaddeus, S., and Maine, D., Too Far to Walk: Maternal Mortality in Context, 1994, [url](#), pp. 1091-1092

<sup>29</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), p. 3





which terminated the 1<sup>st</sup> republic, and then a 30-month civil war, which ended in January 1970.<sup>30</sup> Between 1970 and 1979, Nigeria experienced two additional coups before the military handed over to a democratically elected government under a presidential system of government – which provides for a separation of powers among the executive, legislative, and judicial arms.<sup>31</sup> This marked the beginning of the second republic, which was terminated by another military coup on 31 December 1983.<sup>32</sup> It would take another 15 years with 3 military coups and an unsuccessful attempt to restore civilian rule (1992-1993) before the country successfully transitioned to a civilian government in February 1999 – marking the beginning of the 4<sup>th</sup> republic.<sup>33</sup>

Between 1999 and 2019, multiple crises compounded Nigeria's longest democratic rule – the 4<sup>th</sup> republic – starting from the adoption of Islamic Sharia Law by some northern states in the face of resistance from Christians to the rise of Boko Haram in the north-eastern region of the country. Also, ethnic clashes in Benue, Taraba, and Lagos left many dead and caused loss of livelihood for a greater number.<sup>34</sup>

## 1.3 Political context

Administratively, Nigeria operates a three-tier federal system of governance comprising 36 states, a Federal Capital Territory (FCT), and 768 local government areas (LGAs or councils). The constitution allows for the creation of additional states.<sup>35</sup> The LGAs are further subdivided into 9 565 political wards. The country operates fiscal federalism characterised by revenue sharing and extensive decentralisation of authority between the three tiers of government – federal, state, and local governments.<sup>36</sup>

Beginning from the 2<sup>nd</sup> republic (1979-1983), Nigeria adopted a presidential system of government, and maintained this system even after several interruptions from military rule.<sup>37</sup> Under this form of government, the president doubles as the head of state and chief executive, who is elected to a four-year tenure, and appoints the vice president, as well as members of the cabinet. The constitution only allows for a maximum of two four-year tenures for the president. In addition, the constitution allows for a two-house legislative system, which encompasses the House of Representatives and the Senate. Each state elects ten individuals and three members to the House of Representatives and the Senate, respectively, for a renewable four-year tenure.<sup>38</sup>

Below the federal government, there are two tiers of government – the state and the local governments. At the state level, the governor serves as the chief executive of the state while elected representatives of the people serve in the state legislature for a four-year tenure. The local governments have elected heads; however, their roles were usurped by the state

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<sup>30</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), p. 4

<sup>31</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), pp. 4-5

<sup>32</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), p. 5

<sup>33</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), pp. 5-6

<sup>34</sup> BBC, News, Nigeria profile - Timeline, February 2019, [url](#)

<sup>35</sup> Nigeria, Constitution of the Federal Republic of Nigeria, 1999, [url](#), p. 16

<sup>36</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>37</sup> Library of Congress – Federal Research Division, Country Profile: Nigeria, July 2008, [url](#), pp. 5-6

<sup>38</sup> Britannica, Nigeria, Government and society, 2021, [url](#)





government until 1988 when the federal government decided to directly fund the local governments.<sup>39</sup>

From the 1<sup>st</sup> up to the 4<sup>th</sup> republic (1999-till date), Nigeria has had a multiparty system elected to office by the population. In 2015, General Mohammed Buhari, Leader of the All Progressives Congress (APC), was voted successor to the incumbent, Goodluck Ebele Jonathan. Although there were allegations of electoral fraud, the sitting president who lost out did immediately reach out to his opponent to congratulate him on his electoral victory thereby dousing tension on both sides of the divide.<sup>40</sup>

Given the rise of organised non-state violence, such as farmer-herder crises, Boko Haram insurgency and high spate of kidnapping, Nigeria has been characterised as a fragile state.<sup>41</sup> As of January 2015, there were approximately 981 416 IDPs in Nigeria, with more than 90% in north-east Nigeria.<sup>42</sup> They often lived with diseases, reduced access to healthcare and basic necessities – food, clean water, clothing and shelter.<sup>43</sup> The Boko Haram insurgency has further worsened the socioeconomic indices in the north-eastern region of the country, including inter-state migration of doctors, destruction of health facilities and disease outbreak.<sup>44</sup> According to the Fragile States Index (FSI), which comprises 12 metrics (security apparatus, factionalised elites, group grievance, economic decline, uneven economic development, human flight and brain drain, state legitimacy, public services, human rights and rule of law, demographic pressures, refugees and IDP, and external intervention) for evaluating the drivers of state vulnerability (political context, social context, economic context, and social cohesion),<sup>45</sup> Nigeria has a 2021 FSI score of 98.0 ranking 12<sup>th</sup> out of 179 countries.<sup>46</sup>

## 1.4 Economic overview

Nigeria is categorised as a lower middle-income country.<sup>47</sup> Although the proportion of the population living below the poverty line has been reducing gradually since the 1990s, an estimated 2/5 of the population still lives on USD 1.90 per day.<sup>48</sup> The 2018 current health expenditure per capita is USD 83.75, slightly above the regional average, which stands at USD 83.25.<sup>49</sup> In terms of spending on health, Nigeria is among 51 out of 55 countries in the African Union that is yet to reach the 15 % commitment of its national budget allocated to health, which was agreed to in the Abuja declaration of 2001, implying a lower-than-expected national spending on health.<sup>50</sup>

Nigeria is the largest economy in Africa, with an estimated real gross domestic product (GDP) of USD 448.12 billion in 2019 and an annual growth of 2.2 %, up from USD 397.19 billion in 2018.<sup>51</sup> The GDP per capita was USD 2 229.9 in 2019, slightly higher than its value of USD

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<sup>39</sup> Britannica, Nigeria, Government and society, 2021, [url](#)

<sup>40</sup> BBC, News, Nigeria Election: Muhammadu Buhari Wins Presidency, April 2015, [url](#)

<sup>41</sup> FSI, Country Dashboard: Nigeria, 2021, [url](#)

<sup>42</sup> OCHA, Nigeria: Northeast Crisis. Situation Report No. 1 (as of 30 January 2015), 30 January 2015, [url](#), p. 1

<sup>43</sup> Omole, O., et al., Boko Haram insurgency: implications for public health, March 2015, [url](#), p. 941

<sup>44</sup> The Conversation, How Boko Haram is devastating Health Services in North-East Nigeria, May 2017, [url](#)

<sup>45</sup> FSI, Indicators, 2021, [url](#)

<sup>46</sup> FSI, Country Dashboard: Nigeria, 2021, [url](#)

<sup>47</sup> The World Bank, Nigeria, n.d., [url](#)

<sup>48</sup> The World Bank, Country Profile: Nigeria, n.d., [url](#)

<sup>49</sup> The World Bank, Current Health Expenditure per Capita (current US\$) - Sub-Saharan Africa, 30 January 2022, [url](#)

<sup>50</sup> The World Bank, UHC in Africa: a framework for action, 2016, [url](#), pp. 4, 15-16

<sup>51</sup> The World Bank, Data, GDP growth (annual %) - Sub-Saharan Africa, n.d., [url](#)





2 027.8 in 2018.<sup>52</sup> Despite the country's huge dependence on the oil and gas sector, this sector only accounts for 7.4 % of the GDP in 2019.<sup>53</sup> As part of the government's efforts to diversify the economy, domestic agriculture, forestry and fishing have received appreciable attention;<sup>54</sup> it is a major source of income for most individuals accounting for 24 % of GDP.<sup>55</sup> However, agriculture which employs over 50 % of the labour force has suffered setbacks from Boko Haram insurgency in the northeast and farmer-herder crisis in the north-central region – two regions that are responsible for a significant share of the crop production which accounts for almost 90 % of the agricultural output (grains, beans, yams, cassava, potatoes, groundnuts, sesame and soybeans).<sup>56</sup>

## 1.5 Socio-cultural features

Nigeria is Africa's most populous country and comprises over 250 ethnic groups.<sup>57</sup> The 3 major tribes are Hausa, Igbo and Yoruba; Hausas occupy the northern region, Igbos in the southeast and the Yorubas are based in the southwestern part of the country.<sup>58</sup> The 2018 population distribution of the different ethnic groups are estimated to be Hausa (30 %), Yoruba (15.5 %), Igbo (15.2 %), Fulani (6 %), Tiv (2.4 %), Kanuri/Beriberi (2.4 %), Ibibio (1.8 %), Ijaw/Izon (1.8 %), others (24.7 %).<sup>59</sup>

Over half of Nigeria's population (53.5 %) is Muslim, 45.9 % are Christians, and 0.6 % adhere to other religions.<sup>60</sup> Hausas, usually grouped with the Fulanis, are mostly Muslims and have the highest poverty rates in the country. The Igbos and Yorubas, of relatively high income, are mostly Christians, although a substantial number of Muslims are of Yoruba descent.<sup>61</sup>

## 1.6 Global context for health development

At the global level, Nigeria has made several commitments to enable its national health development agenda and they are as follows:<sup>62</sup>

1. **Sustainable Development Goals (2015)** – The country aims to address the outstanding unattained targets within the Millennium Development Goals, especially as it relates to universal access to health.
2. **The Common African Position (CAP) on the Post 2015 Agenda** (African Union 2014) – Aims to make significant gains as it concerns maternal, newborn and child health

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<sup>52</sup> The World Bank, Data, GDP per capita (current US\$) - Sub-Saharan Africa, n.d., [url](#)

<sup>53</sup> The World Bank, Data, Oil rents (% of GDP) - Nigeria, n.d., [url](#)

<sup>54</sup> Nigeria, Federal Ministry of Agriculture and Rural Development, The Agriculture Promotion Policy (2016-2020): Building on the Successes of the ATA, Closing Key Gaps; 2019, [url](#), p. 5

<sup>55</sup> The World Bank, Country Profile: Nigeria; n.d., [url](#)

<sup>56</sup> World Bank Group, Jumpstarting Inclusive Growth: Unlocking the Productive Potential of Nigeria's People and Resource Endowments, 2019, [url](#), p. 6

<sup>57</sup> CIA, The World Factbook: Nigeria, 2021, [url](#)

<sup>58</sup> World Bank Group, Does Exposure to Other Ethnic Regions Promote National Integration? Evidence from Nigeria, October 2018, [url](#), p. 12

<sup>59</sup> CIA, The World Factbook: Nigeria, 2021, [url](#)

<sup>60</sup> CIA, The World Factbook: Nigeria, 2021, [url](#)

<sup>61</sup> World Bank Group, Does Exposure to Other Ethnic Regions Promote National Integration? Evidence from Nigeria, October 2018, [url](#), p. 12

<sup>62</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 3





(MNCH), as well as sexual and reproductive health (SRH), including family planning with emphasis on the indigent and vulnerable populations.

3. **Abuja 2001 Declaration and Abuja+12 Declaration (2013)** – The country committed to allocate at least 15 % of its annual national budgets to health.
4. **Ouagadougou Declaration on Primary Health Care (2008)** – The country committed to rejig its primary healthcare (PHC) system through the health system strengthening lens.
5. **Universal Health Coverage (UHC)** – Nigeria was a signatory to the World Health Assembly Resolution 58.33 in 2005, which required countries to articulate strategies for advancing the UHC agenda/access for all without the risk of financial ruin at the point of accessing care or after accessing care.
6. **International Health Regulations (IHR) (2005)** – Nigeria has committed to the IHR guidelines to enable it to accelerate key actions required to mitigate public health emergencies.
7. **Paris Declaration on Aid Effectiveness (2005)** – The Declaration seeks to improve the quality of aid effectiveness and its impact on development through ownership, alignment, harmonisation, results, and mutual accountability.

Although the above commitments may signal political will and strategic direction, no policy evaluation studies were found that depict the current situation.





## 2 Health System Organisation

### 2.1 Impact of COVID-19

The first cases of atypical pneumonia later confirmed to be caused by the novel coronavirus disease 2019 (COVID-19) were identified in December 2019 in Wuhan City of China.<sup>63</sup> Consequently, the rapid global spread of the outbreak informed decision of the World Health Organisation (WHO) to declare the COVID-19 outbreak a ‘Public Health Emergency of International Concern (PHEIC)’ on 30 January 2020 and thereafter, declared it a pandemic on Monday, 11 March.<sup>64</sup> The Nigerian government announced its first case of COVID-19 in Lagos State on 27 February 2020; on 21 June 2021, the Nigeria Centre for Disease Control (NCDC) reported a cumulative total of 167 155 confirmed cases out of 2 266 591 tested samples and 2 117 deaths nationally.<sup>65</sup>

NCDC activated the health-focused national Emergency Operations Centre (EOC) upon confirmation of the first case with the mandate of overseeing the COVID-19 response.<sup>66</sup> Immediately afterwards, the ‘Presidential Task Force (PTF)’ for the control of COVID-19’ was inaugurated on 9 March 2020, to lead the government’s multisectoral approach to tackle the pandemic.<sup>67</sup> The PTF developed and released the six-month Nigeria COVID-19 Multisectoral Pandemic Response Plan (NCMPRP) articulating the country’s response strategy towards halting the pandemic, which was scaled up to the states with the establishment of state emergency operation centres and response task teams.<sup>68</sup>

Though the PHC was enormously expanded since the start of the pandemic, there were fears that its limits and restrained critical-care capacities such as lack of beds, oxygen supply and ventilators in intensive care units (ICUs) and health workers, may lead to an overwhelmed health system unable to cope with the strain of containing the disease.<sup>69</sup> The delivery of essential health services was challenged by the COVID-19 outbreak partly attributable to fear and trepidations because of possibility of infection by the health workers and patients at health-facilities. It was also challenged by the diversion of resources and staff away from essential services to support the COVID-19 outbreak. For example, based on Nigeria’s health management information system data analysis, outpatient care-seeking reduced by 18 % in April 2020 in line with previous trends.<sup>70</sup> It is estimated that there is a likelihood of a rise in non-COVID-19-related deaths: an estimated 42 000 additional maternal and under-5 deaths in Nigeria due to earlier disruptions in mobility and care-seeking.<sup>71</sup> In addition, the pandemic led to increased price of food and commodities in Lagos, southwestern Nigeria. For example,

<sup>63</sup> WHO, Novel Coronavirus (2019-nCoV): Situation Report - 1, January 2020, [url](#), p. 1

<sup>64</sup> Chatham House, Coronavirus: Public health emergency or pandemic – Does Timing matter? May 2020, [url](#)

<sup>65</sup> Nigeria, NCDC, COVID-19 Nigeria, accessed on June 2021 (updated after), [url](#), original website update after, old data available at [url](#)

<sup>66</sup> Nigeria, NCDC, Weekly Epidemiological Report: Nigeria records first case of COVID 19: NCDC activates Emergency Operations Centre, February 2020, [url](#)

<sup>67</sup> Nigeria, NCDC, One Year After: Nigeria’s COVID-19 Public Health Response, February 2020-January 2021, February 2021, [url](#), p. vi

<sup>68</sup> Nigeria, Presidential Task Force on COVID-19, National COVID-19 Pandemic Multi-Sectoral Response Plan, May 2020, [url](#), pp. 5-11

<sup>69</sup> Kavanagh, M.M. et al., Access to life-saving medical resources for African countries: COVID-19 testing and response, ethics, and politics, May 2020, [url](#), p. 1735

<sup>70</sup> World Bank Group, Rising to the Challenge: Nigeria’s COVID Response, December 2020, [url](#), pp. 50-51

<sup>71</sup> World Bank Group, Rising to the Challenge: Nigeria’s COVID Response, December 2020, [url](#), p. 51





a bag (50 kg) of rice was USD 44 before the lockdown, increased to USD 55 during the lockdown (confinement was a measure implemented by government between 30 March and 3 May 2020 to lower transmission of COVID-19 infections through total restriction of non-essential activities), and to USD 61 in the period post-lockdown, representing about 50 % increment in price in just over a one-month period.<sup>72</sup>

A nationwide survey conducted by the National Bureau of Statistics (NBS) between 20 April and 11 May 2020 found that 42 % of people had stopped working due to the COVID-19 crisis.<sup>73</sup>

## 2.2 Health system overview

Nigeria operates a pluralistic healthcare system with healthcare provided jointly by the public and private sectors, as well as by modern and traditional systems.<sup>74</sup> The management of the national health system is decentralised into a three-tier arrangement with clear mandate to the federal, state and local governments.<sup>75</sup> Donors also play a key role in management and delivery of health services across the three levels of care;<sup>76</sup> of note is financial contribution, which equals 7.5 % of the total institutional sources of financing for health.<sup>77</sup>

### 2.2.1 Public sector

The public sector is the responsibility of the three tiers of government, and they are all involved, to varying levels, in the major health system functions of stewardship, financing and service provision.<sup>78</sup>

### 2.2.2 Federal level

The Federal Ministry of Health (FMOH) holds the mandate for policy development and technical support to the entire health system, national health management information system and health-related international engagements.<sup>79</sup>

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<sup>72</sup> Human Rights Watch, Between Hunger and the Virus: The Impact of the Covid-19 Pandemic on People Living in Poverty in Lagos, Nigeria, July 2021, [url](#)

<sup>73</sup> Nigeria, NBS, COVID-19 from the ground up: What the crisis means for Nigerians, 2020, [url](#), pp. 3, 17, 20

<sup>74</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 6

<sup>75</sup> WHO, The Nigerian Health System, n.d., [url](#), pp. 21-22

<sup>76</sup> Uzochukwu, B.S.C. et al., Health care financing in Nigeria: Implications for achieving universal health coverage, May 2015, [url](#), p. 6

<sup>77</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>78</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 6

<sup>79</sup> WHO, The Nigerian Health System, n.d., [url](#), p. 21



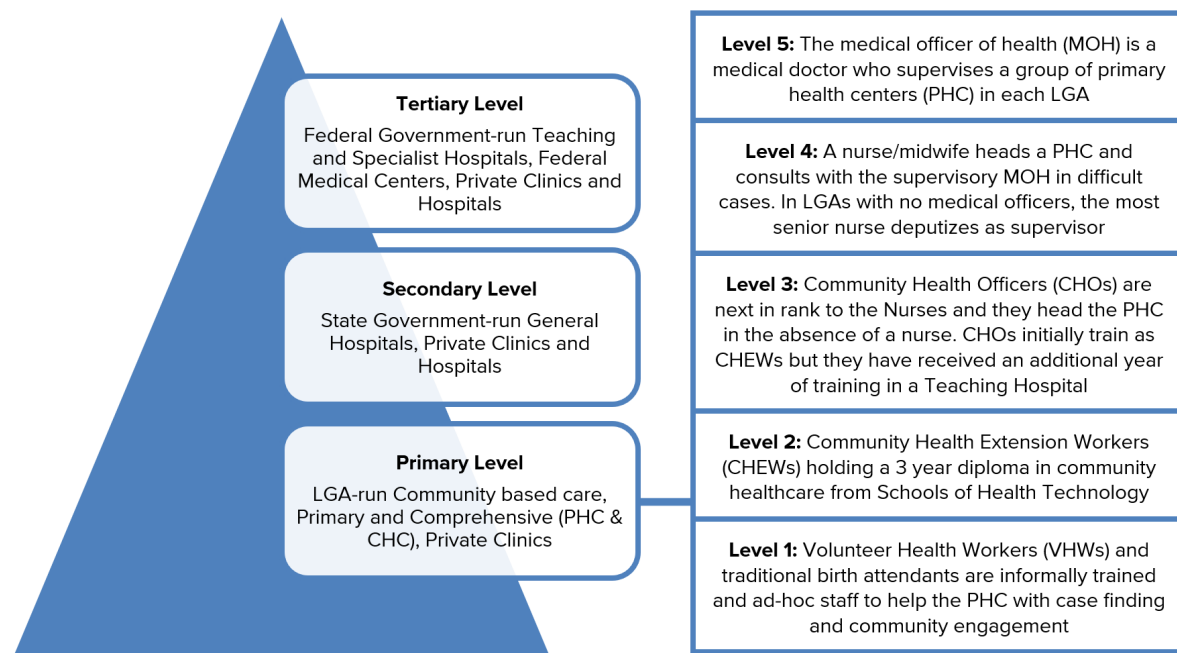


Figure 2: Nigeria's health system<sup>80</sup>

Also, the Federal Government of Nigeria (FGoN) (see Figure 2 above), is responsible for the provision of health services through the tertiary teaching hospitals, federal medical centres and national laboratories.<sup>81</sup> Furthermore, the FMOH coordinates and manages the implementation of multiple public health programmes, including National AIDS and STDs Control Programme (NASCP), National Malaria Elimination Programme (NMEP), and National Tuberculosis and Leprosy Control Programme (NTLCP). Of note, the FMOH and state ministries of health (SMoH), and Ministries, Departments and Agencies (MDAs) co-manage the roll-out of these interventions at all levels of care.<sup>82</sup>

## 2.2.3 The state level

The state governments through SMoH oversee the secondary level – general hospitals – and the regulation of technical guidance to PHC services.<sup>83</sup> Support to PHC includes close collaboration between the leadership of SMoH and the State Primary Healthcare Boards – a sub-national structure responsible for management and coordination of PHC service delivery at the state level.<sup>84</sup>

<sup>80</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 6

<sup>81</sup> WHO, The Nigerian Health System, n.d., [url](#), p. 21

<sup>82</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 6

<sup>83</sup> WHO, The Nigerian Health System, n.d., [url](#), p. 21

<sup>84</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021



## 2.2.4 The local government level

The PHC service delivery falls within the mandate of the local government where health services are organised through the Ward Health System.<sup>85</sup> Each LGA, known as districts in some countries, is subdivided into 7 to 15 wards with an average of one primary healthcare centre (PHCC) per ward.<sup>86</sup> The PHCCs are the first port of entry into Nigeria's healthcare system.<sup>87</sup>

As shown in the table below, in 2011, there were 34 176 facilities identified in the country, of which 88.1 % (30 098) were primary facilities.<sup>88</sup> The government owns and runs 76 out of the 86 existing tertiary care facilities in the country.<sup>89</sup>

|                                             | Public        | Private       | Total         |
|---------------------------------------------|---------------|---------------|---------------|
| Primary facilities                          | 21 808        | 8 290         | 30 098        |
| Secondary facilities                        | 969           | 3 023         | 3 992         |
| Tertiary facilities                         | 76            | 10            | 86            |
| <b>TOTAL</b>                                | <b>22 853</b> | <b>11 323</b> | <b>34 176</b> |
| Share of delivery of essential services (%) | 46.5          | 53.5          | 100.0         |
| Share of healthcare facilities (%)          | 66.9          | 33.1          | 100.0         |

Table 2: Distribution of health facilities and service delivery<sup>90</sup>

## 2.3 Private sector

The private sector is divided into the non-profit and for-profit,<sup>91</sup> with the former including facilities managed by non-government organisations (NGOs) and faith-based organisations, while the latter comprises modern, alternative and traditional medical providers.<sup>92</sup> Private facilities constitute approximately 33.1 % of total facilities, and deliver more than 50 % of essential health services across the primary (8 290 facilities), secondary (3 023 facilities) and tertiary (10 facilities) levels of care.<sup>93</sup>

Broadly, private facilities are believed to have better basic resources and infrastructure, including electricity, and provide a wider range of services.<sup>94</sup> Therefore, there is a consensus that private health centres deliver better quality care with reduced patient waiting time; hence, they are the preferred service providers for those with sufficient financial resources required to access care in these centres.<sup>95</sup>

The Second National Strategic Health Development Plan (NSHDP II) recognises traditional medicine practice and faith-based organisations as part of the private sector but does not define any clear plan for coordinating their activities.<sup>96</sup>

<sup>85</sup> Nigeria, NPHCDA, Minimum Standards for Primary Health Care in Nigeria, n.d., [url](#), p. 10

<sup>86</sup> WHO, The Nigerian Health System, n.d., [url](#), p. 22

<sup>87</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), pp. 7-8

<sup>88</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), pp. 7-8

<sup>89</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 8

<sup>90</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 8

<sup>91</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>92</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), pp. 7-8

<sup>93</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 8

<sup>94</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>95</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>96</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 7





## 2.4 Healthcare Human Resources

Nigeria, like most African countries, is experiencing critical shortage of human resources for health (HRH) professionals. Although it has one of the largest stocks of health workforce, the densities of doctors, nurses and midwives are insufficient (1.95 per 1 000).<sup>97</sup> According to World Bank estimates, there were approximately 0.4 doctors per 1 000 population in 2018 while nurses and midwives were estimated to be 1.5 per 1 000 people in 2019.<sup>98</sup> Other HRH challenges include maldistribution of the health workforce across states, funding gaps and migration of skilled HRH to other countries.<sup>99</sup> According to a 2018 survey conducted by the Nigeria Health Watch and NOIPolls, two independent research organisations, about 88 % of doctors were seeking work opportunities abroad, with the United Kingdom (UK) and the USA as the top destinations.<sup>100</sup> In the same year, a total of 1 551 medical doctors requested letters of verification from the Medical and Dental Council of Nigeria to support migration efforts.<sup>101</sup>

| Registered Health Workers by Cadre                | 2013    | 2018    |
|---------------------------------------------------|---------|---------|
| Medical doctors                                   | 65 759  | 74 543  |
| Dentists                                          | 3 129   | 4 358   |
| Nurses                                            | 148 291 | 180 709 |
| Midwives                                          | 101 275 | 120 870 |
| Pharmacists                                       | 16 979  | 24 668  |
| Pharmacy technicians                              | 1 849   | 5 793   |
| Community health officers (CHOs)                  | 5 986   | 8 533   |
| Community health extension workers (CHEWs)        | 42 938  | 61 668  |
| Joint community health extension workers (JCHEWs) | 28 458  | 46 253  |
| Dental technologists                              | 730     | 1 823   |
| Dental therapists                                 | 3 253   | 6 165   |
| Dental Nurses                                     | 266     | 349     |
| Dental surgery technicians                        | 1 885   | 10 734  |
| Dental surgery assistants                         | 886     | 2 058   |
| Environmental health officers                     | 6 542   | 9 957   |
| Health information managers                       | 2 692   | 7 146   |
| Health record technicians                         | 8 739   | 27 247  |
| Radiographers                                     | 1 286   | 2 516   |
| Physiotherapists                                  | 2 818   | 4 971   |
| Occupational therapists                           | 34      | 98      |
| Occupational therapist assistants                 | 104     | 132     |
| Speech therapists                                 | 28      | 79      |
| Audiologists                                      | 25      | N/A     |
| Physio-technicians                                | 65      | 118     |
| Prosthetists and orthotists                       | 8       | 7       |
| Prosthetists and orthotists assistants            | 28      | 52      |
| Optometrists                                      | 2 676   | 4 429   |
| Dispensing opticians                              | 168     | 942     |
| Medical laboratory scientists                     | 19 225  | 29 246  |
| Medical laboratory technicians                    | 8 202   | 26 677  |
| Medical laboratory assistants                     | 11 067  | 15 346  |
| Chartered chemists                                | 2 533   | 2 854   |
| Public analysts                                   | 717     | 922     |

<sup>97</sup> Global Health Workforce Alliance, Nigeria, 2022, [url](#)

<sup>98</sup> The World Bank, Data: Nurses and midwives (per 1,000 people) - Nigeria; 2022, [url](#)

<sup>99</sup> Adedoye, D. et al., Health workforce and governance: the crisis in Nigeria, May 2017, [url](#), pp. 3-5

<sup>100</sup> Nigeria Health Watch and NOIPolls, Emigration of Nigerian Medical Doctors: Survey Report, July 2018, [url](#), p. 9

<sup>101</sup> Nigeria, FMOH, Nigeria Health Workforce Country Profile 2018, n.d., Available from: FMOH official (unavailable online), p. 16



Table 3: Nigeria's health workforce country profile<sup>102</sup>

Nigeria has laws, policies and strategic implementation frameworks (National Health Act, National Human Resources for Health Policy, National Human Resources for Health Strategic Plan, and Task Shifting and Task-Sharing Policy) to guide HRH development, as well as SOPs to optimise the available HRH.<sup>103</sup> As part of efforts to ensure a data-driven health workforce planning, the federal government in collaboration with the World Health Organization (WHO), launched the Nigeria Health Workforce Country Profile 2018 (see Table 3 for breakdown by cadre) and the Health Workforce Registry. The registry serves as a platform for timely and comprehensive HRH information to guide decision-making and better HRH management.<sup>104</sup>

| Type of Institution                                                                     | Category of health professionals produced                                                      | Accredited institutions |
|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-------------------------|
| Medical Schools                                                                         | Medical Doctors and Dentists                                                                   | 27                      |
| Nursing/Midwifery Schools                                                               | Nurses and Midwives                                                                            | 89                      |
| Colleges of Health Technology                                                           | Community Health Extension Workers and Technicians                                             | 56                      |
| Pharmacy Schools                                                                        | Pharmacists                                                                                    | 35                      |
| Nigerian Universities Faculties of Health Technology and Faculties of Health Management | Medical Laboratory Scientists, Physiotherapists, Radiographers, Nutritionists, Health Managers | >50                     |
| Regulatory Bodies                                                                       | Regulation of practice of health professionals in Nigeria                                      | 14                      |

Table 4: Institutional HRH production capacity<sup>105</sup>

The training of medical personnel is delivered through government and privately owned institutions, including medical schools, nursing and midwifery schools, colleges of health technology, pharmacy schools and specialised faculties within Nigerian Universities (see number of accredited facilities in Table 4). To support health workforce development at the PHC level, 10 % of the Basic Health Care Provision Fund (BHCPF)<sup>106</sup> has been earmarked for this purpose within the National Health Act – the legal framework for the regulation, development, and management of Nigeria's health system.<sup>107</sup>

## 2.5 Pharmaceutical sector

Nigeria has a national essential drug list which is reviewed periodically. Currently, the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree

<sup>102</sup> Nigeria, FMOH, Nigeria Health Workforce Country Profile 2018, n.d., Available from: FMOH official (unavailable online), pp. 16-27

<sup>103</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 32

<sup>104</sup> WHO, Nigeria launches the National Health Workforce Country Profile towards achieving universal health coverage, March 2020, [url](#)

<sup>105</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 33

<sup>106</sup> The BHCPF is established by section 11 of National Health Act (NHA) 2014 which stipulates that 1% of the Consolidated Revenue Fund (CRF) is statutorily allocated to primary health care.

<sup>107</sup> Nigeria, FMOH, National Health Policy 2016: Promoting the Health of Nigerians to Accelerate Socio-economic Development, September 2016, [url](#), p. 13





Number 48 of 1989 – is available and in circulation.<sup>108</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>109</sup>

The supply and provision of medications is achieved through the National Supply Chain Product Management Programme which was set up to enhance the integration of logistics and supply chain system for drugs and other health products to health facilities with support from the Global Fund.<sup>110</sup>

A 2018 study reported a total of 3 768 registered community pharmacies in Nigeria; unequally distributed in the states, and higher in Lagos (29 %) as compared to Jigawa (northwest), Yobe (northeast) and Zamfara (northwest) with less than 5 pharmacies each (median = 50; Minimum-Maximum: 2-1 096). Nationwide, about half of the states have less than 50 pharmacies each.<sup>111</sup> Regionally, the northeast has the lowest number of pharmacies while the southwest has the highest – more pharmacies than the three regions of the north combined.<sup>112</sup>

| Region        | Number of Community Pharmacies (% Total) |
|---------------|------------------------------------------|
| Northeast     | 72 (1.9)                                 |
| Northwest     | 179 (4.7)                                |
| Southeast     | 377 (10)                                 |
| South-south   | 794 (21.1)                               |
| North-central | 809 (21.5)                               |
| Southwest     | 1 537 (40.8)                             |

Table 5: Regional distribution of community pharmacies in Nigeria<sup>113</sup>

The overall goal of FMOH's national drug distribution guidelines is to operationalise a well-ordered drug distribution system that will enhance citizens' access to high-quality and affordable drugs at all levels.<sup>114</sup> Thus, state governments are expected to establish the State Drug Distribution Centres (SDDCs) while the private sector should introduce the Mega Drug Distribution Centres (MDDCs) in addition to wholesale and retail outlets.<sup>115</sup> It was reported in 2015 that only two states – Ekiti and Kano – had established their SDDCs while others were yet to commence implementation.<sup>116</sup> No information was found on the status of private sector implementation of the MDDCs. In terms of drug production, the following pharmacies were found to have obtained approval to manufacture and supply drugs locally but no information was found on their production capacity and status:<sup>117</sup>

- A & J Pharmaceutical Nig. Ltd, Owerri, Imo State
- Abumec Pharmaceuticals Ltd, Kaduna, Kaduna State
- AC Drugs Limited, Abakpa Nike, Enugu State
- Adler Products Limited, Ikeja, Lagos
- Afrab-Chem Limited, Lagos State

<sup>108</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 7<sup>th</sup> edition, 2020, [url](#)

<sup>109</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, n.d., [url](#)

<sup>110</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 36

<sup>111</sup> Ekpenyong, A. et al., An analysis of pharmacy workforce capacity in Nigeria, September 2018, [url](#), p. 4

<sup>112</sup> Ekpenyong, A. et al., An analysis of pharmacy workforce capacity in Nigeria, September 2018, [url](#), p. 6

<sup>113</sup> Ekpenyong, A. et al., An analysis of pharmacy workforce capacity in Nigeria, September 2018, [url](#), p. 6

<sup>114</sup> Nigeria, FMOH, National Drug Distribution Guidelines, 2<sup>nd</sup> Edition, 2012, [url](#), p. 13

<sup>115</sup> Ogbonna, B.O., National Drug Distribution In Nigeria; Implications for the Goals Of National Drug Policy, January 2016, [url](#), p. 1

<sup>116</sup> Vanguard, Implement national drug distribution guidelines now, FG told, May 2015, [url](#)

<sup>117</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021





- Afrik Pharmaceuticals Plc, Awo-Omamma, Awo-Omamma
- Agary Pharmaceutical Limited, Amuwo Odofin, Lagos State
- Alben Healthcare Industries Limited, Ogidi, Anambra State
- Archy Pharmaceutical Nigeria Limited, Lagos-Abeokuta Expressway
- Asad Pharmaceuticals Ltd, Kano
- Avro Pharma Limited, Ajao Estate, Lagos
- BCN Plc (Formerly The Boots Company Nigeria Limited), Ikeja, Lagos
- Bentos Pharmaceutical Products Limited, Ibadan
- Best Pharmaceutical Company, Enugu, Enugu State
- Biopharma Nigeria Limited, Ikorodu, Lagos State
- Bioraj Pharmaceutical Limited, Ilorin, Kwara State
- Bond Chemical Industries Limited
- Multi-Bond Ventures Limited, Awe, Oyo State
- Brian Munro Limited, Ikeja, Lagos State
- Bulger Pharmaceuticals, Enugu State
- Cardinal Drugs Limited, Agege, Lagos
- Ceenek Pharmaceutical Limited, Nike Enugu
- Chazmax Pharmaceutical Industries Limited, Anambra State
- Chemiron International Limited, Lagos
- CHI Pharmaceuticals Limited, Lagos
- Chidoomerit Pharmaceutical Ltd, Amaifeke Orlu, Imo State
- Chris Ejik Pharmaceutical Ltd, Oregun, Lagos
- Cinnamon Drugs Limited, Emene Enugu
- Clatess Limited, Ago Okota, Lagos State
- Copac Nigeria Limited, Oshodi, Lagos State

## 2.6 Patient's pathways

Although a PHCC is the first point of entry into the health system, patients have been known to self-refer to secondary and tertiary centres due to lack of trust in the PHCCs mostly located in rural areas. However, about half of the total population that resides in rural areas does resort to this level of care. In such cases, from initial consultation to simple laboratory tests, patients may receive referrals to higher levels of care.<sup>118</sup> Treatment protocols, such as the National Standard Treatment Guidelines (NSTG) to guide physicians at the secondary and tertiary facility level on standardised approaches for managing different ailments, as well as simplified protocols of community health extension workers, are available and in circulation.<sup>119</sup> However, a recent study in the southern region of the country has noted its low awareness and use amongst doctors for whom it was intended.<sup>120</sup>

Patients are able to move frequently between different health facilities, from public to private for-profit and private not-for-profit, which further complicates the complexity of referral pathways.<sup>121</sup> Currently, no nationally approved system is in place for archiving and transferring patient records electronically.<sup>122</sup>

<sup>118</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>119</sup> Nigeria, FMOH, Standard Treatment Guidelines, 2008, [url](#)

<sup>120</sup> Ayinbuomwan, A.S. and Isah, A.O., Standard Treatment Guidelines: Perception and Utilization in a Tertiary Health Care Facility in South-South, Nigeria, March 2019, [url](#), pp. 48-50

<sup>121</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>122</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





For complex cases, individuals with sufficient financial resources almost exclusively choose to travel out of the country for treatment. Key medical destinations include the US, the UK, Egypt, Pakistan, China, the Philippines, South Africa, and India.<sup>123</sup>

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<sup>123</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





## 3 Economic factors

### 3.1 Risk-pooling mechanisms

The National Health Insurance Scheme (NHIS) is the parastatal of FMoH responsible for risk-pooling as part of the country's effort to halt what is described as catastrophic health expenditure (health spending that is greater than or equal to 40 % of a household's non-subsistence income, i.e. income available after basic needs have been met) and achieve universal health coverage. NHIS pools funds at the federal level, and allocates them to selected health maintenance organisations (HMOs).<sup>124</sup> The HMOs, on behalf of the NHIS, make capitation payments for service reimbursements to healthcare providers assigned to them by the NHIS.<sup>125</sup> So far, the NHIS Formal Sector Social Health Insurance Programme (FSSHIP) only covers 5 % of the population while 70 % finance their healthcare through out-of-pocket (OOP) spending.<sup>126</sup> According to the 2017 National Health Accounts (NHA) report, household OOP spending increased from 75.2 % in 2016 to 77.5 % in 2017 – far higher than the government's target of 30-40 % of total institutional sources of health financing.<sup>127</sup>

### 3.2 Health services provided by the state/public authorities

Public health services are provided at three levels: primary, secondary and tertiary.<sup>128</sup> The NSHDP II details the services that should be available at each level of care as part of the Essential Package of Healthcare Services (EPHS). The essential services include the minimum service package (MSP) which should be available at the PHC level.<sup>129</sup> However, the 36 states, including FCT are at different stages of implementation. This implies that services available at the PHCC in one state may be unavailable in another.<sup>130</sup>

#### 3.2.1 Primary Healthcare (PHC)

One of the key goals of NSHDP II is to upgrade at least one primary health centre per ward to improve uptake and utilisation of the MSP.<sup>131</sup> Thus, the National Primary Health Care Development Agency (NPHCDA) – a parastatal of the FMoH responsible for coordination of PHC activities nationwide – articulated the Primary Health Care Under One Roof (PHCUOR) policy, which provides the road map for integrating PHC structures and programmes at the

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<sup>124</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>125</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>126</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 1

<sup>127</sup> Nigeria, FMoH, National Health Accounts 2017, April 2019, [url](#), p. 37

<sup>128</sup> Nigeria, FMoH, National Health Policy 2016: Promoting the Health of Nigerians to Accelerate Socio-economic Development, September 2016, [url](#), p. 12

<sup>129</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 53

<sup>130</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>131</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 53





sub-national level.<sup>132</sup> The PHCUOR has nine pillars, one of which is the effective implementation and provision of the basket of services as contained within the MSP at the three categories of care at the PHC level – health post, health clinic and health centre. The services as contained in the MSP are as follows:<sup>133</sup>

## **1) Reproductive, Maternal, Newborn, Child, Adolescent, and Elderly Health Plus Nutrition**

### **A. Maternal Health Services**

- Antenatal care
- Normal delivery services
- Basic emergency obstetrics and newborn care
- Postnatal care (mother's care)

### **B. Newborn and Child Health Services**

- **Newborn care**
  - Essential newborn care
  - Emergency newborn care
  - Management of human immunodeficiency virus (HIV) exposed newborn
- **Child health care**
  - Child nutrition (infant and young children feeding, detection and management of severe acute malnutrition)
  - Integrated management of childhood illnesses (detection and treatment of diarrhoea, malaria and pneumonia)
  - Immunisation

### **C. School health services**

- School feeding
- Deworming
- Tetanus toxoid (TT), and human papillomavirus (HPV) vaccines to adolescent girls
- Monitoring growth and development of school children
- Screening for disabilities
- Treatment of minor ailments

### **D. Adolescent health**

- Comprehensive sexual and reproductive health education
- Prevention of unwanted pregnancy and other family planning services
- Prevention and treatment of anaemia
- Prevention, and control of sexually transmitted infections (STIs) (including HIV)
- Menstrual hygiene promotion
- Prevention and management of substance abuse and other mental health conditions
- Prevention and management of rape
- Immunisations (diphtheria and tetanus (DT) and HPV)
- Nutrition supplementation

<sup>132</sup> Nigeria, NPHCDA, Primary Health Care Under One Roof Implementation Scorecard III Report; November 2015, [url](#), pp. 15-16

<sup>133</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





## **2) Sexual and reproductive health**

- Family planning
- Post-abortion care

## **3) Prevention and control of communicable diseases**

- Prevention, diagnosis and treatment of malaria, tuberculosis (TB), HIV/acquired immunodeficiency syndrome (AIDS), hepatitis and neglected tropical diseases (NTDs)
- Integrated vector control
- Periodic mass/targeted Preventive chemotherapy
- Case management of NTDs
- Treatment of snake bites with polyvalent anti-snake venom
- Rabies post-exposure vaccination

## **4) Prevention and control of non-communicable diseases (NCDs)**

- Prevention, screening and management of cardiovascular diseases, goitre, diabetes mellitus, hypertension, cancers, chronic respiratory tract diseases, sickle cell disease (SCD)
- Eye health
- Oral health
- Mental health
- Care of the elderly

## **5) Emergency medical services**

- Prevention of accident, injury, and violence
- Treatment of minor ailments, accidents, and injuries (first aid)
- Triage, basic/pre-referral treatment, and referral of emergencies

## **6) Public health emergencies, including outbreaks**

- Mitigation/resilience measures, including infection prevention control (IPC)
- Emergency planning
- Emergency response
- Outbreak response

## **7) Health promotion**

- Promotion of healthy living behaviour and harm reduction
- Development, production, and dissemination of information, education, and communication (IEC) on various relevant health issues
- Provision of segmented behavioural change communication
- General check-up and routine physical fitness check
- Promotion of physical activity
- Promotion of nutrition/healthy diet

## **8) Social determinants of health**

- Food safety and hygiene services
- Water and sanitation services





- Physical environment, chemical products and medical waste management

In principle, doctors, nurses, midwives, CHEWs and other support staff should be available to provide services at the PHC level.<sup>134</sup> However, due to multiple HRH challenges, nurses, midwives and CHEWs are usually the ones available to provide care while doctors are not.<sup>135</sup> A 2017 study assessed 2 480 PHC facilities from 12 states across 6 geopolitical zones in order to ascertain their readiness to deliver primary healthcare services and found that medical disposables such as hand gloves and male condoms were available in 77.2 % and 44.0 % of all PHCCs respectively, while 86.6 % provided immunisation services.<sup>136</sup> In addition, 68.1 % and 77.2 % had functional sphygmomanometer and functional stethoscopes, while 10.5 %, 25.2 %, 21.9 % and 17.1 % of facilities had basic drugs, such as Azithromycin, Nifedipine, Betamethasone or Dexamethasone, and Misoprostol, respectively.<sup>137</sup> Furthermore, drugs and medical equipment availability increased significantly in the period 2013-2014 among states in southern Nigeria as compared to their norther counterparts.<sup>138</sup> A 2021 study performed capacity and readiness assessment of 60 PHCCs in FCT for hypertension implementation control programme in Nigeria and found that 59 % and 92 % of facilities had zero 30-day treatment regimens of any blood pressure-lowering medications in stock and one or more functional blood pressure apparatus present respectively.<sup>139</sup>

### 3.2.2 Secondary and Tertiary Healthcare

At this level, patients can expect to receive advanced and complex care following referral from the PHCCs. One of the objectives of the NSHDP II is to strengthen one secondary health (general hospital) facility per LGA to serve as a referral point for all the PHCs within the district.<sup>140</sup> Of the total health facilities in Nigeria, 14.4 % are secondary<sup>141</sup>, with 1 231 public facilities distributed across the 774 LGAs in Nigeria – less than 1 general hospital per district.<sup>142</sup>

The NSHDP II does not clearly distinguish between the suite of services that should be available at secondary and tertiary levels, rather it uses the term “referral” for services that might require expert management or can be provided in situations where the individual seeks assistance at a higher level of care.<sup>143</sup>

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<sup>134</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>135</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>136</sup> Oyekale, A.S., Assessment of primary health care facilities' service readiness in Nigeria, March 2017, [url](#), pp. 3-5

<sup>137</sup> Oyekale, A.S., Assessment of primary health care facilities' service readiness in Nigeria, March 2017, [url](#), pp. 5, 7

<sup>138</sup> Oyekale, A.S., Assessment of primary health care facilities' service readiness in Nigeria, March 2017, [url](#), pp. 8-9

<sup>139</sup> Orji, I.A., et al., Capacity and site readiness for hypertension control program implementation in the Federal Capital Territory of Nigeria: a cross-sectional study, April 2021, [url](#), pp. 7-8

<sup>140</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), p. 53

<sup>141</sup> Nigeria, FMOH, Nigeria Health Facility Registry (HFR), Distribution of Hospitals and Clinics in Nigeria, 2019, [url](#)

<sup>142</sup> Nigeria, FMOH, Nigeria Health Facility Registry (HFR), Hospitals and clinics, 2019, [url](#)

<sup>143</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), pp. 55-79





### 3.2.3 Tertiary Healthcare

At this level of care, patients can receive expert care from specialists at teaching hospitals, federal medical centres, and the country's national hospital. This serves as the last referral point for cases that cannot be managed at the secondary level.<sup>144</sup>

All services available at primary and secondary healthcare centres are available at the tertiary level. Additional services include: TB services (diagnosis of multidrug resistance), obstetric services (obstructed deliveries, corticosteroids to delay premature deliveries and induced pregnancies), surgical services (basic emergency surgery) and paediatric services (neonatal sepsis, meningitis, and exchange blood transfusion).<sup>145</sup>

## 3.3 Public health insurance, national or state coverage

NHIS was established by Decree No. 35 of the 1999 constitution as part of the government's efforts to achieve universal health coverage using financial risk protection approaches.<sup>146</sup>

There are three key programmes of NHIS – FSSHIP, Informal Sector Social Health Insurance Programme (ISSHIP), and BHCPF-funded Vulnerable Group Social Health Insurance Programme (VGSHIP)<sup>147</sup> – of which FSSHIP is the most prominent and the first to be implemented.<sup>148</sup> So far, FSSHIP, the major programme of the NHIS, cover less than 5 % of the entire population.<sup>149</sup> This has been partly attributed to a slow uptake by state governments because they feel excluded from the scheme, particularly during the design stage.<sup>150</sup>

FSSHIP covers employees of federal, state and local governments, as well as private institutions employing at least 10 individuals.<sup>151</sup> However, the private sector's employers are not obliged to enrol their employees. This has been suggested as one of the reasons for the scheme poor coverage.<sup>152</sup> The federal government is expected to pay an equivalent of 3.25 % while the employee pays 1.75 %, representing 5 % of the employee's consolidated salary. For the states, local governments and employers in the organised private sector, the employer contributes 10 % while the employee pays 5 %, summing up to 15 % of the employee's basic salary.<sup>153</sup>

<sup>144</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>145</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, January 2019, [url](#), pp. 55-79

<sup>146</sup> Nigeria, National Health Insurance Scheme Decree No. 35 of 1999, Laws of the Federation of Nigeria, August 2011, [url](#), pp. 3-4

<sup>147</sup> Nigeria, NHIS, Programmes, n.d., [url](#)

<sup>148</sup> Onoka, C.A. et al., Promoting universal financial protection: constraints and enabling factors in scaling-up coverage with social health insurance in Nigeria, 2013, [url](#), p. 2

<sup>149</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 1

<sup>150</sup> Onoka, C.A. et al., Promoting universal financial protection: Constraints and enabling factors in scaling-up coverage with social health insurance in Nigeria, 2013, [url](#), pp. 2-3

<sup>151</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 12-14

<sup>152</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>153</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 12-14





ISSHIP focuses on individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers, and others not covered under the Formal Sector or the Vulnerable Group.<sup>154</sup> Contributions are to be actuarially determined at a flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance.<sup>155</sup> This sector has received less focus and gained less traction as compared to its formal sector counterpart.<sup>156</sup> No information was found on the actual coverage of this particular programme.

A component of the VGSHIP focused on the indigents, pregnant women and children, is currently being implemented with funding from the BHCPF.<sup>157</sup> This requires individuals to register with a BHCPF-designated PHC in their ward to be able to access services at no cost to them. No assessment has been done for this intervention given that it is still at the early implementation stage.<sup>158</sup>

### 3.4 Community-based health insurance (CBHI) schemes

NHIS expanded its health insurance programme to include the CBHI programme targeted at 65 % of Nigeria's population which constitutes the informal sectors – who are mostly rural dwellers.<sup>159</sup> According to the NHIS agency, CBHI targets 'cohesive groups' of households or professional bodies seeking a collective pool of health risks to minimise individual spending on health. Members are expected to participate in management and coordination of the group. It is required that participating communities, households or professional groups must enrol at least 50 % of its members or a minimum of 1 000 members. Individual contributions will be the actuarially determined rate for all and paid in cash periodically. The benefit package will include pre- and post-natal care, normal delivery, child welfare services (including immunisation), family planning and health education services.<sup>160</sup> A 2014 publication reported that poverty in rural areas and the inability to impose sanctions may have contributed to the programme's poor performance.<sup>161</sup>

### 3.5 Private health insurance schemes

There is limited research on private health insurance schemes in Nigeria. Available evidence suggests that private health insurance commenced in 1998 and, in 2005, there were over 13 health maintenance organisations providing private health insurance services in Nigeria:<sup>162</sup>

- Total Health Trust Ltd
- Hygeia Health Maintenance Ltd

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<sup>154</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 36

<sup>155</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 39

<sup>156</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>157</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5

<sup>158</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>159</sup> Shittu, A.K. and Afolabi, O.S., Community Based Health Insurance Scheme and State-Local Relations in Rural and Semi-Urban Areas of Lagos State, Nigeria, 2020, [url](#), p. 21

<sup>160</sup> Nigeria, NHIS, Community-Based Social Health Insurance Programme; n.d., [url](#)

<sup>161</sup> Odeyemi, I.A.O., Community-based health insurance programmes and the national health insurance scheme of Nigeria: challenges to uptake and integration, 2014, [url](#), pp. 3, 11

<sup>162</sup> Awosika, L., Health insurance and managed care in Nigeria, December 2005, [url](#), pp. 42, 47





- Healthcare International Ltd
- Southern Rose Nig Ltd
- Clearline International Ltd
- Premium Health Trust
- Multishield Ltd
- Managed Health Services Ltd
- First Health Ltd
- Expat care HMO
- Royal HMO
- Rosberger Nig
- United Healthcare International Ltd
- Premier Medicaid Nig. Ltd.

## 3.6 Other social security plans

Over the years, the federal government has developed and refined several social security schemes to improve the welfare of its citizens. However, interventions covering family allowance and unemployment benefits are unavailable in the country.<sup>163</sup> Specific social security plans available in Nigeria encompass occupational disease and work injury, old age pensions and allocations for disabled persons, minimum wage, and other poverty alleviation measures.<sup>164</sup>

### 3.6.1 Occupational diseases and work injury

The Employee Compensation Act (ECA) was signed into law in 2010 and repealed the Workmen compensation scheme (1987-2011). Unlike its predecessor, ECA contains comprehensive provisions ensuring employees are compensated for accidents at workplace or outside workplace. It covers medical treatment in case of accident, rehabilitation, and payment of compensation for disabilities and death. The mandate also covers treatment and payment of compensation to employees who suffer from occupational diseases contracted in the course of employment. Within this policy, employers are to contribute 1 % of their payroll costs to the Nigeria Social Insurance Trust Fund (NSITF) with a view to ensure proper use of the funds. The funds enable NSITF to handle the medical treatment for occupational disease or work injury of employee; and in the case of death, it ensures employee dependants are compensated.<sup>165</sup>

### 3.6.2 Old age pensions and allocations for disabled persons (and survivors)

The Pension Reform Act (PRA) was enacted in 2004 to improve on NSITF and public sector pension regimes. Under PRA, the custody of pension funds is transferred from NSITF to private sector companies - Pension Fund Custodians (PFCs).<sup>166</sup> The employee contribution to pension is a minimum of 18 % (a minimum of 8 % by the employee and a minimum of 10 % by the employer).<sup>167</sup>

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<sup>163</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>164</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>165</sup> Gbenga Biobaku and Co., The New Employees' Compensation Act, n.d., [url](#), pp. 1-2

<sup>166</sup> Nigeria, National Assembly, Pension Reform Act 2004, 2004, [url](#), pp. 5, 19

<sup>167</sup> Nigeria, National Assembly, Pension Reform Act, 2014, [url](#), p. 8





### 3.6.3 Minimum wage

The minimum wage in Nigeria is based on monthly income with an average working period of 40 hours per week and is 30 000 Nigerian naira (NGN) (equivalent to USD 73.1).<sup>168</sup> However, this applies mostly to government employees and excludes the majority in the informal sector.<sup>169</sup>

### 3.6.4 Poverty alleviation measures

The following are some of the poverty alleviation measures that have been put in place by the Federal Government of Nigeria although there's paucity of evaluation studies on their effectiveness:

- N-POWER Nigeria: this is an initiative that was set up by the Nigerian President, Muhammadu Buhari on the 8<sup>th</sup> of June 2016 in order to address the issues of unemployment among the youthful population through building their capacity on various areas. It was designed as a component of the National Social Investment Programme to create a platform for human capital development.<sup>170</sup> It has been reported that an estimated 500 000 youths have benefited from this initiative until December 2020.<sup>171</sup>
- Graduate Internship Scheme: this scheme was established to enable eligible graduates in Nigeria to become interns in reputable private and public firms. The project implementation unit is domiciled within the Federal Ministry of Finance.<sup>172</sup>
- Youth Entrepreneurship Support Programme: an intervention by Nigeria's Bank of Industry (BOI), aimed at training the young aspiring entrepreneurs, aged 18-35 years, and supporting them in order to access funds for the actualisation of their business ideas, as well as the expansion/modernisation of their existing businesses.<sup>173</sup>

## 3.7 Out-of-pocket (OOP) health expenditure

According to the 2017 NHA, households are mainly responsible for funding healthcare; household expenditure was approximated at NGN 3.3 trillion (USD 8.1 million), equivalent to 77.5 % of the current health expenditure. Below is a breakdown of sources of funding for health.

| Institutional Financing Sources (FS.RI) | Amount (Billions) | Percentage |
|-----------------------------------------|-------------------|------------|
| Households                              | 3 332.3           | 77.5 %     |
| Corporations                            | 28.5              | 0.7 %      |
| Non-profit institutions                 | 2.9               | 0.1 %      |
| Donors (external)                       | 320.5             | 7.5 %      |
| Federal government                      | 264.7             | 6.2 %      |
| State government                        | 295.5             | 6.9 %      |
| Local government                        | 52.8              | 1.2 %      |

<sup>168</sup> Wage Indicator, Minimum Wage – Nigeria, 2022, [url](#)

<sup>169</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>170</sup> Opera News, N-Power: Less than 9% of the 5 million Nigerians who applied will benefit from the scheme, n.d., [url](#)

<sup>171</sup> Premium Times, FG increases number of N-Power beneficiaries to one million - Official, December 2020, [url](#)

<sup>172</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>173</sup> Bank of Industry, Youth Entrepreneurship Support Programme (YES-Programme), 2020, [url](#)



| Institutional Financing Sources (FS.RI) | Amount (Billions) | Percentage |
|-----------------------------------------|-------------------|------------|
| Total                                   | 4 297.1           | 100.0 %    |

Table 6: Institutional sources of health financing<sup>174</sup>

### 3.7.1 Cost of treatment

Consultation fee is dependent on the facility type visited. On an average, specialist consultations are more expensive in private as compared to the public facilities. Also, the cost of public outpatient and inpatient treatments varies by facility type.<sup>175</sup>

| Cost of consultations   |                                         |                                        |                                          |                                         |
|-------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
|                         | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
| Specialist Consultation | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 60.9 (59.9-61.9)                         | 60.9 (59.9-61.9)                        |

Table 7: Cost of consultation by facility type<sup>176</sup>

In private facilities, specialist consultation costs more for both inpatient and outpatient care than in public facilities. The total costs incurred by patients on admission can be calculated by summing up all relevant services, including specialist consultation and bed rates; however, indirect costs, such as meals and transportation, are not included.<sup>177</sup>

### 3.7.2 Cost of medication

The Nigerian government through the National Agency for Food and Drug Administration (NAFDAC) regulates and controls the manufacture, importation, exportation, distribution, advertisement, sale and use of food, pharmaceuticals, and medical devices throughout the 36 states of the federation and FCT, through its officers within the 13 directorates of the agency. This structure was established to regulate drug prices and quality.<sup>178</sup>

Medications for prioritised diseases are provided for free in government-owned health facilities including anti-retrovirals, anti-TB medications, and multidrug-resistant TB.<sup>179</sup> Supply chain challenges has led to informal pharmaceutical markets. Medication prices vary across the northern and southern regions; these are higher towards the north due to the add-on cost of distributing from the southern ports to the northern regions.<sup>180</sup>

### 3.7.3 List of useful links

| Institution                                     |
|-------------------------------------------------|
| <a href="#">Budget Office of the Federation</a> |
| <a href="#">Central Bank of Nigeria</a>         |
| <a href="#">Federal Inland Revenue Service</a>  |
| <a href="#">Federal Ministry of Health</a>      |

<sup>174</sup> Nigeria, FMoH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>175</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>176</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>177</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>178</sup> Nigeria, NAFDAC, NAFDAC Mandate, 2017, [url](#)

<sup>179</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>180</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021



| <b>Institution</b>                                                        |
|---------------------------------------------------------------------------|
| <a href="#">Federal Ministry of Finance, Budget and National Planning</a> |
| <a href="#">Federal Ministry of Works and Housing</a>                     |
| <a href="#">Federal Road Safety Commission</a>                            |
| <a href="#">National Agency for Food and Drug Administration</a>          |
| <a href="#">National Agency for the Control of AIDS</a>                   |
| <a href="#">National Bureau of Statistics</a>                             |
| <a href="#">National Health Insurance Scheme</a>                          |
| <a href="#">National Insurance Commission</a>                             |
| <a href="#">National Population Commission</a>                            |
| <a href="#">National Primary Healthcare Development Agency</a>            |
| <a href="#">National Tuberculosis and Leprosy Control Programme</a>       |
| <a href="#">NCDC Microsite for COVID-19 updates</a>                       |
| <a href="#">Nigeria Medical Directory</a>                                 |
| <a href="#">Office of the Account-General for the Federation</a>          |
| <a href="#">Office of the Auditor-General for the Federation</a>          |
| <a href="#">The Presidency, Federal Republic of Nigeria</a>               |
| <a href="#">USAID Nigeria Program</a>                                     |





## 4 Cardiovascular diseases

### 4.1 General information

Cardiovascular diseases (CVDs) refer to conditions that alter the functionality of the heart and blood vessels, including the blood circulation; a few examples are strokes, coronary heart diseases, hypertensive heart diseases, arrhythmias, heart failures, cardiomyopathies, valvular heart diseases and congenital heart diseases.<sup>181</sup>

#### 4.1.1 Epidemiological context

According to Dalal et al., independent researchers funded by the Dean's Office of the Harvard School of Public Health to study emerging evidence on non-communicable diseases (NCDs), sub-Saharan African (SSA) countries, including Nigeria, are undergoing changes in population lifestyle and rapid urbanisation among others, which may have contributed to a rise in NCDs, particularly CVDs.<sup>182</sup> According to the World Health Organisation (WHO) NCD country profiles 2018 report, NCDs were estimated to account for about 617 300 deaths (29 % of total deaths) in Nigeria, out of which 11 % is attributed to CVDs.<sup>183</sup> Coronary heart disease, with a burden of 5.6 % of total deaths, is ranked as the second leading cause of death and first among NCDs;<sup>184</sup> while stroke is the sixth major cause of death with a burden of 3.57 % of total deaths.<sup>185</sup> Hypertension, a major risk factor for CVDs, has an estimated age adjusted death rate of 13.66 per 100 000 population.<sup>186</sup> A systematic review of studies on the prevalence of hypertension conducted by Adeloye et al. in 2014 found that approximately one-third of urban-dwelling adults in Nigeria have arterial hypertension.<sup>187</sup> This was corroborated by findings from a comparative analysis conducted in 2019, which estimated the prevalence of arterial hypertension to be 27.5 % in urban Nigeria.<sup>188</sup>

#### 4.1.2 National policies and programmes for CVDs

In 2013, the Federal Ministry of Health (FMoH) articulated the country's first strategy for the control and prevention of NCDs in fulfilment of an earlier commitment made at the United Nations (UN) General Assembly High-Level Meeting on NCDs in September 2011.<sup>189</sup> The policy intention was to integrate the management of NCDs at all levels of government and healthcare delivery system in Nigeria. However, this national effort lacked the whole-of-government, whole-of-society and multi-sectoral approach required to address NCDs and their risk factors, some of which lie beyond the health sector. Lessons learnt from this effort led to the galvanisation of broad stakeholder input in the most recent government policy

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<sup>181</sup> Boon, N. A. et al., Davidson's Principles and Practice of Medicine, 19th ed. Edinburgh, Churchill Livingstone, 2002

<sup>182</sup> Dalal, S. et al., Non-communicable diseases in sub-Saharan Africa: What we know now, International Journal of Epidemiology, April 2011, [url](#), p. 886

<sup>183</sup> WHO, Noncommunicable Diseases (NCD) Country Profiles, 2018, [url](#)

<sup>184</sup> World Life Expectancy, Nigeria: coronary heart disease, 2018, [url](#)

<sup>185</sup> World Life Expectancy, Nigeria: stroke, 2018, [url](#)

<sup>186</sup> World Life Expectancy, Nigeria: hypertension, 2018, [url](#)

<sup>187</sup> Adeloye, D. et al., An estimate of the prevalence of hypertension in Nigeria: a systematic review and meta-analysis, Journal of Hypertension, November 2014, [url](#), p. 5

<sup>188</sup> Okubadejo, N.U. et al., Prevalence of hypertension and blood pressure profile amongst urban-dwelling adults in Nigeria: a comparative analysis based on recent guideline recommendations, Clinical Hypertension, 15 April 2019, [url](#), p. 5

<sup>189</sup> Nigeria, FMoH, National Policy and Strategic Plan of Action on Prevention and Control of Non-Communicable Diseases (NCDs), May 2013, [url](#), p. 2



thrust – the National Multi-Sectoral Action Plan (NMSAP) for the Prevention and Control of NCDs (2019-2025).<sup>190</sup> This policy emphasises the integration of CVD prevention, care and treatment into basic primary healthcare (PHC) with referral to secondary and tertiary levels of care, as well as scaling up coverage of early detection, diagnosis and treatment of CVDs at PHC level. This aligns with the 15 priority areas of the country's Second National Strategic Health Development Plan (NSHDP II).<sup>191</sup> As part of this, the NSHDP II Monitoring and Evaluation Plan includes the CVD mortality among its key indicators for assessing the trajectory of programme implementation.<sup>192</sup> Also, the screening and treatment of NCDs is included in the Ward Minimum Health Care Package, which encompasses the services that should be accessible at primary healthcare centres (PHCCs).<sup>193</sup> Furthermore, the management of hypertension is included among the basket of services to be financed by the Basic Health Care Provision Fund, which represents a minimum of 1 % of the consolidated federal government revenue earmarked for provision of health services at the PHC level, including emergency health interventions.<sup>194</sup> The above policies suggest the presence of political will and strategic direction; however, evaluation studies of these interventions detailing the reality on the ground were not found.<sup>195</sup>

### 4.1.3 Healthcare provisions for CVDs

Available CVD treatments at PHCCs include lifestyle modification consultations, risk factor monitoring and pre-referral treatment, such as intravenous cannulation. Two treatment guidelines, namely the National Standing Orders for Community Health Officers/Community Health Extension Workers (CHEWs) and Junior Community Health Extension Workers (JCHEWs), encompassing pre-referral management protocols for CVDs, are available to guide lower cadre health workers on early critical steps for managing CVDs before referral to secondary facilities. However, studies have shown that these treatment protocols are underutilised for various reasons, including high patient load and limited time available for outpatient consultations.<sup>196</sup> In 2008, the FMoH introduced the National Standard Treatment Guidelines (NSTG) to guide physicians at the secondary and tertiary facility levels on standardised approaches for managing different ailments, including CVDs; however, a recent study in the south-southern part of the country has noted its low awareness and use among doctors it was intended for.<sup>197</sup>

While there are few dedicated advanced cardiovascular diagnostic and care centres in Nigeria, of which none in northeast and northwest zones<sup>198</sup> (see table 1), a 2014 study showed that no facilities exist for regular sustained coronary artery bypass grafting (CABG) and open

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<sup>190</sup> Nigeria, FMoH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019 – 2025), August 2019, [url](#), p. 43

<sup>191</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018 – 2022, [url](#), p. 74

<sup>192</sup> Nigeria, FMoH, Monitoring and Evaluation Plan for the Second National Strategic Health Development Plan (2018 – 2022), [url](#), p. 8

<sup>193</sup> Nigeria, NPHCDA, Minimum Standards for Primary Health Care in Nigeria, n.d, [url](#), p. 4

<sup>194</sup> Nigeria, FMoH, Guidelines for the Administration, Disbursement, Monitoring and Fund Management of the Basic Healthcare Provision Fund, August 2016, [url](#), pp. 40-42

<sup>195</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>196</sup> Ibrahim, D.O., Assessment of the Use of National Standing Orders in the Treatment of Minor Ailments among Community Health Practitioners in Ibadan Municipality, October 2016, International Journal of Scientific and Research Publications, [url](#), pp. 51-53

<sup>197</sup> Ayinbuomwan, A.S. and Isah, A.O., Standard Treatment Guidelines: Perception and Utilization in a Tertiary Health Care Facility in South-South, Nigeria, Annals of African Medicine, March 2019, [url](#), p. 48-50

<sup>198</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

heart surgery programmes; this poses a threat to clinical outcomes for patients with ischaemic heart diseases and significant coronary stenoses.<sup>199</sup> In a case report, an author identified 13 coronary artery disease (CAD) cases out of 747 autopsies conducted in south-south Nigeria. Because of a paucity of diagnostic and therapeutic facilities for coronary angiography in Nigeria to confirm the diagnosis of CAD and offer appropriate interventional therapy, all these patients were missed and treated for other co-existing conditions.<sup>200</sup>

| S. No. | Geopolitical zone | State                           | Facility name                        | Facility type |         |
|--------|-------------------|---------------------------------|--------------------------------------|---------------|---------|
|        |                   |                                 |                                      | Public        | Private |
| 1      | Southwest         | Lagos                           | University Teaching Hospital         | X             |         |
| 2      |                   |                                 | Euracare Nigeria                     |               | X       |
| 3      |                   |                                 | Reddington Multi-Specialist Hospital |               | X       |
| 4      |                   |                                 | Lagoon Hospitals                     |               | X       |
| 5      |                   |                                 | Alpine Hospital                      |               | X       |
| 6      |                   |                                 | First Cardiology Consultants         |               | X       |
| 7      |                   | Ibadan                          | University College Hospital Ibadan   | X             |         |
| 8      |                   | Ogun                            | Babcock University Teaching Hospital |               | X       |
| 9      | South-south       | Bayelsa                         | Bayelsa Diagnostic Centre            | X             |         |
| 10     | Southeast         | Enugu                           | University of Nigeria, Nsukka        | X             |         |
| 11     | North central     | Federal Capital Territory (FCT) | Turkish Nizamiye Hospital            |               | X       |
| 12     | Northeast         | Not available                   |                                      |               |         |
| 13     | Northwest         | Not available                   |                                      |               |         |

Table 8: Regional/state distribution of advanced cardiovascular diagnostic and care centres in Nigeria<sup>201</sup>

## 4.2 Access to treatment

Despite the high burden of hypertension, a review of studies in 2012 on this disease area revealed that the awareness (14-30 %), treatment (<20 %) and control (9 %) rates are low.<sup>202</sup> A representative sample of health centres ( $n = 62$ ) was reviewed in 2019 with an adaptation of the WHO Service Availability and Readiness Assessment (SARA) tool to assess the diagnosis, treatment and management of NCDs, specifically hypertension and diabetes mellitus.<sup>203</sup> This found that few PHCCs had guidelines (13 %), treatment algorithms (5 %) or information materials (2 %) for hypertension diagnosis or management within the clinic on the day of assessment. More than half had capacity for dispensing initial or follow-up (57 %) anti-hypertensive medications and for providing long-term continued care (60 %) for patients with hypertension. All assessed PHCCs depended on paper-based records, and very few had a functional computer (17 %) or access to the Internet or e-mail (8 %).<sup>204</sup>

<sup>199</sup> Johnson, A. et al., A Cross-sectional study of stand-alone Percutaneous Coronary Intervention in a Nigerian Cardiac Catheterization Laboratory, *BMC Cardiovascular Disorders*, January 2014, [url](#), p. 4

<sup>200</sup> Akintunde, A.A. and Olafiranye, O., Triple vessel coronary artery disease in a rural Nigerian: A reflection of poor diagnostic infrastructure or rarity in prevalence? A call for action, *Journal of Medical Research*, 2019, [url](#), pp. 109-111

<sup>201</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>202</sup> Ogah, O. S. et al., Blood pressure, prevalence of hypertension and hypertension related complications in Nigerian Africans: a review, December 2012, [url](#), pp. 330, 332

<sup>203</sup> Orji, I. A. et al., Capacity and site readiness for hypertension control program implementation in the Federal Capital Territory of Nigeria: a cross-sectional study, April 2021, [url](#), pp. 2-3

<sup>204</sup> Orji, I. A. et al., Capacity and site readiness for hypertension control program implementation in the Federal Capital Territory of Nigeria: a cross-sectional study, April 2021, [url](#), pp. 4-8



To promote access, the Government of Nigeria provisioned for preventive and curative CVD treatment and care in the benefit packages designed to cover different segments of the society within the formal and informal sectors, as well as the vulnerable groups (see table 9).<sup>205</sup> The country has three levels of care, and the patient's first port of entry into the health system is through the PHCC with referral to higher levels where necessary; hence, available insurance programmes reflect this reality and cover for referrals to higher levels of care – secondary and tertiary facilities.<sup>206</sup> However, 60-90 % of patients are reported to self-refer to referral levels of care above PHCCs. This is due to various reasons ranging from patient perception that they are more likely to see doctors at the secondary facilities to distrust of the operational capacity of PHCCs in terms of equipment, drugs and laboratory capacity.<sup>207</sup> This overburdens the higher levels of care with minor ailments, which could be managed at the primary facilities, and impacts negatively on efficiency in patient management – evidenced by prolonged waiting times in most facilities.<sup>208</sup>

Low community awareness of the diseases and their related risk factors, lack of affordable transport, lack of proximity to health facilities especially for individuals dwelling in hard-to-reach areas and high cost of care, within the context of a poor health insurance system, are among the barriers to accessing care for cardiovascular conditions.<sup>209</sup> CVD treatment and drugs are less accessible in the northern part of the country and in the rural areas compared to the southern and urban regions.<sup>210</sup> The Government of Nigeria, through the enactment of the National Health Act of 2014, established the Basic Health Care Provision Fund (BHCPF)<sup>211</sup> to provide more funding for healthcare to cater for the most vulnerable groups in the society.<sup>212</sup> Although the programme formally commenced in 2018, some commentators have argued that it is still too early to measure progress.<sup>213</sup>

## 4.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 9).<sup>214</sup> Unlike

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<sup>205</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>206</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the Operations of the NHIS Formal Sector Programmes, October 2020, [url](#), pp. 7-8

<sup>207</sup> Koce, F. et al., Understanding healthcare self-referral in Nigeria from the service users' perspective: a qualitative study of Niger state, April 2019, [url](#), pp. 1-2

<sup>208</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>209</sup> Thaddeus, S., and Maine, D., Too Far to Walk: Maternal Mortality in Context, 1994, [url](#), pp. 1091-1108

<sup>210</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>211</sup> The BHCPF utilizes two approaches to improve service delivery in at least one PHCC per ward in Nigeria: 1) through direct financial investments that funds critical upgrade for PHC infrastructure, improving availability of skilled staff and assuring stock of medicines and health commodities; and 2) through the purchase of a Basic Minimum Package of Health Services (BMPHS) from PHC providers at no cost to Nigerians.

<sup>212</sup> Nigeria, National Health Act, October 2014, [url](#)

<sup>213</sup> Results for Development (R4D), Preliminary Learnings from Nigeria's Basic Health Care Provision Fund, December 2020, [url](#)

<sup>214</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5





programmes on tuberculosis, human immunodeficiency virus (HIV) and malaria, there are no specific government-driven financial support programmes for the treatment of CVDs.<sup>215</sup>

| Programme                                                | Focus                                                                                                                                                                                                                          | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                           | Cardiovascular disease (CVD) services covered                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                         | 1. Public/federal tier - government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and four biological children below the age of 18 years | 1. Outpatient/preventive care (such as risk factor monitoring and prescriptions, e.g. diuretics)<br>2. Admission for up to three weeks<br>3. Consultation with specialists (cardiologists/cardiac surgeons)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS Drugs List and NHIS Diagnostic Test Lists |
| Informal sector social health insurance programme        | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers, and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                         | For the registered individual alone                                                                         | As in the public sector                                                                                                                                                                                                                                                                                                                         |
| Vulnerable group                                         | For indigents and the vulnerable (children under five, physically challenged people, prison inmates, pregnant women, orphans and internally displaced people)                                                                  | Register with a PHCC under the Basic Health Care Provision Fund Programme                                                                                                                                                                                                                 | For the registered individual alone                                                                         | As in the public sector                                                                                                                                                                                                                                                                                                                         |

Table 9: Health insurance programmes in Nigeria<sup>216</sup>

There exist varying degrees of insurance coverage for certain CVD services; for example, high-technology investigations, such as computed tomography scan and medical resonance imaging, are partially excluded (health maintenance organisation would pay 50 % of cost) while management of cardiovascular congenital abnormalities requiring advanced surgical procedures (e.g. tetralogy of Fallot, atrial septal defect and ventricular septal defect) is totally excluded.<sup>217</sup>

<sup>215</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>216</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>217</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 24-25





It is important to note that although health insurance is available in-country, households provide 77.5 % of the current health expenditure while the federal government and donors contribute 6.2 % and 7.5 %, respectively.<sup>218</sup> This implies that out-of-pocket expenditure on health remains very high and would impact the economic status of citizens.<sup>219</sup>

## 4.4 Cost of medication

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>220</sup> The National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>221</sup>

The prices of medications were collected from six private pharmacies across the country – four in the south and two in the northern regions.<sup>222</sup> Medicines that are only available in the informal market were not listed. See more details of medication cost in the methodology section of the general country report.

| Generic name                                   | Brand name ®        | Dosage        | Form   | Number of units in the container | Price per box (United States Dollar (USD)) |
|------------------------------------------------|---------------------|---------------|--------|----------------------------------|--------------------------------------------|
| Anti-hypertension                              |                     |               |        |                                  |                                            |
| Amlodipine                                     | Norvasc®            | 10 mg         | Tablet | 100                              | 16.5 (15.0-18.0)                           |
| Amlodipine + valsartan + hydrochlorothiazide   | Exforge®            | 10/160/25 mg  | Tablet | 28                               | 24.9 (23.8-26)                             |
| Atenolol                                       | Ternomin®           | 50 mg         | Tablet | 28                               | 1.7 (1.4-2.0)                              |
| Bisoprolol                                     | Concor®             | 5 mg          | Tablet | 28                               | 6.1 (5.2-7.0)                              |
| Bumetanide                                     | Bumetanide®         | 5 mg          | Tablet | 28                               | 28.4 (26.0-30.8)                           |
| Candesartan                                    | Atacand®            | 16 mg         | Tablet | 28                               | 33.4 (32-34.8)                             |
| Carvedilol                                     | Carvedilol          | 12.5 mg       | Tablet | 28                               | 2.4 (2.2-2.6)                              |
| Doxazosin                                      | Doxazosin           | 2 mg          | Tablet | 28                               | 1.7 (1.0-2.4)                              |
| Enalapril                                      | Enaladex®           | 5 mg          | Tablet | 28                               | 2.9 (2.0-3.8)                              |
| Eplerenone                                     | Inspra®             | 50 mg         | Tablet | 28                               | 121.8 (120-123.6)                          |
| Furosemide                                     | Bristol®            | 40 mg         | Tablet | 28                               | 3.4 (2.8-4.0)                              |
| Hydrochlorothiazide                            | Hydrochlorothiazide | 25 mg         | Tablet | 28                               | 4.8 (4.5-5.1)                              |
| Irbesartan                                     | Avapro®             | 300 mg        | Tablet | 30                               | 14.6 (13.9-15.3)                           |
| Lercanidipine                                  | Lercanidipine       | 20 mg         | Tablet | 28                               | 7.4 (7.0-7.8)                              |
| Lisinopril                                     | Lisinopril          | 10 mg         | Tablet | 28                               | 2.1 (1.7-2.5)                              |
| Lisinopril + hydrochlorothiazide (combination) | Zestoretic®         | 10 mg/12.5 mg | Tablet | 28                               | 4.3 (3.8-4.8)                              |
| Losartan                                       | Losartan            | 50 mg         | Tablet | 28                               | 3.3 (2.9-3.7)                              |
| Metoprolol                                     | Betaloc®            | 100 mg        | Tablet | 30                               | 7.2 (6.5-7.9)                              |
| Nifedipine                                     | Cardovasc Retard®   | 20 mg         | Tablet | 50                               | 2.7 (2.0-3.4)                              |
| Olmesartan                                     | Orion®              | 40 mg         | Tablet | 10                               | 2.9 (2.5-3.3)                              |
| Perindopril                                    | Perindopril®        | 2 mg          | Tablet | 30                               | 9.0 (7.0-11.0)                             |
| Propranolol                                    | Inderal®            | 40 mg         | Tablet | 50                               | 6.1 (5.9-6.3)                              |
| Spironolactone                                 | Aldactone®          | 40 mg         | Tablet | 50                               | 6.1 (5.8-6.4)                              |
| Telmisartan                                    | Micardis®           | 80 mg         | Tablet | 28                               | 8.5 (8.0-9.0)                              |

<sup>218</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>219</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>220</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 7<sup>th</sup> edition, 2020, [url](#)

<sup>221</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, [url](#)

<sup>222</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| Generic name                    | Brand name ® | Dosage | Form   | Number of units in the container | Price per box (United States Dollar (USD)) |
|---------------------------------|--------------|--------|--------|----------------------------------|--------------------------------------------|
| Torsemide                       | Duretor-20®  | 20 mg  | Tablet | 10                               | 6.6 (6.0-7.2)                              |
| Valsartan                       | Diovan®      | 80 mg  | Tablet | 28                               | 8.5 (8.2-8.8)                              |
| <b>Antiplatelet aggregation</b> |              |        |        |                                  |                                            |
| Ticagrelor                      | Brilinta®    | 90 mg  | Tablet | 30                               | 85.3 (84.3-86.3)                           |

Table 10: Details of medication available in the formal market<sup>223</sup>

## 4.5 Cost of treatment

There are no specific government-driven financial support programmes for the treatment of CVDs.<sup>224</sup> About 95 % of the population are yet to benefit from the country's NHIS; hence, out-of-pocket payment at the point of care is the experience for most individuals.<sup>225</sup> A 2014 study to report the costs of CVDs in Nigeria based on prospectively collected operational data found that the costs of CVD prevention care were USD 144 (range 130-158) per patient per year; direct and indirect costs for outpatient care were USD 82 and 62, respectively, while the cost drivers were drugs (USD 39) and diagnostic tests (USD 36).<sup>226</sup> This is beyond the reach of 40 % of the total population, or almost 83 million people, who live below the country's poverty line of NGN 137 430 (USD 381.75) per year.<sup>227</sup>

For this report, the local consultant gathered information on the costs of public outpatient and inpatient treatments, which were obtained from eight facilities – five privately owned and three government-owned centres spread across the north central, south-south and southwestern regions of the country. In private facilities, a specialist consultation costs less for inpatient care than outpatient care; however, in the long run and with multiple consultations, inpatient care is more expensive. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as bed rates, meals and transportation, were not included.<sup>228</sup>

|                                   | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-----------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                 |                                         |                                        |                                          |                                         |
| Consultation by a cardiologist    | 36.5 (35.0-38.0)                        | 36.5 (36.0-37.0)                       | 73.0 (72.0-74.0)                         | 48.8 (48.0-49.6)                        |
| Consultation by a cardiac surgeon | 36.5 (35.0-38.0)                        | 36.5 (36.0-37.0)                       | 85.3 (85.0-85.6)                         | 48.8 (48.0-49.6)                        |

Table 11: Treatment cost by facility type<sup>229</sup>

<sup>223</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>224</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>225</sup> Alawode, G.O., and Adewole, A.D., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 7

<sup>226</sup> Hendriks, M.E. et al., Costs of cardiovascular disease prevention care and scenarios for cost saving: A micro-costing study from rural Nigeria, November 2014, [url](#), pp. 4-5

<sup>227</sup> Nigeria, NBS, 2019 Poverty and Inequality in Nigeria: Executive summary, May 2020, [url](#), p. 5

<sup>228</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>229</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's



|                                                                                                                                                            | Public treatment price (USD) | Private treatment price (USD) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory research</b>                                                                                                                                 |                              |                               |
| Laboratory research of blood; INR, e.g. in case of acenocoumarol anticlotting                                                                              | 24.3 (24.0-24.6)             | 38.4 (38.0-38.8)              |
| Laboratory research for cardiac biomarker; creatine kinase MB (CK-MB)                                                                                      | 29.2 (29.0-29.4)             | 102.4 (100.0-104.8)           |
| Laboratory research for cardiac biomarker; troponin                                                                                                        | 29.2 (29.0-29.4)             | 102.4 (100.0-104.8)           |
| <b>Diagnostic imaging</b>                                                                                                                                  |                              |                               |
| Angiography (= arteriography)                                                                                                                              | Not available                | 243.8 (241.3-246.3)           |
| Cardiac stress test                                                                                                                                        | Not available                | 63.9 (63.2-64.6)              |
| Electrocardiogram (ECG; cardiology)                                                                                                                        | 12.1 (11.9-12.3)             | 25.6 (25.2-26.0)              |
| Holter monitoring/ambulatory ECG device (cardiology)                                                                                                       | 60.9 (60.0-61.8)             | 63.9 (63.0-64.8)              |
| Ultrasound of the heart (= echocardiography = echocardiogram = transthoracic echocardiogram (TTE))                                                         | 36.5 (36.2-36.8)             | 51.2 (51.0-51.4)              |
| <b>Treatment</b>                                                                                                                                           |                              |                               |
| Clinical admittance in cardiology department (daily rates)                                                                                                 | 5.0 (4.5-5.5)                | 25.6 (25.2-26.0)              |
| Clinical admittance in cardiac surgery department (daily rates)                                                                                            | 5 (4.5-5.5)                  | 187.7 (185.2-190.2)           |
| <b>Intervention possibilities in case of (high risk of) myocardial infarction</b>                                                                          |                              |                               |
| Cardiac surgery; cardiac catheterisation                                                                                                                   | Not available                | 3 412.6 (3 410.1-3 415.1)     |
| Cardiac surgery; CABG; bypass                                                                                                                              | Not available                | 13 406.5 (13 400.0-13 413.0)  |
| Cardiac surgery; percutaneous transluminal coronary angioplasty (PTCA)/percutaneous coronary intervention (PCI); coronary angioplasty, including follow-up | Not available                | 6 093.8 (6 087.0-6 100.0)     |
| <b>Intervention possibilities in case of severe heart rhythm disorders</b>                                                                                 |                              |                               |
| Cardiology, placement of pacemaker                                                                                                                         | 1 583.5 (1 580.0-1 587.0)    | 1 948.9 (1 935.0-1 962.8)     |
| Cardiology, maintenance and follow-up of pacemaker                                                                                                         | 1 583.5 (1 580.0-1 587.0)    | 1 948.9 (1 935.0-1 962.8)     |
| Cardiology, placement of implantable cardioverter-defibrillator (ICD)                                                                                      | 1 583.5 (1 580.0-1 587.0)    | 2 192.6 (2 190.0-2 195.2)     |
| Cardiology, follow-up of ICD by cardiologist                                                                                                               | 243.6 (240.0-247.2)          | 365.4 (360.0-370.8)           |

Table 12: Cost of laboratory investigations by facility type<sup>230</sup>

internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from:

[url](#)

<sup>230</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from:

[url](#)





## 4.6 NGOs

There is a substantial number of local and international NGOs in Nigeria focused on health system strengthening activities, more in the north than the southern region, and the regional mismatch is largely attributed to varying health indices across the country.<sup>231</sup> However, the majority of the NGOs do not focus on CVDs, and for those that do, their actual reach and impact in terms of assisted people with CVDs were not found.<sup>232</sup>

Examples of current programmes funded by international donor programmes on CVD include: 1) Resolve to Save Lives, a five-year campaign funded by Bloomberg Philanthropies, the Chan Zuckerberg Initiative and the Bill & Melinda Gates Foundation. Resolve aims at saving 100 million lives by implementing proven solutions to prevent heart disease and stroke, the world's leading cause of death.<sup>233</sup> 2) Save-A-Heart Nigeria project is an international medical humanitarian organisation created by "TEAM NIGERIA": volunteers from the Cardiothoracic Surgery Unit of the Royal Victoria Hospital in Belfast, Northern Ireland. Their aim is to support the development of an affordable and sustainable open-heart surgery programme in Nigeria.<sup>234</sup>

Others include the Rotary Club of Nigeria and Voom Foundation.<sup>235</sup> The Rotary Club is a 110-year-old institution with over 1.2 million members across 145 countries, including Nigeria; they actively support efforts at halting disease transmission, providing clean water, sanitation and hygiene, among other interests.<sup>236</sup> The club has helped to provide access to treatment for children living with cardiovascular conditions in the southern part of the country.<sup>237</sup>

The Voom Foundation is an international medical humanitarian organisation composed of volunteer health professionals of all cadres with a mission to deliver high-quality and sustainable health programmes to the underserved in Nigeria. Since 2013, the foundation has collaborated with three health facilities to deliver the open-heart programme in Nigeria, as well as training for local staff to support a sustainable open-heart programme in Nigeria; however, their medical missions were temporarily suspended due to COVID-19 and travel restrictions, including the cardiac programme.<sup>238</sup>

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<sup>231</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>232</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>233</sup> Resolve to Save Lives, Strengthening outbreak response in Nigeria, n.d., [url](#); Resolve to Save Lives, About, n.d., [url](#)

<sup>234</sup> Save-A-Heart Nigeria Project, n.d., [url](#)

<sup>235</sup> Ike, S.O. et al., Cardiovascular diseases in Nigeria: What has happened in the past 20 years? June 2020, [url](#), p. 24

<sup>236</sup> Rotary, Who we are, n.d., [url](#)

<sup>237</sup> Vanguard, Rotary commences treatment of children with heart diseases, July 2017, [url](#)

<sup>238</sup> Voom Foundation, About us, n.d., [url](#)





## 5 Diabetes mellitus

### 5.1 General information

Diabetes mellitus (DM) is a metabolic condition characterised by elevated blood sugar levels accompanied by disturbances in carbohydrate, protein, and fat metabolism resulting from defects in insulin production, insulin action or both.<sup>239</sup> Gestational, type 1 and type 2 are the three most frequently recognised types of DM in the Nigerian setting; of the three types, type 2 is the most commonly documented in endocrine clinics.<sup>240</sup>

#### 5.1.1 Epidemiological context

There has been no national health (diabetes) survey since 1992 when a prevalence of 2.2 % for diabetes was reported; hence, there is limited epidemiological data on diabetes although a 2018 meta-analysis of previously available studies estimated the pooled prevalence to be 5.77 % suggesting that 1 out of every 17 adults in Nigeria is living with the disease.<sup>241</sup>

According to the World Health Organisation (WHO) 2016 Country Profiles Report, diabetes contributed to an estimated 2 % of total mortality in all ages with a combined type 1 and type 2 prevalence of 4.3 %.<sup>242</sup> Of note is that the mortality estimates have a high degree of uncertainty as they are not based on Nigeria's epidemiological data on DM, which are very limited, but rather on a combination of country life tables, cause of death models, regional cause of death patterns, and the WHO and the Joint United Nations Programme on HIV and AIDS (UNAIDS) programme estimates for some major causes of death (not including non-communicable diseases (NCDs)).<sup>243</sup>

A systematic review of DM conducted in 2016 estimated the age-adjusted prevalence rates of type 2 DM in Nigeria among people aged 20-79 years to be 5.7 % accounting for over 4.7 million cases in 2015.<sup>244</sup> However, the studies reviewed may not be representative of the entire country given that the selected studies were mostly from the southern geopolitical zone of Nigeria.<sup>245</sup> The highest combined type 1 and type 2 prevalence was observed in the south-south region of the country at 8.5 %.<sup>246</sup>

The burden of undiagnosed DM in Nigeria is very high.<sup>247</sup> In 2019, it was estimated that there were 1 317 000 undiagnosed cases of diabetes with 63 957 diabetes-related deaths.<sup>248</sup>

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<sup>239</sup> WHO, Definition, diagnosis and classification of diabetes mellitus and its complications: Report of a WHO consultation. Part 1: Diagnosis and classification of diabetes mellitus, 1999, [url](#), p. 2

<sup>240</sup> Ogbera, A.O. and Ekpebegh, C., Diabetes mellitus in Nigeria: The past, present and future, December 2014, [url](#), p. 906

<sup>241</sup> Uloko, A.E. et al., Prevalence and Risk Factors for Diabetes Mellitus in Nigeria: A Systematic Review and Meta-Analysis, May 2018, [url](#), pp. 1307, 1311

<sup>242</sup> WHO, Diabetes Country Profiles 2016, Nigeria, April 2016, [url](#)

<sup>243</sup> WHO, Diabetes Country Profiles 2016: Explanatory notes, April 2016, [url](#), pp. 1-2

<sup>244</sup> Adelaye, D. et al., Estimating the prevalence, hospitalisation and mortality from type 2 diabetes mellitus in Nigeria: a systematic review and meta-analysis, May 2017, [url](#), p. 12

<sup>245</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>246</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019 – 2025), August 2019, [url](#), p. 28

<sup>247</sup> Enang, O.E. et al., Prevalence of dysglycemia in Calabar: a cross-sectional observational study among residents of Calabar, Nigeria, June 2014, [url](#), p. 1

<sup>248</sup> IDF, International Diabetes Federation, IDF Diabetes Atlas 9<sup>th</sup> edition, 2019, [url](#), pp. 136-137





## 5.1.2 National policies and programmes for DM

The Second National Strategic Health Development Plan 2018-2022 and the National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases 2019-2025 include the following within the Essential Package of Services to be provided at all levels: screening for diabetes (routine sugar testing) and risk factors; counselling and support services; diagnosis and management of diabetes; management of diabetic complications and rehabilitation.<sup>249</sup> However, care in primary healthcare centres (PHCCs) is mostly limited to urine testing for glucose and very few have blood glucose meters. This has been attributed to a shortage of personnel skilled in the management of DM, as well as to a paucity of relevant infrastructure and equipment for healthcare delivery.<sup>250</sup>

## 5.1.3 Healthcare provisions for DM

There is no national institute specialised in treating DM; rather, screening and risk monitoring are offered at the primary healthcare (PHC) level – the first port of entry into the country's health system – while treatment and advanced care are provided at the secondary and tertiary facilities. The patients diagnosed with DM at PHCCs are rarely treated at this level, but are rather referred to secondary facilities because PHCCs have often community health extension workers (CHEWs) and nurses with little or no experience in diabetes management. At the secondary facility level, individuals with DM are managed by doctors without the required subspeciality in diabetes while other relevant healthcare workers, such as chiropodists, diabetes educators and dietitians, are scarce.<sup>251</sup> Specialised services, such as consultations with diabetologists/endocrinologists or specialised surgeries, are provided at the tertiary level – the teaching hospitals – distributed across the six regions, which serve also as sites for internships for newly graduated doctors (see table 1 below).<sup>252</sup>

| S. No. | Geopolitical zone | Facility name                                          | Facility type |         |
|--------|-------------------|--------------------------------------------------------|---------------|---------|
|        |                   |                                                        | Public        | Private |
| 1      | Southeast         | Abia State University Teaching Hospital, Aba           | X             |         |
| 2      |                   | Nnamdi Azikiwe University Teaching Hospital, Nnewi     | X             |         |
| 3      |                   | Ebonyi State University Teaching Hospital, Abakiliki   | X             |         |
| 4      |                   | University of Nigeria Teaching Hospital, Enugu         | X             |         |
| 5      |                   | Imo State University Teaching Hospital, Orlu           | X             |         |
| 6      |                   | Anambra State University Teaching Hospital, Amaku Awka | X             |         |
| 7      |                   | Madonna University Teaching Hospital, Elele            |               | X       |
| 8      |                   | Federal University Teaching Hospital, Abakiliki        |               | X       |
| 9      | South-south       | University of Uyo Teaching Hospital, Uyo               | X             |         |
| 10     |                   | University of Calabar Teaching Hospital, Calabar       | X             |         |
| 11     |                   | University of Benin Teaching Hospital, Benin City      | X             |         |
| 12     |                   | Delta State University Teaching Hospital, Oghara       | X             |         |
| 13     |                   | Niger Delta University Teaching Hospital, Okolobiri    | X             |         |
| 14     |                   | Igbinedion University Teaching Hospital, Okada         |               | X       |

<sup>249</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018 – 2022, [url](#), pp.73-74; Nigeria, Federal Ministry of Health, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019 – 2025), August 2019, [url](#), pp. 56-57

<sup>250</sup> Fasanmade, O.A. and Dagogo-Jack, S., Diabetes Care in Nigeria; November-December 2015, [url](#), p. 823

<sup>251</sup> Fasanmade, O.A. and Dagogo-Jack, S., Diabetes Care in Nigeria, November-December 2015, [url](#), pp. 822-823

<sup>252</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| S. No. | Geopolitical zone | Facility name                                                      | Facility type |         |
|--------|-------------------|--------------------------------------------------------------------|---------------|---------|
|        |                   |                                                                    | Public        | Private |
| 15     | Southwest         | Lagos University Teaching Hospital, Idi-Araba                      | X             |         |
| 16     |                   | Olabisi Onabanjo (Ogun state) University Teaching Hospital, Sagamu | X             |         |
| 17     |                   | LAUTECH University Teaching Hospital, Osogbo/Ogbomosho             | X             |         |
| 18     |                   | OAU Teaching Hospital Complex, Ile-ife                             | X             |         |
| 19     |                   | University College Hospital, Ibadan                                | X             |         |
| 20     |                   | Babcock University Teaching Hospital, Ilishan-Remo                 |               | X       |
| 21     |                   | University Teaching Hospital, Ado-ekiti                            | X             |         |
| 22     |                   | Lagos State University Teaching Hospital, Ikeja                    | X             |         |
| 23     |                   | Federal Teaching Hospital, Ido-Ekiti                               | X             |         |
| 24     | North central     | University of Ilorin Teaching Hospital, Ilorin                     | X             |         |
| 25     |                   | Jos University Teaching Hospital, Lamingo Jos                      | X             |         |
| 26     |                   | University of Abuja Teaching Hospital, Gwagwalada                  | X             |         |
| 27     |                   | Benue State University Teaching Hospital, Makurdi                  | X             |         |
| 28     |                   | Bingham University Teaching Hospital, Jos                          |               | X       |
| 29     | Northeast         | University of Maiduguri Teaching Hospital, Maiduguri               | X             |         |
| 30     |                   | Abubakar Tafawa Belewa University Teaching Hospital, Bauchi        | X             |         |
| 31     |                   | Federal University Teaching Hospital, Gombe                        | X             |         |
| 32     | Northwest         | Aminu Kano Teaching Hospital, Kano                                 | X             |         |
| 33     |                   | Ahmadu Bello University Teaching Hospital, Zaria                   | X             |         |
| 34     |                   | Usmanu Danfodio University Teaching Hospital, Sokoto               | X             |         |

Table 13: Regional distribution of tertiary facilities with specialised services for DM in Nigeria<sup>253</sup>

## 5.2 Access to treatment

Broadly, poverty has been identified as one of the major factors that impacts on an individual's willingness to seek healthcare.<sup>254</sup> This is reflected in the Nigerian context where over 40 % of the population live below the poverty line.<sup>255</sup> In 2018, a descriptive cross-sectional study conducted amongst civil servants in the southwestern region in order to identify factors affecting health-seeking behaviour (HSB) found that respondents' characteristics, such as completing tertiary education, possessing lower household sizes, belonging to higher socio-economic status quartile and participation in the National Health Insurance Scheme (NHIS), were important drivers for the respondents' decision to seek care.<sup>256</sup> Also, low community awareness of the disease and its related risk factors, lack of affordable transport, lack of proximity to health facilities especially for individuals dwelling in hard-to-reach areas and high cost of care within the context of a poor health insurance system are amongst the barriers to accessing care.<sup>257</sup>

<sup>253</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>254</sup> Adler, N.E. et al., Socioeconomic status and health. The challenge of the gradient, January 1994, [url](#)

<sup>255</sup> Nigeria, NBS, 2019 Poverty and Inequality in Nigeria: Executive summary, May 2020, [url](#), p. 5

<sup>256</sup> Latunji, O.O. and Akinyemi, O.O., Factors Influencing Health-Seeking Behaviour Among Civil Servants In Ibadan, Nigeria, June 2018, [url](#), p. 59

<sup>257</sup> Thaddeus, S., and Maine, D., Too Far to Walk: Maternal Mortality in Context, 1994, [url](#), pp. 1091-1108

Data from 2016 suggest that essential medicines for DM, including insulin, and basic equipment, such as tuning forks, were unavailable in most primary care facilities, which are mostly based in rural areas (see table 14).<sup>258</sup>

| Medicines in primary care facilities                |   | Basic technologies in primary care facilities   |   |
|-----------------------------------------------------|---|-------------------------------------------------|---|
| <i>Insulin</i>                                      | ○ | Blood glucose measurement                       | ● |
| <i>Metformin</i>                                    | ● | Oral glucose tolerance test                     | ● |
| <i>Sulphonylurea</i>                                | ● | A haemoglobin A1c (HbA1c) test                  | ○ |
| <b>Procedures</b>                                   |   | Dilated fundus examination                      | ○ |
| <i>Retinal photocoagulation</i>                     | ○ | Foot vibration perception by tuning fork        | ○ |
| <i>Renal replacement therapy by dialysis</i>        | ○ | Foot vascular status by Doppler                 | ○ |
| <i>Renal replacement therapy by transplantation</i> | ○ | Urine strips for glucose and ketone measurement | ● |

Table 14: Availability of medicines, basic technologies and procedures in the public health sector.<sup>259</sup>

○ = not generally available    ● = generally available

In secondary and tertiary facilities, nurses are trained to provide basic care to patients, but not specifically for DM management. Nurses are responsible for bedside urine tests, point-of-care blood glucose determinations, basic nutritional advice, education for insulin self-injection, and insulin administration for patients with cognitive dysfunction or who are otherwise unable to self-inject. The physician/patient ratio in Nigeria is suboptimal. Hence, in both secondary and tertiary facilities, DM clinics are overstretched with about 5 to 10 doctors seeing 100 to 200 DM patients in very few hours (most clinics run once a week from 8 or 9 AM to 1 to 2 PM).<sup>260</sup>

## 5.3 Insurance and national programmes

The NHIS was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 15).<sup>261</sup>

| Programme                                                | Focus                                                                                                                                  | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                           | DM services covered                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and four biological children below the age of 18 years | 1. Outpatient/preventive care (risk factor monitoring, prescriptions, etc.)<br>2. Admission for up to three weeks<br>3. Consultation with specialists (diabetologists/internists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS Drugs List and NHIS Diagnostic Test Lists |

<sup>258</sup> WHO, Diabetes Country Profiles 2016, Nigeria, April 2016, [url](#)

<sup>259</sup> WHO, Diabetes Country Profiles 2016, Nigeria, April 2016, [url](#)

<sup>260</sup> Fasanmade, O. A. and Dagogo-Jack, S., Diabetes Care in Nigeria, November-December 2015, [url](#), p. 824

<sup>261</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5



| Programme                                         | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                      | Scope of coverage                   | DM services covered     |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------|
| Informal sector social health insurance programme | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - Actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance | For the registered individual alone | As in the public sector |
| Vulnerable group                                  | For indigents and the vulnerable (children under five, physically challenged people, prison inmates, pregnant women, orphans and internally displaced people)                                                                 | Register with a PHCC under the Basic Health Care Provision Fund Programme                                                                                                                                         | For the registered individual alone | As in the public sector |

Table 15: Health insurance programmes in Nigeria<sup>262</sup>

There exist varying degrees of insurance coverage for certain DM services; for example, high-technology investigations, such as computed tomography scan and medical resonance imaging, are partially excluded (health maintenance organisation would pay 50 % of cost while provision of contact lens from ophthalmological complications arising from DM is totally excluded).<sup>263</sup>

## 5.4 Cost of medication

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>264</sup> The National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>265</sup>

The prices of medications were collected from six private pharmacies across the country – four in the south and two in the northern regions.<sup>266</sup> Medicines that are only available in the informal market were not listed.

| Generic name  | Brand name | Dosage | Form   | Number of units in the container | Price per box (USD) |
|---------------|------------|--------|--------|----------------------------------|---------------------|
| Acarbose      | Precose®   | 25 mg  | Tablet | 10                               | 35.3 (35.0-35.6)    |
| Canagliflozin | Invokana®  | 100 mg | Tablet | 30                               | 54.8 (52.0-57.6)    |

<sup>262</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>263</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp.24-25

<sup>264</sup> Nigeria, FMoH, Nigeria Essential Medicines List, 7<sup>th</sup> edition, 2020, [url](#)

<sup>265</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, n.d., [url](#)

<sup>266</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





| Generic name                                                                                                      | Brand name     | Dosage    | Form          | Number of units in the container | Price per box (USD) |
|-------------------------------------------------------------------------------------------------------------------|----------------|-----------|---------------|----------------------------------|---------------------|
| Dapagliflozin                                                                                                     | Farxiga®       | 10 mg     | Tablet        | 30                               | 116.0 (114.0-118.0) |
| Empagliflozin                                                                                                     | Glyxambi®      | 25 mg     | Tablet        | 90                               | 167.5 (165.0-170.0) |
| Glibenclamide                                                                                                     | Dionil®        | 5 mg      | Tablet        | 30                               | 4.7 (4.5-4.9)       |
| Gliclazide                                                                                                        | Diamicon®      | 60 mg     | Tablet        | 28                               | 25.6 (25.2-26.0)    |
| Glimepiride                                                                                                       | Amaryl®        | 2 mg      | Tablet        | 28                               | 7.4 (7.2-7.6)       |
| Glucagon                                                                                                          | Glucagon       | 1 mg      | Injection pen | 1                                | 102.9 (100.8-105.0) |
| Insulin, premixed: aspart (rapid acting) and aspart protamine (intermediate acting) like Novomix®                 | Novomix 30®    | 100 iu/ml | Injection pen | 1                                | 11.1 (11.0-11.2)    |
| Insulin, premixed: combination of lispro (rapid acting) and insulin lispro protamine (intermediate acting)        | Humalog®       | 75/25 mg  | Injection pen | 1                                | 193 (190.0-196.0)   |
| Insulin, premixed: combination of regular (short acting) and insulin isophane (intermediate acting) like Mixtard® | Mixtard® 30 HM | 100 iu/ml | Injection     | 1                                | 8.5 (8.2-8.8)       |
| Insulin: combination of insulin degludec (extra long acting) and insulin aspart (rapid acting)                    | Tresiba®       | 70/30 mg  | Vial          | 1                                | 57.3 (57.0-57.6)    |
| Insulin: intermediate acting [12-24 hours]; insulin NPH/isophane like Insulatard®                                 | Insulatard®    | 100 iu/ml | Vial          | 1                                | 10.5 (10.0-11.0)    |
| Insulin: long acting [24 hours]; insulin glargine like Lantus®                                                    | Lantus®        | 100 iu/ml | Injection pen | 1                                | 12.1 (11.8-12.4)    |
| Insulin: rapid acting [2-5 hours]; insulin aspart like Novorapid®                                                 | Novorapid®     | 100 iu/ml | Injection pen | 1                                | 12.3 (12.0-12.6)    |
| Insulin: rapid acting [2-5 hours]; insulin lispro                                                                 | Actrapid®      | 100 iu/ml | Vial          | 1                                | 12.2 (11.9-12.5)    |
| Linagliptin                                                                                                       | Trajenta®      | 5 mg      | Tablet        | 28                               | 81.7 (80.0-83.4)    |
| Liraglutide                                                                                                       | Victoza®       | 6 mg/ml   | Injection     | 1                                | 101.2 (100.0-102.4) |
| Metformin                                                                                                         | Panfor®        | 100 mg    | Tablet        | 100                              | 11.7 (10.9-12.5)    |
| Sitagliptin                                                                                                       | Janumet®       | 100 mg    | Tablet        | 56                               | 14.7 (14.5-14.9)    |
| Tolbutamide                                                                                                       | Tolbutamide®   | 500 mg    | Tablet        | 28                               | 4.1 (4.0-4.2)       |
| Vildagliptin                                                                                                      | Galvus®        | 50 mg     | Tablet        | 28                               | 16.1 (15.9-16.3)    |



Table 16: Details of medication available in the formal market<sup>267</sup>

## 5.5 Cost of treatment

There are no government-driven financial support programmes specifically for the treatment of DM.<sup>268</sup> About 95 % of the population are yet to benefit from the country's NHIS; hence, out-of-pocket payment at the point of care is the experience of most individuals.<sup>269</sup>

The cost of public outpatient and inpatient treatments was obtained from eight facilities – five privately-owned and three government-owned centres spread across the north central, south-south and southwestern regions of the country.<sup>270</sup> In private facilities, a specialist consultation costs less for inpatient care than outpatient care; however, in the long run and with multiple consultations, inpatient care is more expensive. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as bed rates, meals and transportation, were not included.<sup>271</sup>

|                                                           | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-----------------------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                                         |                                         |                                        |                                          |                                         |
| Consultation by an internal specialist (internist)        | 41.4 (40.0-42.8)                        | 41.4 (40.0-42.8)                       | 60.9 (60.0-61.8)                         | 48.8 (48.0-49.6)                        |
| Consultation by an endocrinologist                        | 41.4 (40.0-42.8)                        | 41.4 (40.0-42.8)                       | 60.9 (60.0-61.8)                         | 48.8 (48.0-49.6)                        |
| Consultation by an ophthalmologist                        | 41.4 (40.0-42.8)                        | 36.6 (36.0-37.2)                       | 60.9 (60.0-61.8)                         | 60.9 (60.0-61.8)                        |
| Consultation by a neurologist                             | 41.4 (40.0-42.8)                        | 36.6 (36.0-37.2)                       | 85.3 (85.0-85.6)                         | 48.8 (48.5-49.1)                        |
| Consultation by a general practitioner                    | 41.4 (40.0-42.8)                        | 24.4 (23.4-25.4)                       | 60.9 (60.0-61.8)                         | 48.8 (48.5-49.1)                        |
| Consultation by vascular surgeon (e.g. for diabetic foot) | 41.4 (40.0-42.8)                        | 73.1 (72.9-73.3)                       | 85.3 (85.0-85.6)                         | 48.8 (48.5-49.1)                        |

Table 17: Treatment cost by facility type<sup>272</sup>

|                            | Public treatment price | Private treatment price |
|----------------------------|------------------------|-------------------------|
| <b>Laboratory research</b> |                        |                         |

<sup>267</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>268</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021.

<sup>269</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 7

<sup>270</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021.

<sup>271</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021.

<sup>272</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)



|                                                                                 | Public treatment price  | Private treatment price |
|---------------------------------------------------------------------------------|-------------------------|-------------------------|
| Blood glucose (including HbA1C/glyc.Hb)                                         | 36.6 (36.0-37.2)        | 30.7 (30.0-31.4)        |
| Renal/kidney function (creatinine, urea, proteinuria, sodium, potassium levels) | 85.3 (85.0-85.6)        | 25.6 (25.0-26.2)        |
| Laboratory research of thyroid function (TSH, T4, T3)                           | 122.0 (120.0-124.0)     | 255.9 (254.0-257.8)     |
| <b>Devices</b>                                                                  |                         |                         |
| Blood glucose meter for self-use by patient                                     | Not provided to patient | 29.3 (25.5-33.1)        |
| Blood glucose self-test strips for use by patient                               | Not provided to patient | 19.5 (19.0-20.0)        |
| <b>Treatment</b>                                                                |                         |                         |
| Clinical admittance in internal or endocrinology department (daily rates)       | 6.0 (5.0-7.0)           | 187.7 (185.0-190.4)     |
| Laser treatment of diabetic retinopathy                                         | 267.9 (265.0-270.8)     | 365.6 (363.0-368.2)     |
| Ophthalmology: Intravitreal injections with medication (per shot)               | 414.2 (410.0-418.4)     | 487.5 (486.0-489.0)     |

Table 18: Cost of laboratory investigations by facility type<sup>273</sup>

## 5.6 NGOs

There are a significant number of local and international non-profit organisations in Nigeria; they are more in the north than the south and the regional discrepancies are largely attributed to the poor health indices in the northern part of the country. However, the majority of the NGOs do not focus on DM, and for those that do, their actual reach and impact in terms of assisted people with DM were not found.<sup>274</sup>

The World Diabetes Foundation (WDF) has supported several health systems strengthening projects across Nigeria focusing on research, improving access to diabetic care and creating awareness on DM, including its risk factors.<sup>275</sup> These programmes have varied from one to five years of implementation.<sup>276</sup>

Other examples of NGOs working on diabetes management include:

- Diabetes Association of Nigeria (DAN), a national body for diabetes with overall goal of providing a platform to address the concerns of DM patients in Nigeria through awareness creation and advocacy to help elevate the management of DM in the public agenda.
- Strategies for Improving Diabetes Care in Nigeria (SIDCAIN) study group, a body formed by physicians from three tertiary hospitals in southwestern Nigeria with the goal of improving care for diabetes and hypertension. So far, this group has set up

<sup>273</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>274</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>275</sup> WDF, Strategies for improving diabetes care WDF08-321, n.d., [url](#); WDF, Strengthening diabetes care in Lagos state through 35 diabetes clinics, Nigeria, WDF16-1433, n.d., [url](#); WDF, Diabetes awareness and care project in Nigeria, WDF17-1474, n.d., [url](#)

<sup>276</sup> WDF, Diabetes Prevention Project - WDF16-1354, n.d., [url](#); WDF, Gestational Diabetes Program in Niger-Delta - WDF16-1347, n.d., [url](#)



several primary and secondary centres for NCD screening and care in some states in the southwest Nigeria region. Also, SIDCAIN has rolled out treatment guidelines, educational material and patient support programmes.

- Sonny Kuku Foundation (SKF), a centre set up in Lagos State, southwestern Nigeria, to provide support for patients with DM and other conditions.
- The Lee Maeba Foundation and its Diabetes Centre of Excellence, a charitable organisation set up in Rivers State, the southern part of the country, to provide diabetes support services, including care, counselling, nutrition and cooking classes, and free supplies and consultation to diabetes patients and their families.<sup>277</sup>

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<sup>277</sup> Fasanmade, O. A. and Dagogo-Jack, S., Diabetes Care in Nigeria, November-December 2015, [url](#), pp. 825-826





## 6 Topical Report: Hepatitis

### 6.1 General information

Hepatitis is an inflammation of the liver which can be self-limiting or can lead to numerous health conditions, such as liver fibrosis (scarring), cirrhosis or liver cancer. The most common causes of hepatitis in the world include infections, toxic substances (e.g. alcohol and certain drugs), autoimmune diseases and hepatitis viruses (mainly types A, B, C, D, and E). Hepatitis virus type B and C are the most common causes of chronic liver diseases, including liver cirrhosis and cancer.<sup>278</sup>

#### 6.1.1 Epidemiological context

Nigeria is among the countries with the highest burden of viral hepatitis.<sup>279</sup> According to the 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) report,<sup>280</sup> the hepatitis B virus (HBV) and hepatitis C virus (HCV) prevalence among individuals aged 15 to 64 years stands at 8.1 % (10.3 % in men and 5.8 % in women) and 1.1 % (1.3 % in men and 1.0 % in women), respectively.<sup>281</sup> Thus, an estimated 20 million Nigerians are living with hepatitis B or hepatitis C.<sup>282</sup> For HBV, its prevalence peaked at people aged 35 to 39 years (10.2 %) and was lowest for people aged 55 to 59 years (2.5 %) while HCV prevalence peaked at aged 50 to 54 years (3.3 %) and was lowest at aged 15 to 19 years (0.4 %). HBV and HCV prevalence amongst pregnant women stood at 5.9 % and 0.6 %, respectively. A disparity was noted amongst the urban and rural populations; prevalence was found to be higher in rural areas (HBV - 8.5 %; HCV - 1.8 %) than amongst urban dwellers (HBV – 7.6 %; HCV – 0.4 %).<sup>283</sup> In 2019, it is estimated that there were approximately 20 245 HBV and 2 965 HCV related deaths.<sup>284</sup> The key transmission routes for HBV include: from mother to child at birth, needlestick injury, tattooing, piercing and exposure to infected blood and body fluids – saliva, menstrual, vaginal and seminal fluids.<sup>285</sup> The HCV transmission route is similar to HBV's except that sexual transmission, a risk factor, is less common and the HCV is not spread via breast milk, food, water or casual contact – hugging, kissing, sharing food or drinks with a carrier.<sup>286</sup> Other risk factors for transmission specific to Nigeria include local circumcision, local uvulectomy, scarification, tribal marks, surgical procedures, body piercing, home birth and receipt of blood transfusions.<sup>287</sup>

#### 6.1.2 Strategies and policies for hepatitis

<sup>278</sup> WHO, Hepatitis, September 2019, [url](#)

<sup>279</sup> Nigeria, FMOH, National AIDS/STIs Control Program, National Guidelines for the Prevention, Care and Treatment of Viral Hepatitis B & C in Nigeria, 2016, [url](#), p. 10

<sup>280</sup> The NAIIS survey was a national house-hold based Survey, with a sample size of 83 909 households and 383 574 individuals across 36 States and the FCT. Through this survey, the HIV incidence and prevalence as well as the viral load suppression and risk behaviours were determined. For the first time, there were estimates of national HIV incidence and viral load suppression as well as estimates of the prevalence of hepatitis B and C virus infections. Source: Nigeria, FMOH, NAIIS, 2018 Technical Report, October 2019, [url](#), p. 11

<sup>281</sup> Nigeria, FMOH, NAIIS, 2018 Technical Report, October 2019, [url](#), p. 128

<sup>282</sup> Nigeria, FMOH, National AIDS/STIs Control Program, National Guidelines for the Prevention, Care and Treatment of Viral Hepatitis B & C in Nigeria, 2016, [url](#), p. 4

<sup>283</sup> Nigeria, FMOH, NAIIS, 2018 Technical Report, October 2019, [url](#), pp. 128-134

<sup>284</sup> Coalition for Global Hepatitis Elimination, Nigeria, 2019, [url](#)

<sup>285</sup> Berinyuy, B.E. et al., Prevalence of Hepatitis B Virus in Nigeria: Review Update, November 2019, [url](#), p. 2

<sup>286</sup> WHO, Hepatitis C, July 2021, [url](#)

<sup>287</sup> Nigeria, FMOH, National AIDS/STIs Control Program, National Guidelines for the Prevention, Care and Treatment Of Viral Hepatitis B & C in Nigeria, 2016, [url](#), p. 16





In 2016, the FMoH articulated the first national guidelines for the prevention, treatment and care of viral hepatitis in Nigeria that encompasses recommended strategies for effective programme management of viral hepatitis, including health system strengthening, decentralisation of services, task shifting, logistics management, monitoring and evaluation, and operational research for the control of viral hepatitis in Nigeria.<sup>288</sup> Also, it provides the treatment protocols to be used by healthcare workers, for screening, treatment and care of people with HBV and HCV infections.<sup>289</sup> Within the Second National Strategic Health Development Plan 2018-2022 (NSHDP II), the immunisation of infants and high-risk groups (health workers, commercial sex workers and their clients, injection drug users, men who have sex with men, all antenatal care hepatitis negative clients of traditional birth attendants, barbers etc.), as well as screening and diagnosis of chronic hepatitis infection were highlighted as services to be provided at the primary healthcare centre (PHCC) level with referral to secondary and tertiary facilities for the management of confirmed cases.<sup>290</sup> Screening of hepatitis in pregnant women is included amongst the basket of services to be financed by the Basic Health Care Provision Fund (BHCPF)<sup>291</sup> – which includes contributions from grants by international donor partners; funds from any other source; and a minimum of 1% of the consolidated federal government revenue earmarked for provision of health services at the PHC level, including emergency health interventions.<sup>292</sup> The NSHDP II includes as part of its key objectives the reduction of the high incidence, morbidity and mortality caused by viral hepatitis; relevant indicators to track progress are listed within its monitoring and evaluation plan.<sup>293</sup> By 2022, Nigeria aims to achieve a 50 % reduction in hepatitis B prevalence per 100 000 population.<sup>294</sup> The above policies may suggest the presence of political will and strategic direction; however, information on evaluation of these interventions detailing the reality on the ground was not found.<sup>295</sup>

### 6.1.3 Healthcare provisions for hepatitis

The available services for managing hepatitis at PHCCs, as listed within the Ward Minimum Health Care Package, include lifestyle modification consults and counselling, screening and pre-referral treatment when required.<sup>296</sup> In 2008, the FMoH introduced the Standard Treatment Guidelines (STG) to guide physicians at the secondary and tertiary facility level on standardised approaches for managing different ailments, including hepatitis infections.<sup>297</sup> However, a recent study in the south-south geopolitical zone of the country has noted its low awareness and use amongst doctors for which it was intended for.<sup>298</sup>

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<sup>288</sup> Nigeria, FMoH, National Guidelines for the Prevention, Care and Treatment Of Viral Hepatitis B & C in Nigeria, 2016, [url](#), p. 11

<sup>289</sup> Nigeria, FMoH, National Guidelines for the Prevention, Care and Treatment Of Viral Hepatitis B & C in Nigeria, 2016, [url](#), p. 19-54

<sup>290</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018 – 2022, [url](#), p. 66

<sup>291</sup> Olakunde B.O. et al., Antenatal hepatitis B screening in Nigeria: a comparative analysis with syphilis and HIV, August 2021, [url](#)

<sup>292</sup> Nigeria, FMoH, National Health Insurance Scheme (NHIS) and the National Primary Care Development Agency (NPHCDA), Basic Healthcare Provision Fund, Guidelines for the Administration, Disbursement, Monitoring and Fund Management of the Basic Healthcare Provision Fund, August 2016, [url](#), p. 15

<sup>293</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018 – 2022, [url](#), p. 65

<sup>294</sup> Nigeria, FGoN, Monitoring And Evaluation Plan for the Second National Strategic Health Development Plan (2018 – 2022), [url](#), p. 16

<sup>295</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>296</sup> Nigeria, NPHCDA, Ward Health System, 2018, n.d, p. 24

<sup>297</sup> Nigeria, FMoH, Standard Treatment Guidelines, 2008, [url](#)

<sup>298</sup> Ayinbuomwan, A.S. and Isah, A.O., Standard Treatment Guidelines: Perception and Utilization in a Tertiary Health Care Facility in South-South, Nigeria, March 2019, [url](#), p. 10





There is no dedicated national institute specialised in treating hepatitis; rather internal medicine departments within tertiary facilities are responsible for treating cases (see list of tertiary centres in table 13).<sup>299</sup>

## 6.2 Access to treatment

Although guidelines and strategic directions have been developed to guide Nigeria's response to viral hepatitis, barriers to access services still exist. A study conducted in southeastern Nigeria on the uptake of hepatitis vaccination and its determinants amongst health workers found that vaccination cost (10.8 %), lack of knowledge where to receive the vaccine (47.5 %), individual belief that they could not be infected (6.6 %) and other reasons (51.1 %), such as a long vaccination schedule and lack of time were reasons for poor uptake.<sup>300</sup> More importantly, the allocation of healthcare resources is skewed towards secondary and tertiary facilities that are largely sited in urban regions; hence, care is not easily accessible to rural dwellers.<sup>301</sup>

For some individuals that are able to reach healthcare facilities, financial barriers mitigate against access to screening and treatment for hepatitis.<sup>302</sup> Although the government established the National Health Insurance Scheme (NHIS) to prevent individuals from catastrophic expenditure on health, only a minority of Nigerians (approximately 5 %) are covered and the rest pay out of pocket at the point of care.<sup>303</sup> Also, primary healthcare workers are not adequately trained and equipped to diagnose and treat patients with chronic hepatitis B and hepatitis C.<sup>304</sup>

## 6.3 Insurance and national programmes

The NHIS was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 19).<sup>305</sup>

| Programme                                                | Focus                                                                                                                                  | Requirements                                                                                                                                           | Scope of coverage                                                                        | Hepatitis services covered                                                                                                                                                                                                                                       |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of | Cover healthcare benefits for the employee, a spouse and 4 biological children below the | 1. Outpatient/preventive care (vaccination, screening and treatment)<br>2. Admission for up to three weeks<br>3. Consultation with specialists (internists/gastroenterologists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in |

<sup>299</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>300</sup> Omotowo, I.B. et al., Uptake of hepatitis B vaccination and its determinants among health care workers in a tertiary health facility in Enugu, South-East, Nigeria, June 2018, [url](#), pp. 3-4

<sup>301</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>302</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>303</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 1

<sup>304</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>305</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5





| Programme                                         | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                      | Scope of coverage                   | Hepatitis services covered                         |
|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------------------------------------------|
|                                                   |                                                                                                                                                                                                                               | employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary                                                                                | age of 18 years                     | the NHIS Drugs List and NHIS Diagnostic Test Lists |
| Informal sector social health insurance programme | For individuals in the informal sector; it covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - Actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance | For the registered individual alone | As in public sector                                |
| Vulnerable group                                  | For indigents and the vulnerable (children under-5, physically challenged people, prison inmates, pregnant women, orphans and internally displaced people)                                                                    | Register with a PHCC under the Basic Health Care Provision Fund Programme                                                                                                                                         | For the registered individual alone | As in public sector                                |

Table 19: Health insurance programmes in Nigeria<sup>306</sup>

There exist varying degrees of insurance coverage for certain hepatitis services; for example, high-technology investigations, such as computed tomography scan and magnetic resonance imaging, are partially excluded (health maintenance organisation would pay 50 % of cost).<sup>307</sup> The Clinton Health Access Initiative (CHAI), through its access programme, has subsidised costs of HCV diagnostics in health centres in three states in Nigeria – Lagos, Abuja and Kwara. In addition, CHAI has partnered with the state government to provide affordable HCV ribonucleic acid (RNA) test at USD 35 per person for residents of Nasarawa state in the north central region of Nigeria.<sup>308</sup>

## 6.4 Cost of medication

Antiviral medications are helpful in lowering the impact of infection on patients, but do not provide cure. Individuals infected with hepatitis may require life-long treatment.<sup>309</sup> There is poor adherence to treatment due to high cost of medications, as well as unavailability of key medications.<sup>310</sup>

<sup>306</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>307</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp.24-25

<sup>308</sup> Hepatitis B Foundation, The Journey to Hepatitis Elimination in Nigeria, January 2020, [url](#)

<sup>309</sup> WHO, Guidelines on hepatitis B and C testing, February 2017, [url](#), p. 24

<sup>310</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>311</sup> The National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>312</sup>

The prices of medications were collected from six private pharmacies across the country – four in the south and two in the northern regions.<sup>313</sup> Medicines which are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the introduction.

| Generic Name                                          | Brand name   | Dosage     | Form   | Number of units in the container | Price per box (USD) |
|-------------------------------------------------------|--------------|------------|--------|----------------------------------|---------------------|
| <b>Hepatitis B medication</b>                         |              |            |        |                                  |                     |
| Entecavir                                             | Vega®        | 1 mg       | tablet | 30                               | 7.5 (7.0-8.0)       |
| <b>Hepatitis C medication</b>                         |              |            |        |                                  |                     |
| Daclatasvir                                           | Mylan®       | 60 mg      | tablet | 60                               | 132.0 (130.0-134.0) |
| Ledipasvir + sofosbuvir (combination)                 | Apraser®     | 90/40 mg   | tablet | 60                               | 292.5 (290.0-295.0) |
| Ribavirin                                             | Okychris®    | 400 mg     | tablet | 42                               | 51.2 (50.0-52.4)    |
| Sofosbuvir                                            | Mylan®       | 400 mg     | tablet | 30                               | 142.6 (140.0-145.2) |
| sofosbuvir + velpatasvir (combination; e.g. Epclusa®) | Epclusa®     | 400/100 mg | tablet | 30                               | 325.4 (323.5-327.3) |
| <b>Both hepatitis B and C (classic medication)</b>    |              |            |        |                                  |                     |
| Peg interferon alfa 2a                                | Pegasys PFs® | 180 mcg    | vial   | 0.5 ml                           | 97.5 (96.5-98.5)    |
| Interferon alfa 2a                                    | Pegasy PFs   | 180 mcg    | vial   | 0.5 ml                           | 97.5 (96.5-98.5)    |

Table 18: Details of medication available in the formal market in Nigeria<sup>314</sup>

## 6.5 Cost of treatment

The cost of outpatient and inpatient treatments are higher in private facilities as compared to the public ones irrespective of the geographical region. Public facilities provide cheaper consultation and laboratory services but with longer waiting times.<sup>315</sup>

The cost of public outpatient and inpatient treatments was obtained from eight facilities – five privately owned and three government-owned centres spread across the northcentral, south-south and southwestern regions of the country. The values indicated in each cell is the average sum of the values collated from the visited facilities. The total direct costs incurred by patients can be approximated by summing all relevant services; indirect costs such as travel and lost wages were not included. All medications incur supplementary charges. Of note, inpatient costs are not inclusive of food.<sup>316</sup>

<sup>311</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 7<sup>th</sup> edition, 2020, [url](#)

<sup>312</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, n.d., [url](#)

<sup>313</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>314</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>315</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>316</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





|                                               | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-----------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                             |                                         |                                        |                                          |                                         |
| Consultation by internist (or infectiologist) | 41.4 (40.8-42.0)                        | 41.4 (40.8-42.0)                       | 60.9 (60.5-61.3)                         | 48.7 (48.5-48.9)                        |
| Consultation by a gastroenterologist          | 41.4 (40.8-42.0)                        | 41.4 (40.8-42.0)                       | 60.9 (60.5-61.3)                         | 48.7 (48.5-48.9)                        |

Table 19: Treatment cost by facility type<sup>317</sup>

|                                                                                                              | Public treatment price (USD) | Private treatment price (USD) |
|--------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory tests for hepatitis B and hepatitis C</b>                                                      |                              |                               |
| Laboratory research of hepatitis B antibodies; HBsAb, HBeAb, HBcAb                                           | 17.9 (17.5-18.3)             | 48.7 (48.5-48.9)              |
| Laboratory research of hepatitis B antigens; HBsAg, HBeAg                                                    | 121.8 (120.5-123.1)          | 17.9 (16.8-19.0)              |
| Laboratory research of HBV DNA testing in case of Hepatitis B                                                | 85.3 (84.8-85.8)             | 153.6 (152.5-154.7)           |
| Laboratory research of HCV RNA test [Hepatitis C]                                                            | 85.3 (84.8-85.8)             | 204.8 (203.2-206.4)           |
| Laboratory research of liver function (PT, albumin, bilirubin, transaminases: ASAT(=SGOT), ALAT(=SGPT) etc.) | 12.2 (12.0-12.4)             | 20.5 (20.0-21.0)              |
| <b>Diagnostics for hepatitis</b>                                                                             |                              |                               |
| Diagnostic imaging by means of ultrasound (of the liver)                                                     | 10.9 (10.5-11.4)             | 25.6 (24.5-26.7)              |
| Diagnostic research, in the form of liver biopsy                                                             | 36.6 (36.0-37.2)             | Not available                 |
| Diagnostic research: transient elastography; test for liver fibrosis (eg fibroscan)                          | 73.1 (73.0-73.2)             | Not Available                 |
| <b>Treatment</b>                                                                                             |                              |                               |
| Clinical admittance on internal/infectious disease department (daily rate)                                   | 60.9 (59.5-62.3)             | 187.6 (186.0-189.2)           |

Table 20: Cost of laboratory investigations by facility type<sup>318</sup>

## 6.6 NGOs

The following NGOs working in the field of hepatitis are present in the country:

- CHAI has worked in several countries since 2016 including Nigeria with the aim to increase the access to HCV testing and treatment. CHAI provides assistance to national bodies to update clinical guidelines and the national strategic plan for viral hepatitis. Further CHAI supported the Nasarawa state government to create a five-year elimination costing plan.<sup>319</sup>

<sup>317</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>318</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>319</sup> CHAI, Annual Report 2020, 2021, [url](#), p. 59, 62





- The Yakubu Gowon Centre works with the Taraba state government with the aim to provide affordable diagnostics and treatment on HCV for individuals residing in the state.<sup>320</sup>

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<sup>320</sup> Hepatitis B Foundation, The Journey to Hepatitis Elimination in Nigeria, January 2020, [url](#)





## 7 HIV/AIDS

### 7.1 General information

Human immunodeficiency virus (HIV) is an infection that targets and weakens the body's immune system. HIV destroys the white blood cells known as cluster of differentiation 4 (CD4) cells, thus making the organism susceptible to opportunistic infections such as tuberculosis (TB) and fungal infections, severe bacterial infections, and some cancers.<sup>321</sup> Following the progressive deterioration of the immune system, acquired immunodeficiency syndrome (AIDS) is the final stage of HIV infection, characterised by the occurrence of opportunistic infections or cancers.<sup>322</sup>

#### 7.1.1 Epidemiological context

There has been a decline in the estimated deaths from HIV/AIDS in Nigeria from 70 000 in 2009 to 51 000 in 2019.<sup>323</sup> Although, it still remains the fifth leading cause of death in Nigeria.<sup>324</sup> According to the 2020 Joint United Nations Programme on HIV/AIDS (UNAIDS) report, there are approximately 1.7 million people living with HIV/AIDS (PLWHA) representing less than 1 % of Nigeria's population.<sup>325</sup> The 2018 Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) estimated the HIV prevalence among the working-age population (15-64 years) to be 1.4 %. This was lower among men (1.0 %) than women (1.8 %) and lower in urban (1.3 %) areas than in rural (1.5 %) areas.<sup>326</sup> In 2018, the annual HIV incidence among the working age population stood at 0.08 % (women 0.12 %, men 0.05 %) corresponding to 8 new infections per 10 000 persons per year and peaked at 0.22 % among women aged 25-34 years and at 0.10 % among men in the same age group.<sup>327</sup> Regional variation in HIV prevalence exists; the south-south zone has the highest regional prevalence (3.1 %) among adults aged 15-49 years as compared to the north-central, south-east, south-west, north-east and north-west zones, which stands at 2.0 %, 1.9 %, 1.1 %, 1.1 % and 0.6 %, respectively.<sup>328</sup>

PLWHA are at risk of contracting other diseases, such as TB, hepatitis B virus (HBV) and hepatitis C virus (HCV). In 2018 the overall prevalence of HBV and HCV infections among HIV-positive adults aged 15-64 years was 8.9 % (13.3 % in men and 6.5% in women) and 1.1 % (0.8 % in men and 1.2 % in women) respectively.<sup>329</sup> According to the 2018 NAIIS, about 9.9 % of adult PLWHA had ever visited a clinic for TB evaluation of which 40.4 % were diagnosed with TB.<sup>330</sup>

#### 7.1.2 Strategies and policies for HIV/AIDS

Nigeria has demonstrated strong political will in the fight against HIV/AIDS. In December 2016, the FMoH revised its guidelines to a 'test and treat approach' expanding antiretroviral

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<sup>321</sup> WHO, HIV/AIDS, n.d., [url](#)

<sup>322</sup> WHO, HIV/AIDS, July 2021, [url](#)

<sup>323</sup> UNAIDS, Nigeria Fact Sheet, 2019, [url](#), accessed 7 June 2021

<sup>324</sup> Institute for Health Metrics and Evaluation, Nigeria Dashboard, 2019, [url](#)

<sup>325</sup> UNAIDS, Nigeria Fact Sheet, 2019, [url](#), accessed 7 June 2021

<sup>326</sup> Nigeria, FMoH, NAIIS 2018: Technical Report, October 2019, [url](#), p. 47

<sup>327</sup> Nigeria, FMoH, NAIIS 2018: Technical Report, October 2019, [url](#), p. 45

<sup>328</sup> UNAIDS, Press release: New survey results indicate that Nigeria has an HIV prevalence of 1.4%, March 2019, [url](#)

<sup>329</sup> Nigeria, FMoH, NAIIS 2018: Technical Report, October 2019, [url](#), pp. 128-132

<sup>330</sup> Nigeria, FMoH, NAIIS 2018: Technical Report, October 2019, [url](#), p. 13





therapy (ART) eligibility to all confirmed cases irrespective of WHO clinical stage and CD4+ cell count, and recommended initiation of ART once patients are willing and ready to start ART for life.<sup>331</sup> Subsequently, the country adopted the National HIV and AIDS Strategic Plan 2017-2021 and the Revised National HIV and AIDS Strategic Framework 2019-2021 to guide the country's future response to HIV.<sup>332</sup> Nigeria aims to reduce the incidence of HIV infections by 70 % by 2022.<sup>333</sup>

Voluntary counselling and prevention of mother-to-child transmission of HIV/AIDS at the primary healthcare level and treatment of co-morbid conditions, such as diarrhoea and pneumonia, are included amongst the basket of services to be financed by the Basic Healthcare Provision Fund – which represents a minimum of 1 % of the consolidated federal government revenue earmarked for provision of health services at the primary healthcare (PHC) level, including emergency health interventions.<sup>334</sup>

### 7.1.3 Healthcare provisions for HIV/AIDS

Available services for managing HIV at primary healthcare centres (PHCCs), as listed within the Ward Minimum Health Care Package, include voluntary counselling, screening, and treatment (including for opportunistic infections).<sup>335</sup> Due to healthcare worker shortages especially in rural communities, the FMOH articulated a systematic approach for ART decentralisation within the task shifting and task sharing policy. The implementation of decentralised ART services includes shifting and sharing HIV management tasks from physicians to non-physicians, from nurses to community health extension workers (CHEWs) and subsequently to trained peer educators, patients, and communities.<sup>336</sup>

## 7.2 Access to treatment

Despite the National effort at eliminating HIV/AIDS, UNAIDS estimates that the coverage of HIV/AIDS services is sub-optimal. Approximately 65 % of adults and children living with HIV receive ART, leaving about a 35 % coverage gap. This varies across different segments of the population with the highest coverage in women above age 15 at 80 %, and lowest in children between the age 0 and 14 at 36 %.<sup>337</sup> Information on the treatment of opportunistic infections and co-morbidities is very limited.

Factors that mitigate access to HIV/AIDS treatment in Nigeria are grouped into three categories, namely: health systems related, patients-related and community-related.<sup>338</sup> The health system related barriers encompasses high cost of ARTs, shortage of health manpower, highly congested and dilapidated healthcare facilities and knowledge gap amongst health workers. The patient-related impediments to access include long distance to service delivery points, extended waiting time, indirect costs and user fees, while the community-related

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<sup>331</sup> Nigeria, FMOH, National Guidelines for HIV Prevention, Treatment and Care, 2016, [url](#), pp. 4-5, 197

<sup>332</sup> Nigeria, NACA, National HIV and AIDS Strategic Plan 2017-2021, December 2017, [url](#), p. 20; Nigeria, NACA, Revised National HIV and AIDS Strategic Framework 2019-2021: Future Directions for the HIV/AIDS Response in Nigeria, n.d., [url](#), p. 16

<sup>333</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 65

<sup>334</sup> Nigeria, FMOH, National Health Insurance Scheme (NHIS) and the National Primary Care Development Agency (NPHCDA), Basic Healthcare Provision Fund, Guidelines for the Administration, Disbursement, Monitoring and Fund Management of the Basic Healthcare Provision Fund, August 2016, [url](#), pp. 41-42

<sup>335</sup> Nigeria, NPHCDA, Ward Health System, 2018, pp. 20-24

<sup>336</sup> Nigeria, FMOH, Task-shifting and Task-sharing Policy for Essential Health Care Services in Nigeria, August 2014, [url](#), pp.41-42

<sup>337</sup> UNAIDS, Nigeria Fact Sheet, 2019, [url](#)

<sup>338</sup> Jalal-Eddeen, A.S. and Adamu, H.I., Barriers to HIV/AIDS Treatment in Nigeria, January 2015, [url](#), pp. 306-307





barriers include stigma and discrimination against people living with HIV/AIDS, gender discrimination against PLWHA and sociocultural misconceptions.<sup>339</sup>

## 7.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see Table 21).<sup>340</sup>

| Programme                                                | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                           | Scope of coverage                                                                                        | HIV/AIDS services covered                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                        | 1. Public/federal tier: Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces: Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers: Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and 4 biological children below the age of 18 years | 1. Outpatient/preventive care (voluntary counselling, screening and treatment)<br>2. Admission for up to three weeks for co-morbidities<br>3. Consultation with specialists (internists/HIV specialists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS drugs list and NHIS diagnostic test lists |
| Informal sector social health insurance programme        | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                      | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                                          |
| Vulnerable group                                         | For indigents and the vulnerable (Children under five, physically challenged persons, prison inmates, pregnant women, orphans, and internally displaced persons)                                                              | Register with a PHCC under the Basic Healthcare Provision Fund programme                                                                                                                                                                                                               | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                                          |

Table 21: Health insurance programmes in Nigeria<sup>341</sup>

<sup>339</sup> Jalal-Eddeen, A.S. and Adamu, H.I., Barriers to HIV/AIDS Treatment in Nigeria, January 2015, [url](#), p. 307

<sup>340</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p.5

<sup>341</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44



There exist varying degrees of insurance coverage for certain cross-cutting services, which may be required in treatment of HIV-related complications, for example, high-technology investigations, such as computed tomography (CT) scan and magnetic resonance imaging (MRI). These are partially excluded (health maintenance organisation would pay 50 % of cost).<sup>342</sup>

## 7.4 Cost of medication

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>343</sup> The National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>344</sup>

Antiretroviral medications for HIV are free of charge and available in most government-owned health facilities but may not be free at privately owned pharmacies.<sup>345</sup>

The prices of medications were collected from six private pharmacies across the country – four in the south and two in the northern regions.<sup>346</sup> Medicines that are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the introduction.

| Generic name                                          | Brand name | Dosage | Form   | Number of units in the container | Price per box (USD) |
|-------------------------------------------------------|------------|--------|--------|----------------------------------|---------------------|
| <b>Single antiretrovirals/ARVs</b>                    |            |        |        |                                  |                     |
| Atazanavir                                            | Mylan®     | 300 mg | tablet | 60                               | 87.8 (87.0-88.6)    |
| Darunavir                                             | Prezista®  | 600 mg | tablet | 60                               | 124.3(123.0-125.6)  |
| Dolutegravir                                          | Aurobindo  | 50 mg  | tablet | 30                               | 51.2 (50.0-52.4)    |
| Efavirenz                                             | Hetero®    | 600 mg | tablet | 30                               | 14.6 (14.0-15.2)    |
| Lamivudine (both for hepatitis B and HIV)*            | Kwality®   | 150 mg | tablet | 30                               | 12.2 (11.9-12.5)    |
| Nevirapine                                            | Mylan®     | 200 mg | tablet | 60                               | 29.3 (28.9-29.7)    |
| Raltegravir*                                          | Isentress® | 400 mg | tablet | 60                               | 270.5 (270.0-271.0) |
| Ritonavir*                                            | Generic    | 100 mg | tablet | 30                               | 7.3 (7.1-7.5)       |
| Tenofovir alafenamide (for both hepatitis B and HIV)* | Mylan®     | 300 mg | tablet | 30                               | 87.7 (86.0-89.4)    |
| Tenofovir disoproxil (for both hepatitis B and HIV)*  | Kwality®   | 300 mg | tablet | 30                               | 26.8 (26.2-27.4)    |
| Zidovudine*                                           | Aurobindo® | 300 mg | tablet | 60                               | 29.3 (28.9-29.7)    |
| <b>Combination with 2, 3 or 4 ARVs</b>                |            |        |        |                                  |                     |
| Atripla® (combination of efavirenz/emtricitabine/     | Atripla®   | 200 mg | tablet | 30                               | 36.6 (36.2-37.0)    |

<sup>342</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp.24-25

<sup>343</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>344</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, n.d., [url](#)

<sup>345</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>346</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| Generic name                                                                                  | Brand name | Dosage        | Form    | Number of units in the container | Price per box (USD) |
|-----------------------------------------------------------------------------------------------|------------|---------------|---------|----------------------------------|---------------------|
| tenofovir disoproxil)*                                                                        |            |               |         |                                  |                     |
| Combivir®<br>(combination of zidovudine/ lamivudine)*                                         | Combivir®  | 150/300 mg    | tablet  | 60                               | 21.9 (21.3-22.5)    |
| Descovy®<br>(combination of emtricitabine/ tenofovir alafenamide)                             | truvada®   | 200/300 mg    | tablet  | 30                               | 58.5 (57.8-59.2)    |
| Epzicom® Kivexa®<br>(combination of abacavir and lamivudine)*                                 | Epzicom®   | 300/600 mg    | tablet  | 30                               | 19.5 (18.9-20.1)    |
| Kaletra®<br>(combination of lopinavir/ritonavir)*                                             | Kaletra®   | 200/50 mg     | tablet  | /                                | 87.8 (87.2 88.4)    |
| Truvada®<br>(combination of emtricitabine/ tenofovir disoproxil)*                             | Truvada®   | 200/300 mg    | tablet  | 30                               | 58.5 (57.6-59.4)    |
| <b>Medication for opportunistic infections (e.g. antibiotics, antivirals and antifungals)</b> |            |               |         |                                  |                     |
| Acyclovir*                                                                                    | Accord®    | 400 mg        | tablet  | 28                               | 24.3 (23.8-24.8)    |
| Cefotaxim                                                                                     | Taxim®     | 1 g           | vial    | 1                                | 3.7 (3.5-3.9)       |
| Ceftriaxone*                                                                                  | Rocephin®  | 1 g           | vial    | 1                                | 14.6 (14.2-15.0)    |
| Doxycycline*                                                                                  | Hovid®     | 100 mg        | capsule | 100                              | 29.3 (28.9-29.7)    |
| Fluconazole*                                                                                  | Diflucan®  | 50 mg         | capsule | 3                                | 9.8 (9.4 -10.2)     |
| Itraconazole*                                                                                 | Sporanox®  | 100 mg        | capsule | 15                               | 19.7 (18.9-20.5)    |
| Nystatin*                                                                                     | Mycosop®   | 100 000 iu/ml | syrup   | 30 ml                            | 3.7 (2.9-4.5)       |

Table 82: Details of medication available in the formal market<sup>347</sup>

\* Provided for free at public facilities.

## 7.5 Cost of treatment

In line with government policies, there should not be any user fees for HIV treatment services, including monitoring and distribution of ARTs. However, it is not uncommon for patients to be charged with consultation and testing fees prior to knowing their HIV status. Government facilities provide HIV services for free. However, the long waiting time and the need for privacy may inform patient decision to seek care in privately owned centres where user fees are required.<sup>348</sup>

The cost of inpatient and outpatient care is higher in private hospitals when compared to public facilities. The increased price relates primarily to the cost of the room, consultations and tests. The cost of public outpatient and inpatient treatment was obtained from eight facilities – five privately owned and three government-owned centres distributed across the north-central, south-south and south-western regions of the country. The total direct costs

<sup>347</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>348</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



incurred by patients can be approximated by summing all relevant services; indirect costs, such as travel and lost wages were not included. All medications incur supplementary charges. It is to be noted that inpatient costs are not inclusive of food and lost daily wage.<sup>349</sup>

|                                               | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-----------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                             |                                         |                                        |                                          |                                         |
| Consultation by internist (or infectiologist) | Free                                    | Free                                   | 85.3 (84.8-85.8)                         | 85.3 (84.8-85.8)                        |
| Consultation by HIV specialist                | Free                                    | Free                                   | 85.3 (84.8-85.8)                         | 85.3 (84.8-85.8)                        |

Table 23: Treatment cost by facility type<sup>350</sup>

|                                                                             | Public treatment price (USD) | Private treatment price (USD) |
|-----------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory measurements</b>                                              |                              |                               |
| Viral load count                                                            | Free                         | 134.1 (133.8-134.4)           |
| CD4 count                                                                   | Free                         | 48.8 (47.8-49.8)              |
| Laboratory research: resistance test for antiretroviral drugs               | Free                         | 901.6 (900.0-903.2)           |
| <b>Treatment</b>                                                            |                              |                               |
| Clinical admittance on internal/ infectious disease department (daily rate) | 60.9 (59.8-62.0)             | 187.7 (186.8-188.6)           |

Table 29: Cost of laboratory investigations by facility type<sup>351</sup>

## 7.6 NGOs

Since 2003, the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) has provided over USD 6 billion in Nigeria's national HIV/AIDS response. This financial aid covers policy development, human capacity development, HIV counselling and testing services, and health system strengthening, including the provision of state-of-the art laboratories and pharmaceutical warehouses, to enhance Nigeria's health systems to tackle HIV/AIDS, as well as other diseases.<sup>352</sup> On 18 March 2021, PEPFAR launched three grants worth USD 900 million to support the fight against HIV, TB, and malaria, during the 2021-2023 implementation period. This will be jointly implemented by the National Agency for the Control of AIDS (NACA), Family Health International 360, the National Tuberculosis and Leprosy Control Programme, the Lagos State Ministry of Health, the Institute of Human Virology, the National Malaria Elimination Programme, and Catholic Relief Services.<sup>353</sup>

<sup>349</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>350</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>351</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>352</sup> US Embassy and Consulate in Nigeria, PEPFAR, 2021, [url](#)

<sup>353</sup> The Global Fund, Nigeria and Global Fund Launch New Grants to Fight HIV, TB and Malaria, March 2021, [url](#)



## 8 Psychiatry

### 8.1 General information

Psychiatry is a field of medicine that is concerned with the causes, prevention, diagnosis and treatment of mental and behavioural disorders.<sup>354</sup> The focus here will be mood disorders, such as depression; anxiety disorders, such as post-traumatic stress disorders (PTSD); psychotic disorders, such as schizophrenia and bipolar disorders; sleeping disorders; and addiction problems, such as alcohol and opioid addiction.

#### 8.1.1 Epidemiological context

There are limited reliable mental health prevalence data in Nigeria as the data are not routinely collected and reported in health facilities.<sup>355</sup> The 2019 Global Burden of Disease study estimated that 2.76 % of the entire Nigerian population suffers from depressive disorders, which is equal to over 5.8 million people. This is lower than the projected global prevalence, which stands at 3.76 %.<sup>356</sup> A 2020 study conducted in Southeast Nigeria found that the prevalence of mental illness may be considerably higher. According to this study, 70 % of respondents had depressive disorders.<sup>357</sup>

Several studies have demonstrated the varying effect of mental health disorders on displaced populations – including internally displaced, refugees and returnees – in Nigeria.<sup>358</sup> Since 2013, the Boko Haram insurgency, including farmer-herder clashes in Nigeria, has left almost 2 million people displaced and 10 million in need of life-saving services.<sup>359</sup>

#### 8.1.2 Strategies and policies for psychiatry

In 2013, the Federal Ministry of Health (FMoH) articulated the National Policy for Mental Health Service Delivery with the intention that mental, neurological and substance abuse (MNS) care should be made available to all citizens within the national health system at the level of primary healthcare centre (PHCC) and in all communities.<sup>360</sup> Some commentators argue that this policy is situated within the outdated Lunacy Act of 1958,<sup>361</sup> which is yet to be updated after two failed attempts of revising it in 2003 and 2013. In 2009, the 2003 mental health bill was withdrawn. A 2020 position paper suggested that a revision of the outdated law will allow for adequate allocation of resources to address Nigeria's rising mental health needs. An ongoing dialogue on revision of the Lunacy Act within the Senate led to a public hearing for the Mental Health and Substance Abuse Bill, which was held on 19 February 2020.<sup>362</sup>

<sup>354</sup> Trivedi, J.K. and Goel, D., What psychiatry means to us, 2006, [url](#), p. 168

<sup>355</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>356</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>357</sup> Stanley, N. and Chinwe, E.S., Prevalence of Mental Disorders in Abakaliki, Ebonyi State, Southeastern Nigeria, August 2020, [url](#), p. 5

<sup>358</sup> Morina, N. et al., Psychiatric Disorders in Refugees and Internally Displaced Persons After Forced Displacement: A Systematic Review, September 2018, [url](#), pp. 5-6; Amodu, O.C. et al., A Scoping Review of the Health of Conflict-Induced Internally Displaced Women in Africa, February 2020, [url](#), pp. 16-17

<sup>359</sup> Kaiser, B.N. et al., Mental health and psychosocial support needs among people displaced by Boko Haram in Nigeria, March 2020, [url](#), p. 1

<sup>360</sup> Nigeria, FMoH, National Policy For Mental Health Services Delivery, August 2013, [url](#), p. 5

<sup>361</sup> Ude, P.U., Policy Analysis on Nigerian Lunacy Act (1958): The Need for a New Legislation, 2015, [url](#), p. 1

<sup>362</sup> Ugochukwu, O. et al., The time is now: reforming Nigeria's outdated mental health laws, August 2020, [url](#), p. 1





The Second National Strategic Health Development Plan II (2018-2022) aims, as part of its key objectives, to improve the mental health and psychosocial well-being of the Nigerian populace by reducing the prevalence of serious, moderate and mild mental illnesses and substance abuse disorders.<sup>363</sup> The above policies may suggest the presence of political will and strategic direction; however, information on evaluation of these interventions detailing the reality on the ground was not found.<sup>364</sup>

### 8.1.3 Healthcare provisions for psychiatry

Although the PHCCs are the first entry point for patients into Nigeria's health system, the PHC workers are too few and do not possess the requisite skills to counsel, detect, screen for and treat mental disorders.<sup>365</sup> Hence, cases are referred to designated mental health facilities that are faraway for most rural dwellers. Nigeria has designated facilities across the six geopolitical zones for managing mental health disorders and they are as follows:

- **The Neuropsychiatric Hospital, Aro, Abeokuta:** Government-owned psychiatry facility located in the southwest geopolitical zone.
- **Yaba Psychiatric Hospital:** Government-owned psychiatry facility located in the southwest geopolitical zone.
- **The Federal Neuropsychiatric Hospital, Kaduna:** Government-owned psychiatry facility located in the northwest geopolitical zone.
- **Federal Psychiatric Hospital, Calabar:** Government-owned psychiatry facility located in the south-south geopolitical zone.
- **Federal Neuro-Psychiatric Hospital, Benin City:** Government-owned psychiatry facility which was set up in 1964 and situated in south-south geopolitical zone.
- **Federal Neuro-Psychiatric Hospital, Sokoto:** Government-owned psychiatry facility situated in the northwest geopolitical zone.
- **Federal Neuro-Psychiatric Hospital, Maiduguri:** Government-owned psychiatry facility located in the northeast geopolitical zone.
- **Federal Neuro-Psychiatric Hospital, Enugu:** Government-owned psychiatry facility located in the southeast geopolitical zone.
- **Tranquil and Quest:** Privately owned psychiatry facility located in the southwest geopolitical zone offering psychiatric evaluations, medication protocols, substance abuse treatments, individual therapy, family therapy and group therapy.
- **Synapse Services:** Privately owned psychiatry facility located in the north-central geopolitical zone.<sup>366</sup>

## 8.2 Access to treatment

A 2006 study reported that less than 10 % of individuals with severe or mild mental health conditions had received care any time in the 12-month period during the study.<sup>367</sup> There are fewer than 300 psychiatrists for a population of more than 200 million people, skewed towards the urban areas, and in view of poor knowledge of mental disorders at the primary

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<sup>363</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 72

<sup>364</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>365</sup> Gureje, O. et al., Integrating mental health into primary care in Nigeria: report of a demonstration project using the mental health gap action programme intervention guide, June 2015, [url](#), p. 2

<sup>366</sup> Nigeria, Public Health Nigeria, List of Psychiatric Hospitals in Nigeria, July 2020, [url](#)

<sup>367</sup> Gureje, O. et al., Lifetime and 12-month prevalence of mental disorders in the Nigerian Survey of Mental Health and Well-Being, 2006, [url](#), p. 467



health care level, families in rural areas are left to cater to their affected family members.<sup>368</sup> In contrast, as in 2015, there were about 46 472 psychiatrists in the USA for a population of 330 million.<sup>369</sup> Also, the figures for other mental health professionals are low, with total mental healthcare workers at 0.9 per 100 000 population, further disaggregated into 0.70 nurses per 100 000 people; 0.02 psychologists per 100 000 individuals; 0.10 psychiatrists per 100 000 population; 0.04 social workers per 100 000 individuals; and 0.01 occupational therapists per 100 000 individuals. In addition, for inpatient care per 100 000 population, mental ward hospital beds and general hospital psychiatric unit beds stand at 1.3 per 4.8 annual admissions and 0.2 per 2.2 annual admissions, respectively.<sup>370</sup>

At the community level, mental illnesses are not treated due to societal myths, misconceptions and stigma associated with them.<sup>371</sup> In some rural communities, schizophrenia and depression are not discussed rather attributed to the influence of witches or demon-possession while others believe that the mentally ill can “snap out of it” with sustained effort.<sup>372</sup>

Other challenges confronting access to mental healthcare in Nigeria include weak legislative support to the review of existing laws, poor budgetary allocation (only 3.3 % of federal health budget goes to mental health, with 90 % of it spent on tertiary care), acute shortages of skilled human resources at tertiary level and dearth of non-specialised skills at lower levels of the health system to detect and manage mental health problems, failure to implement the integration of mental health into primary healthcare and lack of mental health programmes especially at lower levels of care.<sup>373</sup>

## 8.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see Table 25).<sup>374</sup>

| Programme                                                | Focus                                                                                                                                  | Requirements                                                                                                                                                                                                          | Scope of coverage                                                                                        | Psychiatry services covered                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal Sector Social Health Insurance Programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - | Cover healthcare benefits for the employee, a spouse and 4 biological children below the age of 18 years | 1. Outpatient care (risk factor monitoring and prescriptions for psychosomatic illnesses, insomnia and other mental health illnesses as may be listed from time to time by the NHIS)<br>2. Admission for up to three weeks<br>3. Consultation with specialists (psychiatrists/psychologists)<br>4. Prescribed drugs, pharmaceutical care and |

<sup>368</sup> Obianuju, U. et al., The time is now: reforming Nigeria's outdated mental health laws, August 2020, [url](#), p. e989; Onyemelukwe, C., Stigma and mental health in Nigeria: some suggestions for law reform, 2016, [url](#), p. 64

<sup>369</sup> Satiani, A. et al., Projected Workforce of Psychiatrists in the United States: A Population Analysis, June 2018, [url](#), p. 711

<sup>370</sup> WHO, Nigeria, Mental Health Atlas country profile 2014, n.d., [url](#)

<sup>371</sup> Onyemelukwe, C., Stigma and mental health in Nigeria: some suggestions for law reform, 2016, [url](#), pp. 63-64

<sup>372</sup> Soroye, M.O. et al., Community Psychiatry Care: An Urgent Need in Nigeria, May 2021, [url](#), p. 1146

<sup>373</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 25

<sup>374</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5

| Programme                                                  | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                      | Scope of coverage                   | Psychiatry services covered                                                         |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|
|                                                            |                                                                                                                                                                                                                               | Employer pays 10 % and employee pays 5 % of employee's basic salary                                                                                                                                               |                                     | diagnostic tests as contained in the NHIS drugs list and NHIS diagnostic test lists |
| Informal Sector Social Health Insurance Programme (ISSHIP) | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the Formal Sector or the Vulnerable Group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance | For the registered individual alone | As in public sector                                                                 |
| Vulnerable Group                                           | For indigents and the vulnerable (children under five, physically challenged persons, prison inmates, pregnant women, orphans and internally displaced persons)                                                               | Register with a PHCC under the Basic Healthcare Provision Fund programme                                                                                                                                          | For the registered individual alone | As in public sector                                                                 |

Table 25: Health insurance programmes in Nigeria<sup>375</sup>

Mental health services for managing conditions, such as drug abuse and addiction, are totally excluded from the benefit package of the NHIS.<sup>376</sup>

## 8.4 Cost of medication

All the drugs listed in the table below are contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>377</sup> The National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>378</sup>

The prices of medications were collected from six private pharmacies across the country – four in the south and two in the northern regions of the country.<sup>379</sup> Medicines which are only available in the informal market have been excluded. Also, prices for numerous medications have not been included because they are either not in NAFDAC's list of approved drugs for Nigeria or are available only in the informal market.<sup>380</sup> See more details of medication cost in the methodology section of the introduction.

<sup>375</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>376</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p.24

<sup>377</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 7<sup>th</sup> edition, 2020, [url](#)

<sup>378</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, [url](#)

<sup>379</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>380</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| Generic name                                             | Brand name   | Dosage   | Form    | Number of units in the container | Price per box (USD) |
|----------------------------------------------------------|--------------|----------|---------|----------------------------------|---------------------|
| <b>Antidepressants</b>                                   |              |          |         |                                  |                     |
| Amitriptyline                                            | Teva         | 25 mg    | tablet  | 28                               | 6.8 (6.5-7.5)       |
| Citalopram                                               | Teva         | 10 mg    | tablet  | 28                               | 10.2 (10.1-10.3)    |
| Escitalopram                                             | Teva         | 10 mg    | tablet  | 28                               | 27.3 (26.0- 28.6)   |
| Fluoxetine                                               | Flutex®      | 20 mg    | capsule | 10                               | 9.8 (9.5- 10.1)     |
| Imipramine                                               | Spardysk®    | 25 mg    | tablet  | 30                               | 29.3 (28.5- 30.1)   |
| Paroxetine                                               | Seroxat®     | 20 mg    | tablet  | 20                               | 19.1 (18.8- 19.4)   |
| Sertraline                                               | Zoloft®      | 50 mg    | tablet  | 15                               | 9.8 (9.5- 10.1)     |
| <b>Medication off-label use for PTSD</b>                 |              |          |         |                                  |                     |
| Alfuzosin (also with prostate complaints)                | Xatral XL®   | 10 mg    | tablet  | 30                               | 51.2 (50.9- 51.5)   |
| Lamotrigine (also antiepileptic)                         | Teva®        | 100 mg   | tablet  | 30                               | 22.2 (21.2- 23.2)   |
| Topiramate (also antiepileptic)                          | Topamax®     | 25 mg    | tablet  | 60                               | 23.1 (22.6- 23.6)   |
| <b>Antipsychotics; classic</b>                           |              |          |         |                                  |                     |
| Chlorpromazine                                           | Obexol®      | 5 mg     | tablet  | 1 000                            | 22.3 (21.5- 23.1)   |
| Fluphenazine                                             | Modicat®     | 25 mg/ml | ampoule | 10                               | 38.0 (36.0- 40.0)   |
| Haloperidol                                              | Haldol®      | 5 mg/ml  | ampoule | 5                                | 26.8 (25.9- 27.7)   |
| <b>Antipsychotics; modern atypical</b>                   |              |          |         |                                  |                     |
| Olanzapine                                               | Olanza®      | 5 mg     | tablet  | 14                               | 22.1 (21.9- 22.3)   |
| Quetiapine                                               | Seroquel XR® | 200 mg   | tablet  | 60                               | 99.9 (98.9- 100.9)  |
| Risperidone                                              | Risperdal®   | 2 mg     | tablet  | 20                               | 32.9 (31.8- 34.0)   |
| <b>Anxiolytics</b>                                       |              |          |         |                                  |                     |
| Clonazepam                                               | Teva         | 2 mg     | tablet  | 28                               | 8.5 (8.3- 8.7)      |
| Diazepam(e.g. valium)                                    | Valium®      | 5 mg     | tablet  | 12                               | 5.9 (5.5-6.3)       |
| Lorazepam                                                | Ativan®      | 2 mg     | tablet  | 28                               | 9.4 (9.2-9.6)       |
| <b>Medication for bipolar disorder/ manic depression</b> |              |          |         |                                  |                     |
| Carbamazepine (also antiepileptic)                       | Tegretol®    | 200 mg   | tablet  | 50                               | 14.9 (13.8- 16.0)   |
| <b>Medication for sleeping disorder; sedatives</b>       |              |          |         |                                  |                     |
| Nitrazepam                                               | Swidon®      | 5 mg     | tablet  | 10                               | 10.9 (10.4- 11.4)   |
| Zolpidem                                                 | Teva         | 10 mg    | tablet  | 28                               | 22.2 (21.8- 22.6)   |
| Zopiclone                                                | Teva         | 7.5 mg   | tablet  | 30                               | 20.5 (19.9- 21.1)   |

Table 26: Details of medication available in the formal market<sup>381</sup>

## 8.5 Cost of treatment

There are no financial support programmes for the management of mental health conditions in Nigeria.<sup>382</sup> Out-of-pocket payment is the most common mode of obtaining healthcare services.<sup>383</sup> According to the 2017 National Health Accounts report, household health expenditure at the point of care was significant and stood at 77.5 % of the current health

<sup>381</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>382</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>383</sup> Abdulmalik, J. et al., Sustainable financing mechanisms for strengthening mental health systems in Nigeria, May 2019, [url](#), p. 9





expenditure.<sup>384</sup> For the majority of the population, financial difficulties present a significant source of concern.<sup>385</sup>

The prices of treatments were collected from five health facilities – two private hospitals and three government-owned hospitals distributed across the north-central, south-south and southwestern regions of the country. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as bed rates, meals and transportation, were not included.<sup>386</sup>

|                                        | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|----------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist consultation</b>         |                                         |                                        |                                          |                                         |
| Psychiatrist                           | 42 (40.0-44.0)                          | 42 (40.0-44.0)                         | 85.0 (84.0-86.0)                         | 85.0 (84.0-86.0)                        |
| Psychologist                           | Not available                           | Not available                          | 85.0 (84.0-86.0)                         | 85.0 (84.0-86.0)                        |
| Psychiatric nurse at home (daily rate) | Not available                           | Not available                          | 25.0 (24.0-26.0)                         | Not available                           |

Table 27: Treatment cost by facility type<sup>387</sup>

|                                                                                                              | Public treatment price (USD) | Private treatment price (USD) |
|--------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Treatment</b>                                                                                             |                              |                               |
| Psychotherapy session with cognitive behavioural therapy                                                     | 60.0 (58.0-62.0)             | 85.0 (84.0-86.0)              |
| Psychotherapy session with eye movement desensitisation and reprocessing (EMDR)                              | 60.0 (58.0-62.0)             | Not Available                 |
| Clinical admittance in psychiatric clinic (daily rates)                                                      | 50.0 (49.0-51.0)             | 188.0 (186.0-190.0)           |
| Psychiatric treatment of alcohol drug addiction in specialised clinic (detoxification); daily admission rate | 25.0 (24.0-26.0)             | 188.0 (186.0-190.0)           |
| Psychiatric treatment of drug addiction in a specialised clinic (rehabilitation); daily admission rate       | 25.0 (24.0-26.0)             | 188.0 (186.0-190.0)           |
| Psychiatric treatment of drug addiction; outpatient care; consultation rate                                  | 42.0 (41.0-43.0)             | 188.0 (186.0-190.0)           |

Table 28: Cost of laboratory investigations by facility type<sup>388</sup>

<sup>384</sup> Nigeria, FMoH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>385</sup> Abdulmalik, J. et al., Sustainable financing mechanisms for strengthening mental health systems in Nigeria, May 2019, [url](#), p. 9

<sup>386</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>387</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>388</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)





## 8.6 NGOs

Local and international non-government organisations (NGOs) play a critical role in mental healthcare at the national and sub-national level. Some examples of NGOs working in the country are as follows:

- **Neem Foundation:** A non-profit working in the northeast supports those who have suffered trauma from attacks by the Boko Haram Islamic Militant Group. In 2017 alone, they delivered psychological services to over 7 000 persons in the Borno state. Subsequently, they commenced the Counselling on Wheels programme, which deployed counsellors on motorcycles or motor tricycles to take counselling services to people's doorsteps. In addition, the Neem Foundation provides training in counselling, trauma care and child-centred therapy.
- **Mentally Aware Nigeria Initiative (MANI):** A Lagos-based non-profit focuses on creating awareness on mental health and illnesses, as well as helping people in need of connecting with mental health professionals. MANI has a suicide/distress hotline and is planning on launching a mobile App to connect mental health professionals to people in need of help. The organisation promotes its advocacy campaigns online using the social media and its website to draw attention to different mental health illnesses or other related topics each month.
- **She Writes Woman:** This organisation was established in Lagos, Southwest Nigeria in April 2016. It hosted the first privately held, 24-hour mental health line in July 2016, and in April 2018 added a helpline chat service that has received 6 000 messages to date. The organisation also founded and curates Safe Place – a support group where women in Nigeria can meet, discuss mental health issues and get the help they need. So far, more than 800 women have benefitted. In partnership with Airtel Nigeria, they have grown and founded Safe Place Nigeria – a walk-in clinic where young people can seek mental healthcare.
- **Love, Peace and Mental Health Foundation (LPM):** Launched in 2012 in Lagos, LPM carries out advocacy and awareness campaigns for the youth in Nigeria. LPM also founded and curates Umbrella, a men-only support group, which meets on a monthly basis.<sup>389</sup>

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<sup>389</sup> The Borgen Project, 4 Organizations Improving Mental Health In Nigeria; September 2019, [url](#)





## 9 Neurology: Epilepsy, Cerebrovascular Accident (Stroke), Multiple Sclerosis and Parkinson's Disease

### 9.1 General information

Neurological diseases include a range of disorders that affect the central and peripheral nervous system, including the brain, spinal cord, cranial nerves, peripheral nerves, nerve roots, autonomic nervous system, neuromuscular junction and muscles. Examples of these conditions include epilepsy, Alzheimer's disease and other dementias, cerebrovascular diseases including stroke, migraine and other headache disorders, multiple sclerosis (MS), Parkinson's disease (PD), neuroinfections, brain tumours, traumatic disorders of the nervous system due to head trauma and neurological disorders as a result of malnutrition. However, the focus in this report is on epilepsy, cerebrovascular accident (stroke), MS and PD.<sup>390</sup>

Epilepsy is a brain condition of neural origin characterised by seizures, as well as by their cognitive, psychological, neurobiological and social consequences, while stroke is a syndrome of vascular origin, rapid in onset and resulting in brain dysfunction which may last beyond 24 hours in the absence of death or surgery.<sup>391</sup> MS is a chronic autoimmune disorder of the nervous system (the brain and spinal cord), of unknown aetiology, arising from immune system malfunction leading to inflammation of the nerves – altering electrical impulses in the brain.<sup>392</sup> PD is a progressive disorder of the nervous system which affects the nerve cells in the part of the brain – called *substantia nigra* – responsible for body movements.<sup>393</sup> The affected nerve cells die or become impaired leading to trembling or stiffness of the limbs, slowed movement and poor coordination of movement.<sup>394</sup>

#### 9.1.1 Epidemiological context

Stroke is the seventh leading cause of deaths in Nigeria.<sup>395</sup> According to the 2019 Global burden of disease study, it is estimated that stroke accounted for 3.98% (63 431) of total deaths with an estimated 1.3 million people living with the condition.<sup>396</sup>

Globally, a 2017 meta-analysis estimated the pooled point prevalence of active epilepsy to be 6.38 per 100 000 people.<sup>397</sup> In Nigeria, a systematic review and meta-analysis of community-based door-to-door surveys conducted in 2018 suggested that the prevalence is approximately 8 per 1 000 (1 280 000 people) which is within the global average; higher among rural (15 per 1 000 people) than the urban dwellers (6 per 1 000) and highest (11 per 1 000) in the southwestern region.<sup>398</sup>

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<sup>390</sup> WHO, Mental Health: Neurological disorders, May 2016, [url](#)

<sup>391</sup> WHO, Neurological Disorders: Public Health Challenges, 2006, [url](#), p. 56

<sup>392</sup> Johns Hopkins Medicine, Neurology and Neurosurgery: Multiple Sclerosis (MS), n.d., [url](#)

<sup>393</sup> Bloem, B.R. et al., Parkinson's disease, April 2021, [url](#); AANS, Parkinson's Disease, n.d., [url](#)

<sup>394</sup> AANS, Parkinson's Disease, n.d., [url](#)

<sup>395</sup> IHME, Nigeria Dashboard, 2020, [url](#)

<sup>396</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>397</sup> Fiest, K.M. et al., Prevalence and incidence of epilepsy, January 2017, [url](#), p. 298

<sup>398</sup> Owolabi, L.F. et al., Prevalence and burden of epilepsy in Nigeria: A systematic review and meta-analysis of community-based door-to-door surveys, March 2019, [url](#), pp. 230-231





According to the 2019 Global Burden of Disease Study, MS and PD are estimated to account for 0.01% (205.4) and 0.21% (3 334) of total deaths in Nigeria, respectively; and a prevalence of 0.01% (MS) and 0.02% (PD), both less than the global average.<sup>399</sup>

## 9.1.2 Strategies and policies for neurology

In October 2013, the Federal Government of Nigeria (FGoN) kick-started the National Stroke Prevention Programme aimed at influencing Nigerians to embrace risk reduction measures, such as regular medical check-ups, physical exercise and other healthy lifestyle options.<sup>400</sup> Subsequently, the Federal Ministry of Health articulated the country's first strategy for the control and prevention of non-communicable diseases (NCDs) in fulfilment of an earlier commitment made at the United Nations (UN) General Assembly High-Level Meeting on NCDs in September 2011.<sup>401</sup> The policy intention was to integrate the management of NCDs at all levels of government and healthcare delivery system in Nigeria. However, this national effort lacked the whole-of-government, whole-of-society and multisectoral approach required to address NCDs and their risk factors, some of which lie beyond the health sector, such as education, environment and agriculture. Lessons learnt from this effort led to the National Multisectoral Action Plan (NMSAP) for the Prevention and Control of NCDs (2019 to 2025).<sup>402</sup> This policy put emphasis on the integration of hypertension (a risk factor for stroke) prevention, care and treatment into basic primary healthcare with referral to secondary and tertiary levels of care; it also scales up coverage of early detection, diagnosis and treatment at primary healthcare level. However, there is no mention of MS, PD, epilepsy and stroke among the indicators for tracking the NSHDP II's implementation progress.<sup>403</sup>

Road traffic accidents (RTAs) resulting in head trauma have been identified as one of the possible causes of post-traumatic epilepsy.<sup>404</sup> The FGoN developed and is currently implementing the Nigeria Road Safety Strategy (2014 to 2018) to prevent road traffic crashes and respond to post-crash injuries.<sup>405</sup>

The above policies may suggest the presence of political will and strategic direction; however, information on evaluation of these interventions detailing the reality on the ground was not found.<sup>406</sup>

## 9.1.3 Healthcare provisions for neurology

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<sup>399</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>400</sup> Nigeria, FMoH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 33

<sup>401</sup> Nigeria, FMoH, National Policy and Strategic Plan of Action on Prevention and Control of Non-Communicable Diseases (NCDs), 2013, [url](#), p. 26

<sup>402</sup> Nigeria, FMoH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 43

<sup>403</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#); Nigeria, FMoH, Monitoring And Evaluation Plan for the Second National Strategic Health Development Plan (2018-2022), [url](#)

<sup>404</sup> Ogunrin, O.A. and Adeyekun, A.A., Profile of post-traumatic epilepsy in Benin City, Nigeria, June 2010, [url](#), p. 154

<sup>405</sup> Nigeria, FMoH, National Multi-sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), 6 August 2019, [url](#), p. 37; Nigeria, FRSC, Nigeria Road Safety Strategy (NRSS) 2014-2018, 2013, [url](#)

<sup>406</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





The NMSAP for the Prevention and Control of NCDs (2019-2025) prioritises the strengthening of primary care services.<sup>407</sup> However, neurological care is extremely limited at primary health centres and patients are rather referred to tertiary facilities for better management. Stroke cases mostly present themselves at accident and emergency departments and at medical outpatient clinics of secondary and tertiary facilities before being transferred to the medical wards. Patients' stroke type is identified using computed tomography scan – the gold standard and cornerstone in the diagnosis of stroke types; however, use of this imaging investigation is limited by its high cost – a 2012 study estimated it to cost from USD 250 to USD 380 (see table 32 for the current price).<sup>408</sup>

Neurology services are provided in most Nigerian Teaching Hospitals (see list of tertiary centres in table 13). Other private facilities that deliver neurological care include Lagoon Hospital, Lagos; Primus Super Specialty Hospital, Abuja; St. Nicholas Hospital, Lagos; and Eko Hospital, Lagos.<sup>409</sup>

## 9.2 Access to treatment

The primary objective of managing a patient with acute stroke is to minimise the progression of brain damage and timing is critical in achieving this. However, the general perception in the rural communities is that stroke is a spiritual disease and this is listed in some Nigerian languages: 'mba agbara' (a hug from the spirit) in Igbo; 'ekpo mia' (a slap from the ghost) in Ibibio and Efik, 'ofa' (an evil arrow) in Yoruba; and 'shan inna' (paralysis by the spirit) in Hausa language. This belief system impacts on the health-seeking behaviour of patients and their relatives leading to early presentation in churches or traditional healers and delayed resort to hospitals where early intervention may be potentially life-saving.<sup>410</sup> A study in Nigeria assessed the time of presentation of 128 stroke patients and found that only 13 (10.1 %) arrived at the hospital within 3 hours of onset of symptoms while the rest arrived later but within 24 hours. Late presentation interferes with timely management leading to high stroke mortality.<sup>411</sup> Other factors impacting on access to treatment include high cost of care, shortage of specialised cadre of health workers – the neurologists – and a poorly implemented NHIS that only covers 5% of the population, while the rest pay out of pocket at the point of care.<sup>412</sup>

<sup>407</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 40

<sup>408</sup> Bell-Gam, H.I. et al., Improving Stroke Management through Specialized Stroke Units in Nigeria: A Situational Review, June 2012, [url](#), p. 31

<sup>409</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>410</sup> Ekeh, B.C., Challenges of the Management of Stroke in Sub Saharan Africa: Evaluating Awareness, Access and Action, April 2017, [url](#), p. 2

<sup>411</sup> Ekeh, B. and Isamade, E.I., Time of presentation of stroke patients in a tertiary hospital in Northern Nigeria, West Africa, June 2014, [url](#), p. 1

<sup>412</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers, January 2021, [url](#), p. 1





## 9.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 29).<sup>413</sup>

| Programme                                                  | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                        | Neurology services covered                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal Sector Social Health Insurance Programme (FSSHIP)   | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                        | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and 4 biological children below the age of 18 years | 1. Outpatient care (risk factor monitoring and prescriptions for psychosomatic illnesses, insomnia and other mental health illnesses as may be listed from time to time by the NHIS)<br>2. Admission for up to three weeks<br>3. Consultation with specialists (neurologists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS drugs list and NHIS diagnostic test lists |
| Informal Sector Social Health Insurance Programme (ISSHIP) | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the Formal Sector or the Vulnerable Group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                         | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                                                                                                               |
| Vulnerable Group                                           | For indigents and the vulnerable (children under five, physically challenged persons, prison inmates, pregnant women, orphans and internally displaced persons)                                                               | Register with a PHCC under the Basic Healthcare Provision Fund programme                                                                                                                                                                                                                  | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                                                                                                               |

Table 29: Health insurance programmes in Nigeria<sup>414</sup>

There exist varying degrees of insurance coverage for certain cross-cutting services, which may be required in treatment of neurology cases, for example, high-technology investigations, such as computed tomography (CT) scan and magnetic resonance imaging (MRI), which are partially excluded (health maintenance organisation would pay 50 % of cost).<sup>415</sup>

<sup>413</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5

<sup>414</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>415</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp.24-25





## 9.4 Cost of medication

Patients often have poor adherence to treatments, particularly for chronic conditions such as neurological disorders. This may be due to prohibitive costs and lack of availability of key medications.<sup>416</sup>

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>417</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>418</sup>

The prices of medications were collected from six private pharmacies across the country – four in the southern and two in the northern regions.<sup>419</sup> Medication prices were found to be higher in the north due to add-on costs in the supply chain – drugs are imported into the country through seaports in the south.<sup>420</sup> Medicines which are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the Introduction.

| Generic Name                                                      | Brand name                | Dosage      | Form        | Number of units in the container | Price per box (USD) |
|-------------------------------------------------------------------|---------------------------|-------------|-------------|----------------------------------|---------------------|
| <b>Antiepileptics (e.g. to reduce frequency of attacks)</b>       |                           |             |             |                                  |                     |
| Carbamazepine                                                     | Tegretol®                 | 200 mg      | tablet      | 50                               | 15.1 (14.8-15.4)    |
| Clonazepam                                                        | Teva                      | 2 mg        | tablet      | 28                               | 8.5 (7.9-9.1)       |
| Gabapentine                                                       | Teva                      | 400 mg      | tablet      | 30                               | 14.8 (14.0-15.6)    |
| Lamotrigine                                                       | Teva                      | 100 mg      | tablet      | 28                               | 22.1 (21.5-22.7)    |
| Levetiracetam                                                     | Keppra®                   | 500 mg      | tablet      | 60                               | 19.1 (18.9-19.3)    |
| Phenobarbital                                                     | Pitrofin®                 | 30 mg       | tablet      | 1 000                            | 146.2 (144.6-147.8) |
| Pregabalin                                                        | Lyrica®                   | 75 mg       | capsule     | 28                               | 136.5 (135.2-137.8) |
| <b>Antiepileptics to treat acute attacks / status epilepticus</b> |                           |             |             |                                  |                     |
| Diazepam (i.v. injection for epileptic attacks)                   | Valium®                   | 10 mg/2 ml  | vial        | 10                               | 29.2 (29.1-29.3)    |
| Diazepam (rectiole / rectal suppository for epileptic attacks)    | Diazepam Rectala solution | 5 mg/2.5 ml | suppository | 5                                | 59.7 (58.3-61.1)    |
| Midazolam (i.m. injection for epileptic attacks)                  | Dormicum®                 | 5 mg/ml     | ampoule     | 10                               | 109.6 (105.5-113.7) |
| Midazolam (i.v. injection for epileptic attacks)                  | Dormicum®                 | 5 mg/ml     | ampoule     | 10                               | 109.6 (105.5-113.7) |
| Valproate (for epileptic attacks)                                 | Epilim®                   | 200 mg      | tablet      | 10                               | 45.1 (44.8-45.4)    |
| <b>Anti-blood clotting medicines</b>                              |                           |             |             |                                  |                     |

<sup>416</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, August-November 2021

<sup>417</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>418</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, [url](#)

<sup>419</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>420</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| Generic Name                    | Brand name | Dosage          | Form   | Number of units in the container | Price per box (USD) |
|---------------------------------|------------|-----------------|--------|----------------------------------|---------------------|
| Acetylsalicylic acid (Aspirin®) | Teva       | 75 mg           | tablet | 28                               | 6.8 (6.2-7.4)       |
| Apixaban                        | Generic    | 2.5 mg          | tablet | 30                               | 73.1 (72.5-73.7)    |
| Clopidogrel                     | Teva       | 75 mg           | tablet | 28                               | 13.6 (12.9-14.3)    |
| Enoxaparin                      | Clexane®   | 40 iu/ml        | vial   | 2                                | 21.9 (20.9-22.9)    |
| Heparin                         | Generic    | 5 000 iu/0.2 ml | vial   | 1                                | 13.4 (13.1-13.7)    |
| Rivaroxaban                     | Generic    | 10 mg           | tablet | 10                               | 68.2 (67.9-68.5)    |
| Warfarin                        | Teva       | 5 mg            | tablet | 28                               | 13.6 (13.2-14.0)    |

Table 30: Details of medication available in the formal market<sup>421</sup>

## 9.5 Cost of treatment

There are no financial support programmes for the treatment of neurological disorders.<sup>422</sup> The cost of public outpatient and inpatient treatments varies across the northern and southern regions of the country.<sup>423</sup> Public facilities provide cheaper consultation and laboratory services but with longer waiting times.<sup>424</sup>

The prices below were obtained from eight health facilities – three public and five privately owned centres – distributed across the north-central, south-south and south-western regions of the country.<sup>425</sup> The total direct costs incurred by patients can be approximated by summing all relevant services; indirect costs such as travel and lost wages were not included. All medications incur supplementary charges. Of note, inpatient costs are not inclusive of food and lost daily wage.<sup>426</sup>

|                                           | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                         |                                         |                                        |                                          |                                         |
| Consultation by neurologist               | 41.5 (40.9-42.1)                        | 41.5 (40.9-42.1)                       | 85.3 (84.9-85.7)                         | 85.3 (84.9-85.7)                        |
| Consultation by neurosurgeon              | 41.5 (40.9-42.1)                        | 41.5 (40.9-42.1)                       | 85.3 (84.9-85.7)                         | 85.3 (84.9-85.7)                        |
| Consultation by an internist              | 41.5 (40.9-42.1)                        | 41.5 (40.9-42.1)                       | 60.9 (59.8-62.0)                         | 60.9 (59.8-62.0)                        |
| Consultation by rehabilitation specialist | 41.5 (40.9-42.1)                        | 41.5 (40.9-42.1)                       | 85.3 (84.9-85.7)                         | 85.3 (84.9-85.7)                        |

<sup>421</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>422</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>423</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>424</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>425</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>426</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

Table 31: Treatment cost by facility type<sup>427</sup>

|                                                                                                                              | Public treatment price (USD) | Private treatment price (USD) |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory research</b>                                                                                                   |                              |                               |
| Laboratory research: medication level in the blood (e.g. for antipsychotics/for antiepileptics and/or for lithium carbonate) | 219.3 (218.0-220.6)          | 302.1 (300.5-303.7)           |
| Laboratory research of blood; INR e.g. in case of acenocoumarol anticlotting                                                 | 73.1 (72.8-73.4)             | 120.1 (118.0-122.2)           |
| <b>Medical imaging</b>                                                                                                       |                              |                               |
| Diagnostic imaging by means of EEG (Electro Encephalo Gram)                                                                  | 146.2 (145.5-146.9)          | 219.3 (218.5-220.1)           |
| Diagnostic imaging by CT scan                                                                                                | 97.5 (96.5-98.5)             | 219.3 (218.5-220.1)           |
| Diagnostic imaging by MRI scan                                                                                               | 219.3 (218.5-220.1)          | 390.0 (385.5-394.5)           |
| Diagnostic imaging: angiography (=arteriography) of cerebral arteries                                                        | Not available                | 292.5 (291.6-293.4)           |
| Lumbar puncture                                                                                                              | 48.7 (48.5-48.9)             | 73.1 (72.8 – 73.4)            |
| <b>Treatment</b>                                                                                                             |                              |                               |
| Clinical admittance in neurology department (daily rates)                                                                    | 8.6 (8.4-8.8)                | 187.6 (185.5-189.7)           |
| Clinical admittance in neurosurgery department (daily rates)                                                                 | 8.6 (8.4-8.8)                | 187.6 (185.5-189.7)           |
| Clinical admittance in (neuro) rehabilitation department (daily rates)                                                       | 8.6 (8.4-8.8)                | 187.6 (185.5-189.7)           |
| Outpatient treatment by physical therapist                                                                                   | 8.6 (8.4-8.8)                | 60.9 (60.2-61.6)              |

Table 102: Cost of laboratory investigations by facility type<sup>428</sup>

## 9.6 NGOs

Examples of NGOs working to support care of stroke and epileptic patients include:

- **Angie Epilepsy Foundation:** A non-profit, based in Benin, southwest Nigeria, involved in awareness creation and sensitisation of communities on the causes and dangers of epilepsy, provides non-discriminating services and treatment, boosts the self-esteem and fosters hope among parents whose children are suffering from epilepsy.
- **Epilepsy Foundation of Nigeria:** A non-profit, based in Lagos, southwest Nigeria. The Epilepsy Foundation of Nigeria is a NGO established to create awareness, provide treatment and care to those suffering from the neurological condition, support families and individuals impacted with epilepsy, seizures and convulsions.
- **Seizure Support Foundation:** A non-profit, based in Enugu, southeast Nigeria. The Seizure Support Foundation provides care and support to children challenged by seizure disorders, such as epilepsy, and also provides them with best practices which are aimed at improving sensory and behavioural outcomes of the children.
- **Epilepsy Association of Nigeria:** A non-profit, based in Abia, southeast Nigeria. The Epilepsy Association of Nigeria is affiliated to the International Bureau for Epilepsy

<sup>427</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>428</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)





(IBE), which is an international organisation that aims to create awareness, provide treatment and support to the sufferers of the health condition.

- **Stroke Care International Foundation:** A non-profit based in Nigeria and the United Kingdom (UK) with the aim of reaching 2 million stroke patients by the year 2025 through awareness creation on the causes and symptoms of stroke.<sup>429</sup>

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<sup>429</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





# 10 Nephrology

## 10.1 General information

Nephrology is a field of medicine that focuses on the study of kidneys and kidney diseases.<sup>430</sup> This report will focus on chronic kidney disease (CKD) and kidney failure.

### 10.1.1 Epidemiological context

National prevalence data on CKD is unavailable and only a few population-based and hospital-based studies exist.<sup>431</sup> A 2018 systematic review identified seven studies, five from the southern region and two from the northern part. In this review, estimates for the prevalence of CKD ranged from 2.5 % to 26 %.<sup>432</sup> A 2020 population-based survey in north-central Nigeria estimated CKD prevalence to be 12 %, within the range suggested by the earlier review.<sup>433</sup> Also, review findings were corroborated by estimates from the 2019 Global Burden of Disease Study, which estimated the prevalence of CKD to be 3.9 % equivalent to over 8.2 million cases.<sup>434</sup> The major risk factors for CKD in developed countries include diabetes, age and hypertension.<sup>435</sup>

### 10.1.2 Strategies and policies for nephrology

During the research for this report, no national strategy that specifically targeted the burden of CKD in Nigeria could be found. Also, the Second National Strategic Health Development Plan 2018-2022 (NSHDP II) made no mention of CKD.<sup>436</sup> However, management of risk factors, such as diabetes and hypertension, were referred to both in the NSHDP II and the National Multi-Sectoral Action Plan for the Prevention And Control Of Non-Communicable Diseases (2019-2025).<sup>437</sup>

### 10.1.3 Healthcare provisions for nephrology

Primary healthcare facilities are the first entry point into Nigeria's health system and only offer basic services. These services include counselling and risk factor monitoring for conditions, such as hypertension and diabetes. However, severe cases upon presentation to PHCCs are referred to secondary and tertiary facilities.<sup>438</sup> A systematic review undertaken to evaluate clinical outcomes relating to early versus late referral of patients to nephrology services in Nigeria have noted late presentation to tertiary facilities, where nephrologists are available, as

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<sup>430</sup> Britannica, Nephrology: medicine, n.d., [url](#)

<sup>431</sup> Olanrewaju, T.O. et al., Prevalence of chronic kidney disease and risk factors in North-Central Nigeria: a population-based survey, November 2020, [url](#), p. 2

<sup>432</sup> Chukwuonye, I.I. et al., Prevalence of chronic kidney disease in Nigeria: systematic review of population-based studies, 2018, [url](#), pp. 169-170

<sup>433</sup> Olanrewaju, T.O. et al., Prevalence of chronic kidney disease and risk factors in North-Central Nigeria: a population-based survey, November 2020, [url](#), pp. 4-5

<sup>434</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>435</sup> ISN, International Society of Nephrology (ISN) Response to WHO Discussion Paper on Updated Appendix 3 of the WHO Global NCD Action Plan (2013-2020), September 2016, [url](#), p. 1

<sup>436</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#)

<sup>437</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases 2019-2025, August 2019, [url](#), p. 56; Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 72

<sup>438</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





a major challenge.<sup>439</sup> This is important because early presentation and treatment of CKD patients is helpful in halting disease progression to renal failure, reducing hospitalisation, minimising cost of healthcare and improving patients' survival.<sup>440</sup>

Advanced care includes dialysis. There are dialysis centres – about 149 centres with 600 dialysis machines – across the 36 states in the country with varying levels of functionality. The majority of tertiary centres and a few private facilities provide specialist kidney services except for kidney transplant, which is uncommon and poorly resourced.<sup>441</sup> The first renal transplant in Nigeria was performed in 2000.<sup>442</sup> As of 2016, a total of 13 additional facilities had delivered at least 1 kidney transplantation.<sup>443</sup> Despite in-country availability, with about 700 being reported to have been performed since 2005<sup>444</sup>, kidney transplantation has emerged as a booming medical tourism industry among Nigerians with India as the most popular destination.<sup>445</sup> Studies have reported a kidney transplantation referral rate ranging from 2.7 % to 95 %, with most patients requesting for referral.<sup>446</sup> The favourite kidney transplant destinations include India, Egypt, Pakistan, China, Philippines, and Mexico.<sup>447</sup>

## 10.2 Access to treatment

Treatment for kidney disease includes lifestyle consultations and pharmacological interventions to manage high blood pressure and high cholesterol. These are similar to treatments required for cardiovascular disease. Treatments are accessible in primary care facilities, such as health centres.<sup>448</sup>

The cost of managing CKD is exorbitant and limits access to care in a setting where about 40 % of the total population live below the poverty line – less than USD 1.25 per day. Studies have shown that the estimated minimum annual income required to provide basic needs stands at USD 1 016 per annum in urban areas while USD 758 per year in rural regions.<sup>449</sup> A 2019 study conducted in southwestern Nigeria reported that the total direct cost of inpatient care for CKD in a tertiary centre ranged between USD 50-1 345 with a median total cost of USD 431. Major cost drivers of care were dialysis, ward and pharmacy expenses with a

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<sup>439</sup> Smart, N.A. and Titus, T.T., Outcomes of early versus late nephrology referral in chronic kidney disease: a systematic review, November 2011, [url](#), p. 1073

<sup>440</sup> Smart, N.A. and Titus, T.T., Outcomes of early versus late nephrology referral in chronic kidney disease: a systematic review; November 2011, [url](#), pp. 1077-1079

<sup>441</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>442</sup> Badmus, T.A. et al., Kidney transplantation in a developing economy: challenges and initial report of three cases at Ile Ife, 2005, [url](#), p. 2

<sup>443</sup> Bamgboye, E.L., The challenges of ESRD care in developing economies: Sub-Saharan African opportunities for significant improvement, 2016, [url](#), pp. 18-22

<sup>444</sup> Vanguard, Health: 700 kidney transplants so far performed in Nigeria, Nephrology Association says, March 2020, [url](#)

<sup>445</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; Okafor, U.H., Transplant tourism among kidney transplant patients in Eastern Nigeria, July 2017, [url](#), pp. 1, 5

<sup>446</sup> Liman, H.M. et al., Kidney transplant-related medical tourism in patients with end-stage renal disease: A report from a renal center in a developing nation, March 2020, [url](#), p. 8; Okafor U.H., Transplant tourism among kidney transplant patients in Eastern Nigeria, July 2017, [url](#), p. 4

<sup>447</sup> Adamu, B. et al., Commercial kidney transplantation: Trends, outcomes and challenges-A single-centre experience, March 2012, [url](#), pp. 72-73; Budiani-Saberi, D.A. and Delmonico, F.L., Organ trafficking and transplant tourism: a commentary on the global realities, [url](#), pp. 3-4

<sup>448</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>449</sup> This Day, Report: Income Inequality Skewed Wealth, Resources to Pockets of 20% of Nigerians, June 2016, [url](#)



median cost of USD 200, USD 80 and USD 63.5, respectively. All the patients in this study paid the whole sum as out-of-pocket expenditure.<sup>450</sup>

According to the Nigerian Association of Nephrologists, there are an estimated 160 nephrologists in Nigeria, less than 1 per 1 000 000 of the population and they are skewed towards facilities in urban regions. This implies a significant geographical barrier and high cost of transportation for most of the population residing in rural areas.<sup>451</sup> Most tertiary centres where kidney diseases are managed lack facilities and expertise in various support services. For instance, there are few histopathologists to analyse kidney biopsy specimens and their assessment is limited to light microscopic studies; whereas, skills in the more beneficial advanced electron microscopy and immunohistochemistry techniques are lacking.<sup>452</sup>

## 10.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 33).<sup>453</sup>

| Programme                                                  | Focus                                                                                                                                                                                                                          | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                        | Kidney services covered                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal Sector Social Health Insurance Programme (FSSHIP)   | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                         | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and 4 biological children below the age of 18 years | 1. Outpatient/preventive care (voluntary counselling, screening and treatment)<br>2. Admission for up to three weeks for co-morbidities<br>3. Consultation with specialists (internists/nephrologists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS drugs list and NHIS diagnostic test lists |
| Informal Sector Social Health Insurance Programme (ISSHIP) | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers, and others not covered under the Formal Sector or the Vulnerable Group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                         | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                                        |

<sup>450</sup> Adejumo, O.A. et al., Cost implication of inpatient care of chronic kidney disease patients in a tertiary hospital in Southwest Nigeria, January 2020, [url](#), pp. 209, 211-212

<sup>451</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>452</sup> Okafor, U.H. et al., Challenges of kidney care in a resource poor nation: A study of private kidney care centre in Nigeria, August 2012, [url](#), pp. 47-49

<sup>453</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5



| Programme        | Focus                                                                                                                                                           | Requirements                                                             | Scope of coverage                   | Kidney services covered |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------|-------------------------|
| Vulnerable Group | For indigents and the vulnerable (children under five, physically challenged persons, prison inmates, pregnant women, orphans and internally displaced persons) | Register with a PHCC under the Basic Healthcare Provision Fund programme | For the registered individual alone | As in public sector     |

Table 33: Health insurance programmes in Nigeria<sup>454</sup>

Some services required to appropriately manage kidney conditions, such as high-technology investigations, including computed tomography (CT) scan, magnetic resonance imaging (MRI) and dialysis for acute renal failure (maximum 6 sessions), are partially excluded (health maintenance organisation would pay 50 % of cost) from the NHIS benefit package.<sup>455</sup>

## 10.4 Cost of medication

All the rugs listed in the table below are contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>456</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>457</sup>

The prices of medications were collected from six private pharmacies across the country – four in the southern and two in the northern regions. Medicines that are only available in the informal market have been excluded.<sup>458</sup> See more details of medication cost in the methodology section of the general country report.

| Generic name                                                         | Brand name | Dosage      | Form       | Number of units in the container | Price per box (USD) |
|----------------------------------------------------------------------|------------|-------------|------------|----------------------------------|---------------------|
| <b>Hematopoietic growth factor; for anemia due to renal problems</b> |            |             |            |                                  |                     |
| Epoetin beta                                                         | Recormon®  | 4 000 iu/ml | vial       | 6                                | 158.0 (155.0-161.0) |
| Erythropoietin                                                       | Recormon®  | 2 000 iu/ml | vial       | 6                                | 158.0 (155.0-161.0) |
| <b>Phosphate binders</b>                                             |            |             |            |                                  |                     |
| Magnesium hydroxide + aluminium hydroxide (combination)              | Maalox®    | 225 mg      | suspension | 1                                | 8.7 (8.5-8.9)       |
| <b>Medication to treat metabolic acidosis</b>                        |            |             |            |                                  |                     |
| Sodium bicarbonate (= sodium hydrogen carbonate)                     | Moko®      | 100 g       | powder     | 1                                | 6.1 (5.8-6.4)       |

<sup>454</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>455</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 24-25

<sup>456</sup> Nigeria, FMoH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>457</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, [url](#)

<sup>458</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



Table 34: Details of medication available in the formal market<sup>459</sup>

## 10.5 Cost of treatment

The NHIS covers for kidney care, including procedures, such as dialysis, for up to a maximum of six sessions, at secondary and tertiary facilities.<sup>460</sup> However, this is targeted at a small fraction of the population given that the majority of households use out-of-pocket payments at the point of care.<sup>461</sup>

In private facilities, a specialist consultation costs more for both inpatient and outpatient care as compared to public facilities. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as bed rates, meals and transportation, were not included. The prices below were obtained from eight health facilities – five privately owned and three public centres – in the country.<sup>462</sup> Thus, the values indicated in each cell is the average sum of the values collated from the visited facilities.

|                                | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|--------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>              |                                         |                                        |                                          |                                         |
| Consultation by an internist   | 41.4 (40.5-42.3)                        | 41.4 (40.5-42.3)                       | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |
| Consultation by a nephrologist | 41.4 (40.5-42.3)                        | 41.4 (40.5-42.3)                       | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |

Table 35: Treatment cost by facility type<sup>463</sup>

|                                                                                   | Public treatment price (USD) | Private treatment price (USD) |
|-----------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory research</b>                                                        |                              |                               |
| Acid-base balance in blood and urine; e.g. serum and urine pH, electrolyte levels | 8.5 (8.2-8.8)                | 10.2 (9.9-10.5)               |
| Bacterial cultures                                                                | 8.5 (8.2-8.8)                | 25.6 (24.5-26.7)              |
| Electrolytes; potassium, sodium, calcium and magnesium                            | 8.5 (8.2-8.8)                | 36.6 (35.8-37.4)              |
| Parathyroid hormone (PTH), calcium, phosphate                                     | 9.8 (8.9-10.7)               | 25.6 (24.9-26.3)              |
| Renal/kidney function (creatinine, urea, proteinuria, sodium, potassium levels)   | 8.5 (8.2-8.8)                | 25.6 (24.9-26.3)              |
| <b>Medical imaging</b>                                                            |                              |                               |
| Ultrasound of the kidney                                                          | 8.5 (8.2-8.8)                | 25.6 (24.8-26.4)              |
| <b>Treatment</b>                                                                  |                              |                               |
| Clinical admittance in nephrology department (daily rates)                        | 60.9 (59.5-62.3)             | 60.9 (59.5-62.3)              |
| Chronic haemodialysis (three/week); cost of one session                           | 60.9 (59.5-62.3)             | 60.9 (59.5-62.3)              |

<sup>459</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>460</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 25

<sup>461</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>462</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>463</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)





|                                                           |                              |                              |
|-----------------------------------------------------------|------------------------------|------------------------------|
| Acute haemodialysis                                       | 170.6 (168.0-173.2)          | 53.5 (52.5-54.5)             |
| Peritoneal dialysis; costs of one session                 | 48.7 (47.5-49.9)             | 70.7 (68.0-73.4)             |
| Kidney transplantation and follow-up                      | 14 251.6 (11 450.0-17 053.2) | 21 925.6 (19 489.4-24 361.7) |
| Surgical placement of an arterial shunt for haemodialysis | 146.2 (145.8-146.6)          | 438.5 (437.0-440.0)          |

Table 36: Cost of laboratory investigations by facility type<sup>464</sup>

## 10.6 NGOs

There are a few active local non-government organisations (NGOs) supporting patients with kidney disease to obtain quality care and they are as follows:

- **Julie Donli Kidney Foundation:** The foundation was established to help patients get aid of kidney disease treatment through frequent updates to an existing database for matching kidneys between patients and donors. Also, poor patients with kidney ailments requiring dialysis are assisted to obtain care.
- **Kidney Foundation for Africa:** It is a local NGO set-up to sensitise communities on the causes, prevention and benefits of early detection of chronic kidney disease and kidney failure. It is located in Lagos, Southwest Nigeria.
- **Nathan Kidney Foundation:** The foundation focuses on awareness creation and community sensitisation on the prevalence of kidney failure, free kidney screenings and fundraising for indigents desiring to access kidney transplant care. It is located in Lagos, Southwest Nigeria.<sup>465</sup>

<sup>464</sup> EUAA2, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>465</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





# 11 Pulmonology: Asthma and Tuberculosis

## 11.1 General information

Pulmonology is a branch of medicine concerned with the anatomy, physiology and diseases of the lungs and other parts of the respiratory system. The term ‘pulmonology’ can be used interchangeably with ‘respiratory’ and this will be done throughout this topical report. Respiratory illnesses, which can be infections in nature or non-communicable, in particular asthma and tuberculosis (TB) are a significant burden in Nigeria.<sup>466</sup>

### 11.1.1 Epidemiological context

The 2019 Global Burden of Disease (GBD) study estimates that the combined prevalence of chronic respiratory illnesses in Nigeria stands at 4.33 %, equivalent to over 9.1 million people, of which the disaggregated prevalence of asthma is estimated at 3.67 % (over 7.7 million cases).<sup>467</sup> Other studies suggest that the prevalence of asthma in Nigeria is higher with variations across cities and age groups.<sup>468</sup> Also, in a 2017-2018 cross-sectional population survey conducted in five cities across five out of the six geo-political regions in Nigeria the prevalence of asthma was estimated to be higher in female (52 %) as compared to the male (48 %) population.<sup>469</sup> In addition, a 2017 survey of asthma management practices among doctors in the southeast geopolitical zone found that the most frequently identified key risk factors for asthma in Nigeria are atopy, genetics, air pollution, smoking and urbanisation, while diet and birth weight were less frequently identified.<sup>470</sup>

Nigeria ranks sixth among the 30 countries with the highest burden of TB and multidrug-resistant tuberculosis (MDR-TB) globally.<sup>471</sup> In 2019, the burden of TB was estimated at 429 000 cases; of these TB cases, 27 % were diagnosed and notified to the National TB Programme (NTP).<sup>472</sup> This means that the remaining cases were not diagnosed or were diagnosed but not notified to the NTP that year, thereby, making the country one of the most significant contributors (accounting for 11 %) to the estimated global gap (2.9 million) between the number of people newly diagnosed and reported.<sup>473</sup> This has been attributed to underreporting of people diagnosed with TB and underdiagnosis. A 2019 study identified NTP non-engaged health facilities and patient factors (previously treated, extrapulmonary, unknown TB site, HIV negative and HIV unknown) as key drivers to underreporting of people

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<sup>466</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>467</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>468</sup> Musa, B.M. and Aliyu, M.D., Asthma prevalence in Nigerian adolescents and adults: systematic review and meta-analysis, September 2014, [url](#); Ozoh, O.B. et al., The prevalence of asthma and allergic rhinitis in Nigeria: A nationwide survey among children, adolescents and adults, September 2019, [url](#)

<sup>469</sup> Ozoh, O.B. et al., The prevalence of asthma and allergic rhinitis in Nigeria: A nationwide survey among children, adolescents and adults, September 2019, [url](#), p. 7

<sup>470</sup> Chima, E.I. et al, A survey of asthma management practices and implementation of Global Initiative for Asthma guidelines among doctors in a resource-limited setting in Nigeria, September 2017, [url](#), pp. 985-986

<sup>471</sup> WHO, Global Tuberculosis Report, 2020, [url](#), p. 23; Nigeria, FMOH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2020, [url](#), p. 7

<sup>472</sup> Nigeria, FMOH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2020, [url](#), pp. 8, 18

<sup>473</sup> WHO, Global Tuberculosis Report, 2020, [url](#), p. xvii





diagnosed with TB.<sup>474</sup> Upon disaggregating the notified cases, 35 % were women, 57 % were men and 8% were children.<sup>475</sup>

TB/HIV comorbidity and MDR-TB has continued to be an increasingly huge challenge in Nigeria. A study carried out in 2014 in north-central Nigeria estimated the prevalence of TB among HIV-positive people to be 34.5 %<sup>476</sup>, which is similar to an earlier study in the southwest in which combined TB/HIV prevalence stood at 33.9 %.<sup>477</sup> It is estimated that 4.3 % of new cases and 15 % of previously treated cases are either MDR-TB or rifampicin-resistant tuberculosis (RR-TB).<sup>478</sup> However, in 2019, of the estimated 21 000 MDR-TB and RR-TB patients, only 9 % (1 975 cases) were under treatment.<sup>479</sup> The critical drivers of TB burden in Nigeria are HIV and undernourishment.<sup>480</sup>

### 11.1.2 Strategies and policies for pulmonology

The Second National Strategic Health Development Plan (NSHDP II) 2018-2022 makes little reference to the management of asthma.<sup>481</sup> However, respiratory care, including asthma, is within the list of essential services to be provided at PHCCs as listed in the Ward Health System Strategy document – which represents the current national strategic thrust for delivery of quality PHC services in Nigeria for improved health outcomes.<sup>482</sup> In addition, the National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025) details priority interventions (symptomatic relief and treatment for asthmatic patients, reduction of indoor air pollution, improved access to influenza vaccine and control of environmental pollution) for managing chronic respiratory diseases, including asthma and its risk factors.<sup>483</sup>

As part of efforts to reduce the prevalence of TB to a level which no longer constitutes a public health threat, the Federal Government of Nigeria established the National Tuberculosis and Leprosy Control Programme (NTBLCP) in 1989 within the department of public health in the FMoH.<sup>484</sup> However, the programme has been constrained by governance issues, such as absence of TB-specific legislation, poor spending on TB control, and limited institutional capacity among others.<sup>485</sup> In 2015, the FMoH articulated the National Strategic Plan (NSP) for Tuberculosis Control 2015-2020 to galvanise a whole-of-society and whole-of-government effort towards the attainment of universal access to 'high-quality, patient-centred TB

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<sup>474</sup> KNCV Tuberculosis Foundation, Assessment Of Tuberculosis Underreporting By Level Of Reporting System In Lagos, Nigeria, 2020, [url](#)

<sup>475</sup> USAID, Nigeria Tuberculosis Roadmap Overview, Fiscal Year 2021, n.d., [url](#), p. 1

<sup>476</sup> Gyar, S.D, e al., Prevalence of Tuberculosis in HIV/AIDS Patients in Lafia, Central Nigeria, March 2014, [url](#), p. 833

<sup>477</sup> Affusim, C.C., The Pattern of Presentation and Prevalence of Tuberculosis in HIV-Seropositive Patients Seen at Benin City, Nigeria, March 2012, [url](#), p. 3

<sup>478</sup> Nigeria, FMoH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report; 2019, [url](#), p. 29

<sup>479</sup> Nigeria, FMoH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2019, [url](#), p. 30

<sup>480</sup> Nigeria, FMoH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2019, [url](#), p. 8

<sup>481</sup> Nigeria, FMoH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 24

<sup>482</sup> Nigeria, NPHCDA, Ward Health System, 2018, p. 20

<sup>483</sup> Nigeria, FMoH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 59

<sup>484</sup> Nigeria, FMoH, National Tuberculosis and Leprosy Control Programme (NTBLCP): About us, n.d., [url](#)

<sup>485</sup> Ogbuabor, D.C. and Onwujekwe, O.E., Governance of tuberculosis control programme in Nigeria, 2019, [url](#), p. 2



prevention, diagnosis and treatment services' for all Nigerians by 2020.<sup>486</sup> No studies were found on post-evaluation of the strategy. Currently, the FMOH in collaboration with partners is working to finalise a new NSP for TB 2021-2025, which will focus on reducing TB prevalence and TB mortality by 50 % and 75 %, respectively.<sup>487</sup> In addition, the NSHDP II includes several TB control activities as part of essential package of care, namely case detection of all forms of TB and access to diagnosis and treatment (including MDR-TB).<sup>488</sup>

### 11.1.3 Healthcare provisions for pulmonology

Services available for respiratory illnesses from PHCCs include consultations with non-specialist medical staff, access to basic medications such as salbutamol inhaler for managing asthmatic crises and delivery of laboratory services such as sputum collection for TB microscopy, culture and sensitivity tests.<sup>489</sup> In addition, healthcare workers (HCWs), including pharmacists, laboratory scientists, nurses, community health officers and community health extension workers, all play varying roles in diagnosing, treating and following up of TB cases within PHCCs based on their level of training. The HCWs refer cases to secondary and tertiary centres, in the absence of such services in their facility or when complications arise.<sup>490</sup> For specialist consultations, patients can access infectious disease clinics in the teaching hospitals below:<sup>491</sup>

| S.No. | Geo-political zone | Facility name                                                      | Facility Type |         |
|-------|--------------------|--------------------------------------------------------------------|---------------|---------|
|       |                    |                                                                    | Public        | Private |
| 1     | South-east         | Abia State University Teaching Hospital, Aba                       | X             |         |
| 2     |                    | Nnamdi Azikiwe University Teaching Hospital, Nnewi                 | X             |         |
| 3     |                    | Ebonyi State University Teaching Hospital, Abakiliki               | X             |         |
| 4     |                    | University of Nigeria Teaching Hospital, Enugu                     | X             |         |
| 5     |                    | Imo State University Teaching Hospital, Orlu                       | X             |         |
| 6     |                    | Anambra State University Teaching Hospital, Amaku Awka             | X             |         |
| 7     |                    | Madonna University Teaching Hospital, Okija                        |               | X       |
| 8     |                    | Federal University Teaching Hospital, Abakiliki                    |               | X       |
| 9     | South-south        | University of Uyo Teaching Hospital, Uyo                           | X             |         |
| 10    |                    | University of Calabar Teaching Hospital, Calabar                   | X             |         |
| 11    |                    | University of Benin Teaching Hospital, Benin City                  | X             |         |
| 12    |                    | Delta State University Teaching Hospital, Oghara                   | X             |         |
| 13    |                    | Niger Delta University Teaching Hospital, Okolobiri                | X             |         |
| 14    |                    | Igbinedion University Teaching Hospital, Okada                     |               | X       |
| 15    | South-west         | Lagos University Teaching Hospital, Idi-Araba                      | X             |         |
| 16    |                    | Olabisi Onabanjo (Ogun state) University Teaching Hospital, Sagamu | X             |         |
| 17    |                    | LAUTECH University Teaching Hospital, Osogbo/Ogbomosho             | X             |         |
| 18    |                    | Obafemi Awolowo University Teaching Hospital Complex, Ile-ife      | X             |         |

<sup>486</sup> Nigeria, FMOH, The National Strategic Plan for Tuberculosis Control 2015-2020: Towards Universal Access to Prevention, Diagnosis and Treatment, July 2014, [url](#), pp. 1-2

<sup>487</sup> USAID, Nigeria Tuberculosis Roadmap Overview, Fiscal Year 2021, n.d., [url](#), p. 1

<sup>488</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), pp. 65-66

<sup>489</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>490</sup> Nigeria, FMOH, The National Strategic Plan for Tuberculosis Control 2015-2020: Towards Universal Access to Prevention, Diagnosis and Treatment, July 2014, [url](#), p. 26

<sup>491</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| S.No. | Geo-political zone | Facility name                                               | Facility Type |         |
|-------|--------------------|-------------------------------------------------------------|---------------|---------|
|       |                    |                                                             | Public        | Private |
| 19    |                    | University College Hospital, Ibadan                         | X             |         |
| 20    |                    | Babcock University Teaching Hospital, Ilishan               |               | X       |
| 21    |                    | University Teaching Hospital, Ado-ekiti                     | X             |         |
| 22    |                    | Lagos State University Teaching Hospital, Ikeja             | X             |         |
| 23    |                    | Federal Teaching Hospital Ido-Ekiti                         | X             |         |
| 24    | North-central      | University of Ilorin Teaching Hospital, Ilorin              | X             |         |
| 25    |                    | Jos University Teaching Hospital, Jos                       | X             |         |
| 26    |                    | University of Abuja Teaching Hospital, Gwagwalada           | X             |         |
| 27    |                    | Benue State University Teaching Hospital, Makurdi           | X             |         |
| 28    |                    | Bingham University Teaching Hospital, Jos                   |               | X       |
| 29    | North-east         | University of Maiduguri Teaching Hospital, Maiduguri        | X             |         |
| 30    |                    | Abubakar Tafawa Belewa University Teaching Hospital, Bauchi | X             |         |
| 31    |                    | Federal University Teaching Hospital, Gombe                 | X             |         |
| 32    | North-west         | Aminu Kano Teaching Hospital, Kano                          | X             |         |
| 33    |                    | Ahmadu Bello University Teaching Hospital, Zaria            | X             |         |
| 34    |                    | Usmanu Danfodio University Teaching Hospital, Sokoto        | X             |         |

Table 37: Regional distribution of tertiary facilities with specialised services for respiratory care in Nigeria<sup>492</sup>

## 11.2 Access to treatment

In a 2014 study evaluating out-of-pocket expenditure on asthma follow-up care, the monthly direct cost of asthma care was estimated at USD 30.7; of which about USD 26.7 were spent on medications.<sup>493</sup> The monthly household income of the study participants was below USD 100;<sup>494</sup> hence, the cost of procured medicines was unaffordable according to the World Health Organization (WHO) standards.<sup>495</sup> Another factor that militates against access to healthcare includes poor availability of medicines and equipment at health facilities; a representative sample of tertiary centres were reviewed between June and December 2009 to assess the equipment and resources available to support internationally endorsed standards of asthma care at teaching hospitals in Nigeria. This found that less than 40 % of tertiary centres had not lacked basic equipment, such as peak flow meter, spirometer, skin allergy test kits, pulse oximeter and arterial blood gas analyser.<sup>496</sup>

Between 2018 to 2019, the number of public facilities providing TB treatment services, including DOTS increased from 8 174 to 9 024; the majority (72 %) are publicly-owned while

<sup>492</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>493</sup> Onyedum, C.C. et al., Out-of-Pocket Costs of Asthma Follow-Up Care in Adults in a Sub-Saharan African Country, March 2014, [url](#), p. 2

<sup>494</sup> Onyedum, C.C. et al., Out-of-Pocket Costs of Asthma Follow-Up Care in Adults in a Sub-Saharan African Country, March 2014, [url](#), p. 3

<sup>495</sup> WHO, Measuring medicine prices, availability, affordability, and price components, 2<sup>nd</sup> edition, 2008, [url](#), p. 12; Medication affordability estimations take into account the number of days' wages (daily wage of the lowest-paid unskilled government worker) required in order to purchase a given number of courses of treatments for common acute and chronic conditions.

<sup>496</sup> Desalu, O.O. et al., Asthma in Nigeria: Are the facilities and resources available to support internationally endorsed standards of care? March 2011, [url](#), p. 251





28 % (3 582) of the facilities providing TB services are private centres.<sup>497</sup> Despite of the expected increase in the number of facilities providing care in 2019 and 2020, only 27 % of those requiring treatment received services resulting in a coverage gap of approximately 73 % in 2019.<sup>498</sup> Critical factors responsible for poor coverage rates can be attributed to availability of treatment and diagnostic services at health facilities.<sup>499</sup>

Effectiveness and efficiency of the NTP were hindered by inadequate human resources, dilapidated service delivery infrastructure, weak drug supply system, and poor TB surveillance system.<sup>500</sup>

## 11.3 Insurance and national programmes

The NHIS was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 38).<sup>501</sup>

| Programme                                                | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                             | Scope of coverage                                                                                           | Respiratory services covered                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                        | 1. Public/federal tier - Government pays 3.25% and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and four biological children below the age of 18 years | 1. Outpatient/preventive care (voluntary counselling, screening and treatment)<br>2. Admission for up to three weeks for co-morbidities<br>3. Consultation with specialists (internists/infectious disease specialists/pulmonologists)<br>4. Prescribed drugs, pharmaceutical care and diagnostic tests as contained in the NHIS Drugs List and NHIS Diagnostic Test Lists |
| Informal sector social health insurance programme        | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - Actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                        | For the registered individual alone.                                                                        | As in public sector                                                                                                                                                                                                                                                                                                                                                        |
| Vulnerable group                                         | For indigents and the vulnerable (children under-5, physically                                                                                                                                                                | Register with a PHCC under the Basic Health                                                                                                                                                                                                                                              | For the registered                                                                                          | As in public sector                                                                                                                                                                                                                                                                                                                                                        |

<sup>497</sup> Nigeria, FMOH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2019, [url](#), pp. 9-10

<sup>498</sup> Nigeria, FMOH, National Tuberculosis and Leprosy Control Programme: Draft 2019 Annual TB Report, 2019, [url](#), pp. 9-10, 18

<sup>499</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021.

<sup>500</sup> Nigeria, FMOH, The National Strategic Plan for Tuberculosis Control 2015-2020: Towards Universal Access to Prevention, Diagnosis and Treatment; July 2014, [url](#), p. 178

<sup>501</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5





| Programme | Focus                                                                                        | Requirements                  | Scope of coverage | Respiratory services covered |
|-----------|----------------------------------------------------------------------------------------------|-------------------------------|-------------------|------------------------------|
|           | challenged persons, prison inmates, pregnant women, orphans and internally displaced people) | Care Provision Fund Programme | individual alone  |                              |

Table 38: Health Insurance Programmes in Nigeria<sup>502</sup>

Emergency care of asthmatic attacks is provided for within the NHIS Basic Minimum Package of health services (BMPHS).<sup>503</sup> Consultations and TB testing is covered for in the NHIS BMPHS, while anti-TB drugs are completely excluded. Some services required to appropriately manage respiratory conditions, such as high-technology investigations, including computed tomography (CT) scan, and magnetic resonance imaging (MRI), are partially excluded (health maintenance organisation would pay 50 % of cost) from the NHIS benefit package.<sup>504</sup> However, the NTBLCP with funding from government and donors provides free treatment for TB patients at public facilities.<sup>505</sup>

## 11.4 Cost of medication

The Federal Government of Nigeria procures anti-TB drugs and commodities from the Global Drug Facility<sup>506</sup> – established in 2001 to help increase access to high-quality and affordable TB treatments and diagnostics to populations in need – using in-country budgeted funds, as well as grants from the Global Fund, and the United States Agency for International Development (USAID).<sup>507</sup> The NTBLCP in collaboration with Global Fund and partners coordinates the procurement process, while NTBLCP alone oversees quarterly distribution to the zones, from where they are further distributed to the states and facilities based on reported caseload and consumption data.<sup>508</sup>

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>509</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>510</sup>

The prices of medications were collected from six private pharmacies across the country – four in the southern and two in the northern regions.<sup>511</sup> Medication prices were found to be higher in the north due to add-on costs in the supply chain – drugs are imported into the

<sup>502</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>503</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 20

<sup>504</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 24-25

<sup>505</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>506</sup> Stop-TB Partnership, GDF's resources, n.d., [url](#)

<sup>507</sup> Nigeria, FMOH, The National Strategic Plan for Tuberculosis Control 2015-2020: Towards Universal Access to Prevention, Diagnosis and Treatment, July 2014, [url](#), p. 34

<sup>508</sup> Nigeria, FMOH, The National Strategic Plan for Tuberculosis Control 2015-2020: Towards Universal Access to Prevention, Diagnosis and Treatment, July 2014, [url](#), p. 34

<sup>509</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>510</sup> Nigeria, NAFDAC, NAFDAC Green Book: Registered Product Database Search, n.d., [url](#)

<sup>511</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



country through seaports in the south.<sup>512</sup> Medicines which are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the general country report.

| Generic Name                           | Brand name   | Dosage         | Form    | Number of units in the container | Price per box (USD) |
|----------------------------------------|--------------|----------------|---------|----------------------------------|---------------------|
| <b>Separate anti-asthmatics</b>        |              |                |         |                                  |                     |
| Montelukast sodium                     | Montiget®    | 10 mg          | tablet  | 10                               | 6.1 (5.9-6.3)       |
| Salbutamol                             | Ventolin®    | 100 mcg/dose   | inhaler | 1                                | 3.4 (3.1-3.7)       |
| <b>Combined anti-asthmatics</b>        |              |                |         |                                  |                     |
| Salmeterol + fluticasone (propionate)  | Saltrol HFA® | 25 mcg/125 mcg | inhaler | 1                                | 8.5 (8.1-8.9)       |
| <b>Inhalation corticosteroids</b>      |              |                |         |                                  |                     |
| Fluticasone                            | Flixonase®   | 60 doses       | aerosol | 1                                | 8.5 (8.1-8.9)       |
| <b>Parasympatholytics</b>              |              |                |         |                                  |                     |
| Ipratropium                            | Generic      | 250 mcg/ml     | vial    | 20                               | 51.2 (49.9-52.5)    |
| Ipratropium bromide monohydrate        | Atrovent®    | 250 mcg/ml     | vial    | 20                               | 51.2 (49.8-52.6)    |
| <b>First line TB medicines</b>         |              |                |         |                                  |                     |
| Ethambutol                             | Generic      | 400 mg         | capsule | 100                              | 12.2 (11.8-12.6)    |
| Isoniazid                              | Generic/INH  | 300 mg         | tablet  | 100                              | 36.5 (35.5-37.5)    |
| Pyrazinamide                           | Generic      | 50 mg          | capsule | 500                              | 60.9 (58.9-62.9)    |
| Rifampicin                             | Generic      | 300 mg         | tablet  | 10                               | 1.6 (1.2 -2.0)      |
| <b>Second/ third line TB medicines</b> |              |                |         |                                  |                     |
| Moxifloxacin                           | Moxiget®     | 400 mg         | tablet  | 10                               | 9.9 (8.9-10.9)      |

Table 39: Details of medications available in the formal market<sup>513</sup>

## 11.5 Cost of treatment

The NHIS covers for asthmatic care as well as treatment of co-morbidities.<sup>514</sup> However, this is targeted at a small fraction of the population given that most households use out-of-pocket payments at the point of care.<sup>515</sup> The NTBLCP, with funding from the Federal government and grants from USAID and Global Fund, provides free treatment for TB cases.<sup>516</sup>

The cost of public outpatient and inpatient treatments varies across the northern and southern regions of the country. In private facilities, a specialist consultation costs more for both inpatient and outpatient care than in public facilities. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs such as bed rates, meals and transportation were not included. The prices below were obtained from eight health facilities – three public and five privately owned centres – situated in the northern and southern zones of the country.<sup>517</sup> Thus, the value indicated in each cell is the average sum of the values collated from the visited facilities.

<sup>512</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>513</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>514</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 20-25

<sup>515</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>516</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>517</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



|                                        | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|----------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>                      |                                         |                                        |                                          |                                         |
| Consultation by a pulmonologist        | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 85.3 (84.9-85.7)                         | 85.3 (84.9-85.7)                        |
| Consultation by a general practitioner | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 60.9                                     | 60.9                                    |
| Consultation by TB specialist*         | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 85.3 (84.9-85.7)                         | 85.3 (84.9-85.7)                        |

Table 40: Treatment cost by facility types<sup>518</sup>

\* Provided for free at public facilities.

|                                                                                                                              | Public treatment price (USD)                       | Private treatment price (USD)                        |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------|
| <b>Diagnostic research</b>                                                                                                   |                                                    |                                                      |
| Diagnostic research, in the form of lung function tests (i.e. spirometry)                                                    | 34.1 (33.8-34.4)                                   | 48.7 (36.5-60.8)                                     |
| Diagnostic research: measuring arterial blood gas; arterial pH, pCO <sub>2</sub> , "base excess", arterial oxygen saturation | 14.6 (145.8-146.4)                                 | Not available                                        |
| Diagnostic research: measuring of blood oxygen level (e.g. pulse oximetry)*                                                  | Free                                               | Not available                                        |
| Diagnostic research: measuring of blood oxygenation for home use*                                                            | Free                                               | Not available                                        |
| Diagnostic research: PCR for M.Tuberculosis*                                                                                 | Free                                               | 48.7 (48.5-48.9)                                     |
| <b>Medical devices pulmonology</b>                                                                                           |                                                    |                                                      |
| Breathing machines (ventilator, respirator etc.)                                                                             | Not available                                      | 609.4 (608.2-610.6)                                  |
| Nebulizer                                                                                                                    | 12.2 (11.9-12.5)                                   | 127.9 (126.8 - 129)                                  |
| Spacer (with mask) for inhaler with asthma medication                                                                        | 12.2 (11.9-12.5)                                   | 29.2 (28.9-29.5)                                     |
| Medical devices pulmonology: oxygen therapy with device and nasal catheter (per hour)                                        | Adults – 4.9 (4.8-5.0)<br>Children – 3.7 (3.2-4.2) | Adults – 10.9 (9.5-12.3)<br>Children – 7.3 (6.5-8.1) |
| Medical devices pulmonology: oxygen therapy with O <sub>2</sub> pressure tank (per hour)                                     | Adults – 4.9 (4.8-5.0)<br>Children – 3.7 (3.2-4.2) | Adults – 10.9 (9.5-12.3)<br>Children – 7.3 (6.5-8.1) |
| <b>Laboratory measurements</b>                                                                                               |                                                    |                                                      |
| Resistance test for tuberculosis drugs*                                                                                      | Free                                               | 42.7 (42.6-42.8)                                     |
| Sputum smear microscopy (tuberculosis)*                                                                                      | Free                                               | 7.3 (7.1-7.5)                                        |
| <b>Treatment</b>                                                                                                             |                                                    |                                                      |
| Clinical admittance in pulmonology department (daily rates)                                                                  | 3.7 (3.5-3.9)                                      | 187.7 (185.6-189.8)                                  |

<sup>518</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)





Table 41: Cost of laboratory investigations by facility type<sup>519</sup>

\* Provided for free at public facilities.

## 11.6 NGOs

Respiratory disease programming benefits immensely from huge international and local NGO support.<sup>520</sup> Over the years, the USAID has supported the NTBLCP implementation activities in Nigeria; for the 2020 fiscal year, USAID proposed a USD 13 million budget which covers TB diagnosis, community TB care, drug-susceptible TB treatment, MDR-TB treatment and efforts at halting TB transmission.<sup>521</sup> Other development partners providing support to Nigeria on TB include the WHO, International Federation of Anti-Leprosy Associations (ILEP), The Leprosy Mission Nigeria (TLMN), Netherlands Leprosy Relief (NLR), German Leprosy and TB Relief Association (GLRA) and the Damien Foundation Belgium (DFB); International Union Against TB and Lung Disease (IUATLD), Canadian International Development Agency (CIDA), Department for International Development (DFID).<sup>522</sup>

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<sup>519</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>520</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>521</sup> USAID, Nigeria Tuberculosis Roadmap Overview, Fiscal Year 2021, n.d., [url](#), pp. 1-3

<sup>522</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





## 12 Haematology: Iron Deficiency Anaemia (IDA), Sickle Cell Anaemia (SCA) and Blood Clotting Disorders (BCDs)

### 12.1 General information

Haematological disorders are disease conditions that affect the functions of the blood or blood-producing organs.<sup>523</sup> The focus of this report will be on IDA, SCA, and BCDs. IDA is a blood disorder characterised by deficient haemoglobin production leading to abnormally small-sized red blood cells containing reduced amount of haemoglobin. Consequently, the capacity of the blood to supply oxygen to the body cells is adversely affected.<sup>524</sup> SCA is an inherited birth defect that occurs when a newborn inherits the gene for sickle haemoglobin (HbS), a variant of the normal adult haemoglobin (HbA, the protein in the red blood cells responsible for conveying oxygen within the body), from both biological parents.<sup>525</sup> BCDs are a group of conditions, either inherited or acquired, which are characterised by the inability of the body to control the formation of blood clots during bleeding due to disorders of blood vessels, platelets or coagulation factors. Although it is not clear which BCDs are the most common in Nigeria, a study reported that disseminated intravascular coagulation (DIC) and haemophilia are the most encountered cases in health facilities.<sup>526</sup>

#### 12.1.1 Epidemiological context

Nigeria leads the top three countries, including India and the Democratic Republic of the Congo (DRC) with the highest burden of SCA in the world and it is projected to continue in this trajectory till 2050.<sup>527</sup> Population prevalence data are limited; however, it has been estimated that about 25 % of the adult population are carriers of the sickle cell trait.<sup>528</sup> Available evidence suggests a relationship between the occurrence of sickle cell trait and malaria endemicity thereby.<sup>529</sup> According to the 2019 Global Burden of Disease (GBD) study, the estimated prevalence of sickle cell anaemia in Nigeria is 12 times higher than the global estimate (0.08 %) and stands at 0.97 % equivalent to over 2 million people. The estimated prevalence was highest in persons aged 0-1 year, at almost 2.9 % equivalent to 188 108 people.<sup>530</sup> The estimated prevalence decreased in the higher age groups, suggesting a higher mortality rate with increasing age.<sup>531</sup>

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<sup>523</sup> Nature portfolio, Haematological diseases, n.d., [url](#)

<sup>524</sup> Akodu, O.S. et al., Iron deficiency anaemia among apparently healthy pre-school children in Lagos, Nigeria, March 2016, [url](#), p. 61

<sup>525</sup> Piel, F.B. et al, Global Burden of Sickle Cell Anaemia in Children under Five, 2010-2050: Modelling Based on Demographics, Excess Mortality, and Interventions, July 2013, [url](#), p. 2

<sup>526</sup> Okoye, H.C. et al, Challenges in the management of bleeding disorders in Nigeria, April 2018, [url](#), pp. 468, 471

<sup>527</sup> Piel, F.B. et al., Global Burden of Sickle Cell Anaemia in Children under Five, 2010-2050: Modelling Based on Demographics, Excess Mortality, and Interventions, July 2013, [url](#), pp. 4-7

<sup>528</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 29

<sup>529</sup> Piel, F.B. et al., Global distribution of the sickle cell gene and geographical confirmation of the malaria hypothesis, November 2010, [url](#), p. 29

<sup>530</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>531</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 29





Iron deficiency is the most common cause of anaemia globally. A 2020 systematic review found that 3 out of 6 studies carried out in Nigeria reported a prevalence of IDA in pregnancy ranging from 25 % to 45.6 %. The key predictors associated with IDA include multiparity, third trimester of pregnancy, low educational level and low economic status.<sup>532</sup> Another study conducted in Southwest Nigeria found the prevalence of IDA among apparently healthy pre-school children to be 10.11 %, with a higher prevalence in children less than 2 years of age.<sup>533</sup> This finding was lower than the 25.0 % reported in a different research carried out in the same region among children aged 0-5 years.<sup>534</sup>

There are limited data on the prevalence and characterisation of haemophilia in Nigeria. However, by applying estimates regarding the global prevalence of haemophilia (105 and 28 per million males of haemophilia A and B, respectively) it is estimated that there are 9 000-12 000 haemophiliacs in Nigeria.<sup>535</sup>

### 12.1.2 Strategy and policies for haematology

No information was found during the researching of this report on a specific in-country strategy wholly targeted at haematological diseases, except for SCA. One of the key priorities of the NSHDP II 2018-2022 is to reduce morbidity and mortality due to NCDs, including SCA, by 20 % by the year 2022.<sup>536</sup> Also, the National Multi-Sectoral Action Plan for the Prevention and Control of NCDs (2019-2025) has, as part of its priority actions, the following:

1. Raise public awareness on pre-marital/pre-conception screening for sickle cell disease using point-of-care devices.
2. Promote collaborative work with faith-based organisations (FBOs), religious and traditional leaders.
3. Scale-up universal screening for sickle cell diseases using point-of-care devices.<sup>537</sup> The FMOH in collaboration with partners and the academia, articulated the National Guideline for the Control and Management of SCA, which will engender uniformity and standardisation of care at all levels.<sup>538</sup>

### 12.1.3 Healthcare provisions for haematology

The availability of treatments for haematological disorders at primary healthcare level is limited to nutritional consultations and dispensing of basic medications for those suffering from anaemia, including IDAs.<sup>539</sup> Genetic counselling and genotype profiling of the general population is recommended to be provided at the PHCCs while diagnosis and treatment of SCA complications are restricted to secondary and tertiary centres where there are more skilled health workers.<sup>540</sup> Although teaching hospitals in the country provide care for SCA cases, the federal government established sickle cell disease centres in 6 out of 22 federal

<sup>532</sup> Ugwu, N.I. and Uneke, C.J., Iron deficiency anemia in pregnancy in Nigeria - A systematic review, July 2020, [url](#), pp. 890-891

<sup>533</sup> Akodu, O.S. et al., Iron deficiency anemia among apparently healthy pre-school children in Lagos, Nigeria, March 2016, [url](#), pp. 64-66

<sup>534</sup> Olufemi, S.S. et al., Infant feeding practices and Prevalence of Iron Deficiency Anaemia among Children of 0-5 Years in Ondo State, Nigeria, February 2013, [url](#), p. 35

<sup>535</sup> Okparaoka, S. et al., Frequency of hemophilia and hemostatic evaluation in persons with bleeding symptoms in Southeast, Nigeria, August 2019, [url](#), pp. 18-19

<sup>536</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 72

<sup>537</sup> Nigeria, FMOH, National Multi-Sectoral Action Plan for the Prevention and Control of Non-Communicable Diseases (2019-2025), August 2019, [url](#), p. 52

<sup>538</sup> Nigeria, FMOH, National Guideline for the Control and Management of Sickle Cell Disease, 2014, [url](#), pp. 1-2

<sup>539</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021.

<sup>540</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 73





medical centres across the 6 geopolitical zones in the country to run clinics and programmes for the management and control of SCAs:

- Federal Medical Centre, Abakaliki, Ebonyi State (southeast);
- Federal Medical Centre, Birnin-Kebbi, Kebbi State (northwest);
- Federal Medical Centre, Ebute- Metta, Lagos State (southwest);
- Federal Medical Centre, Gombe, Gombe State (northeast);
- Federal Medical Centre, Keffi, Nasarawa State (north-central);
- Federal Medical Centre, Yenagoa, Bayelsa State (south-south).<sup>541</sup>

## 12.2 Access to treatment

Access to haematological care in Nigeria is confronted with various challenges. Between 2011 and 2012, the FGoN established six sickle cell disease centres<sup>542</sup>, equipped each one of them with high-performance liquid chromatography (HPLC) machines<sup>543</sup>, and developed national protocols to ramp up screening for SCA cases. However, by 2017, fewer than 2 000 newborn babies had been screened across all the centres. The identified constraints to these efforts were attributed to poor budgetary allocation, inadequately trained personnel, expired reagents, paucity of consumables, absence of mechanisms to collect samples from babies on a regular basis and frequent power outages.<sup>544</sup> In addition, there is limited knowledge among doctors on the use of hydroxyurea, a newly approved medication capable of altering treatment outcomes for SCA patients.<sup>545</sup>

Routine iron supplementation therapy in pregnant women is one of the key approaches for addressing IDA. Studies carried out in southeast and southwest regions of the country identified poor utilisation of antenatal care services, low educational attainment, distance to a health facility, single and teenage pregnancy, and age of the pregnant woman as key drivers to poor compliance with routine iron therapy.<sup>546</sup> More importantly, there is a strong association between IDA and nutritional status. Hence, interventions to address IDA must go beyond iron supplementation therapy to include efforts at improving food security and nutritional diversity.<sup>547</sup> Most of these interventions fall outside the scope of the health system. For example, the National Home-Grown School Feeding Programme was shown to have improved the nutritional status of children amongst other non-health indicators – class attendance, school enrolment and academic performance.<sup>548</sup>

<sup>541</sup> Nigeria, FMOH, National Guideline for the Control and Management of Sickle Cell Disease, 2014, [url](#), p. 59

<sup>542</sup> Nnodu OE et al., Implementing newborn screening for sickle cell disease as part of immunisation programmes in Nigeria: a feasibility study, July 2020, [url](#), p. e535

<sup>543</sup> High-performance liquid chromatography (HPLC) machine is a device used to screen the blood for the presence of crescent-shaped haemoglobin – which is diagnostic of sickle cell disease.

<sup>544</sup> Nnodu OE et al., Implementing newborn screening for sickle cell disease as part of immunisation programmes in Nigeria: a feasibility study, July 2020, [url](#), p. e535

<sup>545</sup> Ofakunrin, A.O.D. et al., Level of Utilization and Provider-Related Barriers to Hydroxyurea Use in the Treatment of Sickle Cell Disease in Jos, Nigeria, November 2019, [url](#), p. 1029

<sup>546</sup> Onyeneho, N.G. et al., Factors associated with compliance to recommended micronutrients uptake for prevention of anemia during pregnancy in urban, peri-urban, and rural communities in Southeast Nigeria, November 2016, [url](#), pp. 6-14; Dairo, M.D. and Lawoyin, T.O., Demographic factors determining compliance to iron supplementation in pregnancy in Oyo State, Nigeria, September 2006, [url](#), pp. 242-243

<sup>547</sup> Akodu, O.S. et al., Iron deficiency anaemia among apparently healthy pre-school children in Lagos, Nigeria, March 2016, [url](#), pp. 66-67

<sup>548</sup> Awojobi, O.N. and Tinubu, R.A., Impact Evaluation of National Home-Grown School Feeding Programme in Nigeria: Preliminary Findings from a Mixed-Methods Approach, July 2020, [url](#), p. 11





## 12.3 Insurance and national programmes

The National Health Insurance Scheme (NHIS) was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 42).<sup>549</sup> Amongst haematological disorders covered in this report, only care for anaemia is provided for within the NHIS Basic Minimum Package of Health Services (BMPHS).<sup>550</sup>

| Programme                                                  | Focus                                                                                                                                                                                                                          | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                        | Haematology services covered                                                                                                                                                                                                                                                                                                     |
|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP)   | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                         | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and 4 biological children below the age of 18 years | 1. Outpatient/preventive care (consultation, screening, and treatment)<br>2. Admission for up to 3 weeks for co-morbidities<br>3. Consultation with specialists (internists/haematologists)<br>4. Prescribed drugs, pharmaceutical care, and diagnostic tests as contained in the NHIS drugs list and NHIS diagnostic test lists |
| Informal Sector Social Health Insurance Programme (ISSHIP) | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers, and others not covered under the Formal Sector or the Vulnerable Group | Community-based health insurance scheme - actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                         | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                              |
| Vulnerable Group                                           | For indigents and the vulnerable (children under five, physically challenged persons, prison inmates, pregnant women, orphans, and internally displaced persons)                                                               | Register with a PHCC under the Basic Healthcare Provision Fund programme                                                                                                                                                                                                                  | For the registered individual alone                                                                      | As in public sector                                                                                                                                                                                                                                                                                                              |

Table 42: Health insurance programmes in Nigeria<sup>551</sup>

There exist varying degrees of insurance coverage for certain haematological services; for example, high-technology investigations, such as computed tomography (CT) scan and

<sup>549</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes; October 2020, Available from: [url](#), p. 5

<sup>550</sup> Nigeria, NHIS, Operational Guidelines; October 2012, [url](#), p. 19

<sup>551</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44





magnetic resonance imaging (MRI), are partially excluded (health maintenance organisation would pay 50 % of cost).<sup>552</sup>

## 12.4 Cost of medication

Patients often have poor adherence to treatments, particularly for chronic conditions, such as those related to SCA.<sup>553</sup> This is due to prohibitive costs and lack of availability of key medications.<sup>554</sup> The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>555</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>556</sup>

The prices of medications were collected from six private pharmacies across the country – four in the southern and two in the northern regions.<sup>557</sup> Medicines that are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the general country report.

| Generic name                                | Brand name       | Dosage      | Form    | Number of units in the container | Price per box (USD) |
|---------------------------------------------|------------------|-------------|---------|----------------------------------|---------------------|
| <b>Hemostatics</b>                          |                  |             |         |                                  |                     |
| Tranexamic acid                             | Tranexamic Acid® | 500 mg/5 ml | ampoule | 5                                | 24.4 (22.2-26.6)    |
| <b>Against anemia</b>                       |                  |             |         |                                  |                     |
| Ferrous gluconate                           | Emzor®           | 300 mg      | tablet  | 100                              | 14.9 (13.8-16.0)    |
| Folic acid                                  | Teva®            | 5 mg        | tablet  | 30                               | 7.3 (6.9-7.7)       |
| Ferrous sulphate + folic acid (vitamin B9)  | Ferrogard®       | 65/400 mg   | tablet  | 30                               | 10.9 (9.8-12.0)     |
| Hydroxycarbamide or hydroxyurea (Hydrea)    | Oxyurea®         | 100 mg      | tablet  | 30                               | 2.9 (2.1-3.7)       |
| Iron (oral/ tablets)                        | Astyfer®         | 1 capsule   | capsule | 30                               | 12.4 (12.1-12.7)    |
| <b>Pain killers</b>                         |                  |             |         |                                  |                     |
| Diclofenac                                  | Voltaren®        | 75 mg       | tablet  | 30                               | 15.2 (15.1-15.3)    |
| Morphine                                    | Morphine®        | 10 mg/ml    | ampoule | 10                               | 102.4 (101.8-103.0) |
| Tramadol                                    | Pengesic®        | 50 mg       | capsule | 100                              | 48.8 (47.5-50.1)    |
| <b>Antibiotics</b>                          |                  |             |         |                                  |                     |
| Amoxicillin                                 | Amoxil®          | 500 mg      | capsule | 100                              | 24.4 (24.1-24.7)    |
| Amoxicillin + clavulanic acid (combination) | Augmentin®       | 625 mg      | tablet  | 14                               | 10.2 (9.8-10.6)     |
| Azithromycin                                | Zithromax®       | 250 mg      | capsule | 6                                | 21.9 (20.9-22.9)    |
| Cefuroxime                                  | Zinnat           | 500 mg      | tablet  | 10                               | 14.9 (14.2-15.6)    |
| Ciprofloxacin                               | Ciproxin®        | 500 mg      | tablet  | 10                               | 60.9 (59.5-62.3)    |
| Clarithromycin                              | Klatril®         | 500 mg      | tablet  | 14                               | 13.7 (13.3-14.1)    |

<sup>552</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 24-25

<sup>553</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>554</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>555</sup> Nigeria, FMoH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>556</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, n.d., [url](#)

<sup>557</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



| Generic name                                                                           | Brand name                         | Dosage    | Form    | Number of units in the container | Price per box (USD) |
|----------------------------------------------------------------------------------------|------------------------------------|-----------|---------|----------------------------------|---------------------|
| Clindamycin                                                                            | Dalacin®                           | 150 mg    | capsule | 100                              | 4.9 (4.1-5.7)       |
| Metronidazole                                                                          | Flagyl®                            | 400 mg    | tablet  | 100                              | 4.9 (4.1-5.7)       |
| Tetracycline                                                                           | Tetramac®                          | 250 mg    | capsule | 10                               | 3.7 (3.1-4.3)       |
| Trimethoprim and sulfamethoxazole (cotrimoxazole)                                      | Septrim®                           | 80/400 mg | tablet  | 100                              | 4.9 (4.1-5.7)       |
| <b>Vaccinations</b>                                                                    |                                    |           |         |                                  |                     |
| Diphtheria, tetanus, pertussis (acellular) haemophilus influenzae type b (Hib) vaccine | Tetraxim®                          | 0.5 ml    | Vial    | 1                                | 21.6 (20.9-22.3)    |
| Influenza vaccine                                                                      | Vaxigrip®                          | 0.5 ml    | vial    | 1                                | 7.3 (7.1-7.5)       |
| Measles vaccine                                                                        | Available as Priorix, Combination® | 0.5 ml    | Vial    | 1                                | 10.9 (9.9 -11.9)    |
| Mumps vaccine                                                                          | Available as Priorix, Combination® | 0.5 ml    | Vial    | 1                                | 10.9 (9.9-11.9)     |
| Pneumococcal vaccine                                                                   | Prevener 13®                       | 0.5 ml    | vial    | 1                                | 26.8 (25.9-27.7)    |
| Poliomyelitis (inactivated) vaccine                                                    | IPV®                               | 0.5 ml    | vial    | 1                                | 10.9 (9.9-11.9)     |
| Rubella vaccine                                                                        | Priorix, Combination®              | 0.5 ml    | Vial    | 1                                | 10.9 (9.9-11.9)     |
| Hib vaccine                                                                            | Vaxigrip®                          | 0.5 ml    | vial    | 1                                | 22.2 (21.8-22.6)    |
| Meningococcal vaccine (to prevent meningitis)                                          | Nimenrix®                          | 0.5 ml    | vial    | 1                                | 22.2 (21.8-22.6)    |

Table 43: Details of medication available in the formal market<sup>558</sup>

## 12.5 Cost of treatment

The NHIS covers for IDA, as well as treatment of co-morbidities. However, this is listed only at a small fraction (about 5 % coverage) of the population given that most households use out-of-pocket payments at the point of care.<sup>559</sup>

In private facilities, a specialist consultation costs more for both inpatient and outpatient care as compared to public facilities. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as those for bed, meals and transportation, were not included. The prices below were obtained from a range of secondary and tertiary facilities situated in the northern and southern zones of the country.<sup>560</sup> Thus, the value indicated in each cell is the average sum of the values collated from the visited facilities.

<sup>558</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>559</sup> Alawode, G.O. and Adewole, D.A., Assessment of the design and implementation challenges of the National Health Insurance Scheme in Nigeria: a qualitative study among sub-national level actors, healthcare and insurance providers; January 2021, [url](#), p. 1

<sup>560</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021



|                                 | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|---------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist</b>               |                                         |                                        |                                          |                                         |
| Consultation by a haematologist | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 60.9 (59.9-61.9)                         | 60.9 (59.9-61.9)                        |
| Consultation by a paediatrician | 4.1 (3.9-4.3)                           | 4.1 (3.9-4.3)                          | 60.9 (59.9-61.9)                         | 60.9 (59.9-61.9)                        |

Table 44: Treatment cost by facility type<sup>561</sup>

|                                                                                                             | Public treatment price (USD) | Private treatment price (USD)        |
|-------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------------|
| <b>Laboratory research</b>                                                                                  |                              |                                      |
| Full blood count; e.g. haemoglobin (Hb), white blood cells (WBCs) and platelets                             | 8.5 (8.2-8.8)                | 12.7 (11.9-13.5)                     |
| Diagnostic research: measuring blood oxygen/arterial blood gas (Astrup)                                     | 6.0 (5.8-6.2)                | 36.5 (35.9-37.1)                     |
| Laboratory research of bacterial cultures                                                                   | 8.5 (8.2-8.8)                | 6.0 (5.9-6.1)                        |
| <b>Treatment</b>                                                                                            |                              |                                      |
| Clinical admittance in haematology department (daily rates)                                                 | 3.7 (3.5-3.9)                | 93.8 (92.5-95.1)-187.7 (187.1-188.3) |
| Clinical admittance in paediatric department (daily rates)                                                  | 2.4 (2.2-2.6)                | 93.8 (92.5-95.1)                     |
| Intensive care treatment (daily rates)                                                                      | 12.2 (12.1-12.3)             |                                      |
| (Safe) blood transfusion (safe=checked/screened for human immunodeficiency virus (HIV) and hepatitis A/B/C) | 12.1 (11.8-12.4)             | 73.1 (72.5-73.7)                     |
| Clinical treatment in case of sickle cell crisis (exchange blood transfusion)                               | 24.3 (23.8-24.8)             | 438.7 (435.2-442.2)                  |
| Fresh frozen plasma (FFP) replacement/unit                                                                  | 19.5 (18.9-20.1)             | 97.5 (95.6-99.4)                     |
| Haematology: transfusion of erythrocytes/red blood cells/unit                                               | 19.5 (18.8-20.2)             | 73.1 (72.8-73.4)                     |
| Haematology: phlebotomy/venepuncture/blood collection                                                       | Free                         | 73.1 (72.8-73.4)                     |
| Oxygen therapy with device, such as nasal catheter/hour                                                     | 2.4 (2.1-2.7)                | Not available                        |
| Platelets/thrombocytes transfusion/unit transfused                                                          | 19.5 (18.9-20.1)             | 121.8 (120.9-122.7)                  |

Table 45: Cost of investigations by facility type<sup>562</sup>

## 12.6 NGOs

Of all the haematological disorders, this report was able to find information mainly on available non-government organisation (NGO) support for sickle cell disease. Examples include:

<sup>561</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>562</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)





- **Association of people living with sickle cell disorder:** Situated in Southeast Nigeria. The foundation was created to help save children with sickle cell anaemia, and to cater for the medical and welfare needs of persons living with the disorder.
- **Samira Sanusi Sickle Cell Foundation:** Situated in Abuja Federal Capital Territory (FCT), Nigeria. The foundation provides services in the prevention, treatment, management, control and cure of sickle cell disorder through sickle cell awareness, genotype compatibility and genetic counselling.
- **Sickle Cell Hope Alive Foundation (SCHAF):** Situated in Southwest Nigeria. SCHAF improves the quality of care for those living with sickle cell disorder, and also promotes awareness and education on SCA management.
- **Sickle Cell Support Society of Nigeria:** Situated in Abuja FCT, Nigeria. The society was established to help in bring together doctors skilled in managing sickle cell diseases, NGOs and patients together with the aim of creating awareness, research and advocacy for the disease.
- **The Sickle Cell Aid Foundation (SCAF):** Situated in Abuja FCT, Nigeria. SCAF is an NGO created to help expand SCA awareness and also provide quality healthcare solutions and treatment to people living with the disorder.
- **Agatha Sickle Cell Foundation:** Situated in south-south, Nigeria. This is an NGO that aims to educate the public about sickle cell disease, and also inspire, empower and provide them with access to quality health care and treatment.
- **Ayabime Okpoh Sickle Cell Foundation:** Situated in Southwest Nigeria. This was established to create awareness on sickle cell disorder and increase access to quality care.
- **Crystal Shape Sickle Cell Foundation:** Situated in north-central zone. The Crystal Shape Sickle Cell Foundation was established to support sickle cell anaemic patients in hard-to-reach communities in Nigeria, with quality treatment and drugs.
- **Nirvana Initiative:** Situated in southwest zone. Nirvana Initiative is dedicated to educating and spreading awareness about SCA.<sup>563</sup>

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<sup>563</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021





## 13 Paediatrics

### 13.1 General information

Paediatrics is the field of medicine that deals with children and their diseases. This field is crucial to the Nigerian context because the majority of the population are within 0-14 years, depicting a young population, high fertility rate and dependency.<sup>564</sup> Also, low levels of birth registration – as much as 46.9 % of children under the age of five whose births are reported as registered – imply that the young population may be higher than the official statistics.<sup>565</sup> More importantly, Nigeria's under 5 mortality rate (U5MR) (132 per 1 000 live births) is among the highest in the world (see table 46 for other child survival indicators)<sup>566</sup>; in Nigeria, each year, about 262 000 babies die at birth, the world's 2<sup>nd</sup> highest national total, while every day in Nigeria, 257 babies die within their first month of life.<sup>567</sup>

|                                                                                    |                      |
|------------------------------------------------------------------------------------|----------------------|
| Total population (millions)                                                        | 211.4 <sup>568</sup> |
| Crude birth rate (CBR) (per 1 000)                                                 | 38                   |
| Total fertility rate (TFR) births per woman (ages 15-49)                           | 5.3 <sup>569</sup>   |
| Unmet need for family planning (FP) (%)                                            | 18.9 <sup>570</sup>  |
| Infant mortality rate (IMR) (per 1 000)                                            | 67                   |
| Under 5 mortality rate (U5MR) (per 1 000)                                          | 132                  |
| Child mortality rate (CMR) (per 1 000)                                             | 69                   |
| Neonatal mortality rate (per 1 000)                                                | 39 <sup>571</sup>    |
| Children with low birth weight (%)                                                 | 7 <sup>572</sup>     |
| Children age 0-5 months exclusively breastfed (%)                                  | 29 <sup>573</sup>    |
| Stunted children under age 5 (height-for-age, below 2 standard deviation (SD) (%)) | 37                   |
| Wasted children (weight-for-height, below 2 SD) (%)                                | 7                    |
| Underweighted children (weight-for-age, below 2 SD) (%)                            | 22 <sup>574</sup>    |
| Per cent of children 12-23 months fully immunised                                  | 21 <sup>575</sup>    |
| Maternal mortality ratio (per 100 000 live births)                                 | 512 <sup>576</sup>   |
| Orphans under age 18 (double, maternal, paternal and all causes) (%)               | 6 <sup>577</sup>     |

<sup>564</sup> Nigeria, NBS, Demographic Statistics Bulletin 2017, May 2018, [url](#), p. 4

<sup>565</sup> Nigeria, NBS and UNICEF, Multiple Indicator Cluster Survey 2016-17, National Survey Finding Report, February 2018, [url](#), pp. 217-218

<sup>566</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, [url](#), p. 164

<sup>567</sup> UNICEF, New Year's Babies: More than 25,000 babies will be born in Nigeria on New Year's Day – UNICEF, January 2019, [url](#)

<sup>568</sup> UNFPA, World Population Dashboard: Nigeria, 2021, [url](#)

<sup>569</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 104

<sup>570</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 149

<sup>571</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 164

<sup>572</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 224

<sup>573</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 260

<sup>574</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 257

<sup>575</sup> Nigeria, NBS and UNICEF, Multiple Indicator Cluster Survey 2016-17, National Survey Finding Report, February 2018, [url](#), p. 54

<sup>576</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. xxxvii

<sup>577</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), p. 11





Table 46: Child survival indicators in Nigeria

According to a verbal/social autopsy study carried out on a representative sample of 986 neonatal and 2 268 1-59-month-old deaths from 2008 to 2013 identified by the 2013 Nigeria Demographic and Health Survey (NDHS), the principal causes of neonatal deaths were sepsis (31.5 %), birth asphyxia (22.3 %) and neonatal pneumonia (19.9 %); and that for 1-59-month-old deaths were malaria (36.4 %), diarrhoea (26.0 %) and pneumonia (16.4 %).<sup>578</sup> This report will focus on the most common causes of childhood mortality – malaria, diarrhoea, pneumonia, birth asphyxia and sepsis.

### 13.1.1 Epidemiological context

Malaria is a preventable and curable life-threatening disease that is caused by parasites that are transmitted from person to person through the bites of the female *Anopheles* mosquitoes. Children under the age of 5 years are most prone to malaria infection; in 2019, they accounted for 2/3 (274 000) of all malaria deaths globally. Nigeria contributed more than one-fifth of the global malaria deaths.<sup>579</sup> The 2019 Global Burden of Disease (GBD) study estimates of malaria prevalence for age groups <5 years, 5 to <9 years, and 10 to <14 years are 23.01 %, 24.66 % and 22.84 %, respectively.<sup>580</sup> This is similar to a 2020 hospital-based study carried out in southeast Nigeria, which estimated the prevalence of malaria to be 16.7 %, 26.7 % and 29.9 % in children <5 years, 5 to <10 years and 10 to <15 years, respectively.<sup>581</sup> However, a much lower prevalence (7.4 %-8.6 %) in children under 5 years was found in a study conducted in the south-south geopolitical zone.<sup>582</sup>

According to the 2019 GBD study, the prevalence of diarrhoeal diseases in age groups of <5 years, 5 to <10 years and 10 to <15 years was estimated to be 3.44 %, 1.47 %, and 0.97 %, respectively. This implies that diarrhoeal prevalence was highest in under 5 and decreased with increasing age.

Sepsis has been recognised as the chief cause of neonatal mortality in Nigeria, leading to approximately 26 864 neonatal deaths in 2019. The 2019 GBD study estimated the prevalence of neonatal sepsis to be 0.86 %, equivalent to 4 273 cases.<sup>583</sup> The key drivers of early neonatal sepsis (up to 72 hours after birth) include maternal febrile illnesses, low birth weight and premature rupture of membranes.<sup>584</sup>

According to the International Vaccine Access (IVAC) Pneumonia and Diarrhoea 2020 progress report, Nigeria is one of the countries with the highest burden of pneumonia and diarrhoea in children under 5 years accounting for over 208 439 deaths.<sup>585</sup> According to two hospital-based studies carried out in the southwestern region of the country, the prevalence

<sup>578</sup> Adewemimo, A. et al., Direct estimates of cause-specific mortality fractions and rates of under-five deaths in the northern and southern regions of Nigeria by verbal autopsy interview, May 2017, [url](#), p. 15

<sup>579</sup> WHO, Malaria, April 2021, [url](#); site updated since accessed, old data to be found in the archive of WHO website.

<sup>580</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>581</sup> Nwaneli, E.I. et al., Malaria prevalence and its sociodemographic determinants in febrile children - a hospital-based study in a developing community in South-East Nigeria, June 2020, [url](#), p. 176

<sup>582</sup> Oboro, I.L. et al., Prevalence of Malaria among Children under Five Years in the Niger Delta Region of Nigeria, May 2021, [url](#), p. 13

<sup>583</sup> IHME, Global Health Data Exchange, GBD Results Tool, n.d., [url](#)

<sup>584</sup> Olorukooba, A.A. et al., Prevalence and factors associated with neonatal sepsis in a tertiary hospital, North West Nigeria, May 2020, [url](#), pp. 60-61

<sup>585</sup> IVAC and Johns Hopkins Bloomberg School of Public Health, Pneumonia and diarrhea progress report 2020, n.d., [url](#), p. 3





of childhood pneumonia ranges from 13.3 % to 23.9 %.<sup>586</sup> The most common causes are *Streptococcus pneumoniae* and *Haemophilus influenzae type b* (Hib), both of which are preventable by pneumococcal conjugate vaccines (PCVs) and Hib vaccines, respectively.<sup>587</sup> According to the 2018 NDHS, it is estimated that about 69 % of children aged 12-23 months had not yet received all basic vaccinations at the time of the survey, while 21 % had received all age-appropriate vaccinations.<sup>588</sup>

Nigeria has the highest burden of birth asphyxia when compared to its sub-Saharan neighbours.<sup>589</sup> According to the United Nations (UN) Inter-agency Group for Child Mortality Estimation reports, Nigeria was among the two countries that contributed one-third of global under-five deaths between 2018 and 2019, and within the same period accounted for 267 000 neonatal deaths, while intrapartum complications (asphyxia or lack of breathing after death) accounted for more than 1/5 of the under-five deaths globally.<sup>590</sup> In Nigeria, studies have reported a prevalence of birth asphyxia ranging from 3.2 % to 24.9 % across the north and southern regions.<sup>591</sup> In addition, asphyxia contributes between 18.2 % and 30.1 % of total newborn admissions in the country.<sup>592</sup>

### 13.1.2 Strategy and policies for paediatrics

There is no overarching national strategy for the management of paediatric diseases (sepsis, pneumonia, diarrhoeal diseases) except for malaria, which has a dedicated in-country strategy document to inform malaria-specific programmes and interventions.<sup>593</sup> The National Strategic Health Development Plan II (NSHDP II) (2018-2022) incorporated the management of sepsis, pneumonia, malaria and diarrhoeal diseases within the packages of newborn and child healthcare services to be provided at PHCCs with provision for referral to secondary and tertiary health centres.<sup>594</sup>

Given the high burden of malaria in Nigeria, the overall country goal, as articulated within the 2016 National Health Policy, is to reduce the malaria burden to pre-elimination levels and bring malaria-related mortality to 0 by 2030.<sup>595</sup> To monitor progress, relevant malaria

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<sup>586</sup> Abdulkarim, A.A. et al, Childhood pneumonia at the University of Ilorin Teaching Hospital, Ilorin Nigeria, July 2013, [url](#), p. 285; Kuti, B.P. and Oyelami, A.O., Childhood community-acquired pneumonia at the Wesley Guild hospital, Ilesa: Prevalence, pattern, and outcome determinants, 2015, [url](#), pp. 99-100

<sup>587</sup> WHO, Pneumonia, November 2021, [url](#)

<sup>588</sup> Nigeria, National Population Commission (NPC) [Nigeria] and ICF. 2019. Nigeria Demographic and Health Survey 2018, October 2019, [url](#), pp. 224-225

<sup>589</sup> Usman, F. et al., Newborn Mortality in Sub-Saharan Africa: Why is Perinatal Asphyxia Still a Major Cause? August 2019, [url](#), pp. 1, 3

<sup>590</sup> UNICEF, Levels and Trends in Child Mortality: Report 2019, 2019, [url](#), pp. 12, 16, 19, 41

<sup>591</sup> Ilah, B.G. et al., Prevalence and Risk Factors for Perinatal Asphyxia as Seen at a Specialist Hospital in Gusau, Nigeria, May 2015, [url](#), pp. 65-66; Mcgil Ugwu, G.I. et al., Incidence of birth asphyxia as seen in central hospital and GN children's clinic both in Warri Niger Delta of Nigeria: an eight year retrospective review, August 2012, [url](#), p. 141; West, B.A. and Opara, P.I., Perinatal asphyxia in a specialist hospital in Port Harcourt, Nigeria, June 2013, [url](#), pp. 206-207

<sup>592</sup> Mukhtar-Yola, M. and Iliyasu, Z., A review of neonatal morbidity and mortality in Aminu Kano Teaching Hospital, northern Nigeria, July 2007, [url](#), p. 131; Okposio, M.M. and Ighosewe, O.I., Morbidity and mortality pattern among neonates admitted to the general paediatric ward of a secondary health care centre in the Niger delta region of Nigeria, June 2016, [url](#), p. 85; Ilah, B.G. et al., Prevalence and Risk Factors for Perinatal Asphyxia as Seen at a Specialist Hospital in Gusau, Nigeria, May 2015, [url](#), p. 65

<sup>593</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>594</sup> Nigeria, FMOH, Second National Strategic Health Development Plan (NSHDP II) 2018-2022, [url](#), p. 60

<sup>595</sup> Nigeria, FMOH, National Health Policy 2016: Promoting the Health of Nigerians to Accelerate Socio-economic Development, 2016, [url](#), pp. 10, 29



indicators were included as key parameters for tracking implementation status of NSHDP II.<sup>596</sup> However, no mid-term evaluation studies were found on the status of implementation. In addition, to engender more focused efforts at malaria elimination, the Federal Ministry of Health (FMOH) articulated the National Malaria Strategic Plan (NMSP) 2014-2020, which highlighted 7 key objectives, including scaling up of preventive measures (more than 80 % of target population by 2020), testing of all suspected cases, treatment of all confirmed cases, nationwide sensitisation, ensuring availability of antimalarial medicines and routine health facility malaria reporting, as well as better governance and coordination mechanisms for effective national malaria programming.<sup>597</sup> An evaluation of the National Malaria Elimination Program (NMEP) in Nigeria, between 2008 and early 2016 to assess the progress of malaria interventions and outcomes in states supported by the United States Agency for International Development (USAID) President's Malaria Initiative (PMI) – Cross River, Ebonyi, Nassarawa, and Sokoto – showed there was greater availability of malaria commodities, trained health workers in malaria case management and malaria in pregnancy, and other necessary inputs in PHCCs supported by PMI as compared to those that did not receive direct PMI support.<sup>598</sup> This implies that partner support helped to enhance government-led interventions.

### 13.1.3 Healthcare provisions for paediatrics

Services available for paediatric illnesses from primary healthcare (PHC) facilities include consultations with non-specialist medical staff, access to basic medications, such as zinc oxide and Vitamin A for managing diarrhoeal diseases, and delivery of laboratory services, such as rapid diagnostic tests for detecting malaria.<sup>599</sup> In addition, healthcare workers (HCWs), including pharmacists, laboratory scientists, nurses, community health officers and community health extension workers, all play varying roles in diagnosing, treating and follow-up of paediatric conditions within PHCCs, based on their level of training and designated roles. The HCWs refer cases to secondary and tertiary centres, in the absence of such services in their facility or when complications arise.<sup>600</sup> For specialist consultations, patients can access paediatric clinics in the teaching hospitals provided below:<sup>601</sup>

| S. No. | Geopolitical zone | Facility name                                          | Facility type |         |
|--------|-------------------|--------------------------------------------------------|---------------|---------|
|        |                   |                                                        | Public        | Private |
| 1      | Southeast         | Abia State University Teaching Hospital, Aba           | X             |         |
| 2      |                   | Nnamdi Azikiwe University Teaching Hospital, Nnewi     | X             |         |
| 3      |                   | Ebonyi State University Teaching Hospital, Abakiliki   | X             |         |
| 4      |                   | University of Nigeria Teaching Hospital, Enugu         | X             |         |
| 5      |                   | Imo State University Teaching Hospital, Orlu           | X             |         |
| 6      |                   | Anambra State University Teaching Hospital, Amaku Awka | X             |         |
| 7      |                   | Madonna University Teaching Hospital, Okija            |               | X       |
| 8      |                   | Federal University Teaching Hospital, Abakiliki        |               | X       |
| 9      | South-south       | University of Uyo Teaching Hospital, Uyo               | X             |         |
| 10     |                   | University of Calabar Teaching Hospital, Calabar       | X             |         |
| 11     |                   | University of Benin Teaching Hospital, Benin City      | X             |         |

<sup>596</sup> Nigeria, FMOH, Monitoring And Evaluation Plan for the Second National Strategic Health Development Plan 2018-2022: Ensuring healthy lives and promoting the wellbeing of Nigerian populace at all ages, 2018, [url](#), pp. 7-8

<sup>597</sup> Nigeria, FMOH, National Malaria Strategic Plan 2014-2020, 2014, [url](#), pp. 33-34

<sup>598</sup> MEASURE Evaluation, National Malaria Elimination Programme (NMEP), and the President's Malaria Initiative (PMI/Nigeria), Assessment of malaria interventions in four Nigerian States: Final report, August 2017, [url](#), p. 3-4, 99

<sup>599</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>600</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>601</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021



| S. No. | Geopolitical zone | Facility name                                                      | Facility type |         |
|--------|-------------------|--------------------------------------------------------------------|---------------|---------|
|        |                   |                                                                    | Public        | Private |
| 12     | Southwest         | Delta State University Teaching Hospital, Oghara                   | X             |         |
| 13     |                   | Niger Delta University Teaching Hospital, Okolobiri                | X             |         |
| 14     |                   | Igbinedion University Teaching Hospital, Okada                     |               | X       |
| 15     |                   | Lagos University Teaching Hospital, Idi-Araba                      | X             |         |
| 16     |                   | Olabisi Onabanjo (Ogun state) University Teaching Hospital, Sagamu | X             |         |
| 17     |                   | LAUTECH University Teaching Hospital, Osogbo/Ogbomosho             | X             |         |
| 18     |                   | Obafemi Awolowo University Teaching Hospital Complex, Ile-ife      | X             |         |
| 19     |                   | University College Hospital, Ibadan                                | X             |         |
| 20     |                   | Babcock University Teaching Hospital, Ilishan                      |               | X       |
| 21     |                   | University Teaching Hospital, Ado-ekiti                            | X             |         |
| 22     |                   | Lagos State University Teaching Hospital, Ikeja                    | X             |         |
| 23     |                   | Federal Teaching Hospital Ido-Ekiti                                | X             |         |
| 24     | North central     | University of Ilorin Teaching Hospital, Ilorin                     | X             |         |
| 25     |                   | Jos University Teaching Hospital, Jos                              | X             |         |
| 26     |                   | University of Abuja Teaching Hospital, Gwagwalada                  | X             |         |
| 27     |                   | Benue State University Teaching Hospital, Makurdi                  | X             |         |
| 28     | Northeast         | Bingham University Teaching Hospital, Jos                          |               | X       |
| 29     |                   | University of Maiduguri Teaching Hospital, Maiduguri               | X             |         |
| 30     |                   | Abubakar Tafawa Belewa University Teaching Hospital, Bauchi        | X             |         |
| 31     | Northwest         | Federal University Teaching Hospital, Gombe                        | X             |         |
| 32     |                   | Aminu Kano Teaching Hospital, Kano                                 | X             |         |
| 33     |                   | Ahmadu Bello University Teaching Hospital, Zaria                   | X             |         |
| 34     |                   | Usmanu Danfodio University Teaching Hospital, Sokoto               | X             |         |

Table 47: Regional distribution of tertiary facilities with specialised services for paediatric care in Nigeria

## 13.2 Access to treatment

A 2012 study that examined child healthcare demand in Nigeria found that the key drivers to accessing care amongst the paediatric population include the household head educational level and the household size. Changes in child's daily activities can also have an impact.<sup>602</sup>

## 13.3 Insurance and national programmes

The NHIS was launched in 2005 and provides health insurance coverage for Nigerians through three major programmes (see table 48).<sup>603</sup> Treatment of common uncomplicated childhood illnesses is provided for within the NHIS Basic Minimum Package of Health Services (BMPHS).<sup>604</sup>

<sup>602</sup> Olaniyan, O. and Sunkanmi, O.A., Demand for Child Healthcare in Nigeria, September 2012, [url](#), p. 129

<sup>603</sup> Nigeria, NHIS, Membership Handbook: A guide for enrolees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5

<sup>604</sup> Nigeria, NHIS, Operational Guidelines; October 2012, [url](#), p. 19



| Programme                                                | Focus                                                                                                                                                                                                                         | Requirements                                                                                                                                                                                                                                                                              | Scope of coverage                                                                                           | Paediatric services covered                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Formal sector social health insurance programme (FSSHIP) | For individuals employed within the public/organised private sector or willing to make voluntary individual/family/group contributions                                                                                        | 1. Public/federal tier - Government pays 3.25 % and employee pays 1.75 % of employee's basic salary<br>2. Armed forces - Government pays entire 5 % of employee's basic salary<br>3. Private/other government tiers - Employer pays 10 % and employee pays 5 % of employee's basic salary | Cover healthcare benefits for the employee, a spouse and four biological children below the age of 18 years | 1. Outpatient/preventive care (consultations, screening, and treatment)<br>2. Admission for up to three weeks for co-morbidities<br>3. Consultation with specialists (paediatricians/internists)<br>4. Prescribed drugs, pharmaceutical care, and diagnostic tests as contained in the NHIS Drugs List and NHIS Diagnostic Test Lists |
| Informal sector social health insurance programme        | For individuals in the informal sector. It covers employees of companies employing 10 or less people, artisans, voluntary participants, rural dwellers and others not covered under the formal sector or the vulnerable group | Community-based health insurance scheme - Actuarially determined flat rate fee per household/individual household member or member of an occupation-based group and paid in cash monthly or seasonally in advance                                                                         | For the registered individual alone                                                                         | As in the public sector                                                                                                                                                                                                                                                                                                               |
| Vulnerable group                                         | For indigents and the vulnerable (children under five, physically challenged people, prison inmates, pregnant women, orphans and internally displaced people)                                                                 | Register with a PHCC under the Basic Health Care Provision Fund Programme                                                                                                                                                                                                                 | For the registered individual alone                                                                         | As in the public sector                                                                                                                                                                                                                                                                                                               |

Table 48: Health insurance programmes in Nigeria<sup>605</sup>

The NHIS benefit package totally excludes treatment of congenital abnormalities requiring advanced surgical procedures, such as tetralogy of Fallot, atrial septal defect and ventricular septal defect.<sup>606</sup>

## 13.4 Cost of medication

The drugs listed in the table below are all contained within the seventh edition of Nigeria's Essential Medicines List – a list that is frequently reviewed by the National Drug Formulary and Essential Medicines List Review Committee established by Decree Number 48 of 1989.<sup>607</sup> In addition, the National Agency for Food and Drug Administration (NAFDAC) maintains a database for registered medications.<sup>608</sup>

<sup>605</sup> Nigeria, NHIS, Membership Handbook: A guide for enrollees on the operations of the NHIS Formal Sector Programmes, October 2020, [url](#), p. 5; Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 16-23, 35-36, 42-44

<sup>606</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 25

<sup>607</sup> Nigeria, FMOH, Nigeria Essential Medicines List, 2020, [url](#)

<sup>608</sup> Nigeria, NAFDAC, NAFDAC Green book: Registered Product Database Search, [url](#)



Childhood vaccinations for under-fives are provided for free in public facilities but may be paid for in private ones.<sup>609</sup>

The price of medications was collected from pharmacies within five health facilities – two private hospitals and three government-owned hospitals.<sup>610</sup> Medicines that are only available in the informal market have been excluded. See more details of medication cost in the methodology section of the Introduction.

| Generic name                                            | Brand name                | Dosage      | Form    | Number of units in the container | Price per box (USD) |
|---------------------------------------------------------|---------------------------|-------------|---------|----------------------------------|---------------------|
| <b>Antibiotics</b>                                      |                           |             |         |                                  |                     |
| Amoxicillin                                             | Amoxil®                   | 250 mg/5 ml | Syrup   | 1                                | 8.5 (8.3-8.7)       |
| Cefuroxime                                              | Zinnat®                   | 125 mg/5 ml | Powder  | 1                                | 10.2 (9.9-10.5)     |
| Levofloxacin                                            | Tavanic Acid®             | 500 mg      | Vial    | 1                                | 19.5 (18.9-20.1)    |
| Amoxicillin + Clavulanic acid (combination)             | Flixonase®                | 60 doses    | Aerosol | 1                                | 8.5 (8.0-9.0)       |
| Trimethoprim and sulfamethoxazole (Cotrimoxazole)       | Atrovent®                 | 250 mcg/ml  | Vial    | 20                               | 51.2 (50.9-51.5)    |
| Metronidazole                                           | Emgyl®                    | 100 mg/5 ml | Syrup   | 1                                | 3.2 (3.0-3.4)       |
| Clindamycin                                             | Dalacin C®                | 150 mg      | Capsule | 100                              | 48.8 (47.8-49.8)    |
| Azithromycin                                            | Zithromax®                | 200 mg/5 ml | Powder  | 1                                | 10.2 (9.8-10.6)     |
| Clarithromycin                                          | Klatrix®                  | 500 mg      | Tablet  | 14                               | 13.7 (12.9-14.5)    |
| <b>Vaccinations</b>                                     |                           |             |         |                                  |                     |
| Diphtheria, tetanus, pertussis (acellular), Hib vaccine | Tetraxim®                 | 0.5 ml      | Vial    | 1                                | 20.7 (19.9-21.5)    |
| Poliomyelitis (inactivated) vaccine                     | Inactivated polio vaccine | 0.1 ml      | Vial    | 1                                | 10.9 (9.9-11.9)     |
| Influenza vaccine                                       | Vaxigrip®                 | 0.5 ml      | Vial    | 1                                | 7.3 (6.8-7.8)       |
| Measles vaccine                                         | Priorix, Combination      | 0.5 ml      | Vial    | 1                                | 10.9 (9.5-12.3)     |
| Mumps vaccine                                           | Priorix, Combination      | 0.5 ml      | Vial    | 1                                | 10.9 (10.0-11.3)    |
| Pneumococcal vaccine                                    | Prevener 13®              | 0.5 ml      | Vial    | 1                                | 26.8 (25.9-27.7)    |
| Rubella vaccine                                         | Priorix, Combination®     | 0.5 ml      | Vial    | 1                                | 10.9 (10.5-11.3)    |
| <b>Pain killers</b>                                     |                           |             |         |                                  |                     |
| Diclofenac                                              | Voltaren®                 | 75 mg       | Tablet  | 30                               | 15.2 (14.8-15.6)    |
| Morphine                                                | Morphine®                 | 10 mg/ml    | Ampoule | 10                               | 102.4 (101.0-103.8) |
| Tramadol                                                | Pengesic®                 | 50 mg       | Capsule | 100                              | 48.8 (45.3-52.3)    |

Table 49: Details of medication available in formal market<sup>611</sup>

## 13.5 Cost of treatment

<sup>609</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>610</sup> EUAA2, Medical Doctor and local consultant responsible for supporting in-country data collection of the report, email correspondence, April-May 2021

<sup>611</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)



The NHIS covers for paediatric care, as well as treatment of co-morbidities.<sup>612</sup> The NHIS only covers children – less than 18 years of age – whose parents are currently enrolled and have entered their children's names as dependents.<sup>613</sup> However, this is targeted at a small fraction of the population given that most households use out-of-pocket payments at the point of care.<sup>614</sup>

In private centres, specialist consultation costs more for both inpatient and outpatient care as compared to public facilities. The total costs incurred by patients can be calculated by summing up all relevant services; however, indirect costs, such as bed rates, meals and transportation, were not included. The prices below were obtained from a range of secondary and tertiary facilities situated in the northern and southern zones of the country.<sup>615</sup> Thus, the values indicated in each cell are the average sum of the values collated from the visited facilities.

|                                                                 | Public outpatient treatment price (USD) | Public inpatient treatment price (USD) | Private outpatient treatment price (USD) | Private inpatient treatment price (USD) |
|-----------------------------------------------------------------|-----------------------------------------|----------------------------------------|------------------------------------------|-----------------------------------------|
| <b>Specialist consultations</b>                                 |                                         |                                        |                                          |                                         |
| Consultation by paediatrician                                   | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |
| Consultation by paediatric cardiologist                         | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |
| Consultation by paediatric neurologist                          | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 85.3 (84.8-85.8)                         | 85.3 (84.8-85.8)                        |
| Consultation by paediatric surgeon                              | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 85.3 (84.8-85.8)                         | 85.3 (84.8-85.8)                        |
| Consultation by paediatric psychiatrist                         | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | Not available                            | Not available                           |
| Consultation by paediatric physical therapist                   | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |
| Consultation by paediatric pulmonologist                        | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 60.9 (59.5-62.3)                         | 60.9 (59.5-62.3)                        |
| Consultation by paediatric oncologist                           | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | 85.3 (84.8-85.8)                         | 85.3 (84.8-85.8)                        |
| Consultation by paediatrician specialised in metabolic diseases | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | Not available                            | Not available                           |
| Consultation by speech therapist                                | 2.4 (2.2-2.6)                           | 2.4 (2.2-2.6)                          | Not available                            | Not available                           |

Table 50: Treatment cost by facility type<sup>616</sup>

|                                                                                     | Public treatment price (USD) | Private treatment price (USD) |
|-------------------------------------------------------------------------------------|------------------------------|-------------------------------|
| <b>Laboratory research</b>                                                          |                              |                               |
| Complete blood count, e.g. haemoglobin (Hb), white blood cells (WBCs) and platelets | 8.5 (8.1-8.9)                | 12.8 (11.9-13.7)              |
| Coagulation tests: e.g. prothrombin time (PT)                                       | 4.9 (3.8-6.0)                | 24.4 (23.9-24.9)              |

<sup>612</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), p. 25

<sup>613</sup> Nigeria, NHIS, Operational Guidelines, October 2012, [url](#), pp. 14-16

<sup>614</sup> Nigeria, FMOH, National Health Accounts 2017, April 2019, [url](#), p. 19

<sup>615</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021

<sup>616</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)



|                                                                                                    | Public treatment price (USD)    | Private treatment price (USD) |
|----------------------------------------------------------------------------------------------------|---------------------------------|-------------------------------|
| Serologic testing of blood types (A, B, O, rhesus, +/-)                                            | 4.9 (4.2-5.6)                   | 6.1 (5.9-6.3)                 |
| Measuring blood oxygen/arterial blood gas (Astrup)                                                 | Not available                   | 73.1 (72.8-73.4)              |
| <b>Treatment</b>                                                                                   |                                 |                               |
| Clinical admittance paediatrics                                                                    | 3.7 (3.5-3.9)                   | 93.8 (92.5-95.1)              |
| Clinical admittance of all above mentioned paediatric subspecialists (except for speech therapist) | 3.7 (3.5-3.9)                   | 93.8 (92.5-95.1)              |
| Day care for children with medical conditions                                                      | Not available                   | 93.8 (92.5-95.1)              |
| Feeding/day: nutrition, liquid food high energy, high protein, vitamin and mineral rich            | Not available                   | 12.2 (11.8-12.6)              |
| Feeding: tube feeding/day                                                                          | As part of nursing care charges | 12.8 (12.5-13.1)              |
| Feeding: tube feeding/dietary supplements for children below 18 months                             | As part of nursing care charges | Not applicable                |
| Medical devices pulmonology: spacer (with mask) for inhaler with asthma medication                 | 12.2 (11.8-12.6)                | 36.6 (35.8-37.4)              |
| Phlebotomy/venipuncture/blood collection                                                           | Free                            | 4.9 (4.2-5.6)                 |

Table 51: Cost of laboratory investigations by facility type<sup>617</sup>

## 13.6 NGOs

Of all the paediatric illnesses, malaria has received more support from the partner organisations. For example, USAID through the PMI has provided USD 90 million to control malaria, including continued distribution of insecticide treated nets, over the next five years starting from the year 2021. This support will augment the Nigerian government's efforts at eliminating malaria in eight states.<sup>618</sup>

<sup>617</sup> EUAA1, Medical Doctor and local consultant responsible for in-country data collection of the report, email correspondence, April-May 2021; prices were obtained in NGN but converted to USD using the OANDA's internationally accepted exchange rate of USD 1 = NGN 410.48 which was valid on 21 July 2021. Available from: [url](#)

<sup>618</sup> USAID, U.S. Launches New \$90 Million Malaria Control Effort In Eight Nigerian States, May 2021, [url](#)





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## Annex 2: Terms of Reference

### Topical reports:

- Cardiovascular diseases
- Diabetes mellitus
- Hepatitis
- HIV/AIDS
- Psychiatry
- Neurology (epilepsy, cerebrovascular accident (stroke), multiple sclerosis, Parkinson's disease)
- Nephrology
- Pulmonology (asthma, tuberculosis)
- Haematology (iron deficiency anaemia, sickle cell anaemia, blood clotting disorders)
- Paediatrics

### Detailed content instructions for the topical reports:

#### General information

- Prevalence and incidence of disease/types of this disease (epidemiologic data)
- How is the health care organized for this disease?
  - How is the disease treated – at specific centres, in primary health care centers, secondary care / hospitals, tertiary care etc.?
  - Which kinds of facilities can treat the disease (public, private not for profit (e.g. hospitals run by the church), private for profit sector)?
- How are the resources organized in general to treat patients with this disease? Are there sufficient resources available to treat all patients?
- Is there a particular type of this disease for which no (or only partial) treatment exists in the country?
- Is there a (national) institute specialised in treating this disease?
- Are there any national or international plans or (donor) programmes for certain diseases; if yes could you elaborate on such a programme and what it entails?

#### Access to treatment

- Are there specific treatment programmes for this disease? If so, what are the eligibility criteria to gain access to it and what does it contain?
- Are there specific state (eg insurance or tax) covered programmes for this disease? If so, what are the eligibility criteria to gain access to it?
- Are there any factors limiting the access to healthcare for patients? If so, are they economic, cultural, geographical, etc.? Are there any policies to improve access to healthcare and/or to reduce the cost of treatments and/or medication? What is the number of people having access to treatment?
- Is the treatment geographically accessible in all regions?
- What is the 'typical route' for a patient with this disease (after being diagnosed with the disease)? In other words: for any necessary treatment, where can the patient find help and/or specific information? Where can he receive follow-up treatment? Are there waiting times for treatments? E.g. dialysis, psychiatric hospitals, oncologic treatments, etc.
- What must the patient pay and when?





- Is it the same scenario for a citizen returning to the country after having spent a number of years abroad?
- What financial support can a patient expect from the government, social security or a public or private institution? Is treatment covered by social protection or an additional/communal health insurance? If not, how can the patient gain access to a treatment?
- What must the patient pay and when?
- Is it the same scenario for a citizen returning to the country after staying abroad?
- Any occurrences of discrimination for people with this disease?
- Could you explain if there are any vaccination programmes (for children/adults)? For which vaccinations (e.g. see also table chapter 12)? And how is access to these vaccination programs organized (EPI and COVID19...)?

## Insurance and national programmes

- National coverage (state insurance)
- Programmes funded by international donor programmes, e.g. Global Fund, UNAIDS, Unicef, Gates foundation, Clinton foundation etc
- Include any insurance information that is specific for patients of this disease

## Cost of treatment

Guidance/ methodology on how to complete the tables related to treatments:

- Delete treatments that are not available
- In the table, indicate the price for inpatient and outpatient treatment in public and private facility and if the treatments are covered by any insurance or by the state.
- For inpatient, indicate what is included in the cost (bed/daily rate for admittance, investigations, consultations...).
- Is there a difference with respect to prices between the private and public facilities?
- Are there any geographical disparities?
- Are the official prices adhered to in practice?
- Check that the availability information correlates with the availability information in the MedCOI database. Any contradictions must be verified. Only information in the MedCOI database from the last year should be considered.

## Cost of medication

Guidance/ methodology on how to complete the tables related to medication:

- Delete medication that is not available
- Are the available medicines in general accessible in the whole country or are there limitations?
- Are the medicines registered in the country? If yes, what are the implications of it being registered?
- Indicate in the tables: generic name, brand name, dosage, form, pills per package, official prices, source, insurance coverage:
- Are (some of the) medicines mentioned on any drug lists like national lists, insurance lists, essential drug lists, hospital lists, pharmacy lists etc.?
  - If so, what does such a list mean specifically in relation to coverage?
- Are there other kinds of coverage, e.g. from national donor programmes or other actors?





- Check that the availability information correlates with the availability information in the MedCOI database. Any contradictions must be verified. Only information in the MedCOI database from the last year should be considered.

## NGOs

- Are any NGOs or international organisations active for patients of this disease? What are the conditions to obtain help from these organisations? What help or support can they offer?
- Which services are free of charge and which ones are at a cost? Is access provided to all patients or access is restricted for some (i.e. in case of faith-based institutions or in case of NGOs providing care only to children for instance...).



