Primary Eye Care in Nigeria

A Review of Human Resource for Health Development

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PRIMARY EYE CARE IN NIGERIA: A REVIEW OF HUMAN RESOURCE FOR HEALTH DEVELOPMENT

A Thesis submitted in partial fulfilment of the requirement for the degree of

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by:

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Declaration:

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Signature ……  ……

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DEDICATION

I dedicate this thesis to my father,
late Mr. Daramfon Bassey Nneke
(The wind beneath my wings)

Although you never got to see this
You are on every page.

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LIST OF ABBREVIATIONS

AFRO	Africa Regional Office
ANDO	Association of Nigerian Dispensing Opticians
APOC	African Program for Onchocerciasis Control
BHCPF	Basic Health Care Provision Fund
BMPHS	Basic Minimum Package of Health Services
BScN	Bachelor of Science in Nursing
CBM	Christian Blind Mission
CHEWs	Community health extension workers
CHOs	Community health officers
CHOTP	Community Health Officers' Training Program
CME	Continuous Medical Education
CPD	Continuous Professional Development
CRF	Consolidated Revenue Fund
ECWA	Evangelical Church Winning All
EHOs	Environmental health officers
FBOs	Faith-based Organisations
FCT	Federal Capital Territory
FMOH	Federal Ministry of Health
FSSHIP	Formal Sector Social Health Insurance Policy
GDP	Gross Domestic Product
HIC	High income countries
HLA	Health Leadership Academy
HReH	Human Resource for Eye Health
HRH	Human Resource for Health
HWF	Health Workforce
ICD 11	International Classification of Disease 11
JCHEWs	Junior community health extension workers
LEAPS	Leadership Enhancement and Accountability for the Public Sector
LGA	Local Government Area
LGHA	Local Government Health Authority
LMICs	Lower-and middle- income countries
MOH	Ministry of Health
MSS	Midwives Service Scheme
NCH	National Council on Health
NEHP	National Eye Health Program
NGO	Non-governmental Organisations
NHA	National Health Act
NHIS	National Health Insurance Scheme
NHMIS	National Health Management Information System
NHRHP	National Human Resource for Health Policy

NHRHSP	National Human Resource for Health Strategic Plan
NOA	National Optometric Association
NONA	National Ophthalmic Nurses' Association
NPHCDA	National Primary Health Care Development Agency
NTD	Neglected Tropical Diseases
ODORBN	Optometrists and Dispensing Opticians Registration Board of Nigeria
OOPS	Out-of-pocket spending
OSN	Ophthalmologic Society of Nigeria
PEC	Primary Eye Care
PHC	Primary Health Care
PHCUOR	Primary Health Care Under One Roof
PPED	Personal protective eye device
PPMVs	Patent and proprietary medicine vendors
SAFE	**S**urgery; **A**ntibiotics; **F**acial cleanliness; **E**nvironmental improvement (WHO trachoma control strategy)
SDGs	Sustainable Development Goals
SMOH	State Ministry of Health
SPHCB	State Primary Health Care Board
SURE-P	Subsidy Reinvestment and Empowerment Program
TCF	Tulsi Chanrai Foundation
UEH	Universal Eye Health
UHC	Universal Health Coverage
USD	United States Dollars
VA	Visual Acuity
VDCs	Village Development Committees
VHWs	Voluntary health workers
VI	Visual Impairment
VU	Vrije Universiteit
WASH	Water, Sanitation, and Hygiene
WDCs	Ward Development Committees
WMHCP	Ward Minimum Health Care Package

ABSTRACT

Introduction

Nigeria is far from achieving universal eye health. About 35% of the population uses traditional and alternative medicine for primary eye care, with worsening outcomes. Training and supervision of the primary health care workforce will improve access to basic eye care and referrals. Despite the availability of primary eye care courses in the curriculum for primary health care workers in Nigeria, there are still competency gaps in service delivery. This study examines the various components required for human resource for health capacity development for eye care service delivery in Nigeria's primary health care centres.

Methods

Literature and policy documents related to primary eye care and human resource for health in Nigeria were reviewed and compared with what obtains in Ghana and Rwanda. The World Health Organization Human Resource for Health Action Framework was used for the analysis.

Results

There is a robust policy framework on healthcare in Nigeria. However, despite earmarked funds for human resource for health development in primary health care, there is no evidence of training on leadership and refresher courses, including incentives for professional development. Additionally, government commitment to development partners involved in primary eye care is poor. Eye related policy documents are relatively new (2019-2021) and are yet to be implemented.

Discussion

Eighty per cent of blindness and visual impairment in Nigeria are from preventable causes, and many Nigerians lack access to basic eye care services. Consequently, there is a compelling need to scale up workforce capacity development to provide primary eye care services that are accessible, efficient, and of good quality.

Key Words

Primary Health Care, Primary Eye Care, Health Workforce, Competency, Nigeria.

Word Count

10, 326

INTRODUCTION

Vision is a central component of the socio-economic development of countries. A greater proportion of the global visually impaired live in the lower and middle-income countries, Nigeria inclusive.[1] Nigeria is currently experiencing rapid population growth along with an increase in the ageing population, increasing the risk for visual impairment and eye-blinding conditions, most of which are avoidable and treatable.[1,2]

Primary eye care (PEC) is the frontline approach to universal eye health and eliminating avoidable causes of visual impairment and blindness. The effective delivery of PEC services requires proficiency in basic ophthalmic skills at the primary level of care.[3,4]

I am motivated to carry out this study on Primary eye care in Nigeria, having worked as a medical officer in the eye clinic of a tertiary healthcare facility in Nigeria for two (2) years. The experience I gathered during my interaction with patients in the eye clinic and on eye health outreaches to rural areas is that majority of the visually impaired are uninformed and ignorant about the risk factors of eye conditions and ways of promoting eye health. Most patients usually present to healthcare facilities after trying out traditional medications and harmful practices like couching*, which worsens their eye outcomes and delays access to prompt and proper eye care. Additionally, most Primary health care workers lack basic ophthalmic skills like conducting a visual acuity test and carrying out basic eye examination and are not competent to treat simple eye conditions.

Evidence from this research aims to inform on areas for human resource for health (HRH) development in primary eye care to match competence with presenting eye health challenges, especially in the rural areas of Nigeria.

The thesis is arranged into five (5) chapters. Chapter one gives background information about Nigeria, including the classification of visual impairment and blindness. Chapter two describes the problem and the rationale for the study, the methodology and the conceptual framework for analysis. The third chapter gives a description of the findings (results) from the review, along with evidence as is obtained in countries with similar contexts. Chapter four (4) discusses the results. The analysis and discussion are structured around the World Health Organisation (WHO) Human Resource for Health (HRH) Conceptual Framework. The last chapter (five) presents the concluding points and the recommendations for the government and relevant actors.

* A traditional way of treating cataract by piercing the eyeball with a sharp object

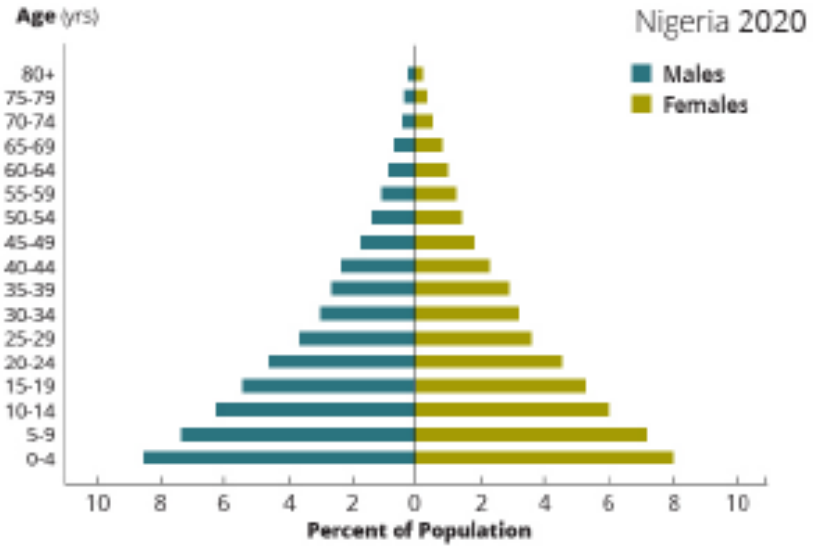
CHAPTER 1

1.0 BACKGROUND INFORMATION OF NIGERIA

1.0.1 Demography

Nigeria is one of the largest and currently the most populous country in the African continent, with a population of 209,994,721, occupying an area of 910,770 Km2.[5,6] The Nigerian population makes up 2.64% of the total world population, and on the list of countries by population, ranks 7th with a population growth rate of 2.6%/year.[6,7] Lying on the west coast of Africa along the Gulf of Guinea, Nigeria is bounded by the Republics of Benin, Cameroon, Niger, and Chad.[8] About half of the Nigerian population are young, with a median age of 18.1 years. The elderly age group (above 65 years) make up 4%, while the 15 to 64 years age group make up 50% of the total population.[5,9] [Fig. 1]

Figure 1. Demographic profile of Nigeria (Nigeria population pyramid, 2020)



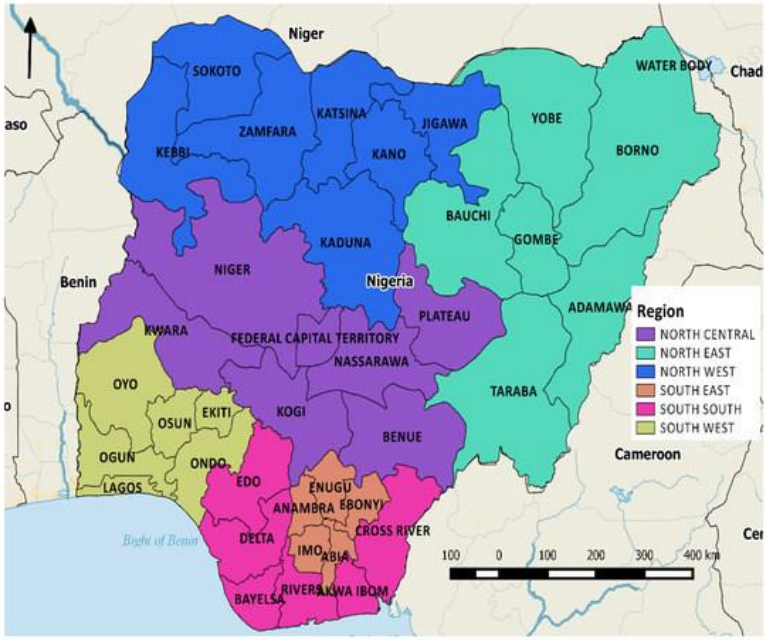
Source: Nigeria. Demographicdividend.org. 2021. Available at: https://demographicdividend.org/country_highlights/nigeria/

According to forecasts, Nigeria will become the third-largest country worldwide by 2050, owing to the growth rate that is the most rapid among the ten (10) largest countries globally.[2] The country's health indices could indirectly affect the global burden of diseases.[6]

1.0.2 Tiers of Government

Nigeria runs a federal system of governance that comprises the Federal Government, the State, and the Local Governments Area (LGA). There are 36 States, including the Federal Capital Territory (FCT) and 774 LGAs in Nigeria. The LGAs are further broken down into 9565 political units (Wards), which function as the focus for Primary Health Care (PHC) activities.[8] There are six (6) geo-political zones in Nigeria, consisting of states with a common historical origin, similar ethnic groups, and cultural beliefs. They include The Northwest, the Northeast, the Northcentral, the Southeast, the Southwest, and the South-South zones.[8] [Fig. 2]

Figure 2. Map of Nigeria showing the 36 States (and FCT) and the geopolitical zones

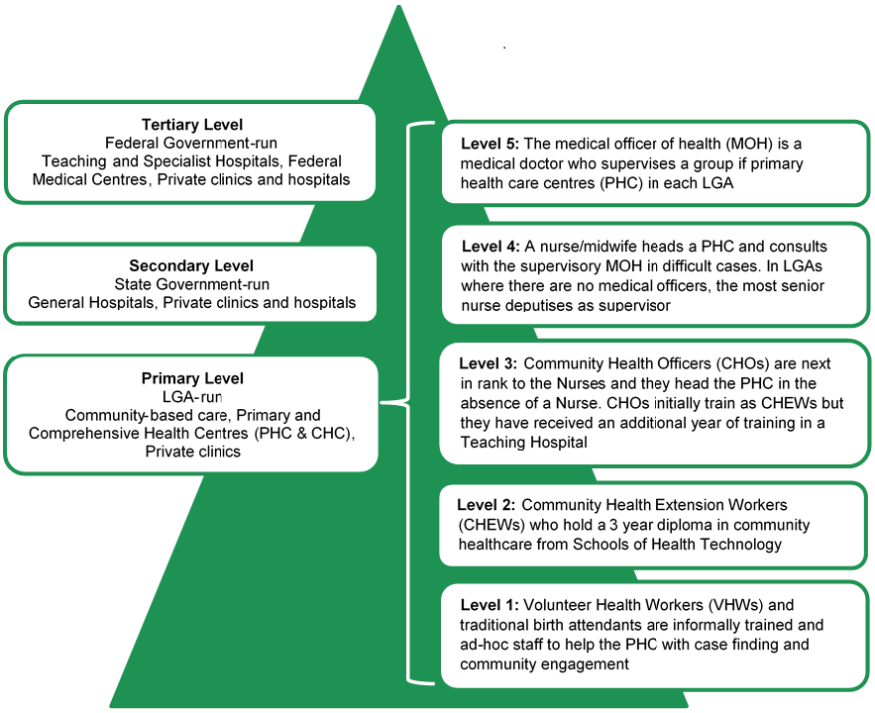


Adapted from: Roberman J et al. Adverse Birth Outcomes Due to Exposure to Household Air Pollution from Unclean Cooking Fuel among Women of Reproductive Age in Nigeria. International Journal of Environmental Research and Public Health. Available from: https://www.mdpi.com/1660-4601/18/2/634/htm

1.0.3 Health System

The health system in Nigeria is pluralist in nature, where health care is provided by public and private sectors as well as by modern and traditional systems.[8] The public health care sector is run by the Nigerian government at three (3) decentralized levels of care; the primary, secondary, and tertiary levels.[10] [Fig. 3]

Figure 3. Nigeria's Health System



Adapted from: Federal Ministry of Health. Second National Strategic Health Development Plan: Ensuring healthy lives a nd promoting the wellbeing of Nigerian populace at all ages Federal Republic of Nigeria. 2018.

The Local Government health departments are responsible for Primary Health Care, providing basic care through the dispensaries, health posts, primary health clinics, primary health care centres and comprehensive health care centres.[11]

Primary health care is the bedrock of Nigeria's health system providing health services to the grassroots through health facilities and home visits.[12,13] The political wards are employed as the basic operational units for PHC service delivery.[14] Primary health care facilities are staffed by Nurses/midwives, Community Health Officers (CHOs), Community Health Extension Workers (CHEWs), Junior CHEWs (JCHEWs), and Environmental Health Officers (EHOs).[11–13] Other cadres of staff in PHCs are medical officers (where available), pharmacy technicians, Health records technicians, and medical laboratory technicians.[15] Volunteer health workers (VHWs)are usually recruited and trained based on need by the government and vertical health program teams and incentivized by capricious standards. Volunteer health workers are mostly engaged in community-based healthcare services.[8]

The National Health Act of 2014 gave legislative backing to a standard package of care to be delivered at the PHC level to improve the quality of access, specifically for women and rural populations. The basic minimum package of services (essential package of health services) is grouped into three modes of service delivery; Family-oriented/community-based health services, population-based services scheduled as health outreaches or facility care, and individual-oriented facility clinical care. The essential package of health services covers reproductive, maternal, new born, child, adolescent health, and Nutrition services with no provision for eye care services.[8,16,17] The essential medicines list for PHC centres includes chloramphenicol and tetracycline eye drops and ointments to treat eye conditions.[15]

Political wards were adopted as catchment areas to implement PHC programmes in 2001 by the National Primary Health Care Development Agency (NPHCDA). The idea was to have a functional PHC centre per political ward to ensure healthcare access to the targeted population (20,000 to 30,000/ward), integrate service delivery with upward referrals, and improve accountability through constituted Ward Development Committees (WDCs) and Village Development Committees (VDCs).[8,15] The National Primary Health Care Development Agency in 2018 proposed a package of basic health services (Ward Minimum Health Care Package [WMHCP]) to provide essential services in one functional PHC centre per ward. The package addresses various health and health-related population needs, including but not limited to communicable and non-communicable diseases, essential medicines and equipment, HRH for PHC centres, etc. However, eye conditions are not part of the package of basic health services.[15]

The National Planning Commission in 2015 documented a total of 30,098 PHC facilities, making up 88% of all health care facilities in Nigeria[18] The table below [Table 1] shows the distribution of health facilities in Nigeria.

Table 1. Distribution of Health Facilities as of 2015

Type of health facility	Public	Private	Total
Primary Health Centres	21,808	8,290	30,098
Secondary Health Facilities	969	3,023	3,992
Tertiary Health Facilities	76	10	86
Total	**22,853**	**11,323**	**34,176**

Adapted from: Second National Strategic Health Development Plan: Ensuring healthy lives and promoting the wellbeing of Nigerian populace at all ages Federal Republic of Nigeria. 2018

The Nigerian private health sector caters for 60% of health services and is fragmented into two; the private-for-profit sector and the not-for-profit providers (faith-based organizations and non-governmental organizations). The Nigerian government also accepts and regulates the broader private sector providers, which include the traditional and alternative medicine practitioners, the patent and proprietary medicine vendors (PPMVs), and the drug shops.[8,11,19]

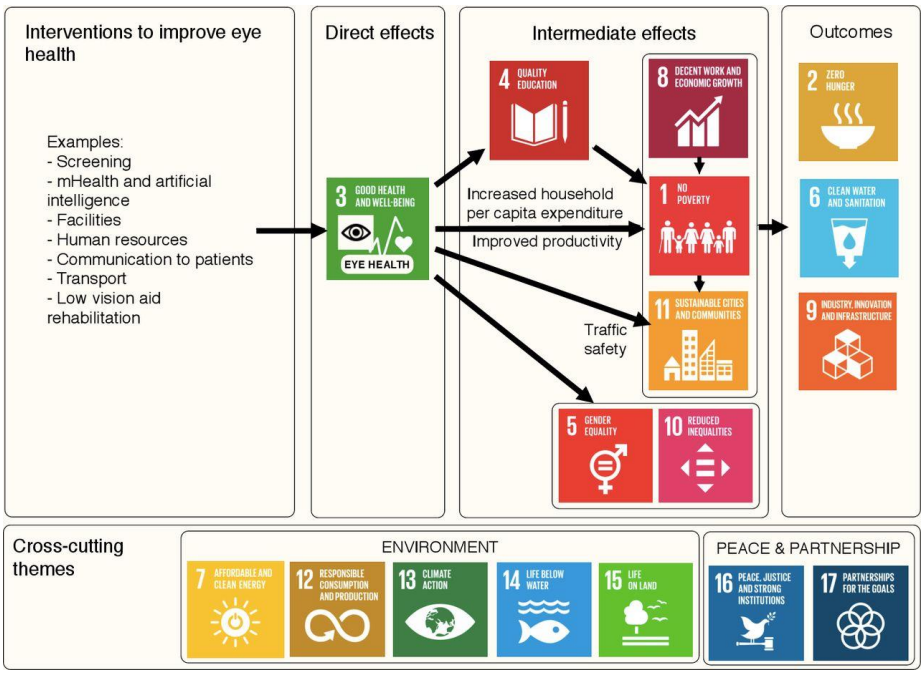
1.0.4 Health workforce

The health workforce refers to all persons engaged in activities with the fundamental purpose of improving population health.[20] Nigeria has an ample supply of health workforce in the Sub-Saharan African region.[8,11] The number of Doctors and Nurses/midwives to 100,000 population is 38.9 and 148, respectively, compared to the Sub-Saharan average of 15/100,000 for doctors and 72/100,000 for Nurses and midwives. However, the density of the workforce for health is still low in proportion to population needs.[8] Furthermore, there is a persistent maldistribution of the available workforce, skewed in favour of the urban areas, the country's southern zones, and higher levels of healthcare (secondary and tertiary).[8] Human resource for eye health (HReH), i.e., eye care specialists, are inadequate in number and mainly concentrated in tertiary health facilities in urban centres.[1] There are about 300 ophthalmologists in Nigeria[21] representing about 3.3/ million population which is below the WHO recommended 4/million population.[22,23] Practicing in Nigeria are also about 7000 registered optometrists and 941 dispensing opticians, including 2000 ophthalmic nurses.[24] There is no national data available for the complementary and alternative medicine practitioners and other informal healthcare providers.[5]

1.1 VISUAL IMPAIRMENT AND BLINDNESS

The Lancet Global Health Commission on Global Health define eye health as 'Maximized vision, ocular health and functional ability, thereby contributing to overall health and wellbeing, social inclusion and quality of life.'[25] The benefits of good eye health are far-reaching as it impacts not only on day-to-day life and functionality of an individual but also the economic growth and sustainable development of any country.[1] Substantial evidence shows a strong link between improved eye health and the achievement of sustainable development goals (SDGs.[25] [Fig. 4]

Figure 4. Logic model outlining examples of pathways by which improved eye health may contribute to the achievement of the sustainable development goals



Adapted from: Zhang J et al. Global eye health and the sustainable development goals: Protocol for a scoping review. Vol. 10, BMJ Open. BMJ Publishing Group; 2020. Available from: https://bmjopen.bmj.com/content/10/3/e035789.full

The International Classification of Diseases (ICD 11) broadly classifies vision impairment into Distant Presenting Vision Impairment and Near Presenting Vision Impairment based on the visual acuity (VA) measurement.[26][Table 2] The experience and progress of visual impairment and blindness depend on the availability and accessibility of cost-effective eye health services.[25,27] Age, genetic predisposition, ethnic differences, lifestyle, environmental exposure, health conditions, infectious agents and medications are the risk factors associated with visual impairment and blindness.[28]

Table 2. ICD-11 Classification of Visual Impairment

Class of Visual Impairment (VI)	WHO Category	In the better eye:	
		Visual Acuity (VA)	Visual Field Constriction
Mild Distant VI	1	<6/12 to 6/18	
Moderate Distant VI	2	<6/18 to 6/60	
Severe Distant VI	3	6/60 to 3/60	
Blindness	4	<3/60	<10°
Blindness	5	NPL*	
Near VI		< N6 (at 40cm)	

* No perception of light

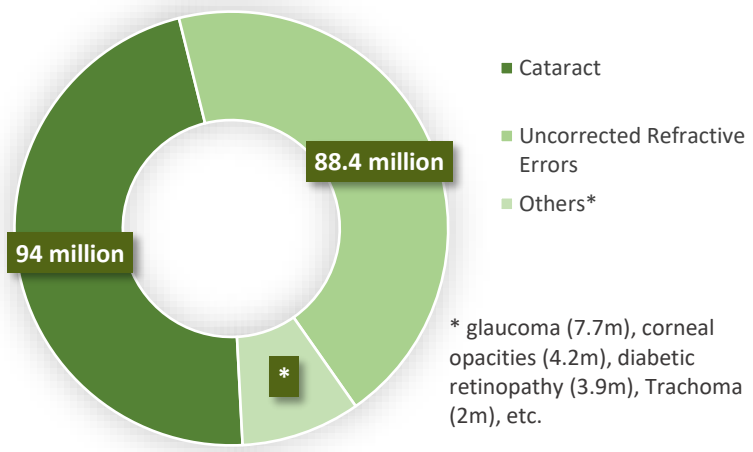
Data extracted from: World Health Organization. 9D90 Vision impairment including blindness. ICD-11 for Mortality and Morbidity Statistics. 2021. Available from: https://icd.who.int/browse11/l-m/en#/http%3A%2F%2Fid.who.int%2Ficd%2Fentity%2F1103667651 and World Health Organization. Blindness and vision impairment. Factsheets. 2021. Available from: https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment

CHAPTER 2

2.0 PROBLEM STATEMENT

Globally, there are about 2.2 billion visually impaired (VI) people, half of these cases suffering from visual impairment that could have been averted or appropriately addressed.[28] The leading causes of VI and blindness are Cataracts (94 million) and uncorrected refractive errors (88.4 million). Other causes include Glaucoma (7.7 million), corneal opacities (4.2 million), Diabetic retinopathy (3.9 million), and Trachoma (2 million). Near vision impairment from unaddressed presbyopia accounts for about 826 million cases.[27] [Fig. 5]

Figure 5. Pie chart of the global leading Causes of visual impairment and blindness



Data source: Blindness and vision impairment. [cited 2021 Mar 9]. Available from: https://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment

The visually impaired are commonly unemployed, prone to motor vehicle collisions, and tend to suffer from an anxiety disorder or depression, falls, and other home accidents.[27,29] The financial weight from visual impairment is also huge. Visual impairment from unaddressed myopia and presbyopia cost an annual global productivity loss of 244 billion USD and 25.4 billion USD, respectively.[28]

Although visual impairment and blindness occur in all age groups, it is commoner in the elderly. Eighty-two per cent (82%) of all blind people are above 50 years of age.[27,30] Childhood blindness is scarcely reported: the prevalence is ten (10) times lower than that of the adult population, but it remains a priority due to the forecasted years to be lived with disability.[30] The causes of childhood blindness vary depending on the region. In high-income settings, optic nerve disorders and cerebral visual impairment are the commonest causes of childhood blindness, while cataract and retinopathy of prematurity are the commonest preventable causes. Common causes of childhood blindness in low-income settings are corneal opacities from nutritional deficiencies and congenital anomalies.[31] There are currently about 1.02 million blind children globally with a prevalence of 48/10,000 children, and the highest burden is in South Asia and Western Sub-Saharan Africa. (45.6%).[25]

A significant proportion of the people with visual impairment live in the lower- and middle-income countries (LMICs) and are commonly seen among the underserved groups.[25,28] Distant visual impairment is four times higher in LMICs than in high-income countries (HICs).[27]

The magnitude of visual impairment and blindness in Nigeria is high (1.3 million blind and 4.25 million visually impaired)[22] and, over 84% of blindness in Nigeria is caused by preventable and treatable causes.[32] About 20 million Nigerian adults suffer from presbyopia, and if not corrected, it will lead to significant productivity losses.[33,34] The largest blindness and visual impairment survey in Nigeria spanned three years (2005-2007). The survey showed an increased prevalence of blindness

with increasing age (5.5% in those above 50 years and 9.3% in those 60 years and older). It also found that prevalence varied according to age (higher in the elderly), gender (higher in females), literacy levels (highest in the illiterate group), and ecological zones (highest in the northeast and lowest in the southwest), with differential access to care (cataract surgery) across the geopolitical zones (better in the southwest and northcentral).[32]

Nigeria records the highest number of persons affected by neglected tropical diseases (NTDs) in Sub-Saharan Africa. Onchocerciasis and trachoma are NTDs with the potential of causing blindness.[35] Onchocerciasis is endemic in Nigeria and accounts for 40% of the burden in Africa, predominantly seen in the Guinea forest savannah (3.6%) and the rainforest regions (1%).[36] Active and blinding trachoma are still endemic in some areas of Northern Nigeria, despite a reduction in the global burden following the World Health Organisation's SAFE strategy implementation.[37,38]

A study in Northern Nigeria reported trachoma as a common cause of childhood blindness (81.2%).[39] Howbeit, the launch of the "open defecation free" campaign complemented by community-led total sanitation and awareness campaigns are efforts by the government to reduce the burden of trachoma in Nigeria.[37]

As observed in most lower and middle-income countries, most eye care services (including primary eye care) are provided at the secondary and tertiary health facilities in urban regions with a high cost of services, constituting inequality in access, especially to the majority of the rural population. Consequently, these disadvantaged populations resort to spiritualists, traditional healers, local drug sellers and couchers as alternatives, most times worsening their visual outcomes.[40,41] About 35% of Nigerians with eye complaints first approach alternative medicine practitioners,[40] and only less than 5% of Nigerians suffering from refractive errors have had access to corrective lenses.[33,34] The private, not-for-profit sector has recorded significant strides in Nigeria, integrating PEC into PHC in Sokoto, Zamfara, Kaduna, and Kwara states. Non-governmental Organisations (NGOs) and Faith-based organisations (FBOs) involved in PEC in Nigeria include Tulsi Chanrai Foundation (TCF), Evangelical Church of West Africa (ECWA), Christian Blind Mission (CBM), and Sight savers. Despite training many PHC workers (Ophthalmic nurses, CHEWs) on PEC, sustainability remains a key issue due to poor support from the government for follow-up, supervision and monitoring, and refresher courses.[22,42]

To improve access to eye care in LMIC settings, the World Health Organization has advocated for integrating basic eye care services into primary health care services.[41,43] Primary eye care (PEC) is an important component of primary health care with activities geared towards promoting eye health, treatment, and prevention of blinding eye conditions.[22] Developing primary eye care not only entails the provision of adequate consumables at primary health centres, but it also greatly relies on the availability of well-trained health care workers who can raise awareness on risk factors of ocular diseases, identify eye conditions, offer treatment where possible, and promptly refer ocular emergencies.[44–46] The World Health Organization AFRO region recently commissioned a primary eye care package to incorporate PEC into the health system at the primary level of care.[47,48] which Nigeria has adopted for implementation.[1]

2.1 JUSTIFICATION OF STUDY

Between 1995 and 2020, the number of persons with blindness and visual impairment increased by 50.2% and 91.6%, respectively, on a global scale. There are projections that about 895.5 million people globally will be either blind or visually impaired by 2050, necessitating an increased demand for eye healthcare if progress will be made to eliminate blindness and visual impairment.[49–51] As Nigeria is predicted to become the third largest population by 2050,[2] I make a fair guess that Nigeria will add significantly to the global burden of blindness and visual impairment. The WHO World Report on Vision emphasizes strengthening the health workforce for primary eye care as one of the enablers of global efforts to reduce the prevalence of blindness and visual impairment.[28]

Several studies have investigated the level of capacity development among PHC workers for primary eye care service delivery in Nigeria. Reports reveal that most PHC workers are not competent in PEC practice, although eye care is a component of the pre-service training curriculum. In-service training was mainly focused on reproductive, maternal and child health, and HIV services.[4,52–56] However, no studies are probing the integrated aspects of human resource for health development at the primary health care level concerning primary eye care.

This study explores the existing competency gaps in primary eye care service delivery at the PHC level employing a comprehensive approach. It is hoped that the study will provide information for the government and relevant stakeholders on areas where the primary healthcare workforce could be strengthened to provide eye care services in line with global standards for universal eye health, taking advantage of the existing PHC reforms in Nigeria.

2.2 OBJECTIVE OF STUDY

2.2.1 General objective

To examine the various components of HRH capacity development required for effective and sustainable Primary eye care service delivery at the PHC level in Nigeria, to enable the author make evidence -based contributions to the government and relevant development partners.

2.2.2 Specific Objectives

1. To identify the various health policy documents available in the Federal Ministry of Health (FMOH) and the National Primary Healthcare Development Agency (NPHCDA) to review the policies and strategies related to Primary eye care for Primary Health Care centres in Nigeria.
2. To identify the pre-service training curriculum available for Primary Health Care workers in Nigeria to review the content and time investment for the Primary eye care-centred training modules.
3. To research on the Primary Eye Care continuous professional development (CPDs) and continuous medical education (CMEs) available for Primary Health Care workers in Nigeria to review the target groups trained, the frequency of trainings, and content of training materials.
4. To investigate the contributions of the private health sector to HR development for Primary Eye Care service delivery in Nigeria.
5. To make informed recommendations to government and relevant stakeholders on areas for Health workforce development for effective and sustainable Primary eye care service delivery.

2.3 METHODOLOGY

The research objective was achieved by conducting a literature and document review.

2.3.1 Literature Review

A desk review of scholarly articles was done from peer-reviewed journals retrieved from Google, MEDLINE, Science Direct, and PubMed databases through the Vrije Universiteit (VU) library. The snowballing technique was used to retrieve other relevant articles (with primary sources given priority) in the reference list of each article. Related information and grey literature (published and unpublished) were also retrieved from the websites of the United Nations, World Health Organisation (WHO), the Federal Ministry of Health Nigeria (FMOH), and the National Primary Health Care Development Agency of Nigeria (NPHCDA), and the National Health Insurance Scheme (NHIS). Additionally, non-peer-reviewed articles were retrieved from the Google search engine to further enrich the data and to obtain more information on relevant subject areas.

Only articles published in the English language and between 2001 to 2021 were included. The largest blindness and visual impairment survey spanning three years was carried out in Nigeria between 2005 and 2007. As such, it was deemed appropriate to review articles published before and after the survey to study the trend of eye health outcomes. Articles with only abstracts available were excluded as incomplete information poses a limitation. Keywords used in combination include "Skills", "Competencies", Knowledge", "training", "integration", "Primary eye care", "Eye care", "Primary health care workers", "Primary health care", "Nigeria", "Sub-Saharan Africa". The search strategy and keywords used in combination are represented in Table I in the Annex.

2.3.2 Document Review

Policy and strategy documents of the National Primary Health Care Development Agency (NPHCDA) and the Federal Ministry of Health (FMOH) were reviewed. Additionally, a review of training materials and curricula for primary health care workers was done. Relevant literature and documents from neighbouring countries were also reviewed for purposes of comparison.

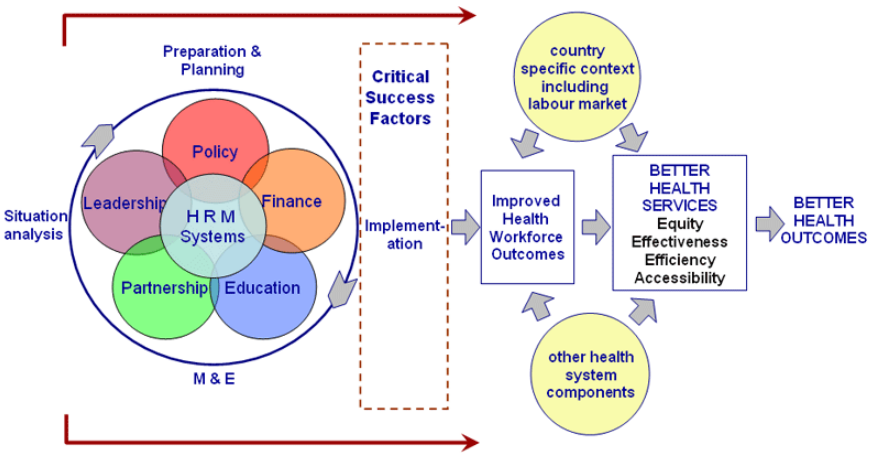
2.3.3 Conceptual Framework

As adapted from the WHO Department of Human Resources for Health, the Human Resource for Health Action Framework was best suited for the analysis of the human resource for health at the primary health care level. [Fig. 6] [Table 3] This framework is an approach to planning, managing, and developing Human Resources for Health to ensure an effective and sustainable workforce to deliver efficient, equitable, and qualitative health services to improve health outcomes.[57]

All the action fields (Leadership, Policy, Finance, Education, Partnerships, and Human Resources Management) were explored regarding primary eye care. This approach gave an in-depth and comprehensive analysis of the concept under study, better informing HRH challenges which are usually multidimensional, interconnected and multisectoral.

The four Action phases (Situational Analysis, Planning, Implementation, and Monitoring and Evaluation) are not the primary focus of the research. They are required to develop and implement a comprehensive Human resource for health plan. However, implementation regarding policies bordering on Human Resource Development for Primary eye care was adjudged as critical areas to review. Nigeria already has an HRH strategic plan document. The framework will serve as a checklist for review to ensure that the essential components of the strategic plan and other related documents have been addressed.

Figure 6. HRH action framework



Adapted from: World Health Organization. Tools and guidelines for human resources for health. WHO 2014. Available from: https://www.who.int/hrh/tools/en/

Table 3. Elaborated HRH action framework

Action field	Definition	Areas of intervention
Policy	Legislation, regulation,and guidelines for conditions of employment, work standards, and development of thehealth workforce	• Professional standards, licensing, and accreditation • Eye care policy materials (availability) • Authorized scope of practice for eye care for all cadres
Education	Production and maintenance of a skilled workforce	• Pre-service training for primary eye care • Primary eye care in-service trainings/ Continuous medical education (CME) • Trainings for non-formal care providers
Finance	Obtaining, allocating, and distributing adequate funding	• Budgetary allocation for primary eye care infrastructure, service delivery and trainings
Partnerships	Formal and informal linkages aligning key stakeholders	• Public-private sector agreements for primary eye care • Mechanisms in place to mobilise support for primary eye care services and coordinate donors, community, and other stakeholders
Leadership	Capacity to provide direction, align people, mobilise resources, and achieve results	• Capacity for leadership/ management for eye care • Eye care departments in government • Capacity for multi-sector and sector-wide collaboration
Human resource management systems	Integrated use of data, policy, and practice to plan for necessary staff,recruit, hire, deploy, develop, and support health work force	• Availability of human resource management systems and units • Human resource management for eye care (human resource information system integration of data sources to ensure timely availability of accurate data required for planning, training, appraising, and supporting the health work force)

Adapted from: World Health Organisation. HRH Action Framework. Available from:
https://www.who.int/tb/health_systems/human_resources/hrhactionframework.pdf

2.3.4 Limitations of the methodology

The sole use of publications only written in the English language could introduce an information bias. It was only possible to access government and donor reports that were online and publicly available. However, to widen the search and not leave out important literature and information, a variety of search engines were used, and a thorough examination of the methodologies of the literature found was done.

CHAPTER 3

3.0 RESULTS

This chapter will provide insight into the findings from the literature review and relevant policy, strategic and other documents using the Elaborated Human Resource for Health Action Framework [Table 3], including evidence from neighbouring countries in Sub-Saharan Africa.

3.1 FINANCE

The Nigerian public health sector is devolved and fragmented, leaving the federal government with limited capacity to influence the state and local government areas that possess considerable political autonomy.[58] Government funding for healthcare in Nigeria is abysmal. Only a minute portion of the general revenue is allocated for health (4% of the GDP as of 2019) and has consistently fallen below the 15% 2001 Abuja declaration target over the years.[59]

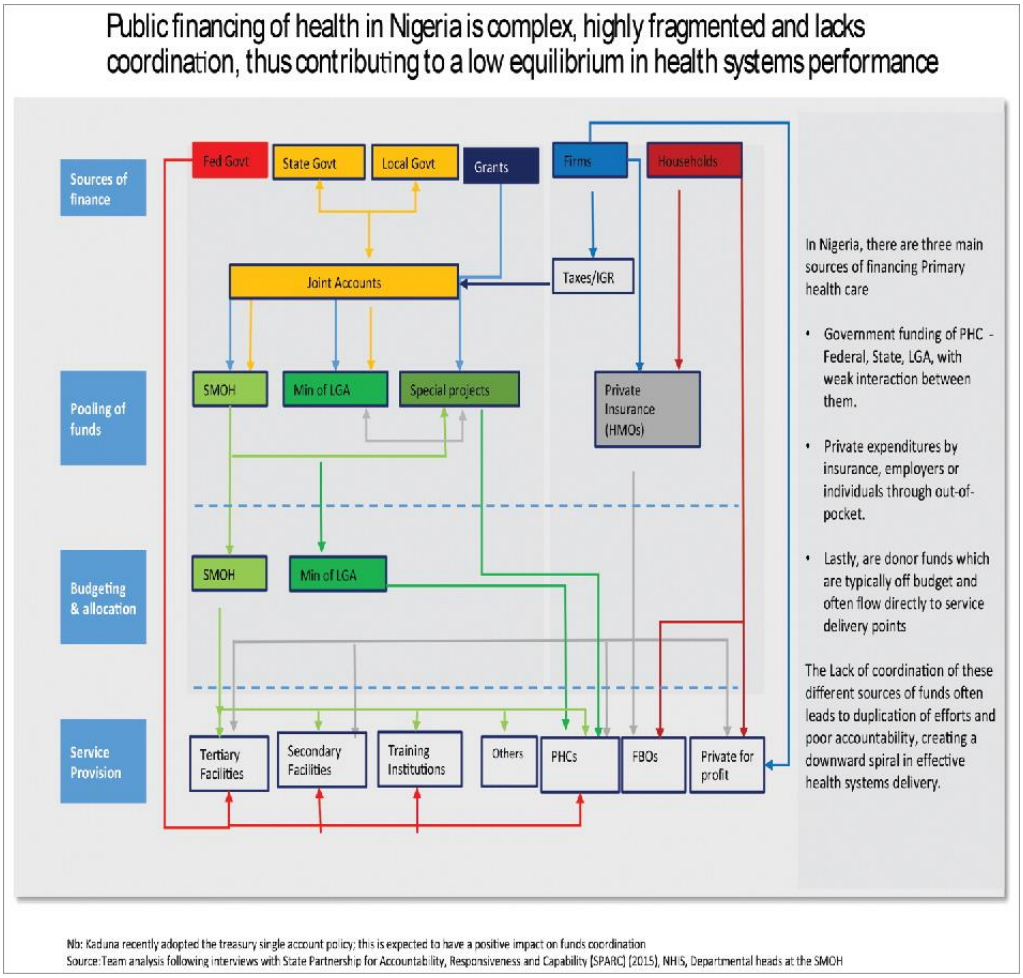
Table 4. Analysis of Nigeria's health budget between 2014 to 2021

Year	Total National Budget (NGN Billion)	Total Health Budget (Federal Government) (NGN Billion)	% Health Budget	15% of Total Budget (NGN Billion)	Gaps (Amount Needed to Meet Abuja Declaration of 2001 (15% Of Budget Size) (NGN Billion)
2014	4695.19	339.38	7.23	704.28	364.90
2015	5067.90	347.26	6.85	760.19	412.93
2016	6060.48	353.54	5.83	909.07	555.53
2017	7441.18	380.16	5.11	1116.18	736.02
2018	9120.33	528.14	5.79	1368.05	839.91
2019	8830.00	372.70	4.22	1324.50	951.80
2020	10594.36	463.80	4.38	1589.15	1125.35
					NGN 4.99 trillion

Adebisi YA, Umah JO, Olaoye OC, Alaran AJ, Sina-Odunsi AB, III DEL-P. Assessment of Health Budgetary Allocation and Expenditure Toward Achieving Universal Health Coverage in Nigeria. Int J Heal Life Sci. 2020 Aug;6(2):e102552–e102552. Available from: https://sites.kowsarpub.com/ijhls/articles/102552.html

The bulk of the national spending on health is on the tertiary and secondary levels of care. In contrast, the PHC, which is the mainstay of the Nigerian health system, receives the least attention, despite being emphasized as the surest route to achieving Universal Health Coverage and Sustainable Development Goals.[60] Further worsening the situation is the disproportionate disbursement of funds with greater than 80% going for recurrent expenditure at the expense of the basic benefit package of health services, including regional allocative inequalities.[61,62] Multiple stakeholders are involved in disbursing funds for PHC services, making PHC funding flows fragmented, disorganized, and largely dependent on the political will of the state and local governments.[63,64]

Figure 7. Public financing of health in Nigeria



Source: Tilley-Gyado R, Filani O, Morhason-Bello I, Adewole IF. Strengthening the Primary Care Delivery System: A Catalytic Investment Toward Achieving Universal Health Coverage in Nigeria. Heal Syst Reform [Internet]. 2016 Sep 26 [cited 2021 Jul 15];2(4):284. Available from: https://www.tandfonline.com/doi/abs/10.1080/23288604.2016.1234427

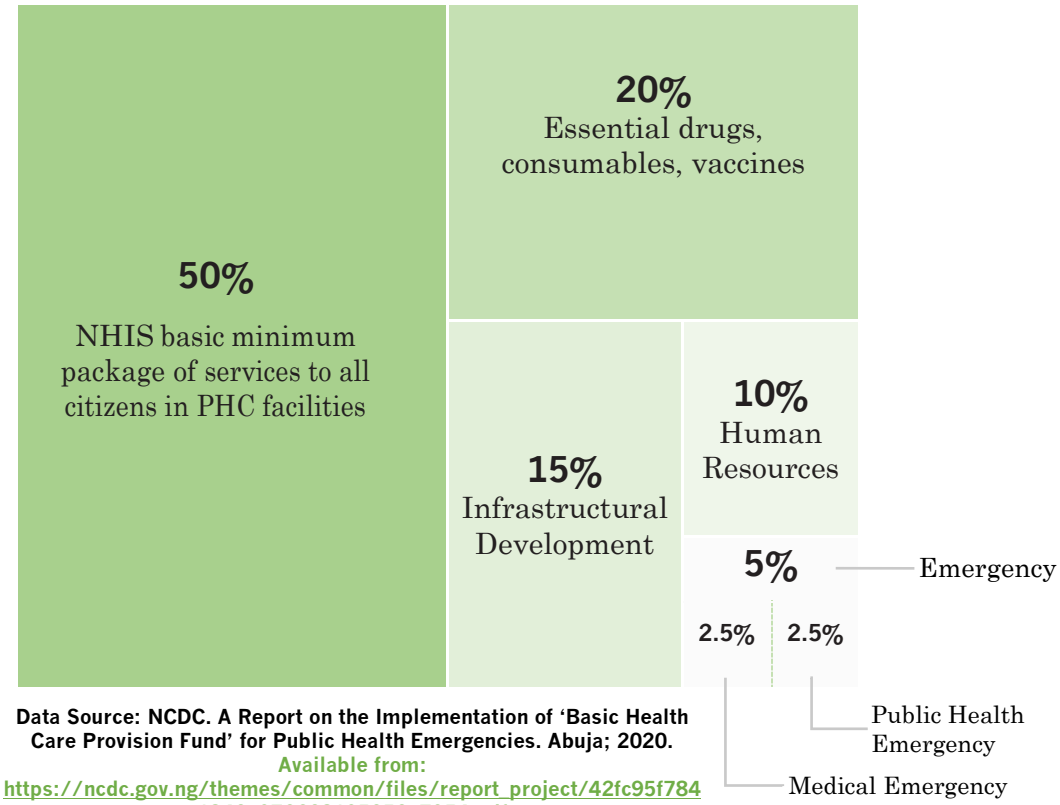
Out-of-pocket spending constitutes greater than 75% of the current health expenditure, one of the highest globally, with many Nigerian citizens at risk of impoverishment, further increasing the barriers to healthcare access.[65]

The National Health Insurance Scheme (NHIS), officially launched about 15 years ago, still has a low coverage as only about 5% of Federal government employees and their dependents are enrolled. (Formal Sector Social Health Insurance Policy - FSSHIP).[66] Despite advocacy by the federal government for state governments to voluntarily adopt the FSSHIP to cover for their employees, only three (3) states (Cross River State, Bauchi, and Enugu) have adopted the scheme.[67] Other programs under the scheme are largely unimplemented.[68] FSSHIP coverage for elderly dependents of enrolees who are more at risk of blinding eye conditions attracts an additional contribution which could further restrict access to basic eye care for these vulnerable groups.[1] The NHIS benefit package for eye care at the PHC level covers only minor eye ailments like conjunctivitis and foreign body removal, excluding spectacles which can only be accessed at the secondary facilities with co-payment by the enrolee.[1,69] A tiny fraction (0.005%) of the budget allocated for healthcare is utilized for eye care, even less spent on paediatric eye care, which is more expensive than eye care for adults.[70]

To increase the fiscal space for PHC and ensure access to the Basic Minimum Package of health services (BMPHS), the Nigerian National Health Act (NHA) of 2014 established the Basic Healthcare

Provision Fund (BHCPF), an annual federation grant of not less than 1% of the Consolidated Revenue Fund (CRF).[71] Half (50%) of the BHCPF is to finance the Basic Minimum Package of Health Services (BMPHS) through the NHIS; 45% to be utilized by the National Primary Health Care Development Agency (NPHCDA) for PHC facility operations (20% for drugs, consumables, and vaccines, 15% for infrastructural development and transportation and 10% earmarked for PHC human resource development); 5% for the Federal Ministry of Health (FMOH) as a cover for emergencies including epidemics.(15,72)

Figure 8. Implementation of the BHCPF in Nigeria



Data Source: NCDC. A Report on the Implementation of 'Basic Health Care Provision Fund' for Public Health Emergencies. Abuja; 2020. Available from: https://ncdc.gov.ng/themes/common/files/report_project/42fc95f7841843a972638195052a7954.pdf

Budgetary allocation to the BHCPF is consistently spiralling downwards after the initial disbursement in 2018 (from 55.15 billion Naira in 2018 to 35 billion Naira in 2021), reflecting the decreasing trend of revenue projections of the federal government.[73] [See Annex 2] Going through 2018, 2019, 2020 and 2021 Federal health budgets, it was noticed that the bulk of the NPHCDA allocations were for infrastructural development and supply of equipment and medicines to primary health centres. On the other hand, there were no Primary health care allocations for human resource development and primary eye care programmes and activities.

3.2 LEADERSHIP

3.2.1 Eye Care Departments in Government

The National Eye Health Programme is a unit of the Public Health department of the federal ministry of health in Nigeria (FMOH), responsible for formulating eye health policies and coordinating eye health programs. The National Coordinator is the program lead with a committee set up (National Eye Health Committee) for advisory functions.[1,74] Eye health committees are also constituted at zonal, state, and local government area levels, headed by zonal, state coordinators and LGA desk officers, respectively. These positions are, however, occupied voluntarily with no remuneration and are inconsistent and poorly supported.[1] It is not clear if these positions are occupied by government employees as an unpaid task or are open for any volunteer.

3.2.2 Capacity for Leadership and Management of Eyecare

Competency-based leadership for integrated eye care services involves a continuum of care from the primary to tertiary level with the availability of optical, ophthalmic nursing, optometric, ophthalmologic (medical and surgical), and allied eye care services.[1] Global eye health agencies and regional organisations and bodies are now considering eye care team development an essential part of advocacy and action plans.[75]

The Nigerian eye care team consists of professionals and people of different cadre with different roles and responsibilities working as a group with a collective goal of preserving and restoring vision. The team consists of ophthalmologists, allied ophthalmic personnel, and integrated eye care workers (people who see eye patients during their routine healthcare activities).[76]

Table 5. Categories of Eye Care Team Members

Ophthalmologists	Allied Ophthalmic Personnel	Integrated Eye Care Workers
Fellows of Postgraduate Colleges Diplomates (Medical Doctors at different levels of training)	Optometrists Ophthalmic Nurses Optical Technician Refractionists Orthoptist Equipment Technician	General Practitioners/ Family Physicians General Nurse/ Midwifes Community Health Extension Workers, Community Health Officers Paramedics Other Support Staff

Adapted from: The Ophthalmological Society of Nigeria. Vision for the Future - Nigeria. A Strategic Plan to Preserve and Restore Vision in Nigeria. Abuja; 2005. Available from: http://www.icoph.org/downloads/visionforthefuturenigeria.pdf

Eye care professional associations in Nigeria include the OSN (Ophthalmologic Society of Nigeria), NOA (National Optometric Association), NONA (Nigerian ophthalmic Nurses' Association.), the Nigerian Paediatric Ophthalmology Association and strabismus Society, and the Association of Nigerian Dispensing Opticians (ANDO).[24] They serve to liaise with regulatory and legislative bodies, advocate for the needs of consumers and providers of care, form a professional network, and promote high standards of practice.[77]

Through the LEAPS Program (Leadership enhancement and accountability for the public sector), the Healthcare Leadership Academy (HLA) has trained over 150 health care professionals in the government (State Ministries of Health, State Primary Health Care Development Agency, State drugs and Medical Supplies Agency, State Budget and Planning Commission), and Private sector between 2018 and 2021 to build capacity for policy-making and administration.[78] However, there is no evidence showing any eye health professionals or integrated eye care workers who have been trained or mentored for leadership and management for eye care.

3.2.3 Capacity for Multisector and Sector-wide Collaboration

There is evidence of collaboration between the health and education sector for eye health care by incorporating eye health into Nigerian School Health Programmes using the recently produced school eye health guidelines 2020.[1] Furthermore, WASH campaigns in Northern Nigeria show strong collaborative efforts to reduce the incidence of blindness and visual impairment from trachoma.[37] However, recent studies have linked the practice of not carrying out eye examinations before obtaining a driver's license to the high incidence of road traffic accidents in Nigeria.[79] Some other studies recorded a high frequency of occupational eye injuries in South-eastern Nigeria from lack of

and low usage of personal protective eye devices (PPEDs) while working[80,81] reflecting a weak collaboration with the transport and industrial sectors.

3.3 PARTNERSHIPS

A framework for private sector involvement in health service delivery and infrastructural development was put in place with the National Public-Private Partnerships (PPP) Policy in 2005.[8,82] Furthermore, the NHA 2014 makes provisions for PPP with private-for-profit providers, not-for-profit organizations and private health establishments with platforms for coordination at every level of government.[83] Although health service delivery is the key responsibility of the Ministry of Health, service providers, Non-government Organisations (NGOs), and donor agencies also play strategic roles.[84]

Most eye care services in Nigeria are provided by NGOs and Faith-based Organisations (FBOs) (Tulsi Chanrai Foundation (TCF), Evangelical Church Winning All (ECWA), Sight Savers, and Christian Blind Mission(CBM)), integrating eye care into primary health care in some states in Northern Nigeria and focusing programmes mostly on neglected tropical diseases and cataract treatment.[22,42] Onchocerciasis and trachoma control programs in Northern Nigeria have been conducted through collaborative efforts of NGOs (Sight savers, CBM, The Cater Centre, and Helen Keller Int.), Federal and State MOHs, Endemic communities, with funding from external donors. e.g. the African Program for Onchocerciasis Control (APOC).[85,86] In a five-year period (2004-2008), Sight savers trained and developed human resource for eye health for primary level eye care services (60 ophthalmic nurses and 26 ophthalmologists) with an attendant increase in cataract surgery rates from 2629 to 9136 within the same period.[87] Additionally, a 10-year eye care program in collaboration with the Sokoto state government was executed, which led to the integration of PEC into the PHC system with HReH development and a 50% reduction in the prevalence of blindness in the state.[53] CBM, through the Seeing Is Believing programme, has trained a skilled workforce for child eye health services at different levels in 11 states of Nigeria. [88] 176 PHC workers have been trained for PEC in Cross River State by the TCF.[22]

Table 6. Eye health Care Professionals trained by CBM between 2017 and 2020

	Professionals	Number Trained	Area of Training
1	Ophthalmologists	300	Orientation; low vision Surgeries (major/ minor), referrals
2	Optometrists	30	Refraction, low vision treatment and referrals
3	Ophthalmic Nurses	90	Refraction and referrals
4	Midwives	999	Identification of eye health problems in the new-born and referrals
5	CHEWs	1389	Identification of eye health problems and referrals

Source: Seeing is Believing. Comprehensive Child Eye Health in Nigeria Mid Term Evaluation Report [Internet]. 2019 May [cited 2021 Jul 25]. Available from: https://www.iapb.org/wp-content/uploads/2020/11/CBM-Nigeria-child-eye-health-MTR-Evaluation-2019.pdf

Regardless, NGO-led eye care programmes face limitations such as inadequate financial resources to fund in-service training of PEC workers, inadequate human resources, and lack of government counterpart funding for activities.[89] Despite recorded successes in NGO-led eye care activities, there are inefficiencies in using the already limited resources and duplication of NGO programs due to the weak coordination and regulation on the government's side.[8]

3.4 HUMAN RESOURCE MANAGEMENT SYSTEMS

3.4.1 Human Resource Management Department and Units

The Department of Health Planning, Research, and statistics of the Federal Ministry of Health, State Ministries of Health, and Local Government Health Authorities are responsible for planning HRH development in Nigeria. (Hand-in-hand with the Policy and Planning unit). Among others is the mandate to formulate policies, outline strategies and guidelines to ensure adequate skill mix, quantity, and quality and enhance their retention, remuneration, and overall welfare.[90]

Policy frameworks guiding governments at every level for HRH development include the National Human Resource for Health Policy (NHRHP), National Human Resource for Health Strategic Plan (NHRHSP) and the NHA 2014. The National Task-sifting and Task-sharing Policy and Standard Operational Procedures for efficient use of the available workforce, and the Nigeria Health Information System Policy as a framework for improving the National Health Management Information System. (NHMIS).[8,91] Many states in the country are yet to domesticate the National task-shifting and task-sharing policy.[8] Furthermore, there is no evidence on task-shifting for eye care services at the PHC level.

3.4.2 Human Resource Information System Integration of Data Sources

The National HRH Information System was established along with a Health Workforce Registry in 2005 with support from the WHO. The platform was developed to serve as a digital repository to collect, maintain, and analyse health workforce data in the country's public and private health sectors.[8] In the first quarter of 2021, the WHO Nigeria handed over the Health Work Force Registry alongside guidance documents to the FMOH. At present, the registry houses health workforce data from eleven states of the country and is being piloted in two states (Cross River State and Bauchi).[92] However, information was not available on the analysis of Human Resource for Eye Health HReH) and primary health care workers in the country.

3.5 EDUCATION

3.5.1 Pre-service Training for Primary Eye Care

The various cadre of health workers (CHEWs, JCHEWs, Pharmacy, Health Records, Medical Laboratory Technicians, and Environmental Health Officers) are trained in Colleges of Health Technology towards community health practice to uphold the principles of PHC and improve service coverage in rural communities of Nigeria.[15] There are currently 87 Schools of Health Technology in Nigeria, with at least one school per state. (37 accredited, 43 expired accreditations, 7 Not accredited).[93] Community Health Officers Training Program (CHOTP) produces Community Health Officers (CHOs) from various teaching hospitals in the country where they receive their training. Medical Doctors and Nurses/Midwives are trained in Medical Schools and Schools of Nursing/Midwifery and Departments of Nursing sciences (BScN).[15] There are about 92 fully accredited schools of Nursing and 37 accredited medical schools at present.[94,95]

The pre-service training curriculum for CHEWs includes a 15-hour course in community eye care where they are expected to identify common eye problems in the community, manage eye conditions and make referrals according to the National Standing Orders Manual provided. They are also expected to carry out community mobilization for eye care.[96] Similarly, the JCHEWs are trained to discuss disease conditions associated with the eye, describe the control measures for common preventable eye conditions, mobilise the community for eye care. Furthermore, the JCHEWs should manage eye conditions as outlined in the National Standing Orders Manual (Primary eye care).[97] The National Standing Orders is a manual to guide CHOs, CHEWs and JCHEWs on standardized management and referral practices of common health problems encountered in the community. It was Last revised by the NPHCDA in 2015.[98]

The school of Nursing curriculum includes courses on nursing practice, basic medical sciences, pharmacology, mental health, nutrition, and reproductive health with no course on eye care.[99]

However, there are post-basic Nursing Schools where qualified nurses are trained for two years to obtain Diploma certificates in different speciality areas, including ophthalmic nursing. Currently, there are five Post Basic Nursing Schools for Ophthalmic Nursing in Edo state (University of Benin Teaching Hospital), Enugu state (University of Nigeria Teaching Hospital), Kaduna State (Ahmadu Bello University Teaching Hospital and the National eye centre) and Lagos State (Lagos State University Teaching Hospital).[100] Doctors and Nurses/midwives in PHC facilities are expected to use the National Standard Treatment Guidelines to ensure uniformity in the care provided.[15]

3.5.2 PEC in-service training and Continuous Medical Education (CMEs)

Training for PHC workers is to be planned and budgeted for at the level of the NPHCDA and should be in the form of short-term courses, workshops, mentoring, and integrated supportive supervision.[15] Besides the PEC Training manual developed by the WHO AFRO for Continuous Professional Development at PHC level facilities in the African region, the National Eye Health Programme of the FMOH, with the support of CBM, recently developed a National PEC Training Manual (2020) for in-service training of PHC workers on evidence-based practices.[101,102] It was, however, not possible to retrieve any information on the in-service training, CPDs or mentoring processes (If any) that have been carried out for PHC workers on PEC service delivery anywhere in the country.

3.5.3 Training for Non-formal Care Providers

In Nigeria, informal health practitioners and medicine vendors are important health providers in rural areas where they provide cheap and low-grade health services in communities where they practice.[103] Informal providers include but are not limited to Patent Proprietary Medicine Vendors (PPMVs), Drug sellers, traditional healers, and bone setters, as well as Traditional Birth Attendants (TBAs).[104] They typically acquire knowledge through apprenticeships, although they do not have any formal training on healthcare.[103] Couching is also considered a traditional practice to treat cataracts and is passed on across generations, especially in Northern Nigeria.[105] However, only Voluntary Health Workers and Traditional Birth Attendants receive some form of informal training by the government. They are engaged on a provisional basis in the communities for improved PHC service delivery. At present, the Nigerian government maintains inclusivity for the informal healthcare providers, although under some regulations.[106]

3.6 POLICY

There is an existing robust policy framework for healthcare development in Nigeria. Related policy documents reviewed are the National Human Resource for Health Strategic plan (NHRHSP), the National Health Act (NHA 2014), the National task-shifting and task- sharing Policy 2014, the National Health Policy 2016, the National Strategic Health Development Plan (NSHDP II 2018-2022), the National Health Promotion Policy (NHPP 2019), and the National Eye Health Policy (NEHP 2019).

Table 7. Policy documents reviewed

	Policy Document	Related Provisions for HRH, PHC, and PEC
1	National Human Resources for Health Strategic Plan 2008-2012	• Harmonisation of HRH supply to health sector priorities • Ensuring universal and equal access to efficient health services through qualitative HRH mgt. practices with reinforced institutional structures. • Promotion of cooperation and coordination among HRH stakeholders in the public and private sectors.
2	National Health Act 2014	• Ensuring availability of funding for production, training, and distribution of HRH at all levels of the health system. • Development of institutional capacity for HRH Mgt. at all levels of the health system. • Establishment of the BHCPF for PHC development.

3	National Task-shifting and Task-sharing Policy for Essential Healthcare Services in Nigeria 2014	• Ensuring efficiency of available HWF to scale up access to care in key areas (Family health, Reproductive, maternal, neonatal, and child health; Malaria, HIV and TB; communicable and NCDs) • Train CHOs and CHEWs to provide essential services in line with National Guidelines for the integration of reproductive and HIV programs.
4	National Health Policy 2016	• Reduction in the burden of NCDs through integrated vector management, chemotherapy, capacity building, and research. • PHC underscored as the cornerstone for National health development • Ensuring the BHCPF is used as stipulated for HRH development • Promotion of eye health and improved access to eye care services through research, capacity building. Health education, and integration of services into the National Health System.
5	National Strategic Health Development Plan II 2018-2022	• HRH production and distribution for the provision of quality healthcare services • Universal access to healthcare services devoid of financial barriers • Institutionalisation of sustainable HMIS to aid decision making processes at all levels of care.
6	National Health Promotion Policy 2019	• Strengthening HR capacity for delivery of quality health promotion activities at all healthcare levels through CPDs and certifications
7	National Eye Health Policy 2019	Priority areas include: • Leadership and governance framework for eyecare • Equity in provision of culturally sensitive eye care services across all zones • Access to basic eye care services through integration of eye care into PHC. • Quality Systems development for comprehensive eye care services. • PHC facility strengthening through HRH development, infrastructural development, and proper supervision, and improvement of secondary level eye care. • Coordinated referral systems • Budgetary financing for eye care • Research and development for eye care service delivery • Intersectoral and multisectoral collaboration as well as partnerships to improve eye healthcare • Monitoring and evaluation.

A review of the national policies and plans reveal that PHC is highlighted as the cornerstone of the National Health system, with the establishment of the BHCPF to improve efficiency, quality, and access to care. HRH is given priority in most national policies and plans for production, training, and distribution and enhancing the efficiency of available HWF through task-shifting and task-sharing. The National Health Policy (2016) emphasizes the importance of eye health and the integration of eye care services into the National Health System; however, some key facts are important to note:

- The task-shifting and task-sharing policy does not include the training of PHC workers (CHOs and CHEWs) for primary eye care as one of the key areas to improve access to care.
- HRH training and development across all levels of care is described broadly with no emphasis on areas that require the most attention.

- There is no evidence of integration of PEC into the PHC system as the National Eye Health Policy published in 2019 still stresses, among other priority areas, financing for PEC and the integration of PEC into the PHC system to improve access to eye care.

3.6.1 Eye Care Policy Materials

There are several eye care policy materials recently published to advance eye care services in Nigeria. Besides, the NEHP 2019, The National School Eye Health Guidelines 2020 has been produced to integrate eye care into school eye health programs with the involvement of eye care specialists and parents. The treatment guidelines for services delivery for child eye health in Nigeria 2019 is another document to coordinate child eye health services. It outlines child eye care interventions at all levels from the home and community and extends across all healthcare tiers. The National Eye Health Strategic Plan 2017-2021 has also been developed but is yet to be published. These documents are relatively new, and there is no information regarding their circulation and implementation.

3.6.2 Professional Standards, Licensing, and Accreditations

Related Post Graduate Colleges and regulatory bodies are responsible for ensuring standardization and accreditation of eye care professionals of different cadres and PHC workers to promote professionalism. The governing councils, e.g., the Medical and Dental Council of Nigeria (MDCN) and the Nursing Council, renew practising licenses yearly based on attendance of CPD courses. Although there are provisions in the NEHP 2019 for enforcing regulations for improved PEC service delivery, it has not been outlined how it will be achieved.

3.6.3 Authorised Scope of Practice for Eye Care for all Cadres

There are practice guidelines for eye care providers at all levels, including CHOs and CHEWs (Standing order Manual). Notwithstanding, the NEHP 2019 stresses outlining roles and responsibilities along with required competencies for different cadre of eye care workers, including collaborators and eye care partners.

3.7 EVIDENCE FROM SUB-SAHARAN AFRICAN COUNTRIES OF SIMILAR CONTEXT

3.7.1 GHANA

Ghana is situated in the southern part of West Africa, with a population of about 30 million. Ghana is divided into ten administrative regions and further subdivided into 218 districts.[107,108]

3.7.1.1 Health System

The MOH is the governing health body with functions of policy formulation and implementation along with regulatory functions while also overseeing five agencies, namely:

1. Ghana Health Service (GHS)
2. FBOs (Christian Health Association of Ghana-CHAG)
3. Teaching hospitals
4. Private clinics and maternity council
5. Military and Police Health Services (Quasi government hospitals)

The GHS is the largest public health service provider with health facilities at regional, district, sub-district, and community levels.[109] There are a few private providers who sell drugs for eye care in pharmacies. Still, the traditional sector constitutes a significant part of the PHC system (herbs, spiritualists, and other unorthodox therapies), comparable to the Nigerian traditional informal sector. Additionally, FBOs own and run over 20% of hospitals in Ghana. (Christian Health Association of Ghana-CHAG) and get their staff supply from the MOH and are supervised by the GHS. [108]

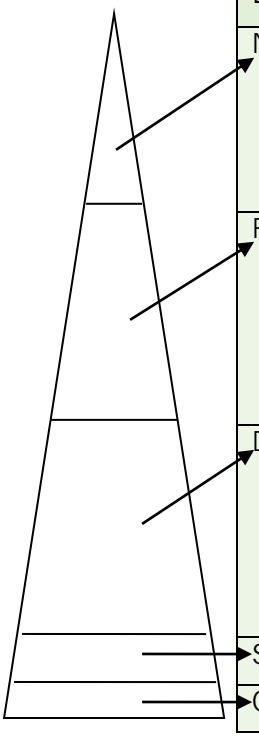
3.7.1.2 Eye Health Status

Like other Sub-Saharan countries, cataract accounts for the highest burden of blindness (54.8%) and visual impairment (42.2%). While onchocerciasis remains endemic in certain districts, trachoma, in 2018, was eliminated as a Public Health problem.[107]

3.7.1.3 Leadership and Governance

The GHS delivers eye care services at five levels of the health system. [Fig. 9] However, as is in Nigeria, PEC has not been integrated into the PHC level (Sub-district and community level), except for outreaches carried out by Ophthalmic nurses from district hospitals.[109]

Figure 9. Ghana eye health sector pyramid



Level	Type of Facility & Staff	Population	Eye Care Services
National	Teaching Hospital • Ophthalmologist(s) • Ophthalmic Nurse(s) • Optometrist(s)	-	• Cataract Surgery • Outpatients (OPD) • Refraction
Regional	Regional Hospital (GHS) • Regional Ophthalmologist • Ophthalmic Nurse(s) • Optometrist(s)	Varies by region	• Cataract Surgery • OPD • Refraction
District	District Hospital (GHS/CHAG) • (Ophthalmologist) • (Ophthalmic Nurse)	100,000 - 200,000	• OPD • Outreach • (Refraction)
Sub-District	Health Centre	20,000	No eye care services
Community	CHPS compound*	3-5,000	No eye care services

*CHPS (Community-based Health Planning and Services Initiative)

Adapted from: Potter A, Debrah O, Ashun J, Blanchet K. Eye Health Systems Assessment (EHSA): Ghana Country Report March 2013 [Internet]. 2013 Mar [cited 2021 Jul 25]. Available from: https://www.iapb.org/wp-content/uploads/Ghana-Eye-Health-System-Assessment-Report.pdf

3.7.1.3 Financing for Eye Health

Unlike in Nigeria, over 61% of the population enjoy health coverage by the NHIS for most eye care services, including eye lid and cataract surgery and refraction. However, optical aids and some drugs and services for glaucoma are left out.[110]

3.7.1.4 Partnerships

Development partners (Sight savers, Swiss Red Cross, and Ghana Red Cross) are responsible for most PEC services. However, some eye care programmes are still run vertically, with poor integration into the eye care system, similar to the Nigerian situation.[109]

3.7.1.5 Human Resource for Eye Health

There are 91 ophthalmologists, 500 ophthalmic nurses, and about 370 optometrists in Ghana. Every region has one ophthalmologist and at least one ophthalmic nurse. However, there is still maldistribution of the eyecare workforce in favour of the Southern and urban regions.[107,111] Nigeria trails behind Ghana regarding meeting the Vision 2020 HReH targets and, HReH distribution between states is unknown.

3.7.1.6 Education

Nurses in the rural areas of Ghana are favoured more for ophthalmic nursing training, an approach that has worked in favour of a better distribution of ophthalmic nurses in the rural areas. Processes are underway to upgrade the ophthalmic nursing training from a diploma to a degree course,

updating the curriculum from content-based to competency-based. Records reveal that refresher courses are organised for HReH at least once in six years.[109,112] CHOs undertake internship programmes after their regular two-year training, while Community Health Volunteers (CHVs) are trained for five days under the Community-Based Health Planning and Services (CHPS) initiative. Although they are not involved in PEC activities, evidence supports the impact of the CHPS, especially in maternal health services.[113]

3.7.2 RWANDA

Rwanda is an East African country with about 12million people, way less than one-tenth of the Nigerian population. It is divided into five provinces.[114]

3.7.2.1 Eye Health Status

Cataract constitutes the highest cause of blindness and visual impairment (56.5%) similar to other countries in Africa, although the 2015 nation-wide survey revealed a downward trend of the prevalence of blindness and VI.[115] (age and sex-adjusted prevalence of 1.1% in 2015 compared to 1.6% in 2006)

3.7.2.2 Leadership and Governance

The Rwandan MOH developed a single national plan that allows key partners in vision care to be coordinated in eye care activities and programs. The fourth National Strategic Plan for Eye Health (2018 – 2024) is in alignment with the Health Sector policy (2005) and the fourth Health Sector Strategic Plan (2018- 2024).[115,116]

3.7.2.3 Financing for eye health

The Rwandan CBHI, which enrols most of the population, now includes vision care services, at the primary and secondary level, including reimbursement for consumables.[117]

3.7.2.4 Partnerships

The MOH also collaborates with development partners for eye healthcare. However, eye care activities are coordinated in alignment with the national vision plan. With the support of partners, a PEC curriculum was launched in 2010, integrating PEC into the Nursing school training, scholarships for eye care specialists, and training of 1250 existing nurses for PEC services.[118,119]

3.7.2.5 Human Resource for Eye Health

Like many other Sub-Saharan countries, Rwanda faces a significant HReH gap. Currently, there are only 16 ophthalmologists, 50 ophthalmic clinical officers, and 10 opticians in the country, which makes coverage worse than in Nigeria and below the WHO recommended target.[120] Majority of health centres in Rwanda are staffed by nurses. The MOH recommended local training of ophthalmologists with sponsorship and a 4-year bonding agreement after training to address the situation.[115] There is also a Community Health program that trains CHWs for community engagement.[121] Additionally, NGOs also carry out refresher courses for nurses every two and half years.[119]

CHAPTER 4

4.0 DISCUSSION

This discussion builds on the findings of this study about the action fields of the WHO HRH Action Framework (described in chapter 2) on Primary Eye Care in Nigeria and my experience working as a medical practitioner in rural Nigeria. In addition, examples from two African countries highlighted in chapter 2 are also discussed side-by-side for areas to draw lessons from.

This study agrees with findings from the PEC approach to universal eye health across Sub-Saharan Africa. In Nigeria and other Sub-Saharan countries alike, PEC has been highlighted as the sure approach for achieving universal eye health and Universal Health Coverage. The Primary Healthcare workforce is a critical component to achieving this goal.[43] There is an upcoming level of political commitment to primary eye care in Nigeria, as evidenced by the policy documents, guidelines, and training materials very recently developed for eye healthcare by the National Eye Health Programme of the FMOH. Nonetheless, a combination of fundamental interrelated elements has been observed to threaten the possibility of developing the PHC workforce for effective integration of PEC into the general PHC system. These challenges are range from lack of resource allocation for eye care, shortage, and maldistribution of HRH for Primary Eye Care, to weak intersectoral and multisectoral linkages for eye care service delivery. It is not surprising considering that PEC is an approach recently embraced by most African countries (Nigeria Inclusive) that are faced with a double burden of diseases against a backdrop of a constrained range of resources.

4.1 Finance

Finance is an overarching component that touches on all aspects of HRH development. In Nigeria, there is no earmarked budget line for eye care in the federal health budget. Beyond this, HRH development for PEC has not been given consideration even when 10% of the BHCPF allocated to PHC centres is earmarked for HRH development. Most funds are channelled into general infrastructural development and other health programs considered more life-threatening. (Malaria, HIV, TB, Maternal and child health). Furthermore, it could be linked to overdependence on the private-for-profit providers of PEC in the country.[45] Development partners (NGOs and FBOs) usually incorporate PHC workforce training and development into their program designs and are observed to be critical pillars for PEC services in Nigeria. However, their programs are mainly carried out in the Northern states of the country. Financing for eye care should focus on how much is invested for eye care and where the funds are allocated to obtain the best return on investment.[84] In this case, HRH development should be given attention as a crucial element influencing the other building blocks of the eye health system. Financing for HRH is required for other action fields of the framework like training, human resource management, policy implementation, and financial support to private partners for PEC services. Lack of, or poor financing for eye care is observed as a common problem in most African and Asian countries.[122]

4.2 Leadership

Building capacity for effective leadership, governance and public policy stewardship is highlighted as one of the key objectives of WHO's new strategy on HRH for universal coverage.[72] The lack of evidence on the training of eye care personnel for leadership and management positions may be explained by low priority for eye health in the National agenda, and prioritisation of other healthcare needs considered more demanding. This training deficit is reflected in the eye care positions (State eye coordinators and LGA desk officers) not occupied presently. Reports of the increased incidence of road traffic accidents and industrial eye accidents from the country's transport and industrial sectors, respectively, also add weight to the evidence of weak leadership capacity for effective intersectoral collaboration in the eye health system.[79–81] Introducing the principles of management and leadership in training for eyecare improves teamwork for eye care programmes and activities, as reported in a case study conducted in Nigeria.[123]

4.3 Partnership

The WHO Global Action Plan (2014-2019) advocates for strong partnerships and government support to successfully scale-up, sustain, and regulate PEC activities.[124] Nigeria is currently a partner of the International Health Partnerships Global Compact for Universal Health Coverage (UHC) 2030 for country-level and global collaboration. Notwithstanding, poor regulation and coordination, including insufficient funding for PEC partners in Northern Nigeria, threatens the sustainability of their programmes.[8,89] This agrees with reports from Ghana, where NGOs being the mainstay of PEC in underserved rural areas, discontinued programs due to lack of support from the government.[109] PPPs for eye health with sustained commitment, good funding, and effective leadership will produce better population eye health outcomes.[125]

4.4 Human Resource Management Systems

The strength of a health system is evident in the availability of a skilled workforce at the PHC level, particularly so in resource-constrained settings. The Global Strategy on HRH: Workforce 2030 underscores the importance of availability, accessibility, acceptability, and good quality HWF if health systems must function.[83,85] Nigeria falls below the Vision 2020 WHO recommended target for HReH, like many other African countries. The shortage may be explained by the lack of post-basic nursing schools in all states of the country. As such, nurses may not be encouraged to leave their families behind for further studies far from home (Stick factors). Some teaching hospitals do not have accreditation to train ophthalmologists, and the stick factors may also apply here. Ophthalmologists are doctors specialising in eye care whose presence in secondary health facilities will improve referral systems for PEC. Again, the lack of eye care specialists makes supportive supervision of PHC workers on PEC practices impossible. This finding is in keeping with a study in Zambia where poor eye health outcomes were linked to the human resource crisis.[126] Although a health workforce registry has been set up in the country, evidence found is not indicative of any HR management system analysis to scale up production, training, and distribution of HReH, especially for supportive supervision at PHC levels. The lack of human resource management for eye care may be due to a lack of funding and limited experience of human resource management staff, as reported in a study in Nigeria.[122] This also agrees with studies carried out in Ethiopia, Kenya, Tanzania, and Uganda.[127]

4.5 Education

Training and continuously developing health workers improves knowledge and skills set, keeps them abreast of current evidence, and reflects in their actions and general attitude to work.[88] Besides pre-service training, PHC workforce issues like in-service training, staff remuneration and motivation should be addressed to improve PEC services.[128] Many studies carried out in Nigeria reported that most PHC workers (Nurses and CHEWs, and CHOs) are not proficient with basic eye care equipment, not competent to manage simple eye conditions and not conversant with referral protocols.[52–56] Beyond having eye care as part of the CHEWs training curriculum, it is unknown if the time investment is adequate if they receive enough training content or any hands-on experience and support. Furthermore, Nursing schools training curriculum does not include training on PEC, and ophthalmic nurses are not posted to PHC facilities. As also observed, many schools of Health Technology have lost accreditation and are not admitting for in-service training of CHEWs currently in Nigeria. Lack of refresher courses after graduation could also be implicated, which could be linked to a lack of funding for this purpose. Undergoing internship programmes after training is vital for clinical experience as practised in Ghana. Likewise, the introduction of PEC into the curriculum of nursing schools as obtained in Rwanda would expose nurses to some basic principles and practices of PEC that could improve their experience in rural practice.

Additionally, traditional eye practices like couching are still rife in Nigeria, with about half of eyes with cataract having undergone couching.[129]. This problem may be linked to generational, cultural practices seen in Northern Nigeria, community beliefs, influence, and referral from peers. Poor community awareness on harmful eye practices may be due to the PHC workers not carrying out

awareness campaigns and behavioural change communication, an essential aspect of promotive PEC. Couching is also seen as a problem in Mali, where couching (0.15%) is two times the cataract surgery rate.[130] Leveraging the traditional informal health sector (which is closest to the rural dwellers) for training can also improve PEC practices in communities.[129]

4.6 Policy

There is a strong policy framework for healthcare and universal health coverage in Nigeria. Although the National Health Policy highlights the importance of eye health and the integration into the National Health System, evidence indicates that PEC, including Child eye health, is yet to be integrated into the PHC system. HRH training and development is described broadly in most policy documents, with no emphasis on improving the competency of the PHC workforce for PEC. Additionally, the task-shifting policy does not include eye health as a key area for the training of CHOs and CHEWs. The eye health policy stresses PHC facility strengthening through HRH and infrastructural development, which is in line with the conditions for the BHCPF. It goes a step further to demand statutory budgetary allocation for eye care services. The eye health policy and guidelines are vital tools that should be adopted at every level of government for implementation. However, the National Eye Health Strategic Plan (NEHSP) is yet to be published. As such, it is impossible to ascertain a costing plan for these eye-related policies and guidelines. It is also unknown if the recently published eye policies and guidelines and training materials have been circulated to State Ministries of Health for adoption.

4.7 The WHO HRH Action Framework

The framework provided a comprehensive model for a detailed review of the multidimensional factors worth considering for HRH development (In this case, for PEC in Nigeria.). My study was not focused on developing an HRH plan, and as such, the action areas (Situational Analysis, Planning, and Monitoring and evaluation) were not relevant. However, the framework can be adapted to suit its purpose, either for research or human resource for health management and planning in health organisations.

4.8 My Personal Experience

Working as a Medical Practitioner in a rural area in my state (Akwa Ibom) in Nigeria, I made observations that I deem essential to provoke further research that could produce more evidence for action. Although PHC workers embrace career progression and are open to learning and growth, the PHC nurses are not motivated to go on post-basic training for specialisation in any area of interest, more so ophthalmic nursing. It is considered an additional task that does not come with any motivation in return, especially considering that their contemporaries in secondary and tertiary facilities who have a Post Basic Diploma take home a monthly specialist allowance in addition to their regular pay.

4.9 Strengths and Limitations of the Study

The evidence presented in this study will assist policymakers, and development planners formulate evidence-based strategies and employ specific policy implementation tools. Again, as the PHC workforce challenges are similar to those in other LMICs, policies and practices as presented can be adopted and adapted to suit the context. Nevertheless, there are some limitations in this study that could be addressed in future research. For example, the private-for-profit eye health sector representing a significant proportion of the eye health system in Nigeria was not included in the research as it was difficult to find literature. It was also not possible obtaining monitoring and evaluation data from Nigerian programmes to ascertain if outlined plans have been implemented. Additionally, the literature review was on secondary data from published and unpublished literature as well as reports. This implies that any errors that occurred during the primary data collection may affect the validity and reliability of my work.

CHAPTER 5

5.0 CONCLUSION

Good eye health is an integral part of good health and overall wellbeing. Primary eye care is the road map to universal eye health and the Sustainable Development Goals. Where there is no demand for prioritisation of eye health in the National agenda, the integration of PEC into PHC services will only prove abortive. Innovative steps to deliver quality and efficient PEC services require a PHC workforce that is well trained and competent.

The leadership of the country has shown considerable commitment to improving the overall health of Nigerian citizens. At the national level, there is a strong policy structure for the health sector in general. Current PHC initiatives like the BHCPF promise improved access to quality PHC services, considering the over 21,000 public PHC facilities spread across the country (over 60% of all the health facilities in Nigeria). The National eye health policy, guidelines and training materials are steppingstones to achieving Universal Eye Health in Nigeria.

Evidence from this study indicates that PHC workforce development for primary eye care services in Nigeria is not on the front burner. Despite some progress made, a range of multidimensional challenges threatens the performance of the PHC workforce in PEC service delivery. Beyond the general health workforce shortage, the production, training, and distribution of PHC workers for eye care has not been given much attention. There are little or no incentives for career progression in eye healthcare and no opportunities for leadership training. Furthermore, the sustainability of PEC programs run by private partners (NGOs and FBOs) that prioritize HWF training for smooth delivery of services is threatened due to poor financial commitment by the government. Again, the government is not financially committed to PEC service delivery as there is no earmarked fund for PHC workforce development in PEC.

Overcoming the prevailing challenges require a shift from policy formulation to translating policies into action. Furthermore, there is some room for learning and improvement. Ghana introduced internship programs for CHEWs and CHOs to enhance the hands-on experience while prioritising post-basic ophthalmic nursing training for nurses in the rural underserved areas. Rwanda integrated PEC into the curriculum of schools of nursing. It strengthened collaborations with private partners to sponsor the training of eye care specialists and conduct refresher courses for nurses in rural settings.

While this study highlights some interesting findings about primary eye care in Nigeria, it will be helpful to conduct further research to clarify some of the questions raised.

5.1 RECOMMENDATIONS

It is essential to be realistic about the shrinking financial resources for health in Nigeria. But, again, it is also crucial to be prudent and efficient with the existing resources. Therefore, the following recommendations are made to address the findings of this study as investing in PEC will ensure access to basic eye care services for a wider population to improve eye health outcomes.

5.1.1 Recommendations for the Federal Government (FMOH)

1. The Federal Ministry of Health (FMOH) and the Nursing and Midwifery Council of Nigeria should consider establishing Post Basic Schools of Ophthalmic Nursing in every state of the country. This will encourage nurses discouraged by stick factors (distance from family) to apply for training. Furthermore, primary health care Nurses should be given priority regarding admission and could also be motivated by offering tuition-free scholarships.
2. The FMOH (working with the Nursing and Midwifery Council) should consider incorporating PEC learning modules into the pre-service curriculum of Schools of Nursing, along with clinical postings to university teaching hospitals for hands-on experience. Furthermore, clinical postings for CHEWs and JCHEWs should also be considered by the Schools of Health Technology.

3. The FMOH should collaborate with the Road Safety Commission and the Ministry of Commerce and Industries to enforce regulations, especially as it relates to eye screenings before issuing drivers licences and the use of Personal protective eye devices at places of work. This will reduce the incidence of road traffic and occupational eye accidents.
4. With the existing framework for private sector engagement, the FMOH should consider engaging private partners (NGOs and FBOs) on a contract basis for a fixed term which could be renewed after review. (Five to ten years.). Private partners should be encouraged to build PHC centres in underserved areas along with other eye care infrastructure (State eye hospitals and referral centres). The state government could post the PHC workforce for eye care services alongside basic services.
5. There are currently very bold and comprehensive eye care documents in Nigeria (a huge leap in the right direction). The FMOH should facilitate the publishing of the National Eye Health Strategic Plan (NEHSP). Costing plans for implementing the eye health policy, child eye health guidelines, and the training manuals should be included in the strategic plan. More so, State Governments should be encouraged to adopt these policies and Monitoring and evaluation mechanisms activated at all levels to ensure programs are being implemented.
6. The FMOH should consider reviewing the task-shifting and task-sharing policy document to include training of CHOs and CHEWS on eye care to give legal backing for the activity.

5.1.2 Recommendations for the National Primary Health Care Development Agency (NPHCDA)

1. The National Primary Health Care Development Agency should leverage the 10% BHCPF Gateway fund already earmarked for HRH development to plan and budget for refresher courses (CPDs/CMEs) for the PHC workforce. In addition, training of VHWs for community awareness and sensitization, especially against couching practices, should also be considered.
2. The NPHCDA should collaborate with Federal University Teaching Hospitals to post Ophthalmologists to perform supportive supervision at PHC centres.
3. The NPHCDA should take advantage of the BHCPF to review the Ward Minimum Package of Health Services. Eye care services should be part of this package to ensure wider access to eye care services, drugs, and other consumables.

5.1.3 Recommendations for the State Primary Health Care Board (SPHCB)

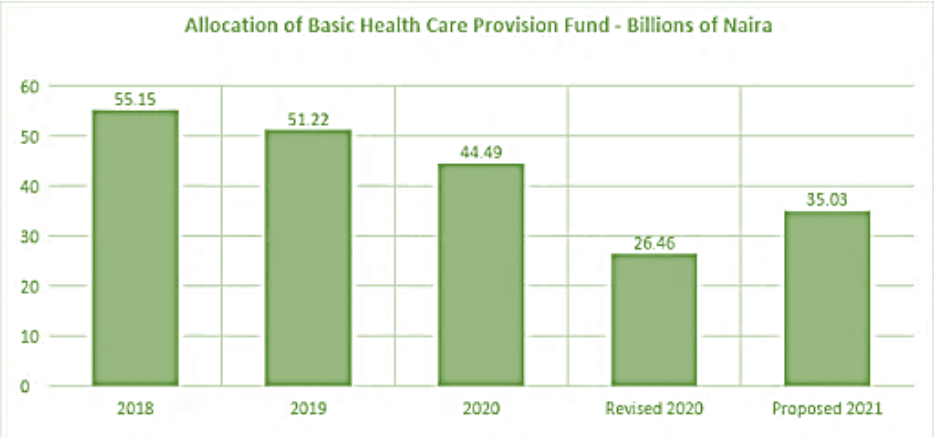
1. The SPHCB, working with the State Department of Health Planning, Research and Statistics (MOH), should consider training State employed medical doctors in ophthalmology on an in-service basis with a bonding agreement of at least five years. Additionally, incentives like payment of bench fees, books, and update allowances could be introduced for motivation. This step will ensure every state hospital has at least one ophthalmologist to attend to referrals from PHC centres.

ANNEXES

Annexe I – Search Strategy

CONCEPTS: Combined with **AND**						
Competency	**Training**	**Integration**	**Primary Eye Care**	**Primary Health Care**	**Primary Health Care Workers**	**Nigeria**
SEARCH TERMS: Combined with **OR**						
Knowledge* Skills* Expertise* Technical* Capacity* Capability*	Capacity building*	Incorporation*	Eye care*	Primary care*	Human resource for health* Health workforce* Skilled workforce* Skilled health workers*	Nigerian* West Africa* Sub-Saharan Africa* Low- and medium-income countries* Africa*

Annexe II. Allocation of BHCPF in Billions (summary)



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