

Capacity Assessment of Structural Quality of Health Care Centres in Ahoada West Local Government Area Rivers State

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Article History	Abstract
Thesis paper	<p><i>Capacity assessment of structural Primary Health Care Centre’s in Ahoada West Local Government Area. Quality systems can help to manage change while maintaining a high quality of care. A new model of quality systems inspired by the works of Donabedian has three factors: This study adopted a descriptive, cross-sectional study (survey) and population of the study comprises of primary health care centers staff in Ahoada West Government Area. The study yielded a sample size of 237, and adjusting for a 10% non - response rate. However, the Local Government Council has only 14 HCs and all these were included in this study. The objectives of this study were to determine the capacity s of primary health care in Ahoada west local government area to render quality health care services. The instrument for the study was a structural quality protested questionnaire on facilities and equipment’s as predictors of effective health care delivery service and checklist of items on infrastructural quality and equipment. All 14 (100%) primary health care facilities in Ahoada West Local Government Area implement Essential Drug List Regulation. The 14 (100%) primary health care facilities have anti-malarial and haemathinics. Twelve (85.7%) of the health facilities have oral Re-Hydration solution (ORS) sachets; two (14.3%) of the facilities did not have oral Rehydration solution sachets. Thirteen (92.9%) of the primary health care facilities have analgesics; one (7.1%) did not have analgesics. Eleven (78.6%) of primary health care centers in the Local Government have anti-convulsant drugs; three (21.4%) did not have anti-convulsant drugs.</i></p> <p><i>However there was need to improve in equipment maintenance, 2- way referral system, nutrition and catering services. Health care service delivery is optimal in PHCS in Awelga: greater percentage of staff rendering service are well trained (94.1% of staff have at least tertiary education), health promotion / counseling services, immunization water- sanitation, strict compliance to Bamako initiative of essential drug list, out- reach service are carried out. Health care workers should ensure that they have adequate knowledge on how to handle their equipment.</i></p> <p>Keywords: <i>Human’s Resources, Structural Quality, Primary, Health Care, Capacity, Assessment.</i></p>
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A Dissertation submitted to the School of Graduate Studies in partial fulfilment of the requirements for the award of degree of Executive Master of Public Health (MPH) in School of Public Health University of Port Harcourt.

Supervisor: Dr. I. N. Ojule

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DECLARATION

I, **Righteous, Innime** with Registration Number **G2019/eMPH/SPH/FT/046**

declare that the work in this Dissertation on **Capacity Assessment of Structural Quality of Health Care Centres in Ahoada West Local Government Area Rivers State**, was carried out by me; that it is my original work and that it has not been submitted wholly or in part for the award of a degree in this or any other institution.

Righteous, Innime: ----- Signature/Date: -----

Supervisor: Dr. I. N. Ojule: -----Signature/Date: -----

CERTIFICATION

UNIVERSITY OF PORT HARCOURT
SCHOOL OF GRADUATE STUDIES

CAPACITY ASSESSMENT OF STRUCTURAL QUALITY OF HEALTH CARE CENTRES IN AHOADA WEST LOCAL GOVERNMENT AREA RIVERS STATE

BY

RIGHTEOUS, INNIME

The Board of Examiners certifies that this Dissertation is accepted in partial fulfilment of the requirements for the award of the degree of Executive Master in Public Health (MPH)

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DEDICATION

This dissertation is dedicated to God Almighty: The Father, the Son and the Holy Spirit who made all things possible.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Primary Health Care infrastructural quality is understood in both qualitative and quantitative terms to mean the structural quality of care and accessibility to health care delivery within a country. It is judged by the quality of physical, technological and human resources available at a given period (Erinosho, 2006). Physical structural quality entails the buildings and other fixed structural quality such as pipe borne water, food access roads, electricity, within the healthcare environments (Erinosho, 2006). Human resource comprises the health professionals including doctors, pharmacists, nurses, midwives, laboratory technologists, administrators, accountants and other sundry workers. All these put together form the structural quality upon which the healthcare delivery is anchored in any society and the determinants of its infrastructural quality. Health infrastructural quality is a part of a larger concept of the health system which contains the health policy, budgetary allocation, implementation and monitoring of utilization of the health infrastructural quality (Adebayo and Oladeji, 2006). In sub-Saharan Africa and Nigeria in particular there are recognized existence of different types and practices of health seeking behaviors: traditional, biomedical/orthodox and synthetic with different structural quality qualities Ademiluyi et al, 2009).

Structural quality of health care refers to the availability of the physical and human resources required for the provision of care. Measures of structural quality include physical equipment, measures related to staff expertise, staff coordination and organization (Donabedian, A, 2005). Even though this type of quality may not by itself ensure improved outcomes, it is important because it focuses on the availability of all inputs necessary for the provision of care, without which better health outcomes may not exist.

The definition of structural quality used in this study focused on the adequate supply and functional state of resources used for the provision of health care. Good structural quality, then, ensures availability and access to health care, which is necessary for the achievement of universal health coverage. Universal health coverage is achieved for a given population when all residents, regardless of income, are able to have access to adequate health care without suffering financial hardship (Donabedian, A, 2005)

In a developed country like Norway, structural quality of primary health care facilities are of standard such that health care services are been shifted from secondary care to primary care thereby reducing garden of health care services on both secondary and tertiary levels of care. Results include better response to the challenges of an aging population, falling lengths of hospital stay, a rising rate of discharge, and a reduction on pressures on primary care settings, Norway has begun to establish supplement primary health care units (also

called Sykestue in Norwegian), which will have a key responsibility in taking care of patients upon Discharge from hospital, or where there is a risk of admission to hospitals when the condition could be appropriately managed at a lower intensity care setting (OECD, 2014).

In developing country like Ghana, the government owns more than 50% all the health facilities in the country and is responsible for the availability of all physical and human resources in public facilities. The structural quality of health-care provision in the public sector is therefore subject to public norms and institutions (Donabedian, A, 2005)

A cross-sectional study conducted in 14 PHCs that were randomly selected with, 2 each from 7 hocks of Rajkot district, India. Was aimed assessing the quality of facilities available at primary health care centers in line with India Public Health Service (IPHS) guidelines. The study used a retested close ended questionnaire and findings showed that standard infrastructural quality was essential for delivery of quality health care by PHCs (Ninama et al, 2014).

The first organized medical services in Nigeria were provided by Christian missionaries Ademiluyi et al, 2009); which were mobile and rural based. in the 1900s our colonial master (British) provided hospital based services, established to take care of epidemics such as sleeping sickness, small pox malaria (Aluko-Arowojo, 2006). There were copious infrastructural quality deficiencies in health care facilities in the rural areas; this is also event today more than fifty-five years of independence. In an attempt to address these challenges globally, the International Conference on Primary Health Care,

in Alma Ata, Kazakhstan in September, 1978 convened. The conference endorsed the health for all programme through the Alma Ata Declaration; to be driven by the Primary Health Care (PHC) system. PHc programme stands on five principles, these are: accessibility (equal distribution); health promotion appropriate technology; inter-sectorial collaboration and community participation. These were designed to work together and be implemented 'simultaneously to bring out better outcomes for the entire population (Omuta GED, 2015).

Healthcare services delivery of immense benefit to the populace requires availability of adequate infrastructural quality such as diagnostic medical equipment, drugs and well-trained medical personnel (Norheim, 2015 Sengupta, 2013). In Nigeria, Rivers State and Ahoada West Local Government area in particular, poor funding and mismanagement often characterize healthcare service delivery thereby effecting coverage and quality of healthcare services. These had led to criticisms of the health sector in the Local Government (Oyekale, 2017). Realization of Sustainable Development Goals DGs) health targets, depend on improvement of these lapses (Vega, 2013; Evans, 2013).

Health care system require standard infrastructural quality to ensure that services delivered is efficient, effective and timely. Such infrastructural quality defines the quality of services provided based on their **activities** qualitative and quantitative characteristics (Erinosh, 2006; Aderniluyi et al, 2009).

Health human resources – also known as human resources for health or health workforce – is defined as "all people engaged in actions whose primary intent is to enhance health", according to the World Health Organization's World Health Report 2006.

1.2 Statement of the Problem

Distribution and accessibility of PHCs to target population enhance utilization of health services provided. It is imperative therefore those PHCs be established near its catchment area to optimize utilization. Distance of two hundred meters or less is approved (Eboime et al, 2015).

Health care infrastructural quality have been characterized into 'hard infrastructural quality' (things that support the economy) and 'soft infrastructural quality (things that support the system's social response and capability).

Infrastructural quality is, collectively, the underlying foundation that supports a larger structural quality. It is the intrinsic framework of a system or Organization and the 'structural quality' that underpins the 'super structural quality. Infrastructural quality of the capacity and capability of the system to carry out its main functions and deliver on their core mandates and the corresponding quality of the care and accessibility to health care delivery in a society (Erinosh, 2006; Stephenson, 2012; NACCHO, 2015; Aderniluyi et al, 2009).

In Ghana, for example, the government owns more than 50% all the health facilities in the country. The government is responsible for the availability of all physical and human resources in public facilities. The structural quality of health-care provision in the public sector is therefore subject to public norms and institutions (Donabedian, A, 2005)

PHCs established with proper infrastructural quality are aimed to provide comprehensive quality healthcare to the defined (target) population. Studies carried out showed that existence of infrastructural quality, manpower, essential drugs, equipment, good telecommunication system and good organizational structural quality are essential for good health care delivery service; these are seen in developed country like Norway (Omuta GED, 2015).

In the large number of fast-growing health economies — which is where 3 billion people live — that very growth provides opportunities to base health systems on sound primary care and universal coverage principles at a stage where it is in full expansion, avoiding the errors by omission, such as failing to invest in healthy public policies, and by commission, such as investing disproportionately in tertiary care, that have characterized health systems in high-income

countries in the recent past. The challenge is, admittedly, more daunting for the 2 billion people living in the low-growth health economies of Africa and South-East Asia, as well as for the more than 500 million who live in fragile states (WHO - World Health Report, 2008).

In India, the quantity and quality of healthcare providers are essential in rendering comprehensive and quality health care delivery services. Therefore, an adequate number and well qualified health professionals are needed to implement health care services (Ninama et al, 2014).

Primary Health Care services certification and accreditation of health plans and providers are based on detailed evaluation of health system structural quality.

1.4 Aim and Objectives

AIM

To assess Capacity the of Primary Health Care centers in Ahoada West Local Government Area, Rivers State, Nigeria to provide quality health care.

1.4.2 Specific Objectives

1. To assess the structural quality of the infrastructure in the Primary Health Care facilities in Ahoada West L.G.A
2. To assess the organizational structure of the Primary Health Care facilities in Ahoada West L.G.A.
3. To assess the level of service delivery in the Primary Health Care facilities in Ahoada West L.G.A in comparison with the recommended minimum standards.

1.5 Significant of the Study

In Nigeria, human capital development -through provision of sound and efficient health delivery system is conceived as the bedrocks for economic growth and development. This ideology, obviously guided economic planning and development agendas since the post-colonial era. The primary proviso for reenergizing a national workforce drive development requisites in a manner that optimizes efficiency is perfectly encoded in systematically designed health service delivery system, among others (George et al, 2013; National Bureau of statistics-NBS, 2009).

Effective delivery of healthcare services requires availability of adequate infrastructural quality, diagnostic medical equipment, drugs and well-trained medical personnel. In Nigeria, poor funding and mismanagement often characterize healthcare service delivery thereby affecting coverage and quality of healthcare services. Therefore, the state of service delivery in Nigeria's health sector has come under some persistent criticisms (Oyekale, 2017).

Nigeria to ensure better equity in access to healthcare facilities, which would, facilitate achievement of some health-related sustainable development goals (SDGs), quality of services at

its healthcare facilities should be improved. Differences between availability of basic medical equipment and their functionality, and lack of some basic drugs, proper inventory of medical services should be taken with effort put in place to increase funding and ensure proper management of healthcare resources (Oyekale, 2017), hence, the need to determine it in this study.

A Case Study of Physical Amenities in Urinary Health Care System in Delta State Niger Delta Region of Nigeria showed that there were varying degrees of infrastructural quality deficiencies. 34.22 per cent of the PHCs had no access to safe water; 51.33 per cent were not connected to the national electricity grid; and 34.22 per cent of the available beds and 40.89 per cent no means of communication whatsoever (Omuta. 2015). Ahoada West Local Government Area is in Rivers State, therefore need to determine physical amenities in her Primary Health Care System.

Universal Health Coverage (UHC) is globally embraced as a prerequisite for significant economic development, the state of healthcare facilities in some developing countries like Nigeria, Ahoada West Local Government Council their support to some global health development agendas. This is a serious matter given that the relevance of readily available and quality healthcare services for responding to emergencies in healthcare service demand cannot be over-emphasized. Assessing service readiness of healthcare facilities service will broaden our understanding of their ability to adjust to some strategic Changes [Li, Seale oJ2; Ford et al, 2006; Lei, Jolibert, 2012].

In India, Rajkot District: a cross sectional study of quality assessment of facilities available at Primary Health Care centers showed that 50% PHCs was located within the village area and 28% was within 1KM from village. Doctor, Nurse, laboratory technician and Pharmacist were available in 92%, 57%, 100% and 11)0% PHCs respectively. Residential facility available in 21% of PHC5. More than 85% of doctors, staff nurses and health worker were trained for Infant, Maternal, Neonatal and Childhood Illnesses (IMNCI) and Antenatal Clinic (ANC) services.

All PHCs provided Reproductive and Child Health (RCH) services. Structural quality (material, human, organization) Capacity assessment of PHCs is essential for quality service delivery (Ninama et al, 2014). It is therefore imperative that this study be carried out in Ahoada West Local Government Area. It is imperative to carry out this study in that capacity assessment to provide quality health care services by PHCs in this Local Government had not been studied.

Structural quality - infrastructural quality, human resources, essential drugs, equipment, good telecommunication system, portable water supply, waste system and good organizational structural quality of Primary Health Care facilities in Ahoada West Local Government Area has not been studied, hence, the need for this study.

Twenty-four years after the leadership of Professor Ohikoye Ransome-Kuti, the need to strengthen the PHC in Nigeria is relevant as ever before. The current state of PHC system in Nigeria is appalling with only about 20% of the 30,000 PHC facilities across Nigeria working (Adewole, 2016). Presently, most of the PHC facilities in Nigeria lack the capacity to provide essential health-care services, in addition to having issues such as poor staffing, inadequate equipment, poor distribution of health workers, poor quality of health-care services, poor condition of infrastructural quality, and lack of essential drug supply (Chinawa, 2015). Hence, the need to carry out this study.

1.6 Research Questions

1. Does the quality of infrastructure in the Primary Health Care Centre's in Ahoada West LGA meet up with the Minimum Standard for Primary Health Care Centre's in Nigeria?
2. Does the organisational structure in the Primary Health Care Centre's in Ahoada West LGA meet up with the Minimum Standard for Primary Health Care Centre's in Nigeria?
3. What is the quality of services provided by the Primary Health Care facilities in Ahoada West LGA?

1.6 Research Hypothesis

Thus for assessment of structural quality of primary health care as predictors of quality health care delivery service Ahoada West Local Government Area, Rivers State, Nigeria; there is the need for provision of adequate facilities, medical equipment and consumable materials as well as their availability and adequacy.

The following null hypothesis generated and tested for this study.

1. There is no significant difference between medical equipment available for quality service delivery in primary health care centers of Ahoada West Local Government Area, givers State, Nigeria compared to the National Standard requirement.
2. There is no significant difference between human resources available in primary health care centers of Ahoada West Local Government Area, Rivers State, Nigeria and recommended number of human resources for PHCs in Nigeria.
3. There is no significant difference between infrastructural qualities available for quality service delivery of primary health care centers Ahoada West Local Government Area, Rivers State, Nigeria compared to the National Standard requirement.

CHAPTER TWO LITERATURE REVIEW

2.1 CONCEPTUAL FRAMEWORK

2.1.1 The concept of Primary Health Care

Primary Health Care as a model of healthcare was adopted in the declaration of the International Conference on Primary Health Care held in Alma Ata, Kazakhstan in 1978 (known as the “Alma Ata Declaration”), became a core concept of the World Health Organization’s goal of Health for all (WHO, 2011). The Alma-Ata Conference mobilized a “Primary Health Care movement” of professionals and institutions, governments and civil society organizations, researchers and grassroots organizations that undertook to tackle the ‘politically, socially and economically unacceptable” health inequalities in all countries. There were many factors that inspired PHC; a prominent example is the Barefoot doctors of China (Marcos, Cueto 2004, WHO, October 2008, WHO, December, 2008). Primary healthcare (PHC) refers to ‘essential health care” that is based on “scientifically sound and socially acceptable methods and technology, which make universal health care accessible to all individuals and families in a community. It is through their full participation and at a cost that the community and the country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination” (WHO, September, 1978). In other words, PHC is an approach to health beyond the traditional health care system that focuses on health equity-producing social policy (Starfield, Barbara., 2011, Public Health Agency of Canada, 2011). PHC includes all areas that play a role in health, such as access to health services, environment ‘and lifestyle (Marcos, Cueto 2004). Thus, primary healthcare and public health measures, taken together, may be considered as the cornerstones of universal health systems (White, 2015).

Political will and commitment to PHC on the part of governments first requires acceptance of these values. Commitment, however, is itself a process and shades or levels of commitment are usually the reality, rather than political commitment existing or not. Furthermore, governments are by no means homogenous in their shades of commitment and several different shades may exist in countries at the same time.

Some countries already have policies and are pursuing patterns of development in conformity with these principles. Some political systems are more favorable to PHC precisely because they emphasize these values and are concerned with a broad attack of poverty and inequality and the socio-economic structural quality maintain them. Even for the health sector, the pattern of existing health systems and opportunities for change reflect wider sociopolitical

values. It will be easier to undertake the kinds of changes discussed above, in countries where the overall development policy gives priority to equity and social justice, than in countries where economic growth is being pursued regardless of human consequences. It has to be clearly understood at the outset that commitment to PHC is a commitment to a political goal which will have to be fought for against opposition forces and progress is likely to be slow. Therefore, PHC is a political issue (Commun Dis 1982 Sep; 14(3): 169-76).

2.1.2 The Concept of Health

The most famous modern definition of health was created during a Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946 and signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 1 00) entered into force on 7 April 1948. The World Health Organization (WHO) defined health in its broader sense in its 1948 constitution as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.” Some definition of good health emphasized self-actualization the fulfillment of the individual with normal body function and concept of well-being Datong (1988) and (Mahler, 1996) emphasized that health does not only mean the fitness of the body but also the soundness of mind and emotion which makes life worth living.

Some authors have criticized this definition by WHO like Huber et al.,(2011) in their analysis of the WHO concept of health argued that there are limitations to this definition. Most criticism of the WHO definition concerns the absoluteness of the word “complete” in relation to wellbeing. The requirement for complete health “would leave most of us unhealthy most of the time” Smith R (2008). They also state that since 1948 the demography of populations and the natures of diseases have changed considerably. In 1948 acute diseases presented the main burden of illness and chronic diseases led to early death.

In that context of WHO health definition it articulated a helpful ambition. But due to epidemiological and demographic transition, disease patterns have changed, with public health measures such as improved nutrition, hygiene, and sanitation and more powerful healthcare interventions. The number of people living with chronic diseases for decades is increasing worldwide; even in the slums of India the mortality pattern is increasingly burdened by chronic diseases (Kanungo, et al., 2010). Ageing with chronic illnesses has become the norm, and

chronic diseases account for most of the expenditures of the healthcare system, putting pressure on its sustainability.

2.1.3 The Concept of Structural quality

Notable concept of structural quality in health System was developed by Donabedian in 1988, 2005 his work on evaluation of health care delivery. He conceptualized evaluation of care into three dimensions: structural quality, processes and outcomes (Donabedian, 2005).

Structural quality refers to prerequisites, such as hospital buildings, staff and equipment (Donabedian A. 1988). Structural quality also refers to the generative rules and resources upon which action and interaction can be built (Giddens 1976).

Donabedian further stressed that Structural quality refers to the setting in which care is delivered including adequate facilities and equipment, qualification of care providers, administration structural quality and operations of programs. Using this approach, good care settings and supporting structural quality's contribute to good care. Structural quality variables are often concrete and accessible, making them relatively easy to assess (Donabedian, 2005).

Stefan et al, 2007 in their study on structural quality of quality systems is important to the process and outcome, an empirical study of 386 hospital departments in Sweden; observed that there were relationships between structural quality, process, and outcome and that this relationship was of reasonable representation of quality systems at hospital departments ($p = 0.095$, indicating no significant differences between the model and the data set). Structural quality correlated strongly with process (0.72) and outcome (0.60). Given structural quality, process also correlated with outcome (0.20). Good structural quality in health system performance ensures quality health care delivery service.

2.2 EMPIRICAL EVIDENCE

2.2.1 Proportion of Primary Health Care centers in Ahoada West Local Government Area that are functional(rendering services) and have requisite available medical equipment for use compared to the National Standard requirement.

Primary Health Care Centre to be functional in Nigeria by providing adequate infrastructural quality, National Primary Healthcare Development Agency (NPHCDA) stated that Required National Minimum Resources and Infrastructural quality should attained: **Building and Premises:** a detached building with at least five rooms, walls and roof must be in good condition with functional doors and netted windows, functional separate Male and Female toilet facilities with water supply within the

premises, availability of a clean water source: at 'least a sanitary well, be connected to the national grid and other regular alternative power source have a sanitary waste collection point, have a waste disposal site, be clearly signposted — visible from both entry and exit points, be enclosed by a fence, Staff accommodation provided within the premises or the community. Furnishing: Benches — 8, Chairs — 10, Cupboards — 2, Curtains for windows and doors — all, Delivery bed — 1, Examination couch — 2, Observation beds — 4, Screen — 2, Wash hand basin — 2, Wheel Chair- 1, Writing table — 3. **Medical equipment:** Adult weighing scale — 2, Ambubag — 1, Artery forceps — 2, Baby weighing scale - 1, Bed pan — 4, Bed sheet - 2 per bed, Clinical thermometers — 2, Cold boxes — 1, Cord clamps - 1 pack, Curtains -1 per window, Cusco's speculum — 2, Disposables (facemask, gloves, etc) - 1 pack each, Dissecting forceps — 2, Dressing forceps — 2, Dressing trolley- 1, Enema kits — 2, Episiotomy scissors — 2, Foetal stethoscope — 2, Instrument tray- 2, Kidney dishes — 4, Kidney dish — 2, Lanterns, Buckets - 2 each, Multistix test kits -1 pack of 100, Needle holding forceps 2, ORT Demonstration Equipment - 1 set, Refrigerator — 1, Scissors — 2, Sims speculum — 2, Solar Refrigerator — I, Sphygmomanometer_ 2, Stadiometer— 1, Stethoscope — 2, Sterilization equipment - 1, Stove - 1, Suction machine or (mucus extractors) — 1, Tape rule — 1, Urinary catheter - 2 of each size, Cup, jug, wash basin, towel, bucket, standard beer or/and soft drink bottles, Geo Style Vaccine Carriers (GSVC) — 2, Ice Packs- 4 per GSVC (National Primary Health Care Development Agency Minimum Standards of Resources and Infrastructural quality for Primary Health Care Centers in Nigeria). Oyekale, 2017 in his study on Assessment of primary health care facilities' service readiness in Nigeria, a cross sectional study of twelve states cutting across six (6) geopolitical zones between 2013 and 2014, data collected from 2480 healthcare facilities randomly selected, Opined that for effective delivery of healthcare services by Primary Health Care (PHC) centers require availability of adequate infrastructural quality, diagnostic medical equipment, drugs and well- require a medical personnel. In -Nigeria, Rivers State in particular, -poor funding and mismanagement often characterize healthcare service delivery thereby affecting coverage and quality of healthcare services. Therefore, the stat of service delivery in the health sector has come under some persistent criticisms.

The Minister of Health has revealed that only 20 percent (20%) of health facilities in the country are functional. The minister, during an emergency National Council on Health meeting on the control of Lassa Fever in Abuja, Nigeria January 19, 2016; made the revelation at the dissemination of the 2016 National Health Facility Survey (NHFS). The

report is the first nationally representative health facility survey designed to assess primary, Secondary and private health care facilities in the country. The survey provides information on clinical competence; availability of drugs and basic equipment; readiness to provide key save-one-million-lives programme for result interventions; supervision and financial management based on the ward minimum health care package for quality service (National Health Facility Survey (NHFS, 2016).

The survey provides information on clinical competence; availability of drugs and basic equipment; readiness to provide key save-one-million-lives programme for result interventions; supervision and financial management based on the ward minimum health care package for quality services, provided at the primary health care level.

In Ghana, a developing country, Alhassan et al, 2015 in their study of Efficiency of private and public primary health facilities accredited by the National Health Insurance Authority in Ghana. Analyzed technical efficiency across public and private primary health facilities accredited by the National Health Insurance Authority; found that about 31% out of the 64 hospitals were estimated to be optimally efficient. There were also more publicly owned facilities that were efficient compared to private and mission hospitals. Interestingly, the study identified higher levels of wastage in urban facilities than rural facilities.

Pehr, 2010 in her study of Health Care and Infrastructural quality in Accra, Ghana; found that the city of Accra has approximately 20 government-run health facilities, which were functional and include: three Hospitals (Achimota Hospital; Princess Marie Louise Children's Hospital; La General Hospital); Six Polyclinics; Three Quasi-Governmental Facilities; Ten Smaller Clinics; more than 800 private health facilities.

In developed country like Norway, Organization for Economic Co-Operational Development (OECD),2014 observed that health care is organized nationally (the Ministry of Health and Care Services), regionally through four hospital regions which oversee the provision of specialist services, and at the local level, by 428 municipalities of varying sizes, which are responsible for primary and community' care. Advances in improved treatments, well organized Screening programs, and delivery of evidence-based best practice have contributed to reduce mortality rates and are associated with improved survival rates.

Eboreime et al, 2015, in their research on Assessment of primary health care facilities' service readiness in Nigeria stressed that human resources, standard infrastructural quality, equipment and medications inadequately provided lower standard of health care service delivery.

Oyekale et al, 2017 in their study on Assessment of primary health care facilities' service readiness in Nigeria, a cross sectional study of twelve states cutting across six geopolitical zones between 2013 and 2014, data collected from 2480 healthcare facilities randomly selected, found that availability of functioning medical equipment was essential for effective health care delivery. They further revealed that not all the equipment that was present at the healthcare facilities was in good working condition. Adult weighing scale was present in 94.5%, of the health facilities in Anambra state, although only 85.4% was functioning. The states with lowest functioning adult weighing scales were Taraba (51.8%), Kebbi(52.2%), Niger (58.7%) and Bauchi (59.4%). Availability of functioning infant 12 weighing scale was reported by 69.1%, 65.9% and 65.8% of the respondents from Bayelsa, Ekiti and Anambra states. Similarly, child weighing scales were least found in health facilities in Niger, Kebbi and Taraba states with 30.8%, 32.5% and 33.7%, respectively. It was only in Kaduna state that more than half of the child's weighing scales were functioning. Thermometers were found in 91.00% of the healthcare facilities in Anambra state, while only 58.9% of those from Kebbi had it. Functioning thermometers were least reported in Kebbi and Taraba states with 52.6% and 60.1%, respectively. Functioning stethoscopes were least found in health facilities in Kebbi state and Kogi state with 56.5% and 65.5% respectively. The states with highest percentages having functioning stethoscopes were Ekiti, Kaduna and Niger with 89.4%, 87.00% and 86.1%, respectively. Sphygmomanometers were most functioning in health facilities in Bayelsa, Imo and Ekiti states with 81.2%, 80.0% and 79.3%, respectively. Kebbi and Bauchi states were found to have the least number of functioning sphygmomanometers with 47.4% and 51.4%, respectively. It should be noted that out of the 41.4% of the healthcare facilities that reported to have autoclaves in Bayelsa state, only 24.3% indicated that they were in good working condition. Availability of autoclaves was very low in Niger state with 9.6%, while only 8.2%.

Reported that they were functioning. Other states with low percentages reporting functioning autoclaves were Anambra and Kebbi states with 9.6%. Majority of the healthcare facilities reported absence of functioning electric boilers. Specifically, Bayelsa, Osun and Kaduna states - had the highest availability with 27.1, 22.4 and 18.6%, respectively. Those states with the lowest availability of functioning electric boilers were Anambra, Taraba and Niger states with 3.5, 7.8 and 8.2%, respectively. Similar results were obtained for availability of functioning electric dry heat sterilizer with Bayelsa and Osun states having highest availability with 13.8 and 11.7%, respectively. Moreover, Imo, Taraba and Cross River States reported the

lowest available with 5.2, 5.7 and 5.9%, respectively, medical disposables such as hand gloves and male condoms were reported to be available in 77.18 and 44.03% of all the healthcare facilities. functional stethoscopes were reported by 77.22% of the healthcare facilities, while only 68.10% had sphygmomanometers. In the combined healthcare facilities, Regression results showed that indices of drug and medical equipment availability increased significantly ($p < 0.05$) among states in southern Nigeria and with presence of some power sources (electricity, generators, batteries and solar), but decreased among dispensaries/health posts. Travel time to headquarters and rural facilities significantly reduced indices of equipment availability ($p < 0.05$). In this study the proportion of PHC facilities with functional and quality medical equipment in Primary Health Care sector of Ahoada West Local Government were determined.

2.2.2 Proportion and qualification of health personnel and other staff working under Primary Health Care Department of Ahoada West Local Government Area available to render quality health care services compared to the National Standard requirement.

National Human Resources for Health Strategic Plan 2008 to 2012 emphasized that human resources for health planning, management and development, particularly in sub-Saharan Africa, have been strewn with crisis. Investments in the production and training of the much-needed professionals do not seem to match requirement and therefore does not make the expected impact. Further stressed that Nigeria has one of the largest stocks of human resources for health in Africa comparable only to Egypt and South Africa. There are about 39,210 doctors and 124,629 nurses registered in the country, which translates into about 30 doctors and 100 nurses per 100,000 populations This compares to a Sub-Sahara African average of 15 doctors and 72 nurses per 100,000 populations (National Human Resources for Health Strategic Plan 2008 To 2012, WHO, 2006).

National Primary Health Care Development Agency Minimum Standards of human resources primary Health Care Centers in Nigeria states thus: Medical officer if available -1, Community Health Officer (CHO) (mist work with standing order) -1, Nurse/midwife - 4.

Community Health Extension Worker (CHEW) (must work with standing order) - 3, Pharmacy technician 1, Junior Community Health Extension Worker (JCHE') (must work with standing order)-6, Environmental Health Officer 1, Medical records officer -1, Laboratory technician - i, Support staff- Health Attendant Assistant —2, Security personnel —2, General maintenance staff— 1; Total-24 (National Primary Health Care Development Agency

Minimum Standards of human resources for Primary Health Care Centers in Nigeria).

In an article on “Addressing human resources for health services in Northern Nigeria” health workers employed in the public health sector in the programme states were captured on the Human Resources Administration (HR Admin) and reporting made on a regular basis. Current strength of health workers of programme states are: Jigawa — 7,383; Katsina — 11, 18 1; Zamfara — 10,919; and Yobe — 6,618. These were inadequate to provide quality health services to the citizenry ([www. Prinn-mnch.org](http://www.Prinn-mnch.org)). It also apply in the South — South, Rivers State and Ahoada West Local Government Area in particular. World Health Organization estimated global gap in the supply of health workers to be 4.3 million; 57 countries are ‘countries with critical shortage’ reportedly experiencing shortfalls of 2.4 million doctors, nurses and midwives. It furthermore stressed that challenges facing healthcare workforce manifest 14 not only in shortages of health workers, but also in inequitable distribution, poor training capacity, skills and skills mix deficits, weak management and supervisory systems (WHO, 2006).

A study done by Pagalya et al, 2009 in Thailand on Thailand Health Workforce: A Review of challenges and experiences, the author highlighted that in 2006, according to the Medical Council of Thailand, there were 33,166 medical doctors registered with the council (Medical Council, 2006). There were also 130,000 registered nurses and 30,441 primary care workers. Only 16.5% of doctors worked in district hospitals in rural areas, a much lower proportion than those who worked in private hospitals (21.6%). The majority of doctors worked somewhere other than health facilities such as at universities, as administrators at provincial, regional and central levels, as researchers and in non-health related work. Nurses had, a high proportion of them that worked in rural areas (28%), 12.2% worked in the private sector and about 30% of them served in regional and provincial hospitals. Comparing this study of Thailand’s health.

Worker ratio to people (3:1,000) with other regions of the World, the number of doctors per 1000 people in Thailand was slightly higher than countries in Africa- Nigeria but slightly lower than countries in the Eastern Mediterranean-Afghanistan. South-East Asian- Cambodia and Western Pacific Australia Regions. European countries — Germany has an extremely high number of doctors per 1,000 people. The study also showed that nurse per population ratio of Thailand is higher than those of the African, Eastern Mediterranean, South—East Asia Regions but the European region and Western Pacific region have a higher ratio of nurses per person than does Thailand (WHO, 2004). Primary Care Workers (PCWs) in Thailand, played

important role as front-line care providers at health centers (57.2%) this implies that the proportion of such workers working in rural areas was as high as 77.6%, while only 22.5% of them served at regional/provincial hospitals and provincial health offices (Wibulpoiprasert et al., 2008).

In India, Primary Health Care human resources are provided based on delivery case load services rendered at the Centre into Type A and B. Type A PHC: PHC with delivery load less than 20 deliveries in a month; Type B PHC: PHC with delivery load of 20 or more deliveries a month. Type A PHC has 1 Doctor, 1 staff Nurse, 1 Sanitary worker, 1 Community Health Worker, 1 Pharmacist, 1 Cold Chain and Vaccine Logistic Assistant, 1 Laboratory Technician; Type B PHC has 2 Doctors, 1 Accountant cum Data Entry Operator, 2 Pharmacists, 4 Nurses, 3 Community Health Workers, 1 Health Educator, 1 Laboratory Technician, 1 Cold Chain and Vaccine Logistic Assistant, 2 Multi-skilled Group 0 workers, 1 Sanitary worker cum watchman. Total 7 Type A and 18 Type B (Indian Public Health Standards (IPHS) Guidelines for Primary Health Centers, 2012).

Nigeria's health workforce density is above the African country average level.³⁰ World Health Organization. The World Health Report 2006: working together for health. Geneva: World Health Organization; 2006. [Google Scholar] Per WHO Global Health Workforce Statistics, Nigeria had a total health worker density of about 2.52 per 1,000 in 2008, which is slightly above the WHO minimum standard for health care worker density of 2.3 per 1,000 populations. Nigeria produces a large number of CHEWs and junior CHEWs each year, with CHEW training schools present in nearly every state. Unfortunately, many CHEWs are either unemployed or working in the private sector and the PHC system may not be getting full value out of the investments the government of Nigeria makes in developing health workers. Daniel H. Kress, Yanfang Su & Hong Wang.

Minimum standards for primary health care services nationwide in Nigeria recommended that Community health workers should be trained and re-trained to become community doctors and nurses: all doctors who work in communities should be so trained. Community Health Officers (CHOs) be redesigned as Assistant Medical Officers. All Community Health Extension Workers (CHEWs) of different categories should be trained and re-trained to be known and should serve as Assistant Nurses/Midwives (Minimum standards for primary health care services nationwide in Nigeria, 2007).

Minimum qualification to be trained as a CHEW, Pharmacy Technician, Environmental health Officer, Medical Laboratory Technician, Dental Assistant is a school certificate pass of five subjects at credit level -

Mathematics, English Language and two science subjects. Nurse, Pharmacy, Medical doctor: pass in five school certificate subjects at credit level, this includes Mathematics, English Language, Physics, Biology, Chemistry (Entry requirement to College of Health Science and Technology, School of Nursing, Joint Admission and Matriculation Board). Midwives are trained after the completion of a diploma course in nursing.

They obtain Diploma in Community Health, Nursing, Medical Laboratory, Environmental Health, Dentistry, Pharmacy, Midwifery; first degree in Medicine, Nursing, Pharmacy.

Mullan et al, 2007; in their study on non-physician clinicians in 47 sub-Saharan African countries, opined that in Tanzania and Malaysia, Assistant medical officers are health care providers who work independently or with limited supervision of a physician to provide healthcare services to largely underserved populations (Mullan et al, 2007).

Kruk et al, 2010 "Human resource and funding constraints for essential surgery in district hospitals in Africa: a retrospective cross sectional survey." called Assistant medical officers "surgical technologists" (or técnico de cirurgia) in Mozambique; they are called clinical associates in South Africa, (<http://www.southafrica.info/about/health/clinical-associates.htm>) or "assistant medical practitioner" (AMP, formerly. In Fiji called "native medical practitioner" or (NMP) (Fiji School of Medicine). They are grouped under "Medical Assistant Practitioners" Assistant Medical Officer will be celebrated for the day of medical assistant on 10 March every year in all countries (International Standard Classification of Occupations, 2008 revision, WHO, 2010).

In Malaysia Assistant Medical Officers complete a three and half year Diploma in Medical Assistant (DMA) undergraduate program recognized by the Malaysian Qualifications Agency.

The DMA students study the human body; how the systems, e.g, cardiovascular and respiratory medical and surgical study, pharmacology, work in normal and diseased states and how they relate to medicine. They also learn pre-hospital care, community health, disaster management, orthopedics, obstetrics and gynecology and surgery. The final year of training involves clinical placement in hospitals and health clinics. In Tanzania clinical officers qualified pass, a government entrance examination undergo a year training program with working experience of more than three years and become Assistant Medical Officers. They can then enroll in another two-year program to

specialize in anaesthesia, paediatrics radiology or surgery (https://en.wikipedia.org/wiki/Assistant_medical_officer).

2.2.3 Maintenance plan (procedure of keeping facility and equipment in good working condition) of health facilities and equipment in Primary Health

Care department of Ahoada West Local Government Area.

Maintenance culture is the habit of regularly and consistently keeping a building, machine, facilities, equipment, infrastructural quality etc. in good and working condition (Tijani et al, 2016). In developed country like Britain the British Standards Institute (1974) considered maintenance as the combination of technical and administrative actions taken to preserve or protect a structural quality, system or equipment to function properly (British Standards Institute (1974). Advanced Learner's Dictionary (2009) defines maintenance as the action or process of preserving an object, activity etc. Kumar & Suresh (2008) postulated that maintenance is an action taken to prevent a device or component from failing or to repair normal equipment degradation experienced with the operation of the device to keep it in proper working order. This study considered maintenance as a process of preserving an asset or facility in its state of Continuous use and function, above a minimum acceptable level of performance, over its design span life. Islamiah et al, (2012) asserted the above statement and posited that maintenance culture is the values, way of thinking, behavior, perception and the underlying assumptions of any person or group or society that considers maintenance as important and practice it in their lives.

Health facilities to be functional and remain efficient in providing essential health care services continuous serving and repair of facility, infrastructural quality; and equipment must be carried, out regularly. It is imperative that installation as well as maintenance of existing facilities be given priority. This is more so for developing nations like Nigeria, Rivers State and Ahoada West Local Government Area in particular, Primary Health Care sectors where there is a huge gap between the supply and demand for such facilities due to high rate of population growth and other factors (Dabara et al, 2015). Eti et al, (2006), Nigerian government, should take certain economic steps towards being among the best twenty economies in the world by the year 2020.

Attaining sustainable infrastructural quality development by successive governments and cultivation and practicing maintenance culture are essential in achieving this vision. Infrastructural quality facilities generally referred to as economic and social overhead capital which includes education, water supply, sewage systems, and energy.

Others are postal and telecommunication services, transport system, hospitals and roads (World bank, 1994; Oluwasegun et al, 2013; Dabara et al, 2016).

Governments (Federal, State and Local), private organizations and individuals need to have a strategy on how to maintain their infrastructural quality facilities to ensure sustainability of same. This can be achieved through maintenance culture which is said to have a correlation with national development.

Nahimah (2008), while working on the state of Nigerian Aviation Industry, opined that the flaws in the Nigerian Aviation sector was attributed to lack of maintenance culture and the training of professional engineers. The author further argued that, acquiring aircrafts is not as relevant to the industry as good maintenance of the existing ones, adding that a well-maintained aging aircraft is as good as a poorly maintained new aircraft. This stressed the fact that maintenance culture of public health care facilities in Nigeria; Ahoada West Local Government Area lacking.

Standard Maintenance procedure is essential to ensure optimal service in health care delivery Omotchinshe et al., (2015a); Akinyemi et al, 2016), opined that although adherence to a well- defined and developed maintenance strategy to take care of facility breakdown or malfunction 'thereby allowing facility managers to concentrate on capitalization.

Campbell et al (2006) stressed that in the absence of Standard Maintenance procedure, measurable time required to develop and define a maintenance strategy, communicate it, and last focusing on the tactical choice, for how to achieve it. They further emphasized that tactics are the actual activation needed to implement the strategy, which concerns the management of processes people, and physical asset infrastructural quality. Waeyenberghad et al, (2002) posited that management objectives must be realized in accordance with safety, environmental regulations and also in a cost-effective way. The integration of machines, men, methods and means into a strategy requires indispensable managerial capacity.

Tijani et al, (2016) in their study of Lack of Maintenance Culture in Nigeria: The Bane of National Development enumerated some of the accruable benefits if maintenance culture is embraced in our society as follows:

- Keeping assets in utmost working condition in order to minimize downtime and disruption to services.
- Keeping facilities in a state of good repair for the owner's health and safety.
- Keeping assets from deteriorating in appearance and aesthetics

- Keeping facilities so as to optimally achieve their full potential service life.
- Leveraging efficiencies that can be reflected on the owner's statement of financial position.
- Satisfying a legislated duty that is owed to owners, occupants and guests on the property.
- Preventing unnecessary damage to assets or facilitation that may result (Tijani et al, 201 6).

2.2.4 Proportion of Primary Health Care centers that infrastructural qualitys are available for service delivery in Ahoada West Local Government Area compared to the National Standard requirement.

Required National Minimum Standard for Resources and Infrastructural quality for Primary Health Care centers in Nigeria stipulated the following infrastructural quality for PHCs in Nigeria: **Building and Premises:** a detached building with at least five rooms, walls and roof must be in good condition with functional doors and netted windows, functional separate Male and Female toilet facilities with water supply within the premises, availability of a clean water source: at least a sanitary well, be connected to the national grid and other regular alternative power source, have a sanitary waste collection point, have a waste disposal site, be clearly signposted — visible from Doth entry and exit points, be enclosed by a fence, Staff accommodation provided within the premises or the community.

Ademiluyi et al, (2009), in their research on an overview of Infrastructural quality Distribution of Health Care Services in Nigeria: found out that infrastructural quality distribution of health care services in Nigeria opined that there was of no existence of health facility infrastructural quality before ionization, however during the colonial period, Christian Missionaries organized medical services that were mobile and rural based this was inadequate for the health needs of the people.

Aluko-Arowolo SO., (2006), in his research on The Medico-Spiritual and Historical Origin of Malaria Disease; Falola et al in their research on The Traditional and Modern Health System in Nigeria. African World Press observed that by 1900s colonial master (British) provided hospital-based services, established to take care of epidemics such as sleeping sickness, small pox, and malaria. Non communicable diseases were not considered. Hence, the infrastructural quality was not evenly distributed, and thereby falls short of the health needs of the populace.

Home ,(1983); Akin-Ama, (1990), in their separate research on Town Planning, Segregation and Indirect Rule in Colonial Nigeria, Third World Planning ; Health Habitat and Underdevelopment in Nigeria in collaboration with International Institute for Environmental Development, London.1990 Review, found that health care services in Nigeria were, hospital based provided by the British established in urban towns: Lagos, Ibadan, Kaduna, Jos, Enugu, Benin City; therefore the rural populace were deprived of medical services.

Ademiluyi et al, (2009), found that there was total neglect of rural communities in health care matters; emphasis laid on orthodox health care services, neglect of traditional practices and their indigenous knowledge systems with appropriate technology in their research on overview of Infrastructural quality Distribution of Health Care Services in Nigeria.

Omuta GED, (2015), in his study of Infrastructural quality and Health Care Services in the Niger Delta Region of Nigeria: A Case Study of Physical Amenities in the Primary Health Care System in Delta State; observed that, there was, copious infrastructural quality deficiencies in health care facilities in the rural areas; this is also event today more than fifty-five years of independence. In an attempt to address these challenges, globally, the International Conference on Primary Health Care, in Alma Ata, Kazakhstan in September, 1978 convened. The conference endorsed the health for all' programme through the Alma Ata Declaration; to. Be driven by the Primary Health Care (PHC) system.

PHC programme stands on five principles, these are: accessibility (equal distribution) health promotion appropriate technology; inter-sectorial collaboration and communit participation. These were designed to work together and be implemented simultaneously to bring about better outcomes for the entire population.

Distribution of Primary Health Care facilities in the Local Government of study is of importance.

Erinosh, (2006): Health Sociology for Universities, Colleges and Health-Related Institutions; Stephenson P. Health Promotion Infrastructural quality: A Think piece, An Occasional Paper, Commissioned by the Health Promotion Forum (HPF) of New Zealand; National Association of County and City Health Officials (NACCHO), Public Health Infrastructural quality and Systems 2015; all stressed that, health care infrastructural quality in sub-Saharan Africa, in general, and Nigeria, in particular, are of different types and

practices. They have been characterized into 'hard infrastructural quality' (things that support the economy) and 'soft infrastructural quality (things that support the system's social response and capability). They determine the outcomes of the system. They further opined that standard and evenly distributed health infrastructural quality promote economy, enhance utilization and efficiency and that physical structural quality entails the building and other fixed structural quality such as pipe borne water, good access roads, electricity, drugs within healthcare environment, stressing good technical knowledge, about the equipment's all aid adequate health care. It is therefore important to assess these physical structural quality to continuously ensure adequate health care delivery.

2.25 Organizational structural quality of Primary Health Care centers in Ahoada West Local Government Area.

Organization refers to the broad structural quality that organizes health care provision, including Ownership, market competition, decentralization (i.e., the delegation of responsibilities among different levels of government), and Vertical integration (i.e., coordination among preventive, primary, secondary and tertiary care providers). How care provision is organized and managed affects the efficiency and quality of the service delivered (Hsiao, 2003).

Standard organizational management structural quality is essential if PHC service delivery aimed at meeting primary health care needs of the people are to achieve.

Adeyemo (2005), in his study of Health Care Delivery in Nigeria a case study of Primary Health Care organization management structural quality of Ife-East Local Government of Oyo State, Nigeria; observed that the organogram comprised of an Executive Chairman; Secretary: Supervisor for Medical and Health Department; Coordinator PHC Division - Health sister.

Health Officer, Essential Drugs and Supply, Disease control, Water and Sanitation, Maternal and Child Health, Family planning and Nutrition. Virtually PHC management organizational structural quality is similar in most States and Local Governments in Nigeria.

Sai Ma et al, (2008) in their study "A Comparison of Health Systems in China and India" observed that organizationally, China as a socialist country, has a reputation for using coercive political power to closely regulate public services including health care through laws, codes, administrative rules, and price setting. However, since the government's restructuring in 1998,

the power to regulate and plan for health services has been largely decentralized to the provincial level. At the national level, this power has been divided among several parallel agencies. The Ministry of Health provides general policy guidelines but has modest power to enforce its policies because it does not directly finance health care or enforce regulations. Family planning being a high priority for the country: a Family Planning Commission was formed and has become a powerful agency that controls and manages family planning (Hsiao, 1995). Moreover, after 1998 two new agencies entered the health system. The State General Administration of Quality Supervision, Inspection and Quarantine was established to regulate and monitor port quarantine. The State Food and Drug Administration split from the Ministry of Health, responsible for approving health-related products and regulating pricing (Project Team of the Development Research Center of the State Council of China, 2005). As a result of this complex structural quality, the regulation and enforcement power has been diffused and Policies from different ministries and commissions often conflict with each other.

They posited that India practice Laissez-Faire principle as stipulated in her constitution. According to India's Constitution, government is responsibility for health services, and this is divided into lists the Union list, the State list, and the Concurrent list that specify responsibilities for the central government and the state government.

The Concurrent list describes responsibilities Shared between levels of government, including the prevention of infectious Diseases and family planning (Das Gupta et al, 2004). In general, though public health is deemed a state subject in India, the policy development and program design are centralized. At the national level, the Organization of Ministry of Health and Family Welfare consists of the Department of Health, the department of Family Welfare, Department of Indian Systems of Medicine and Homeopathy. This structural quality has not been regarded as highly effective. In a World Bank survey of senior officials from India' health-related agencies, regulation and enforcement were ranked as the second worst among essential public health functions (Das Gupta et al, 204).

Respondent expressed serious concerns about the Organization of Ministry of Health and Welfare's capability for monitoring legislation, enforcing laws and regulations, and partnering with state governments.

By comparing China's organization of health care with India's certain interesting insights revealed. First, in the early years after their independence, both countries emphasized a public health care system that was equitable and provided basic health care services. This public provision of health care was largely successful in China, but less so in India, which struggled to provide basic health services to its citizens. Consequently, from the 1950s to 1980s, China experienced much larger gains in health compared with India. For example, WHO statistics : show that average Chinese life expectancy at birth in 2003 was ten years longer than the Indian life expectancy. Why China's public-sector, care was so much more effective is not entirely clear. : Part of the difference may be related to the greater centralized control exerted in China they asserted.

2.2.6. Proportion of primary health care centers using established protocols like Essential drug list regulation in Awelga.

Essential drugs are drugs that “satisfy the priority health care needs of the population” (WHO. 2017). These are the medications to which people should have access at all times in sufficient amounts. The prices should be at generally affordable levels (WHO. 2003).

The Bamako Initiative, sponsored by UNICEF and WHO and adopted by African ministers of health in 1987, was based on the realization that, despite accepting in principle the core tenets of comprehensive primary health care, by the late 1980s many countries — especially in sub-Saharan Africa — were burdened by a lack of resources and practical implementation strategies. Bamako Initiative aimed to increase access to primary health care by raising the effectiveness, efficiency, financial viability and equity of health services. Bamako health centers implemented an integrated minimum health-care package in order to meet basic community health needs, focusing on access to drugs and regular contact between health-care providers and communities. (Bamako initiatives, 1987).

Haque, (2017) in his study of “Essential Medicine Utilization and Situation in Selected Ten Developing Countries: A Compendious Audit” stressed; accessibility to medicines is the fundamental right of every person. The principle of the Essential Medicines (EMs) is that a limited availability of medicine will promote to a better supply chain and rational prescribing to the rural and remote health centers for any developing countries. Ems safeguards and improves distribution and dispensing of medicine. Correspondingly, motivational and dedicated

training program regarding drug information and adverse drug reactions boost up access to medicine and health-care.

Nigeria embraces WHO-promoted essential drugs initiative as earliest possible time in 1987. The first ever Essential Medicine List (EML) contains 205 medicines for public health centers and hospitals (Adikwu et al, 199). Later, EML was also incorporated for private clinics and hospitals (National Drug Formulary and Essential Drugs Decree, 1989:A479). Adebayo et al, (2010) in their study of Pattern of prescription drug use in Nigerian army hospitals, found that 90.5% of doctors were acquainted and familiar with of the existence of national essential drugs list; nevertheless, only 58.1% of them did not use for their prescriptions.

Oyeyemi et al, (2013) in their study on “Rational use of medicines: Assessing progress using primary health centers in Shomolu local government area of Lagos, Nigeria”, a cross-sectional descriptive study audited 600 patient medicine profiles revealed that 83.2% were from the National Essential Medicine List (NEML) and 86.5% of essential drugs were obtainable in the public PHC of Lagos State, Nigeria. Abdu-Aguye et al, (2016) in their study on “Assessment of antimicrobial prescribing at a tertiary hospital in North-Western Nigeria” a descriptive drug utilization study carried out prospectively in 2015 at the Ahmadu Bello University Teaching Hospital, Zaria, Nigeria, revealed that 91% antibiotics prescribed from the NEML. Babalola et al, (2011) in their study on “Evaluation of prescription pattern in Osun State (Southwest) Nigeria”, research conducted on four randomly selected public PHC in Osun State, Nigeria. In 2006—2007 reported that 94.16% of medicines prescribed were from the NEML. Nevertheless, the study also found that there was a high propensity of polypharmacy, use of antibiotics and injections, and a shortage of highly skilled workforce. Tamuno et al, (2012) study carried out On “Drug prescription pattern in a Nigerian tertiary hospital” a descriptive retrospective research conducted at the general outpatient unit of the Aminu Kano Teaching Hospital report that 94% of the drugs prescribed were from NEML even though a hard copy of EML not obtainable for the doctors.

In addition, 91.7% of the most important medicines for common diseases were available.

Hassan A et al, (2017), in their study on “Assessing prescriber's awareness of essential medicine list,

hospital drug formulary and utilization of standard treatment guidelines in a tertiary healthcare facility in North-Central Nigeria”, a cross-sectional descriptive study conducted among 70 medical doctors at level of medical officers, registrars, and consultants in various clinics of a 300-bed tertiary hospital revealed that the most (51.4%) of the studies respondents were aware of NEML. The much (77.1%) of the respondents claim to have a hard copy of EML.

Bazargani et al, (2014) studying “Essential medicines are more available than other medicines around the globe” revealed that the situation and utilization of national EMs have improved. Even then, Nigeria needs to go much more to reach an ideal level, particularly in the public health facilities. In Kenya, essential drugs were first introduced in 1981 with four succeeding amendments in 1993, 2003, 2010, and 2016 (Kenya Essential Drugs List, 2003; Republic of Kenya Ministry of Medical and Ministry of Public Health, 2010; Kenya: Updating the essential drugs list, 2017). The accountability and obligation to supervise whether Kenya Essential Medicine List (KEML) functioning were not evidently defined even though the country has EML for 36 years. (Marc et al, (2010); IMS Institute for Healthcare Informatics. Understanding the Role and Use of Essential Medicines Lists. 2015). Mecca et al, (2014) a retrospective longitudinal before- after study at Webuye District Hospital, Kenya, reported that expenditure on EMs by the government reduced ($P < 0.0001$). The stock-out rate decreased by 2.28% though this change was not statistically significant ($P = 0.099$). The study finding may have an influence of the National Hospital Insurance Fund. Wangu et al, (2014), a study conducted in public hospitals of Nakuru County, Kenya on “Availability of essential medicines in public hospitals: A study of selected public hospitals in Nakuru County, Kenya” reported that most of the EMs antimicrobials analgesics, antihypertensive, emergency in medicines, and pediatric formulations — were out of stock. Poor distribution, financing, inappropriate selection of medicine, and irrational prescribing were the causes of out of stock. Mecca, (2017) in his study on Financing and Availability of Essential Medicines before and after Introduction of the National Hospital Insurance Fund Civil Servants and Disciplined Services Medical Scheme: A Case Study of Webuye District Hospital, Western Kenya. Master’s Thesis, Department of Pharmacology and

Pharmacognosy University of Nairobi. 2014, reported that the average monthly stock-out time reduced from 21.75% in 2010-2011 to 19.47% in 2012-2013.

Nevertheless, Wilcoxon signed-rank test analysis exhibited that the median difference in monthly stock-out time among the two epochs was not significant ($P = 0.099$). One of the most important restarts of the Essential Drugs Program of Kenya was indecorous supply chain often due to futile buying and dispersal of essential drugs to the rural health centers in Kirinyaga District, Kenya (Agwanda et al, 1996). Alam et al, (2011) studying on “Prescribing trends in the out-patient department in a tertiary hospital in Bangladesh” in Sir Salirnullah Medical College and Mitford Hospital, a tertiary care 600-bed Hospital, Dhaka, Bangladesh, reported that only 43.16% (467) drugs out of 300 prescriptions of 1082 drugs were prescribed from the EML of Bangladesh. Afroj et al, (2012) studying on “Patterns of drug utilization in cardiology department of a tertiary level hospital in Bangladesh” a cross-sectional descriptive study conducted in same teaching hospital 1 year later in the cardiology department found that out of 300 prescriptions, most of the drugs, i.e. 70% (1860), were prescribed from the EML of Bangladesh and only 30% drugs (680) were other than EML of Bangladesh. Alarngir et al, (2015). Studied on “drug use pattern and cost efficiency in Upozilla Health Complexes in Dhaka division of Bangladesh” a multicenter study conducted in 20 different health facilities of 119 health complexes in Dhaka Division of Bangladesh, the proportion of drugs prescribed which were on EML was 59%. This study evaluated six common diseases — dysentery, acute respiratory infection, diarrhea, scabies, worm, and fungal infections of Bangladesh and 600 patients’ profile.

Gobir et al, (2014) studying on effects of free drugs utilization of health services in a rural community in North-western Nigeria found that when essential drugs were provided in health facilities under study and freely dispensed there was 59.8% increased utilization of the health centre during the three months period was recorded against the previous year. Antimalarial, analgesics, anthelmintic and hematinic were the most dispensed drugs. Similarly, attendance at the antenatal clinic increased by 23.6% in 2010 (from 1137 to 1841). Child welfare clinic attendance increased by 28.2% (from 874 to 1559).

CHAPTER THREE

METHODOLOGY

This chapter presents the study area, study design, study population, sample size determination, sampling technique, study instrument for data collection, study procedure, data analysis, study validity, Study variables, benefits of the research, risk of the research, ethical considerations, confidentiality, study limitation, inclusion criteria, exclusion criteria. In addition to that, procedures of data entry and management and analysis are presented.

3.1 Study Design

This is a descriptive, cross-sectional study (survey) of primary health care centers in Ahoada West Government Area. Descriptive study design was employed since the study sought to provide an accurate description of the factors that affect services provided by fourteen model primary health care facilities in the Local Government Area.

Correlation was also used to enable the researcher gain basic information on the multiple independent variables under analysis in the study in relation to the dependent variable (Creswell 2008). The design also enabled the analysis of correlations between the independent variables and the study subjects in order to assess the utilization of the services provided which is a binary dependent variable. Comprehensive list of primary health care facilities obtained from the Local Government Primary Health Care coordinator.

3.2 Study Area

This study was carried out in Ahoada West Local Government Area (AWELGA). It is one of the 23 Local Government Areas of Rivers State in southern Nigeria. Its administrative headquarter is Akinima in Engenni Kingdom. Population of 75,000; population density of 5,856.5/km², 168/sq. mi). The Local Government consists of twenty (12) wards and fourteen (14) Primary Health Care centers ("Ahoada West Local Government Area", 2019). Ahoada West local government area is included in the Old Ahoada region, it is situated 52 kilometers (32 mi) southwest of Ahoada and about 40 kilometers in Ijaw territories and also part of the I Zion communities in River state, it has definite boundary with Yenagoa local government of Bayelsa State. It is bounded to the south by Ogba Ebgema Ndoni local government area, to the east by Abua/ Odual ("Ahoada West Local Government area", 2015).

The people are predominantly: farmers, civil servants, company workers, businessmen, private Entrepreneurs (personal observation).

Administration

Ahoada West Local Government Area (AWELGA), is one of the twenty-three local governments in Rivers State. It consists of twelve wards, and the administrative headquarters and capital in Akinima. The current Chairman of Ahoada West is Hon. Evans. Hope Ikiriko. The Chairman preside head of the local government executive and is elected by popular vote. Effective participation in governance by all adults is assured through the sharing of powers, revenue and responsibilities between the twelve wards. Ahoada West Local Government Area is made up of the following tribe, the Engenni and the Ekpeye. The Engenni consist of sixteen 16 communities while the Ekpeyes consist of twenty eight 28 communities all together is forty four 44 communities in Ahoada West local government area that made up the twelve 12 constituent wards.

People

Ahoada West is most vibrant in fish, plantain and every other food products in the pronounce Mbiama markets on Monday to Wednesday every week with a daily influx of visitors via road, air and sea. Any discuss about Ahoada West is never complete without more than a passing reference to the people who dwell there.

Ahoada west is colorful because it is home to over 100,000 people from different tribes, backgrounds and cultures. Quite a number of the early visitors to Ahoada West came in for business, having been enticed by the promise of instant oil wealth. Many of such hopes were realized; however it is also true that so many people found other reasons to stay.

First time visitors are often struck by the beautiful women, rich delicious, and vibrant night life in the area. Is the second place where crude oil was discovered in Old Rivers state in 1957 after Oloibiri in 1956 Ahoada West has been embroiled in a sort of war of appearances. A spate of kidnappings, civil unrest and hooliganism served to project a violent and unfriendly image to the rest of the world. This greatly impacted negatively on tourism in the oily. Things have however since cooled and life in the city has returned to normal.

If you have to be away from Ahoada West for most of the year, be sure to be back in December! From leisure parks and fun activities, the town is often gay with festivities as both government, non-governmental bodies and individuals pull out all the stops to make the season an enjoyable one for both residents and visitors. The highlight of the season is the wrestling festival in Joinkrama 2, a colorful festival which aims to showcase the best and finest in the culture of the Ijaws in Niger Delta people. The Ahoada West Chambers of Commerce and trade organizations also contribute to make the season a memorable one. Trade fairs and other events like the Ahoada West Discount Market sees influx of people from within and outside the state to participate in these memorable bargain events.

Finally, irrespective of the purpose of visit or agenda, Ahoada West is waiting, with open arms of hospitality and pleasure, to make your stay memorable (ABOUT AHOADA WEST P11365. CO, <https://ph3 65 .co/phguide/my-posts/?page id=2>) 43.

3.3 Study Population

The population for this study was made up of Primary Health Care Centre in Ahoada West Local Government Area and the staff - Doctors, Nurses/Nurse midwife, pharmacist, Laboratory scientists/Technologist and other health care providers who are employees of Ahoada West Local Government Council, in Primary Health Care sector, and are heads of health facility. Head of health facility who works in the facility is eligible for the study. Exclusion criteria were those who working in the health facility but were not heads. There are fourteen Primary Health Care facilities in Ahoada West Government Area, structural quality of these health facilities was assessed.

3.4 Sample size Determination

This yielded a sample size of 237, and adjusting for a 10% non - response rate. However, the Local Government Council has only 14 HCs and all these were included in this study. All fourteen Primary Health Care centers in Ahoada West Local Government Area, Rivers state of Nigeria were included in this study

A quantitative study.

Sample size is determined using this formula

$$n = \frac{z^2 pq}{d^2} = (\text{Bluman, 2008}),$$

Where;

- n = desired sample size
- z = the standard normal deviate, usually set at 1.96 which corresponds to 95% confidence interval.
- P = estimated proportion in the target population estimated from a previous study on Facilities and Equipment as Predictors of Effective Health Care Delivery Services in Selected State Government Hospitals in Oyo State, Nigeria 81% = 0.81(Ogundele et al, 2009).
- Q = 1.0-p (1-0.81= 0.19)
- d = margin of sampling error tolerated at 95% degree of confidence set at 5% Sample size was estimated using the result of a previous study where the proportion of health data collected analyzed was 81% ((Ogundele et al, 200, a confidence level of 95%

$$n = \frac{z^2 pq}{d^2} = 1.96^2(0.81 \times 0.19)$$

3.5 Sampling Techniques

In as much as all existing 14 PHCs in the L.G.A. were used in the study no sampling method was used. Head of health facility who works in the facility was eligible for the study. Exclusion criteria were those who working in the health facility but were not heads.

3.6 Study Instrument for Data Collection

The instrument used was a structural quality pretested questionnaire developed by the researcher in the School of Public Health University of Port Harcourt. The questionnaire was used to elicit relevant information such as socio-demographics, functionality, proportion of medical equipment, proportion/qualification of health personnel, maintenance culture, infrastructural quality, availability of essential drugs and organization structural quality. The instruments for data collection are self-administered questionnaire. The questionnaire is titled "University of Port Harcourt Checklist for Structural quality of PHC". The questionnaire has three Sections.

Section A consisted of Infrastructural quality assessment questions, which respondents are allowed to tick yes or no for information that are applicable.

Section B consisted of Organizational structural quality questions of PHC in Awelga, which respondents are allowed to tick yes or no for information that are applicable.

Section C consisted of questions on services provided, which respondents are allowed to tick yes or no for information that are applicable.

A pilot study was not done in the structural quality questionnaire has been tested by University of Port Harcourt School of Public Health; also, the study was not conducted on human subject. This is a descriptive, cross-sectional study (survey). Descriptive study design was employed since the study sought to provide an accurate description of the factors that affect services provided by fourteen model PHCs of the Council (Ogundele et al, 2009). Questionnaire structural quality to measure proportion of health workforce, availability of drugs, medical equipment and infrastructural quality (Sambo, 2008). These equipment's, drugs, infrastructural quality, human resources and organizational structural quality, services provided are part of the requirements for Minimum standards for primary health care in 'Nigeria (MSPHCN) as recommended by the World Health Organization (Minimum standards for primary health care in Nigeria). To ensure validity of the research instrument, a pretest questionnaire by School of Public Health University of Port Harcourt was used.

3.7 Study Procedure

Personal contact with heads of facilities, direct observation of materials, human, organization, resources and taking accurate record.

3.8 Data Analysis

Data was first entered into the 2010 Microsoft Excel Data Sheet, after which it was transported into the Statistical Pack for Social Sciences (SPSS) version 21 .0 statistical software for analysis.

Descriptive statistics was computed and presented using tables and charts. Categorical variables such as respondent's age group, gender, educational status, staff category, number of PHC, marital status, job status, job related training in the last 1 year, years in service, years in current health facility, adequate supervisory support were reported as frequencies and percentages while inferential statistics was done to compare proportions of human resource recommended for PHCS and that available at the PHCs surveyed using the WinPepi Statistical Software (version 9.7). The level of significance was set at a probability level of $p < 0.005$.

Chi-square test was used to test for statistical significance variables. Level of Confidence was set at 95%, and the level of significance was predetermined at a p-value of 0.0.5.

Information on collected from the checklist of items on availability and adequacy of physical facilities equipment as well as diagnostic facilities and equipment were subjected to percentage and used under findings and discussion of data collected as additional information made by the respondents in each health care facility used for the study. Data analyzed based on Donabedian, Avedis., 1988 evaluation model of structural quality- material resources (facilities, equipment), human resources (number and qualification of personnel), organization structural quality (medical staff organization).

3.9 Study Validity

Validity of the study was ensured by the use of pretested structural quality questionnaire from the School of Public Health University of Port Harcourt

3.10 Study Variables

The independent variables were demographic and socio-demographic characteristics, functionality characteristics and factors affection service delivery such as availability, state of infrastructural quality/equipment, maintenance culture, education of service providers etc. The dependent variable is Primary Health Care Centre that meet the Minimum requirement.

3.11 Benefit of the Study

1. Ascertain the structural quality of Primary Health Care centers in Ahoada West Local Government Area, Rivers state Nigeria, will assist in planning for the health needs of the Local Government.
2. Help to determine the proportion and quality of medical equipment in Primary Health Care centers in Ahoada West Local Government Area thereby ensure availability for efficient health care.

3. This study shall assist Civil Service Commission of the Local Government Authority (LGA) to employ qualified health personnel to work under Primary Health Care sector; thereby, provide essential effective health care services in the LGA.
4. Maintenance culture of health facilities and equipment would be known, deficiencies corrected for efficient and effective health care service delivery in Primary Health Department of Ahoada West Local Government Area.

3.12 Risk of the Research

1. This study may expose the state (physical condition) of Primary Health Care centers in the LGA and liabilities suffered by responsible person(s).
2. Resources allocated for maintenance of facility and equipment that was not used for this purpose would be exposed and refunds may be requested or other punishment given to erring staff.
3. Lack of essential drugs may expose inadequate use of Drug Revolving Fund leading to discipline of erring staff.

3.13 Ethical Consideration

Ethical clearance was sought and got from the University of Port-Harcourt Ethical Review Committee, Permission from the relevant authorities in the Rivers State Primary Health Care Management Board, Primary Health Care Department of Ahoada West Local Government Area was obtained before administering the questionnaires. The objectives of the study were clearly explained to the participants and informed consent was obtained.

Participants were assured of the confidentiality of their responses and that non-participation will be of effect. The questionnaires did not have any personal identification; serial numbers was used.

3.1.4 Confidentiality

This study observed the recommendations contained in Resolution 466/2012 of the National Health Council, regarding research that "To evaluate the research protocols involving human beings, always guided by, among other things, the principles of impersonality, transparency, reasonability, proportionality, and efficiency, within, the timeframes established in an operational norm, avoiding redundancies that delay the analysis"(Einstein. Jan-Mar 2014).

Participants were assured of the confidentiality of their responses. The questionnaires did not yet any personal identification; serial numbers was used.

3.15 Study Limitation

The study was limited by difficult in means of transportation to all 14 PHCs in the Local Government Council due to bad terrain.

CHAPTER FOUR
RESULT AND DISCUSSION

4.1 RESPONSE RATE/ COMPLETENESS OF DATA

A total number of 14 pretested checklists/ questionnaires were distributed to all the primary Health Care centers in Ahoada West Local Government Area, River state Nigeria, the 14 pretested checklists/ questioners were retrieved and assessed for completeness and consistency giving a response rate of 100%

4.2 socio-demographic/socio-economic characteristics of respondents

Table 1a: Socio- demographics characteristics of study population

Vriable	Frequency	Percentage
Primary Health Care Centre	No of Health Staff	Percentage of Total
Akinima Model Primary Health Centre (MPHC)	12	5.9
Edagberi Cott Hosp	13	6.4
Emezhi MPHC	12	5.9
Ebiriba MPHC	11	5.4
Mbiamma MPHC	20	9.9
Isua MPHC	19	9.4
Ikodi MPHC	5	2.5
Idu-Ekpeye MPHC	22	10. 8
Okarki MPHC	15	7.4
Okogbe MPHC	11	5.4
Odawu MPHC	22	10. 8
Odieroke MPHC	17	8.4
Oyigba MPHC	15	7.3
Ubeta MPHC	9	4.4
Total	203	100
Staff Category		
Doctor	20	9.9
Nurse	65	32. 0
Pharmacy	1	0.5
Lab Scientist	13	6.4
Pharm Tech	18	8.9
Lab Tech	7	3.4
JCHEW	16	7.9
SCHEW	44	21.7
CHO	16	7.9
VHWs	3	1.5
Total	203	100

Socio- demographic and Socio- characteristic are summarized in table 1a:

There are 14 primary Health Care centers in Ahoada West Local Government Area, River State manned by trained health professionals. Health of facilities were my respondents. Total of 203 health professionals, male- 16 (7.9 %), female- 187 (92.1%) were found to be staff of primary Health Care centers in Ahoada West Local Government Area. The following were identified: Doctors- 20 (9.9%) they were also head of facilities; Nurse- 65(32.0%), Pharmacist-1 (0.5%), Laboratory scientist- 13 (6.4%), Pharmacy Technicians- 18(8.9%), Laboratory Technicians- 7 (3.4%), Junior Community Health Extension Worker (JCHEW) - 16(7.9%), Senior Community Health Extension Worker (SCHEW)-44(21.7%) Community Health Officer (CHO)- 16(7.9%), Village Health Workers-3(1.5%).

Table 1b: Socio-demographics characteristics of study population

Variables	Frequency	Percentage
Age		
20-30	17	8.4
31-40	79	38.9
41-50	72	35.5
51-60	35	17.2
Total	203	100
Gender		
Male	16	7.9
Female	187	92.1
Total	203	100
Marital Status		
Married	169	83.2
Single	30	14.8
Separated	2	1.0
Divorced	2	1.0
Total	203	100
Educational status		
Tertiary	191	94.2
Postgraduate	12	5.9
Total	203	100
Job Status		
Full Time	199	98.0
Part Time	4	2.0
Total	203	100
Job related Training in the last 1 Yr.		
Yes (Received training)	192	94.6
No (Received no training)	11	5.4
Total	203	100

Summary of socio-demographic and socio-economic characteristics of respondents continue in table 1b

Majority (38.9%) of the health professionals were between 31-40 year of age. This was following by those between 41-50 years (17.2%), 20-30 years (8.4%). Over four-fifth (94.1%) of the health had tertiary level of education and 5.9% had postgraduate education.

Thirty (14.8%) of the health workers were single, 169(83. %) were married, 2(1.0%) were separated and 2(1.0%) were divorced. Full time staff were 199(98.8%), part time- 4(2.0%). health personnel who receive Job related training in the past one year were 192(94.6%); those who did not receive Job related training in the last one was 11(5.4%)

Table 1c: Socio-demographic characteristic of study population.

Variable	Frequency	Percentage
Years in Service		
< 1-5	27	13.3
6-10	58	28.6
11-15	28	13.8
16-20	26	12.8
21-25	29	14.2
26-30	16	7.9
>30	19	9
Total	203	100
Years in Current Health Facilities		
< 1-5	149	73.4
6-10	48	23.6
11-15	2	1.0
16-20	4	2.0
Total	203	100
Job Satisfaction		
Yes	203	100
No	0	0
Total	203	100
Adequate Supervisory Support		
Yes	203	100
No	0	0
Total	203	100
Level of Education		
Tertiary	191	94.1
Postgraduate	12	5.9
Total	203	100

Summary of socio-demographic and socio-economic characteristics of respondents continue in table 1c.

Years (s) in service as a civil less than one to five years (<1-5 year)- 27(13.3), those with 6-10 year-58(28.6%), 11-15 years-28(13.8%), 16-20years-26 (12.8%), 21-25years 29 (14.3), 26-30 years-16 (7.9%), more than (> 30) Years -19(9.4%).

Year spent in service at current health facility: less than one to five year (<1-5 year)- 149(73.4%), those who have served 6-10 years – 48(23.6%), those who have served 11-15 years 2(1.0%), those with 16-20 years- 4(2.0%). All 203 (100%) were satisfied with their current job and being supervised.

4.3 study finding

4.3.1. Proportion of primary Health Care centers in Ahoada West Local Government Area that are functional (rendering services) and have requisite available quality of medical equipment for use compared to the National Standard requirement.

Essential services provided were used as indicators. These include the following services:

- ii) Laboratory
- iii) Antenatal care
- iv) Family planning
- v) Immunization

Table 2a; functional primary Health Care centers of AWELGA and services provided

Variable	Frequency	Percentage (%)
MPHC FACILITY (N=14)		
Akinima Model Primary Health Centre (MPHC)	1	7.143
Edagberi Cott Hosp	1	7.143
Emezhi MPHC	1	7.143
Ebiriba MPHC	1	7.143
Mbiama MPHC	1	7.143
Isua MPHC	1	7.143
Ikodi MPHC	0	0
Idu-Ekpeye MPHC	1	7.143
Okarki MPHC	1	7.143
Okogbe MPHC	1	7.143
Odawu MPHC	1	7.143
Odiereke MPHC	1	7.143
Oyigba MPHC	1	7.143
Ubeta MPHC	1	7.143
Total	13	92.9
Out patient Service(N=14)		
Yes	14	100
No	0	0
Total	14	100
Antenatal Care (N=14)		
Yes	13	92.9
No	1	7.1
Total	14	100
Immunization Service(N=14)		
Yes	14	100

No	0	0
Total	14	100
Laboratory Service (N=14)		
Yes	13	92.9
No	1	7.1
Total	14	100

Functional Primary Care centers and services provided are summarized in Table 2a. There are 14 Primary Health Care facilities in Ahoada West Government Area; 13 (92.9%) health centers were found to be functional; one (7.1%) was not, using the indicators. All the health facilities in the Local Government Area provide out patient service (100%). out of the 14 primary Health Care facilities in the Local Government 13(92.9%) provide antenatal care, immunization service; one (7.1%) did not. Thirteen (92.9%) of the primary health care

facilities were found to provide Family planning, Laboratory services however one (7.1%) did not.

Table 2b: other Service Provided by Primary Health Care Centers of AWELGA

Variable	Frequency	Percentage
Nutrition/Catering Services (N=14)		
Yes	5	35.7
No	9	64.3
Total	14	100
Pharmaceutical Service(N=14)		
Yes	13	92.9
No	1	7.1
Total	14	100
Delivery Service (N=14)		
Yes	12	85.7
No	2	14.3
Total	14	100
Infant welfare Service(N=14)		
Yes	13	92.9
No	1	7.1
Total	14	100
Out Reach Service (N=14)		
Yes	14	100
No	0	0
Total	14	100
Essential Drug List Adherence (N=14)		
Yes	14	100
No	0	0
Total	14	100
Water and Sanitation Service (N=14)		

Yes	14	100
No	0	0
Total	14	100

Summary of other services provided by primary Health Care centers in AWELGA. Continued in table 2b.

Out of the 14 Primary health care facilities in Ahoada West Local Government Area, 5 (35.7%) render nutrition/ catering demonstration services, 9 (64.3%) do not render essential services of nutrition/catering demonstration.

Pharmaceutical services provide by 13 (92.9%) while 1 (7.1%) of the primary health care facilities does not render pharmaceutical services. Twelve (85.7%) of the fourteen primary health care facilities provided delivery services, 2 (14.3%) do not carry out delivery services. Thirteen (92.95) of the primary health care facilities in Ahoada West Local Government Area provide infant welfare services; 1 (7.15) does not provide infant welfare services. All 14 (100%) of the primary health care facilities in Ahoada West Local Government Area provide outreach, water and sanitation services as stipulated by Bamako initiatives of essential drug list.

Table 2c: other Service Provided by P H Cs AWELGA

Variable	Frequency	Percentage
2-way Referral System (N=14)		
Yes	8	57.71
No	6	42.9
Total	14	100
Record Maintenance (N=14)		
Yes	14	100
No	0	0
Total	14	100
Supervision Service (N=14)		
Yes	14	100
No	0	0
Total	14	100
Waste Disposal System (N=14)		
Yes	14	100
No	0	0
Total	14	100
Adolescent Health Service (N=14)		
Yes	8	57.1
No	6	42.9
Total	14	100
24/7 Service (N=14)		
Yes	11	78.6
No	3	21.4
Total	14	100
Surgical Service (N=14)		
Yes	11	78.6

No	3	21.4
Total	14	100
Guidelines for Management (N=14)		
Yes	14	100
No	0	0
Total	14	100

Summary of other services provide by PHCs in AWELGA continued in table 2c.

Eight (57.1%) out of the 14 health facilities carry out 2-way referral system, 6 (42.9%) do not have a functional 2-way referral system. All 14(100%) primary health care facilities in the Local Government have efficient record maintenance system; receive adequate supervision and adequate waste disposal method/ system. Eight (57.1%) of the primary health care facilities carry out adolescent health services; 6(49.9%) are not carrying out adolescent health services. Eleven (78.6%) provide 24/7 primary health care and surgical services, 3 (21.4%) do not provide 24/7 health care surgical. all 14(100%) have guidelines for management.

Table 2d: proportion of P H Cs with usable medical equipment in AWELGA

Variable	Frequency	Percentage
Sphygmomanometer		
Yes	14	100
No	0	0
Total	14	100
Stethoscope		
Yes	14	100
No	0	0
Total	14	100
Weighing Scale		
Yes	14	100
No	0	0
Total	14	100
Delivery Couch		
Yes	14	100
No	0	0
Total	14	100
Growth Chart		
Yes	8	57.1
No	6	42.9
Total	14	100
Partograph		
Yes	11	78.6
No	3	21.4
Total	14	100
Malaria Kit		

Yes	11	78.6
No	3	21.4
Total	14	100

Proportion of PHCs with usable medical equipment in PHCC. Are summarized in Table 2d:

Table 2d summarizes the proportion of primary health care centers with appropriate and quality medical equipment for delivery of standard essential health care services in Ahoada West Local Government Area. All 14(100%) of primary health care centers in Ahoada West Local Government Area have functional Sphygmomanometer, Stethoscope, Weighing Scales, Delivery Couch, Growth monitoring Chart for infants, pantograph for monitor of labor, Malaria Kit Malaria diagnosis.

Table 2e: proportion of P H C s with usable medical equipment in AWELGA

Variable	Frequency	Percentage
Thermometer		
Yes	14	100
No	0	0
Total	14	100
Glove		
Yes	14	100
No	0	0
Total	14	100
Hiv Kit		
Yes	12	85.7
No	2	14.3
Total	14	100
Fetoscope		
Yes	13	92.9
No	1	7.1
Total	14	100
Ice		
Yes	13	92.9
No	1	7.1
Total	14	100
Gauze		
Yes	14	100
No	3	0
Total	14	100

Summary of Proportion and quality of medical equipment's in PHC AWELGA continue in table 2e.

Thermometer for checking of body temperature, hand gloves, Gauze bandage for emergencies, sterile procedures and personal protective equipment. Only 12(85.7%) of the health facilities have HIV Kits for rapid testing of HIV viruses; 2 (14.3%) of

primary health care facilities in the Local Government do not have HIV test Kits. Most 13(92.9%) of primary health care facilities in the Local Government Area have Fetoscope for monitoring of fetal heart sound while 1 (7.1%) did not have fetoscope. A majority 13(92.9%) of primary health care facilities in Ahoada West Local Government council have adequate quantity of icepack for preservation of vaccines used during immunization; 1(7.1%) did not have adequate icepack.

Using chi-square statistic to test if there is any significant difference between medical equipment available in PHCs of AWELGA and National recommended standard.

$$X^2_c = \sum(O_i - E_i)^2$$

E_i

Chi-Square formula.

Where X^2_c = Chi-square statistic, \sum = Sum, O_1 = observed value, E_i = Expected value, $(O_1 - E_i)$ = square of the values $O_1 - E_i$

Table 2e: Proportion of PHC s with usable medical equipment 's in PHCC using Chi-square statistic.

CATEGORY	OBSERVED	EXPECTED	RESIDUAL= (OBS-EXP) ²	(OBS-EXP)	COMPONENT (OBS-EXP) ² /EXP
Sphygmomanometer	14	13.714	0.286	0.081796	0.005964415
Stethoscope	14	13.714	0.286	0.081796	0.005964415
Weighing Scale	14	13.714	0.286	0.081796	0.005964415
Delivery Couch	14	13.714	0.286	0.081796	0.005964415
Growth Chart	14	13.714	0.286	0.081796	0.005964415
Partograph	14	13.714	0.286	0.081796	0.005964415
Malaria Kit	14	13.714	0.286	0.081796	0.005964415
Thermometer	14	13.714	0.286	0.081796	0.005964415
Glove	14	13.714	0.286	0.081796	0.005964415
Hiv Kit	12	13.714	-1.714	2.937796	0.214218754
Fetoscope	13	13.714	-0.714	0,509796	0.037173399
Ice Pack	13	13.714	-0.714	0,509796	0.037173399
Gauze	14	13.714	0.286	0,081796	0.005964415
	192/14 =13.7			4.693552/14=	0.354174097
	14			0.335258	

$$S \text{ (Standard Deviation)} = \sqrt{0.335258} = 0.5790$$

Testing Chi-square Hypothesis of there is no significant difference between medical equipment available for quality service delivery in primary health centers of Ahoada West Government Area, Rivers State, Nigeria compared to the Standard requirement using Chi-square statistic and degree of freedom (df).

Thus:

chi -square statistic (X^2_c) 0.354 calculated.

p-value of 0.3 54 22.3 6(0.2236) at df 13chi-square table.

$$= X^2_{(13)} = 0.354, p < 0.05$$

$X^2_{(13)} > \text{Critical value}$

Accept: Ho:

Calculating 95% Confidence Interval of medical equipment using the formula:

$$X \pm t \frac{s}{\sqrt{n}} = X \pm 1.96 (s/\sqrt{n-1})$$

Where X mean (13.714); s=4.693552/14 0.335258; $\sqrt{0.335258} = 0.5790$; n=14-1 = 13 calculated above.

Substituting:

$$\begin{aligned} 95\% \text{ CI of medical equipment} &= 13.714 \pm 1.96 (0.5790/\sqrt{13}) \\ &= 13.714 \pm 1.96(0.5790/3.606) \\ &= 13.714 \pm 1.96(0.1606) \\ &= 13.714 \pm 0.3148 \\ &= 13.714 \pm 0.3148, 13.714-0.3148 \\ &= 14.0288; 13.3992 \end{aligned}$$

95% CI of medical equipment is between 13.40 to 14.03.

Both Chi-square statistic and 95% CI calculated are more than significance value of 5 % (0.05), the null hypothesis (Ho) is accepted.

This showed that medical equipment of PHCs of AWELGA met the standard for Minimum Standard for Resources and Infrastructure stipulated by NPHCDA for PHCs in Nigeria. Hence, no significant difference.

4.3.2 Proportion and qualification of health personnel and other staff working under Primary Health Care Department of Ahoada West Local Government Area available to render quality health care services.

Indicators of human resources used for quality health care delivery in the study were:

- i) Doctor-1
- ii) Nurse-4
- iii) Laboratory scientist-1
- iv) Community Health Worker-4

Table 3: proportion of health personnel and other staff of Primary Health Care centers in PHCC

Variable	Frequency	Percentage
Staff Mix		
Doctor	20	9.9
Nurse	65	32.0
Pharmacy	1	0.5
Lab Scientist	13	6.4
Pharm Tech	18	8.9
Lab Tech	7	3.4
JCHEW	16	7.9
SCHEW	44	21.7

CHO	16	7.9
VHW	5	1.5
Total	203	100
MPHCs		
Akinima MPHC	12	5.9
Edagberi Cott Hosp	13	6.4
Emezhi MPHC	12	5.9
Ebiriba MPHC	11	5.4
Mbiana MPHC	20	9.9
Isua MPHC	19	9.4
Ikodi MPHC	5	2.5
Idu-Ekepye MPHC	22	10.8
Okarki MPHC	15	7.4
Okogbe MPHC	11	5.4
Odiereke MPHC	22	10.8
Oyigba MPHC	17	8.4
Odawu MPHC	15	7.4
Ubeta MPHC	9	4.4
Total	203	100

Proportions of health personnel and other staff of Primary Health Care centers are in Table 3. .

Finding showed that 12(85.7%) satisfied the indicators as shown in the analysis using WinPepi Statistical Software in the tables below.

In all a total of 203 health staff were available to render quality health care services. Out of these 20 (9.9%) are Doctors, 65 (32.0%) are Nurses, 1 (0.5%) are Pharmacist, 13(6.4%) are Laboratory Scientists, 18 (8.9%) are Pharmacy Technicians, 7 (3.4%) are Laboratory Technicians, 16 (7.9%) are Junior Community Health Extension Workers (JCHEW), 44 (21.7%) are Senior Community Health Extension Workers (SCREW), 16 (7.9%) are Community Health Officers (CHO), 3 (1.5%) are Village Health Workers (VHWs).

Table 3b: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value (recommended for	Overall p-value(Fisher's p) Vs. Available)
MPHC AKINIMA				0.876
Doctor	1	1	0.457	
Nurse/Midwife	4	4	0.097	
Lab.Tech.	1	1	0.457	
Pharm.Tech	1	1	0.457	
JCHEW	6	1	0.385	
SCHEW	3	1	0.913	
CHO	1	0	0.535	
EHO	1	0	0.535	

MRS	1	0	0.535	
SS	2	0	0.372	
Security	2	0	0.372	
GMS	1	0	0.535	
MPHC EDAGBERI COTT				0.364
Doctor	1	1	0.651	
Nurse/Midwife	4	4	0.320	
Lab.Tech.	1	1	0.651	
Pharm.Tech	1	1	0.651	
JCHEW	6	0	0.049	
SCHEW	3	4	0.176	
CHO	1	2	0.233	
EHO	1	0	0.456	
MRS	1	0	0.456	
SS	2	0	0.285	
Security	2	0	0.285	
GMS	1	0	0.456	
MPHC EMEZHI				0.441
Doctor	1	1	0.607	
Nurse/Midwife	4	4	0.257	
Lab.Tech.	1	2	0.201	
Pharm.Tech	1	1	0.607	
JCHEW	6	0	0.058	
SCHEW	3	0	0.343	
CHO	1	3	0.607	
EHO	1	1	0.473	
MRS	1	0	0.473	
SS	2	0	0.303	
Security	2	0	0.303	
GMS	1	0	0.473	

JCHEW OF MPHC EMEZHI p-value (recommended Vs. Available) of 0.049 is significant. It was less than the recommended

Table 3c: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value for (recommended Vs. Available)	Overall p-value(Fisher's p) Vs. Available)
MPHC EBIRIBA				0.826
Doctor	1	1	0.560	
Nurse/Midwife	4	5	0.070	
Lab.Tech.	1	1	0.560	
Pharm.Tech	1	1	0.560	
JCHEW	6	1	0.275	
SCHEW	3	2	0.656	
CHO	1	0	0.492	
EHO	1	0	0.492	

MRS	1	0	0.492	
SS	2	0	0.342	
Security	2	0	0.342	
GMS	1	0	0.492	
MPHC MBIAMA				
Doctor	1	2	0.445	0.060
Nurse/Midwife	4	7	0.162	
Lab.Tech.	1	1	0.895	
Pharm.Tech	1	2	0.445	
JCHEW	6	0	0.016	
SCHEW	3	7	0.076	
CHO	1	1	0.895	
EHO	1	0	0.356	
MRS	1	0	0.356	
SS	2	0	0.186	
Security	2	0	0.186	
GMS	1	0	0.356	
MPHC ISUA				
Doctor	1	2	0.416	0.061
Nurse/Midwife	4	7	0.132	
Lab.Tech.	1	2	0.416	
Pharm.Tech	1	2	0.416	
JCHEW	6	0	0.019	
SCHEW	3	6	0.127	
CHO	1	0	0.368	
EHO	1	0	0.368	
MRS	1	0	0.368	
SS	2	0	0.198	
Security	2	0	0.198	
GMS	1	0	0.368	

JCHEW OF MPHC Mbiama and MPHC ISUA p-value (recommended Vs. Available) of 0.016 and 0.019 is significant. It was less than the recommended.

Table 3d: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value (recommended for	Overall p-value(Fisher's p) Vs. Available)
IKODI				0.533
Doctor	1	1	0.204	
Nurse/Midwife	4	0	0.326	
Lab.Tech.	1	0	0.642	
Pharm.Tech	1	0	0.642	
JCHEW	6	0	0.209	
SCHEW	3	2	0.139	
CHO	1	0	0.642	
EHO	1	0	0.642	

MRS	1	0	0.642	
SS	2	2	0.062	
Security	2	0	0.504	
GMS	1	0	0.642	
MPHC IDU-EKPEYE				0.605
Doctor	1	3	0.255	
Nurse/Midwife	4	7	0.229	
Lab.Tech.	1	2	0.499	
Pharm.Tech	1	2	0.499	
JCHEW	6	6	0.861	
SCHEW	3	1	0.339	
CHO	1	1	0.950	
EHO	1	0	0.333	
MRS	1	0	0.333	
SS	2	0	0.166	
Security	2	0	0.166	
GMS	1	0	0.333	
MPHC OKARKI				0.891
Doctor	1	2	0.296	
Nurse/Midwife	4	5	0.229	
Lab.Tech.	1	2	0.296	
Pharm.Tech	1	1	0.731	
JCHEW	6	2	0.380	
SCHEW	3	1	0.559	
CHO	1	1	0.737	
EHO	1	0	0.423	
MRS	1	0	0.432	
SS	2	1	0.849	
Security	2	0	0.215	
GMS	1	0	0.423	

Not significant.

Table 3e: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value (recommended for	Overall p-value(Fisher's p) Vs. Available)
MPHC OKOGBE				0.402
Doctor	1	1	0.560	
Nurse/Midwife	4	4	0.198	
Lab.Tech.	1	1	0.560	
Pharm.Tech	1	1	0.560	
JCHEW	6	0	0.068	
SCHEW	3	4	0.101	
CHO	1	0	0.492	
EHO	1	0	0.492	

MRS	1	0	0.492	
SS	2	0	0.324	
Security	2	0	0.324	
GMS	1	0	0.497	
MPHC ODIEREKE				0.375
Doctor	1	1	0.950	
Nurse/Midwife	4	8	0.129	
Lab.Tech.	1	1	0.499	
Pharm.Tech	1	2	0.950	
JCHEW	6	6	0.155	
SCHEW	3	2	0.207	
CHO	1	0	0.499	
EHO	1	0	0.333	
MRS	1	0	0.333	
SS	2	0	0.166	
Security	2	0	0.166	
GMS	1	0	0.333	
MPHC OYIGBA				0.056
Doctor	1	1	0.802	
Nurse/Midwife	4	5	0.331	
Lab.Tech.	1	2	0.357	
Pharm.Tech	1	2	0.357	
JCHEW	6	1	0.109	
SCHEW	3	0	0.130	
CHO	1	6	0.009	
EHO	1	0	0.394	
MRS	1	0	0.394	
SS	2	0	0.222	
Security	2	0	0.222	
GMS	1	0	0.394	

CHO OF MPHC OYIGBA p-value (recommended Vs. Available) of 0.009 is significant. It was less than the recommended.

Table 3f: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value (recommended for	Overall p-value(Fisher's p) Vs. Available)
MPHC ODAWU				0.772
Doctor	1	2	0.296	
Nurse/Midwife	4	3	0.792	
Lab.Tech.	1	2	0.296	
Pharm.Tech	1	2	0.296	
JCHEW	6	2	0.380	
SCHEW	3	2	0.940	
CHO	1	2	0.296	
EHO	1	0	0.423	
MRS	1	0	0.423	
SS	2	0	0.251	

Security	2	0	0.251	
GMS	1	0	0.423	
MPHC UBETA				0.873
Doctor	1	1	0.457	
Nurse/Midwife	4	2	0.712	
Lab.Tech.	1	1	0.457	
Pharm.Tech	1	2	0.108	
JCHEW	6	1	0.385	
SCHEW	3	2	0.488	
CHO	1	0	0.534	
EHO	1	0	0.534	
MRS	1	0	0.534	
SS	2	0	0.372	
Security	2	0	0.372	
GMS	1	0	0.534	

Not significant.

Statically significant

Table 4: Comparison between recommended number of human resources for PHCs in Nigeria and number resources available in PHCs in Ahoada West LGA.

Human Resources	Recommended Number	Available Number	p-value (recommended for Overall p-value(Fisher's p) Vs. Available)
Doctor	1	1	0.651
Nurse/Midwife	4	5	0.140
Lab.Tech.	1	1	0.651
Pharm.Tech	1	1	0.651
JCHEW	6	1	0.199
SCHEW	3	3	0.405
CHO	1	1	0.651
EHO	1	0	0.456
MRS	1	0	0.456
SS	2	0	0.285
Security	2	0	0.285
GMS	1	0	0.456

Inferential Statistics Results

The inferential Statistics Results he Inferential Statistics results showed that the proportion of human resources recommended Dr. PHCs and what was observed compared, that there was no statistically significant difference between them across all 14 health facilities surveyed. However, the proportion was significantly different between some professions.

It was found that the number of JCHWEs available in MPHC Emezi, MPHC Mbiama and MPHC Oyigba was significantly lesser than the recommended number of JCHEWs (Fisher's Exact p=0.049, 0.016 and 0.019 respectively), while the number of CHOs available was Significantly higher than the recommended number of CHOs in Oyigba (Fisher's Exact P0.009). The average

number of each category of health available at the 14 PHCs was not statistically different from the recommended. See table's 3b-f and 4 above.

4.3.2 Qualification of health professionals working under Primary Health Care department of Ahoada West Local Government Area.

A total of 203 health professionals work under Primary Health Care department of Ahoada West Local Government Area. Out of the 203 health care staff 191 (94.1 %) have tertiary education. Twelve (5.9%) have postgraduate education.

4.3.3 Maintenance plan (procedure of keeping facility and equipment in good working condition) of health facilities and equipment in Primary Health Care department of Ahoada West Local Government Area.

Out of the 14 primary health centers in Ahoada West Local Government Area 5 (35.7%) have maintenance plan; 9 (64.3%) did not have maintenance plan.

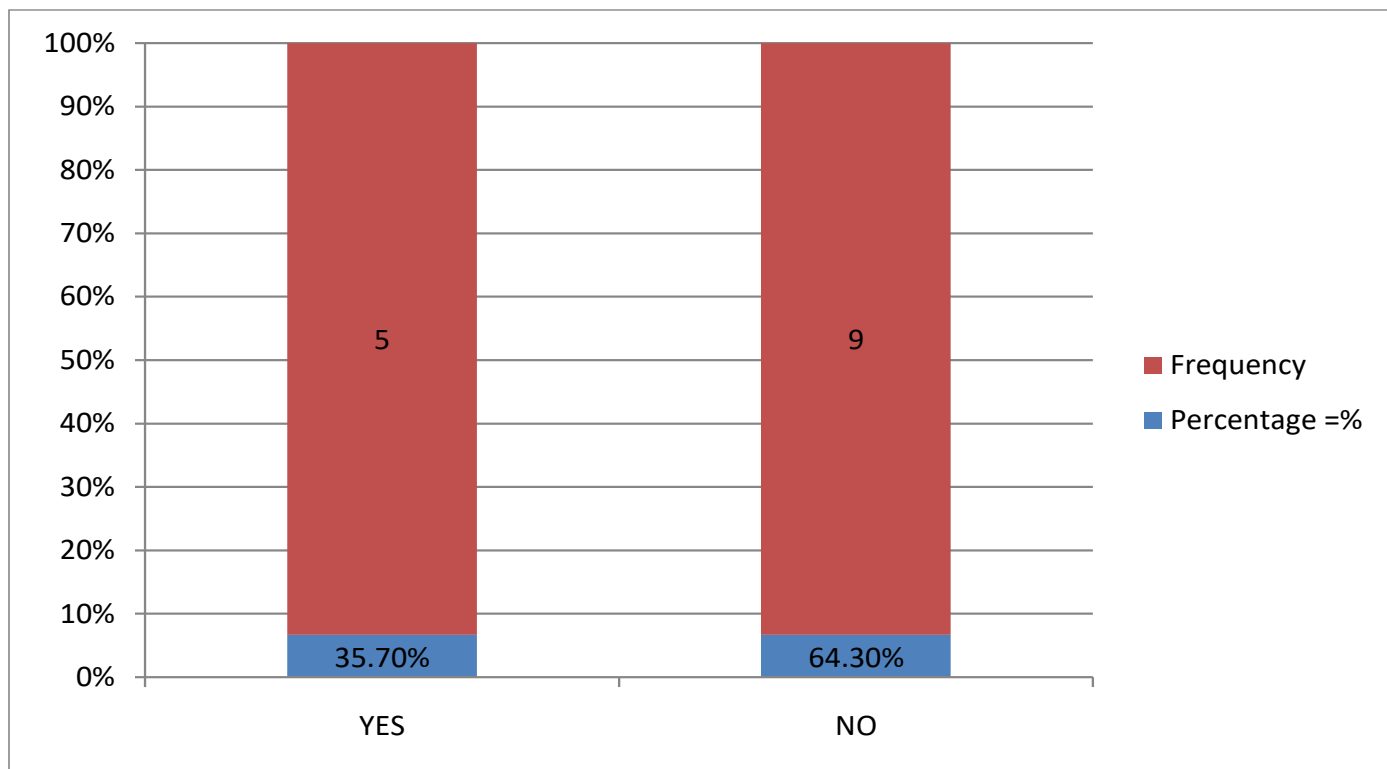


Figure 1: Proportion of Primary Health Care Centers that have maintenance plan.

4.3.4. Proportion of Primary Health Care center’s that infrastructure are available for service delivery in Ahoada West Local Government Area.

Physics structure were used as indicators. These include the following structure,

- i. Fenced
- ii. Consulting room
- iii. Waiting area
- iv. Delivery room
- v. Maternity room
- vi. Procedure room

Table 4a: Proportion of Infrastructure in 1 Primary Health Care Centre’s in PHCC that met the indicators.

Variable	Frequency	Percentage
MPHC Fenced		
Yes	13	92.9
No	1	7.1
Total	14	100
MPHC with Consultation Room		
Yes	14	100
No	0	0
Total	14	100
MPHC that have waiting area		
Yes	14	100
No	0	0
Total	14	100
MPHC that have Delivery room		

Procedure room	12	11.857	0.143	1..2049	0.017246352
Food	7	11.857	-4.857	23.590449	1.98959910
Demonstration					
Room					
Water supply	12	11.857	1.14	0.20449	0.017246352
Regular power	8	11.857	-3.857	14.876449	1.254655393
Supply					
Waste Disposal	13	11.857	1.143	1.306449	0.110183773
Waste					
Maintenance	5	11.857	-6.857	47.018449	3.965459138
Plan					
Essential Drug	13	11.857	1.143	1.306449	0.110183773
List					
Functional	1	11.857	-10.857	117.873449	9.941338365
Ambulance					
	166/14 =11.857			228.6570817/14 =16.3336	19.285722943

Expected = Obs/n, 166/14=11.857

Residual= (Obs-Exp); 13-11.857 = 1.143

(OBS-EXP)²

Testing Chi-square Hypothesis of there

Degree of freedom (df) = n-1; 14-1=13

$$X^2_c = \frac{\sum(O_i - E_i)^2}{E_i}$$

E_i

Hypothesis (Ho): Provision of adequate infrastructure is significant for quality service delivery in primary health care centers of Ahoada West Local Government Area, Rivers State, Nigeria.

Testing Chi-square Hypothesis of there is no significant difference between infrastructures available for quality service delivery of primary health care centers of Ahoada West Local Government Area, Rivers State, Nigeria compared to the National Standard requirement. Using Chi —square statistic and degree of freedom (df). Thus:

Chi-square statistic = 19.286 calculated.

p- value of 19.286 22.36(0.2236) at df 13 chi-square table.

$$X^2_{(13)} = 19.29, p < 0.05$$

$$X^2_{(13)} < \text{Critical value}$$

Accept Ho.

There is no significant difference between infrastructures available for quality service delivery of primary health care centers of Ahoada West Local Government Area, Rivers State, Nigeria compared to the National Standard requirement. Calculating 95% Confidence Interval of infrastructure assessment using the formula:

$$X \pm t \frac{s}{\sqrt{n}} = X \pm 1.96 (s/\sqrt{n-1})$$

Where X = mean (11.857); s = 228.6708 17/14 = 16.3336; $\sqrt{16.3336} =$

4.0415; n14-1 = 13 calculated above.

Substituting:

$$\begin{aligned}
 95\% \text{ CI of infrastructure assessment} &= 11.857 \pm 1.96(4.0415/\sqrt{13}) \\
 &= 11.857 \pm 1.96 (4.0415/3.606) \\
 &= 11.857 \pm 1.96 (1.1208) \\
 &= 11.857 \pm 2.1968 \\
 &= 11.857 + 2.1968; 11.857 - 2.1968 \\
 &= 14.0538; 9.6602
 \end{aligned}$$

95% CI of infrastructure assessment is between 9.6602 to 14.0538.

Both Chi- square statistic and 95% CI calculated are more than significance value of 5% (0.05), null hypothesis (Ho) is accepted. Hence, no significant difference. . **4.3.5 Organizational structure of Primary Health Care centers in Ahoada West Local Government Area.**

Table 5: Organizational structure of Primary Health Care centers in Awelga_

Variable	Frequency	Percentage
MPHC that have Management Committee		
Yes	14	100
No	0	0
Total	14	100
MPHC that have Management Committee Composed of Community members		
Yes	14	100
No	0	0
Total	14	100
MPHC that have Community participation plan		
Yes	14	100
No	0	0
Total	14	100
MPHC that Management Committee meet regularly		
Yes	12	85.7
No	2	14.3
Total	14	100
MPHC that have women up to 40% of Management Committee		
Yes	11	78.6
No	3	21.4
Total	14	100
MPHC that have work schedule		
Yes	14	100
No	0	0
Total	14	100

Organizational structure of Primary HealthCare centers are summarized in Table 5.

Primary Health Care centers in Ahoada West Local Government Area are organized structurally thus: all 14 (100%) primary health care centers in the council have management committee headed by a doctor and assisted by the most senior nursing officer. All 14(100%) management committee include community members. There is community participation plan in all 14 (100%) of the health facilities. Management Committee meeting are held regularly in 12(85.7%) of the 14 health facilities; two (14. %) do not have regular management committee meeting however meet if need arises. There is up to 40% of women as members of management committee in 11(78.6%) of the health facilities, while 3 (21.4%) did not have management committee composed of 40% of women. MI 14(100%) of the primary health care facilities have work schedule (duty roster).

PHCs in AWELGA were organized structurally thus:

- a) Administrative - State Ministry of Health (Led by Honorable Commissioner for health) State Primary Health Care Management Board (Led by Executive /Permanent Secretary) Local Government Primary Health Care Management Committee (Led by Medical Officer of Health).
- b) Service delivery — L.G.A. health committees (Led by M.O.H.) Programme Managers — Head of facilities — Facility programme focal persons.

4.3.6 Proportion of primary health care Centre's using established protocols like Essential drug list regulation in AWELGA.

Table 6: Proportion of primary health care Centre's that implemented Essential drug list regulation.

Variable	Frequency	Percentage
MPHC that have anti-malarial		
Yes	14	100
No	0	0
Total	14	100
MPHC that have haematinics		
Yes	14	100
No	0	0
Total	14	100
MPHC that have ORS		
Yes	12	85.7
No	2	14.3
Total	14	100
MPHC that have analgesics		
Yes	13	92.9
No	1	7.1
Total	14	100
MPHC that have anti-convulsants		
Yes	11	78.6
No	3	21.4
Total	14	100

Proportion of primary health care centers that implemented Essential drug list regulation are summarized in Table 6.

All 14 (100%) primary health care facilities in Ahoada West Local Government Area implement Essential Drug List Regulation. The 14 (100%) primary health care facilities have anti-malarial and haemathinics. Twelve (85.7%) of the health facilities have oral Re

Hydration solution (ORS) sachets; two (14.3%) of the facilities did not have oral Rehydration solution sachets. Thirteen (92.9%) of the primary health care facilities have analgesics; one (7.1%) did not have analgesics. Eleven (78.6%) of primary health care centers in the Local Government have anti-convulsant drugs; three (21.4%) did not have anti-convulsant drugs.

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY OF FINDING

The study revealed 13 primary Health Care facilities in Ahoada West Government Area, were functions (92.9%). Essential services provided were used as indicators. The following services were used;

- i) Laboratory
- ii) Antenatal care
- iii) Family Planning
- iv) Immunization

All (100%) PHCs are AWELGA are expected to render these essential services; however this was not the case. Hence, the need to extend these services to all PHCs in AWELGA. Other services provided were pharmaceutical, infant welfare; 12(85.7%), delivery; 11(78.6%)

24/7, surgical services; 8(57.1%) had 2-way referral system, Adolescent health; 5(35.7%) provided nutrition/catering services.

Physical structures were used as indicators to determine infrastructural availability. These include the following structure: i) Fenced ii) Consulting room iii) Waiting area iv) Delivery room v) procedure room vi) Maternity room vii) Medical Record Room viii) Injection room ix) Food Demonstration x) Water supply xi) Regular power supply xii) Waste Disposal waste xiii) Maintenance Plan xiv) Essential Drug xv) Functional Ambulance). PHCs that had the above structure were said to provide quality health care services. Infrastructural assessment of primary Health Care centers in Ahoada West Local Government Area showed that 12(85.7%) satisfied the indicator of availability of structures.

Indicators of human resources used for quality health care delivery in this study were. I) Doctor-1, ii) Nurse -4, iii) Laboratory scientist-1, iv) Community, Health worker – 4

Finding showed that 12(85.7%) PHCs satisfied the indicators as shown in the analysis using the Winpepi Statistical Software and seen to be ready to provide quality health care services to the citizenry of AWELGA.

The result showed that there was no significant differences between medical equipment available for services delivery in PHCs of AWELGA and the National standard requirement for PHCs in Nigeria ($\chi^2=0.354$; $p=0.2236$).

The Inferential Statistics results showed that the proportion of human resources recommended for PHCs and what was observed compared, that there was no statistically

significant difference between them across all 14 health facilities surveyed. However, the proportion was significantly different between some professions. it was found that the number of JCHWEs available in MPHC Emezhi, MPHC Mbiama and MPHC Oyigba was significantly lesser than the recommended number of JCHEWs (Fisher's Exact $p=0.049$, 0.016 and 0.019 respectively), while the number of CHOs available was significantly higher than the recommended number of CHOs in Oyiba (Fisher's Exact $p=0.009$). The average number of each category of health available at the 14 PHCs was not statistically different from the recommended.

All staff (100%) had tertiary education and satisfied with their work. Maintenance plan was available in 5(35.7%) of the facilities. Most 12(85.7%) had National standard infrastructural requirement for PHCs in Nigeria. Hence, the result that there was no significant difference between available infrastructure in PHCs of AWELGA and National standard infrastructural requirement for PHCs in Nigeria ($\chi^2=49.286$ $p=0.2236$). PHCs in Awelga were organized structurally thus:

- c) Administrative - State Ministry of Health (Led by Honorable Commissioner for health) — State Primary Health Care Management Board (Led by Executive /Permanent Secretary) — Local Government Primary Health Care Management Committee (Led by Medical Officer of Health).
- d) Service delivery — L.G.A. health committees (Led by M.O.H.) — Programme Managers — Head of facilities — Facility programme focal persons.

DISCUSSION

5.1.2 Proportion of Primary Health Care centers in Ahoada West Local Government Area that are functional (rendering services) and have requisite available medical equipment for use compared to the National Standard requirement.

This study revealed that 13 (92.9%) Primary Health Care facilities in Ahoada West Government Area, were functional. Essential services provided were used as indicators. The following services were used:

- i) Laboratory
- ii) Antenatal care
- iii) Family planning
- iv) Immunization

All PHCs in Awelga are expected to render these essential services; “ever this was not the case. Hence, the need to extend these services to all PHCs in AWELGA. Other services provided were pharmaceutical, infant welfare; 12 (85.7%). Delivery; 11 (78.6%) 24/7, surgical services; 8(57.1%) had 2-way referral system, Adolescent health: 5(35.7%) provided nutrition/catering service. Outreach, water and sanitation services and use essential drug list during prescription. Essential health care services adopted at Alma Ata declaration of 1978 needed to be provided in all (100%) PHCC PHCs.

Indicators of human resources used for quality health care delivery in this study were: i) Doctor-1, ii) Nurse - 4, iii) Laboratory scientist -1, iv) Community Health Worker - 4.

Finding showed that 12(85.7%) PHCs satisfied the indicators as shown in the analysis using the WinPepi Statistical Software and seen to be ready to provide quality health care services to the citizenry of Awelga.

In comparing the result of the study to the national requirement for PHCs in Nigeria for medical equipment; using Chi- square test and 95% Confidence Interval at p-value of 0.05 showed that there was no significant difference.

In comparison with the study done by Oyekale, 2017, in which he opined that for effective delivery of healthcare services by PHC centers required availability of adequate infrastructure, diagnostic medical equipment, drugs and well-trained medical personnel. In Nigeria, Rivers State in particular, poor funding and mismanagement often characterize healthcare service delivery thereby affecting coverage and quality of .healthcare services. Status of health system persistently has been criticized.

Comparing to Ghana, a developing country, Alhassan et al, 2015 in their study stated that only 31% of 64 hospital provided fundamental health care services. Hence the L.G.A. of study has a better proportion of health facilities rendering essential care services. The Minister of Health statement on functional health facilities in Nigeria; revealed that only 20 percent (20%) out of 34,423 registered health facilities (Olusesan et al,2014) in the country are provided quality health care services.

Result findings further revealed that all 14(100%) facilities have functional medical equipment:

Sphygmomanometer, Stethoscope, Weighing Scales, Delivery Couch, Growth monitoring Chart for infants, Partograph for monitoring of labor, Malaria Kit for Malaria diagnosis, Thermometer for checking of body temperature, hand gloves, Gauze bandage for emergencies, sterile procedures packs and personal protective equipment. This

implies that service delivery were of standard. This findings correlated with Eboime et al, (2015), in their research, they found that in Nigeria PHCs these materials were lacking or where available but not functioning optimally for no maintenance. Comparing this finding with that of Oyekale et al, (2017) study, in which they found that availability of functioning medical equipment was essential for effective health care delivery; observed that medical equipment were either lacking or present but not in good working condition in six geopolitical zones in the country.

5.1.2 Proportion and qualification of health personnel and other staff working under Primary Health Care Department of Ahoada West Local Government Area available to render quality health care services.

Finding showed that 12(85.7%) satisfied the indicators as shown in the analysis using the WinPepi Statistical Software.

The Inferential Statistics results showed that the proportion of human resources recommended for PHCs and what was observed compared, that there was no statistically significant difference between them across all 14 health facilities surveyed. However, the proportion was significantly different between some professions.

It was found that the number of JCHWEs available in MPHIC Emezhi, MPHIC Mbiama and MPHIC Oyigba was significantly lesser than the recommended number of JCHEWs (Fisher’s Exact $p=0.049$, 0.016 and 0.019 respectively), while the number of CHOs available was significantly higher than the recommended number of CHOs in Okogbe (Fisher’s Exact $p=0.009$). The average number of each category of health available at the 14 PHCs was not statistically different from the recommended.

Result of this study showed that a total of 203 health staff is available to render quality health care in the L.G.A.PHCs. Most of the 203 health staff were nurses (32%), community health workers (29.6%), others doctors (9.9%), pharmacy technicians (8.9%), community health officer (7.9%), laboratory scientists (6.4%), laboratory technicians (3.4%), village health worker (1 .5%). These were inadequate with an average of 15 staff per health centre in comparison with the National Primary Health Care Development Agency Minimum Standards of human resources for Primary Health Care Centers in Nigeria stipulate that a total of 24 health staff should be available for each PHC thus: Medical officer if available -1, Community Health Officer (CR0) (must work with standing order) 1, Nurse/midwife - 4, Community Health Extension Worker (CHEW) (must work with standing order.) -3, Pharmacy technician -1, Junior Community Health Extension Worker (JCHEW) (must work with standing order) -6, Environmental Health officer -1, Medical records officer -1, Laboratory technician -1,

Support staff - Health Attendant/Assistant -2, Security personnel —2, General maintenance staff-1; Total-24 (National Primary Health Care Development Agency Minimum Standards of human resources for Primary Health Care Centers in Nigeria). In all article on “Addressing human resources for health services in Northern Nigeria” health workers employed in the public health sector in the programme, states were captured on the Human Resources Administration (HR Admin) and reporting made Oil a regular basis. Current strength of health workers of programme states are: Jigawa —7,383; Katsina —11, 181; Zamfara — 10,919; and Yobe—6,618.

These were inadequate to provide quality health. Services to tile citizenry ([www. Prrinnmch.org](http://www.Prrinnmch.org)). it also applies in the South — South, Rivers State and Ahoada West Local Government Area in particular.

World Health Organization estimated global gap in tile supply of health workers to be 4.3 million; 57 countries are ‘countries with critical shortage’ reportedly experiencing shortfalls of 2.4 million doctors, nurses and midwives. It furthermore stressed that challenges facing healthcare workforce manifest not only in shortages of health workers, but also in inequitable distribution, poor training capacity, skills and skills mix deficits, weak management and supervisory systems (WHO, 2006). Comparing this study to findings by Pagalya et al, (2009) of Thailand’s health worker ratio to people (3:1,000) with other regions of the World, the number of doctors per 1,000 people in Thailand was slightly higher than countries in Africa- Nigeria but slightly lower than countries in the Eastern Mediterranean-Afghanistan, South-East Asian-Cambodia and Western Pacific- Australia Regions. European countries —Germany has an extremely high number of doctors per 1,000 people. The study also showed that nurse per population ratio of Thailand is higher than those of the African, Eastern Mediterranean, South-East Asia Regions but the European region and Western Pacific region have a higher ratio of nurses per person than does of Thailand (WHO, 2004). Primary Care Workers (PCWs) in Thailand, played important role as front-line care providers at health centers (57.2%) this implies that the proportion of such workers working in rural was as high as 77.6%, while only 22.5% of them served at regional/provincial hospitals and provincial health offices (Wibulpoiprasert et.al., 2008).

In India, staff of P.H.C. are provided based on delivery case load services rendered at the centre to Type A and B. Type A PHC: PHC with delivery load less than 20 deliveries in a month; Type B PHC: PHC with delivery load of 2 or more deliveries a month. Total = 7 Type A and 18 Type B (Indian

Public Health Standards (IPHS) Guidelines for Primary Health Centers, 2012).

Nigerians health workforce density is above the African country average level of 30 by World Health Organization. The World Health Report 2006: working together for health. Geneva: World Health Organization; 2006. WHO Global Health Workforce Statistics, Nigeria had a total health worker density of about 2.52 per 1,000 in 2008, which is slightly above the WHO minimum standard for health care worker density of 2.3 per 1,000 populations.

Nigeria produces a large number of CHEWs and Junior CHEWs each year, with CHEW training schools present in nearly every state. Unfortunately, many CHEWS are either unemployed or working in the private sector and the PHC system may not be getting full value out of the investments the government of Nigeria makes in developing health workers Daniel H. Kress, Yanfang Su & Hong Wang.

This study result also revealed that out of the 203 health care staff 191(94.1%) had tertiary education and 12(5.9%) had postgraduate education. This is in affirmation to the Minimum standards for primary health care services nationwide in Nigeria; this recommended that community health workers should be trained and retrained to become community doctors and nurses: all doctors who work in communities should be so trained. Community Health Officers (CHOs) be re-designated as Assistant Medical Officers (Minimum standards for primary health care services nationwide in Nigeria, 2007).

Comparing with sub-Saharan African countries, Mullan et al, 2007; in their study, were they observed that in Tanzania and Malaysia, Assistant medical officers are health care providers who work independently or with limited supervision of a physician to provide healthcare services to largely underserved populations.

In Malaysia Assistant Medical Officers complete a three and half year Diploma in Medical Assistant (DMA) undergraduate program recognized by the Malaysian Qualifications Agency.. In Tanzania clinical officers Qualified by passing a government entrance examination and undergo two-year training program with working experience of more than three years and become Assistant Medical Officers. (https://en.wikipedia.org/wiki/Assistant_medical_officer).

Furthermore, Kruk et al, 2010 studying on “Human resource and funding constraints for esseltl surgery in district hospitals in Africa: - a retrospective cross-sectional survey:” called Assistant Medical officers “surgical technologists” (or técnico de cirurgia) in Mozambique they are called clinical associate in South Africa, (<http://www.southafrica.info> about health/clinical associates.htm or “as istant medical practitioner” (AMP),

formerly. In Fiji called “native medical practitioner” or (NMP) (Fiji School of Medicine). They are grouped under “Medical Assistant Practitioners’ Assistant Medical Officer will be celebrated for the day of medical assistant on 10 March every year in all countries (International Standard Classification of Occupations, 2008 revision, WHO, 2010).

5.1.3 Maintenance culture (procedure of keeping facility and equipment in good working condition) of health facilities and equipment in Primary Health Care department of Ahoada West Local Government Area.

This study revealed that majority 9(64.3%) of P.H.Cs in AWELGA did not have maintenance plan . only 5(35.7%) had maintenance plan. it therefore means that the buildings, machines, facilities, equipment , infrastructure and other materials used in providing adequate and standard health care shall not be in good working condition often. This agrees with Tijani et al, 2016, when they defined maintenance culture as the habit of regularly and consistently keeping a building, machine, facilities, equipment, infrastructures etc. in good and working condition.

Correlating this to a study done by Nahirnah (2008), in which they observed that the flaws in the Nigerian Aviation sector was attributed to lack of maintenance culture and the training of professional engineers; further argued that, acquiring aircrafts is not as relevant to the industry as good maintenance of the existing ones, adding that a well maintained aging aircraft is as good as a poorly maintained new aircrafts. This stressed the fact that maintenance culture of public health care facilities in Nigeria; Ahoada West Local Government Area in particular is lacking.

In comparing to developed country like Britain the British Standards Institute (1974) considered maintenance as the combination of technical and administrative actions taken to preserve or protect a structure, system or equipment to function properly. Furthermore Advanced Learner’s Dictionary (2009) threw more light on this by defining maintenance as the action or process of preserving an object, activity etc. Kumar & Suresh (2008) postulated that maintenance is an action taken to prevent a device or component from failing or to repair normal equipment degradation experienced with the operation of the device to keep it in proper working order.

This study therefore considered maintenance as a process of preserving an asset or facility in its state of continuous use and function. Above a minimum acceptable level of performance. Over its designed span of life. This practice that prolongs efficiency and lifespan of infrastructure, equipment was lacking in 64.3% of primary healthcare facilities in AWELGA.

Governments (Federal, State and Local), private organizations and individuals need to have a strategy on how to maintain their infrastructural facilities to ensure sustainability of same.

This can be achieved through maintenance culture which is said to have a correlation with Itional development.

5.1.4 Proportion of Primary Health Care Centre’s that infrastructure are available for service delivery in Ahoada West Local Government Area compared to the National Standard requirement.

Physical structures were used as indicators to determine infrastructural availability. These clude the following structures: i) Fenced ii) Consulting room iii) Waiting area iv) Delivery room v) procedure room vi) Maternity room vii) Medical Record Room viii) Injection room ix) Food Demonstration x) Water supply xi) Regular power supply xii) Waste Disposal waste xiii) Maintenance Plan xiv) Essential Drug xv) Functional Ambulance). PHCs that had the above structures were said to provide quality health care services. Infrastructural assessment of Primary Health Care centers in Ahoada West Local Government Area showed that 12 (85.7%) satisfied the indicators of availability of structures. However, it was expected that all PHCs in this Local Government met the National requirement.

Other infrastructure assessed were regular water supply to the facility, alternate power supply, approved waste collection method. Seven (50%) have food demonstration room, 7 (5 0%) did not have food demonstration room. Findings from the result showed that majority (92.9%) of the infrastructure (buildings) were fenced and with delivery, maternity rooms, waste disposal sites. All (100%) have consulting room, waiting area, medical record section, and injection room, access road to the facility, water inside the facility, sanitary toilet, and essential drug list. Large proportion (85.7%) has procedure room, regular water supply to the facilities, alternate power supply, and approved waste collection method. Half (50%) have food demonstration room, 21.4% had kitchen room. Regular power supply, sign post seen in (57,1%); only one (7.1%) had telephone connection, functional ambulance; few (35.7%) had maintenance plan. Comparing this result with the minimum standard requirement provided by National Primary Health Care Development Agency for Nigeria PHC Centre’s using Chi-Square statistical analysis and 95% Confidence Interval at p-value of 0.05 showed that there was no significant difference.

However, there was the need for PHCs in AWELGA to be all fenced, have regular power, have appt0d waste collection sites, and have food demonstration rooms and kitchens. Maintenance plan deserved urgent attention.

In comparison to study done by Omuta GED, (2015), where he observed that, there are copious infrastructural deficiencies in health care facilities in the rural areas; this is also event today more than fifty-five years of independence. In an attempt to address these challenges, globally. The International Conference on Primary Health Care, in Alma Ata, Kazakhstan in September, 1978 convened. The conference endorsed the 'health for all' programme through the Alma Ata Declaration; to be driven by the Primary Health Care (PHC) system.

Also studies done by Erinosh, (2006); Public Health Infrastructure and System (2015) all stressed that, standard and evenly distributed health infrastructure promote economy, enhance utilization and efficiency and that physical structure entails the building and other fixed structures such as pipe borne water, good access roads, electricity, drugs within healthcare environment, stressing good technical knowledge, about the equipment's all aid adequate health care. It is therefore important to determine these physical structures to continuously ensure adequate health care delivery.

5.1.5 Organizational structure of Primary Health Care centers in Ahoada west Local Government Area Awelga.

Findings in this study revealed that AWELGA PHCs are organized structurally thus: 100% had management committee headed by a doctor and assisted by the most senior nursing officer, community leaders are included. They served under the LGA health committee headed by Medical Officer of Health also referred to as "The PHC Coordinator"; assisted by the most senior nurse and supervisory councilor for health; health programme officers, There was also (100%) community participation; hi-monthly meeting are held. Up to 40% of women are members of management committee. Duty rosters available in hundred percent (100%).

In summary: PHCs in AWELGA were organized structurally thus:

a) Administrative: - State Ministry of Health (Led by Honorable Commissioner for health)-State Primary Health Care Management Board (Led by Executive /Permanent Secretary)-Local Government Primary Health Care Management Committee (Led by Medical Officer of Health).

b) Service delivery: - L.G.A. health committees (Led by M.O.H.) — Programme Managers-Head of facilities-Facility programme focal persons. - . comparing to study done by Hsiao,209 in which he emphasized that Organization structure refers to the broad structure that organizes health care provision, including ownership, market competition, decentralization (i.e., the delegation of

responsibilities among different levels of government) and Vertical integration (i.e., coordination among preventive, primary, secondary and tertiary care providers). Stressing that how care provision is organized and managed affects the efficiency and quality of the service delivered.

Standard organizational management structure is essential if PHC service delivery aimed at meeting primary health care needs of the people are to achieve. In a study conducted by Adeyemo, (2005. on Health Care Delivery in Nigeria a case study of Primary Health Care organizational management structure of Ife-East Local Government of State, Nigeria; observed that the organization comprised of an Executive Chairman; Secretary; Supervisor for Medical and Health Department; Coordinator PHC Division - Health sister, Community Health Officer, Essential Drugs and Supply, Disease control, Water and Sanitation, Maternal and Child Health, Family planning and Nutrition. Virtually PHC management organizational structure is similar in most States and Local Governments in Nigeria; this includes AWELGA.

This organizational structure was slightly different in China and India where Sal Ma et al, (2008) in their study of "A Comparison of Health Systems in China and India" observed that organizationally, China as a socialist country, has a reputation for using coercive political power to closely regulate public services including health care through laws, codes, administrative rules, and price setting. However, since the government's restructuring in 1998, the power to regulate and plan for health services has been largely decentralized to the Provincial level. At the national level, this power has been divided among several parallel agencies. The Ministry of Health provides general policy guidelines but has modest power to enforce its policies because it does not directly finance health care or enforce regulations. Family planning being of utmost importance for the country; a Family health system. The State General Administration of Quality Supervision, Inspection and Quarantine, established to regulate and monitor port quarantine. The State Food and Drug Administration, split from the Ministry of Health, responsible for approving health-related products and regulating pricing (Project Team of the Development Research Center of the State Council of China, 2005). As a result of this complex.

Structure, the regulation and enforcement power has been diffused. And Policies from different ministries and commissions often conflict with each other. - They posited that India practice Laissez-Faire principle as stipulated in her constitution. According to India' Constitution, government is responsibility for health services and this is divided into lists the Union list, the State list, and the Concurrent list that specify responsibilities for the central government and the state government.

The Concurrent list describes responsibilities Shared between levels of government, including the prevention of infectious Diseases and family planning (Das Gupta et al, 2004). In general, though public health is deemed a state subject in India, the policy development and program design are centralized. At the national level, the Organization of Ministry of Health and Family

Welfare consist of the Department of Health, the Department of Family Welfare, and the Department of Indian Systems of Medicine and Homeopathy. This structure has not been regarded as highly effective. In a World Bank survey of senior officials from India' health relate agencies, regulation and enforcement were ranked as the second worst among essential public health functions (Das Gupta et al, 2004). Respondents expressed serious concerns about the Organization of Ministry of Health and Family Welfare's capability for monitoring legislation, enforcing laws and regulations, and partnering with state governments.

By comparing China's organization of health care with India's certain interesting insights revealed. First, in the early years after their independence, both countries emphasized a public health care system that was equitable and provided basic health care services. This public provision of health care was largely successful in China, but less so in India, which struggled to provide basic health services to its citizens. Consequently, from the 1950s to 1980s, China experienced much larger gains in health compared with India. For example, WHO statistics show that average Chinese life expectancy at birth in 2003 was ten years longer than the Indian life expectancy. Why China's public-sector care was so much more effective is not entirely clear. Part of the difference may be related to the greater centralized control exerted in China they asserted.

5.1.6 Proportion of primary health care centers using established protocols like Essential list regulation in AWELGA.

Result of this study revealed that all the facilities in the Council used established protocol and implemented Essential Drug List Regulation; hence there was anti-malarial id haemathinics, 85.7% had Oral Rehydration Solution (ORS) sachets, 92.9% had analgesics, had anti-convulsion drugs and antibiotics. These are common medicines needed by the area's population for treatment of common ailments. However there was need to Drove supply and avoid out of stock syndrome in the facilities. These drugs were served on of drug revolving fund at subsidized rate. Prescription and dispensing of the medicines agree with WHO, 2017. WHO. 2003 emphasized that essential drugs are drugs that "satisfy the priority health care needs of the population". These are

the medications to which people would have access at all times in sufficient amounts. The prices should be at generally affordable levels. Bamako Initiative aimed to increase access to primary health care by raising effectiveness, efficiency, financial viability and equity of health services.

Nigeria embraces WHO-promoted essential drugs initiative as earliest possible time in 1987. The first ever Essential Medicine List (EML) contains 205 medicines for public health centers and hospitals (Adikwu et al, 199). Later, EML was also incorporated for private clinics and hospitals (National Drug Formulary and Essential Drugs Decree, 1989:A479).

Affirming to fact that Nigeria implement the declaration, Adebayo et al, (2010) stated that 90.5% of doctors were acquainted and familiar with of the existence of national essential drugs list; Oyeyemi et al,(2013) revealed that 83.2% were from the National Essential Medicine List (NEML) and 86.5% of essential drugs were obtainable in the public PHC of Lagos State, Nigeria.

In comparing result of this research to study by Abdu-Aguye et al, (2016) which revealed that 91% antibiotics prescribed from the NEML. Babalola et al, (2011) further affirmed the report that 94.16% of medicines prescribed were from the NEML Tamuno et al, (2012) study also revealed that 94% of the drugs prescribed were from NEML even though a hard copy of EML Was not obtainable for the doctors. In addition, 91 .7% of the most important medicines for Common diseases were available. The above studies proved that in Nigeria, Rivers State P11CC in particular used established protocols like Essential drug list regulation. Other studies by Hassan A et al, (2017), Gobir et al, (2014), Bazargani et al, (2014), Mecca et al, (2014), Marc et a!, (2010); stated that most prescriptions in the country and some countries in Africa — Kenya obeyed common ailment list of drugs by WHO. Comparing result of the study to Study on "Essential Medicine Utilization and Situation in; Selected Ten Developing Countries: A Compendious Audi" Haque, (2017) in his observation that accessibility to medicines is the fundamental right of every person. Further stressed, the principle of the Essential Medicines (EMs) is that a limited number of availability of medicine will promote to a better supply chain and rational prescribing to the rural and remote health centers for any developing countries.

EMs safeguards and improves distribution and dispensing of medicine. Correspondingly, motivational and dedicated training program regarding drug information and adverse drug reactions boost up access to medicine and health-care.

5.2 CONCLUSIONS

This study shows that adequate provision of infrastructure, equipment, human resources, essential drugs, water, proper waste disposal, electricity, access road to health facilities is a strong predicting factor for effective health care delivery services.

Structure of health care refers to the availability of the physical and human resources required, for the provision of care. Measures of structure include health facilities' physical equipment, and measures related to staff expertise and staff coordination- and organization (Amporfii et al, 2015). Even though this type of quality may not by itself ensure improved outcomes, it is important because it focuses on the availability of all inputs necessary for the provision of care, without which better health outcomes may not exist. The definition of structure used in this study focused on the adequate supply and functional state of resources used for the provision of health care. Capacity assessment, then, ensures access to health care, which is necessary for the achievement of universal health coverage.

Universal health coverage is achieved for a given population when all residents, regardless of income, are able to have access to adequate health care without suffering financial hardship (Donabedian, A. (2005). In Nigeria, human capital development through provision of sound and efficient health delivery system is conceived as the bedrocks for economic growth and development. This ideology obviously guided economic planning and development agendas since the post-colonial era. The primary proviso for reenergizing a national workforce that is able to drive development requisites in a manner that optimizes efficiency is perfectly encoded in systematically designed health service delivery system, among others (George et al, 2013; National Bureau of Statistics-S, 2009).

Twenty-four years after the leadership of Professor Olikoye Ransome-Kuti, the need to strengthen the PHC in Nigeria is relevant as ever before. The current state of PHC system in Nigeria is appalling with only about 20% of the 30,000 PHC facilities across Nigeria working (Adewole, 2016). Presently, most of the PHC facilities in Nigeria lack the capacity to provide essential health-care services, in addition to having issues such as poor staffing, inadequate equipment, poor distribution of health workers, poor quality of health-care services, poor condition of infrastructure, and lack of essential drug supply (Chinawa, 2015). Hence, the need why this study was carried out.

In summary: PHCs in AWELGA were organized structurally thus:

a) Administrative - State Ministry of Health (Led by Honorable Commissioner for health) — State Primary Health Care Management Board (Led by Executive /Permanent Secretary) — Local

Government Primary Health Care Management Committee (Led by Medical Officer of Health).
b) Service delivery — L.G.A. health committees (Led by M.O.H.) — Programme Managers — Head of facilities — Facility programme focal persons.

5.3 RECOMMENDATIONS

Viewing at the outcome of the study and information derived from the checklist of items on availability, adequacy and provision of facilities and equipment for effective health care, to ensure standard health care delivery in the primary health care facilities; recommendation is of outdated equipment's.

5.3.1 HEALTH CAREWORKERS/INDIVIDUAL LEVEL

- Health care workers should be careful while handling medical equipment.
- Health care workers should stop stealing health facility materials- drugs, consumables, furniture, and money etc.
- Health care workers should take daily inventory of equipment, drugs and other materials of health facility.
- Health care workers should ensure that they have adequate knowledge on how to handle their equipment.

5.3.2 GOVERNMENT /NATIONAL LEVEL

- The government should ensure proper remuneration to serve as an additional incentive to health care workers.
- The government should make adequate budgetary provision for procurement, maintenance of health facility infrastructure, drugs, equipment, consumable materials, etc. to avoid shortage.
- The government should employ qualified health care workers to reduce the work load of health care providers by increasing health care workers via employment.
- The government should create opportunity for health providers undergo in-service training to help them update their knowledge and skills. The government should provide new work equipment and train health care workers on their operation.
- The government should set up committee to inspect health care facilities to ensure that they are safe for service delivery.

5.3.3 HEALTH FACILITY MANAGEMENT) ORGANIZATIONAL LEVEL

- The health facility management should ensure periodic evaluation of inventory materials.
- The management should ensure employee have adequate knowledge of standard operation procedure for health facility equipment maintenance.
- The management should ensure that workloads are in accordance with health workers ability and resources.
- The management should assign a staff to take stock of equipment's, drugs, and consumable materials. These staff should be held liable in an event of theft.

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**UNIVERSITY OF PORT HARCOURT
SCHOOL OF PUBLIC HEALTH
CHECKLIST FOR STRUCTURAL QUALITY OF PHC**

Dear Sir/Ma,

I am undertaking an assessment of the structural quality of primary health care centers in Ahoada West local Government Area. This checklist is meant to capture what we have and also what we do in this health centre. If you have any question about our research, I am available to respond to you.

FOR OFFICE USE

L.G.A									
NATURE									
FAC, CODE	HHP	HHC	PHC						
QUEST NO:									

S/N	CRITERIA	RESPONSES (tick as applicable)	
Section	A – Infrastructural Assessment	Yes	No

1	Is the center a fenced compound with gate	Yes	No
2	Any consultation room?	Yes	No
3	Any waiting Area?	Yes	No
4	Any delivery Room?	Yes	No
5	Any maternity/lying in section?	Yes	No
6	Any medical records area?	Yes	No
7	Any injection/dressing area?	Yes	No
8	Any procedure room?	Yes	No
9	Any food demonstration area?	Yes	No
10	Availability of Kitchen?	Yes	No
11	Any access road available to facility?	Yes	No
12	Is your water supply regular?	Yes	No
13	Source of water inside the facility?	Yes	No
14	Do you have regular power supply in this facility?	Yes	No
15	Do you have alternative power sources?	Yes	No
16	Any sanitary toilet facility?	Yes	No
17	Any sanitary waste collection point?	Yes	No
18	Availability of waste disposal site?	Yes	No
19	Availability of sign posts visible both sides?	Yes	No
20	Does your Centre have a phone line?	Yes	No
21	Availability of maintenance plan?	Yes	No
22	Availability of essential drugs list?	Yes	No
23	Do you have a functional ambulance?	Yes	No
Section B – Organizational Structure			
24	Availability of management committee here	Yes	No
25	Membership of management committee includes the community services	Yes	No
26	Community participation in planning and management	Yes	No
27	Do you have regular management committee meetings	Yes	No
28	Are the women in the management committee up to 40%	Yes	No
29	Availability of work schedules for staff	Yes	No
Section C – Services Provided Here			

30	Do you provide out-patient service?	Yes	No
31	Antenatal Care?	Yes	No
32	Family Planning	Yes	No
33	Immunization?	Yes	No
34	Do you offer counseling/Health promotion?	Yes	No
35	Laboratory?	Yes	No
36	Pharmacy?	Yes	No
37	Nutrition/Catering	Yes	No
38	Delivery?	Yes	No
39	Infant Welfare?	Yes	No
40	Outreach Service?	Yes	No
41	Essential Drugs?	Yes	No
42	Water and Sanitation?	Yes	No
43	Functional 2-way Referral System?	Yes	No
44	Maintenance Records?	Yes	No
45	Supervision?	Yes	No
46	Waste Disposal?	Yes	No

47	Adolescent Health Service	Yes	No
48	24/7 Services?	Yes	No
49	Surgical Services (incision & Drainage, Dressing & Suturing)?	Yes	No
50	Availability of guidelines for management of common conditions eg diarrhea, malaria	Yes	No

HEALTH PERSONNEL IN CHARGE.....

NAME OF PHC.....

LGA.....

SIGN.....

References:

https://www.who.int/ncds/management/Sample_questionnaire