ASSESSMENT OF HEALTHCARE FACILITIES PROVISION IN SELECTED PRIVATE AND PUBLIC HOSPITALS IN MINNA.

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ABSTRACT

Health care service centres on providing emergency, preventive, rehabilitative, diagnosis care to patients, families and community at large. This study focus on developing effective healthcare facility management strategy for patients and users in selected private and public hospitals in Minna. The methodology approach adopted during this study is a descriptive research design that analysis of precise details collected randomly from the population. The data collected on site based on some variables were analysed and showed further that health care service strategy available at the selected hospital is not effective for users and deduction from the study shows that the improvement of any healthcare services strategy is dependent on having adequate financial resources and quality of human factor to maintain healthcare facilities, equipment and utility services, and develop competitive service strategies. However, to provide integrated healthcare service quality, there must be sufficient healthcare facilities available to sustain the health care system in the hospitals.

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CHAPTER ONE

1.0   INTRODUCTION

1.1 Background to the Study

Healthcare has become one of the largest sectors both in terms of revenue and employment generation (Amogh 2019). Healthcare can be seen as a goal prepared to preserve or reinstate physical, perceptual, or demonstrative health particularly by skilled and qualified experts (Webster, 2019). The need for healthcare is necessary because it contributes immensely to life support and the overall wel1beinig of human, therefore the facilities available for enhancing healthcare need goes a long way in contributing or destroying human health.

The management of health care facilities is integrated in facility management practice which according to IFMA explain facility management practice as a profession that encompasses multiple disciplines to ensure functionality of the built environment by integrating people, place, processes and technology. According to Gilbert *et al* (2016) explains facility management as an interdisciplinary field primarily diverse devoted to the maintenance and care of commercial or institutional buildings such as tertiary hospitals and involving health centres.

The provision of accessible, affordable and quality healthcare is directly dependent on the efficient performance of healthcare facilities (Amy, 2019). Modern healthcare facilities, and procedures, however require many costly and energy-intensive processes, in terms of the use of water, lightning, heating, cooling, ventilation as well as waste disposal. According to

WHO healthcare system can be defined as all organization institutions and resources that are devoted to producing health actions, its sector includes those that provide direct, health treatment procedure to patients, that includes hospitals and healthcare clinics, not health clubs, nor pharmaceutical manufacturing facilities

A health care facility is in general any location where healthcare is provided which range from small clinics to doctor and offices to urgent care centres and large hospitals with elaborate emergency rooms and trauma centres. The Environmental Health and Safety(EHS) Guidelines for Health Care Facilities includes a diverse range of facilities and activities involving general hospitals and small inpatient primary care hospitals, as well as outpatient, assisted living, and hospital facilities. WHO, (2019) reviewed that in emergency situations, health-care facilities are often faced with an exceptionally high number of patients, some of whom may require specific medical care (e.g. treatment of chemical poisonings). Health care need is indispensable to every family as it is part of the most essential human need after food and shelter which include not only the facilities available to cater for the need of the patients but include personnel such as the doctors, nurses, cleaners, matrons and other people involved in ensuring the organizational goals are met. (World health organization, 2018)

Countries all over the world are witnessing similar trends in the provision of healthcare services with an increase in the demand for healthcare in public and private hospitals often triggered by natural population growth, the ageing of the population, and the consumer revolution (Hooker,2003) Consequently, the American Hospital association gave a number of patient admissions in 2010 which has also increased tremendously and most hospitals

have responded by a tendency to reduce patients' average length of stay in order to husband their limited resources. In Nigeria scarcity of resources is immediately apparent when facility management in the healthcare sector is examined, this might adversely affect the non-core activities of healthcare providers, non-core activities such as maintenance activities and operations while the core activity for the healthcare sector are referred to as patient care; the primary objectives of FM departments in healthcare facilities should be to support the core business and not to reduce costs and also to ensure high functionality safety level and continuity (Ciarapicia *et al* 2008).

Talib *et al*. (2013) assessed the performance of healthcare buildings through three criteria: (1) functionality covering the design, utility and access of the facilities, (2) impact, covering the outlook, core activities, facilities, and future design assessment, and (3) quality related to the building, engineering activities, performance, and energy. They concluded that design of the building (for functionality), outlook of the facilities (for impact), and quality of the buildings (for quality) are the most important factors for the performance assessment of healthcare facilities.

This study is directed at developing an effective health care facility strategy for hospital patients and their visitors, these strategies are set of activities or interventions that together are designed to achieve a pre-specified objective, plans in improving organizational performance in other to ensure the production of effective health care, facilities and services need and efficiently manage and maintain them to meet the expectation of patients and their visitors.

1.2 Statement of the Problem

Health care problem has been generally accepted as varied and difficult. It has been observed that even though there are healthcare facilities such as hospitals and clinics privately and publicly owned available in the study area, there are still not enough of these facilities to meet the naturally increasing population of citizenry in Minna (Terry, 2017). This population has in turn rapidly outweighed the available facilities thereby reducing the effective management of the patients and users. Furthermore, infrastructural facilities made available in these healthcare centres are decaying over years, there is poor maintenance culture of the available facility in government owned hospitals, or better say the out-dated ones are not replaced (Elizabeth *et al*., 2010).

However, Nigerian healthcare conditions are primarily that of a crisis situation where both the quantity and quality remain a big question. It is government's intention that facilities provided at the Hospital are always functional and workable (George, 2017). Government may not have provided necessary fund to replace the damage facility as a result of poor maintenance. This research is aimed to assess healthcare facilities provision in the study area, its maintenance as well as its management both in public and private hospitals.

1.3 Aim and Objectives

The aim of the study is to assess of healthcare facilities provision in selected private and public hospitals in Minna (Niger State) with a view to providing adequate healthcare facilities management strategies for better performance.

Objectives

To achieve this aim, the following objectives were pursed to:

1. examine the available facilities in the selected healthcare units in Minna.

2. examine the standard of Facilities provided in the selected hospital in accordance to best practise.

3. identify the challenges inherent in the healthcare facility provided.

4. analyse existing management strategy and develop sustainable strategy for the hospitals facilities provision for customer's satisfaction.

1.4 Research Question

This research is aimed at finding answer to the following identified problems

1. How can the various healthcare facilities available in the selected healthcare centres or units be examined in Minna?

2. How is facility management service provided in the selected hospital according to the best practice?

3. What are the inherent challenges facing the facilities provided?

4. What form of strategies will be effective for hospital facility provision?

1.5 Scope of Study

This study is restricted to assessment of healthcare facilities provision in selected private and public hospital. It is imperative to know that health facilities are places that provide healthcare. They include hospitals, clinics, outpatient care centres, and specialised care

centres such as birthing centres and psychiatric care centres, as earlier indicated, the study is directed to select private and public hospital in the study area. In terms of coverage, the researcher has decided to adopt General Hospital in Minna, Niger state as the public hospital; this is selected for close scrutiny and as a basis for generalisation and the hospital having equipped with standard facilities for hospitals by (NFPA, 2005) while standard Hospital is selected as the private Hospital minimum required for hospital standard. To clearly understand the study, an ideal model of healthcare is adopted known as "alma ata declaration 'it is classified to secondary and tertiary healthcare model. However, the study is limited to secondary healthcare hospital in Minna. The study is narrowed down to clinical and non-clinical facilities in the medical field specialized by the selected secondary healthcare and the study will be limiting its research to the maintenance units, patients, users and medical staffs of selected hospitals. The healthcare facility management strategy earlier adopted by selected health centers are not known, however the study seek to develop an effective healthcare facility management strategy with the view to integrating facility management for an improved service delivery.

1 .6 Significance of the Study

The benefits that will accrue from the study are many. Specifically, apart from contribution to the body of knowledge in facility management and investment appraisal, medical practitioners, facility managers, governments, hospital patients and visitors as well as researchers in Nigeria and Minna are the target beneficiaries of the research.

Health care system is one of the important segments in infrastructural provision by the government for the citizen to enjoy and benefit from the revenue allocation to the public, it

is not only an important segment of facility management but it is one of the key roles in the economy. Thus, findings of the study would be useful to government, private hospital investors and other participants involved in healthcare provision.

1 .7 Justification of the Study

Abayomi, (20 1 8) Assessed the study of facility management strategies on the provision of efficient health care service in public health institutions, the researcher directed the study to analyse how the provision of healthcare service is efficient in public health institutions, however he directed his scope toward specialized tertiary hospitals.

Elizabeth *et al*, (2010) reported a guide to defining, measuring, and improving performance of health service delivery organizations. Its scope is limited to frontline health service delivery organizations that interface directly with patients, such as hospitals, clinics, and pharmacies. This study is justified based on an attempt to assess healthcare facilities provision in selected private and public hospital in Minna in other to provide adequate healthcare strategies for better performance.

This study is an investigational survey conducted in both private and public hospitals; however the public hospital which is General Hospital, Minna in Niger State. The hospital has many departments and units among which is the popularly preferred government Hospital to the citizen. This public hospital was selected because, it has a well-established health specialised departments with reliable specialists records, willingness of the staff to

cooperate and interest in research work. Furthermore, it serves as a tertiary healthcare with evera1 qualified personnel.

Standard private Hospital is a registered private hospital and one of the most popularly visited hospital in Minna, it is affordable and equipped with healthcare facilities in other to husband the need of their customers.

1.8 Description of the study Areas

The area of study is Niger state. It was created out of the defunct North western state on 3rd February, 1976 by General Murals Muhammed, Babatunde (2011) Niger state is located between latitude 8 degree 20'N and 11 degree30'N longitude 3 degree3O' E and 7 degree2O'E. The state is bordered to the east and South-East by Kaduna and Plateau state, to the North by sokoto, to the South by Kwara and to the West by the Republic of Benin and Kebbi state. He estimated the land area to be 76,363 square land mass in Nigeria. (Encylopaedia Britannica, 2019).

1.8.1 Historical Development

Niger state is one of the thirty six (36) states of the Federal Republic of Nigeria. The state was created on 3rd of February, 1976 with its capital and administrative city at Minna. The state began operation on April 1 St of that year with initially nine Local Government areas (LOAs). But between the spaces of 1 976 to 1 99 1 the local government areas increased by 10 more and by 1 996 during the reign of Gen. Sani Abacha 6(six) additional local

government areas were formed bringing the total sum of 25(twenty five) till date. (Sanlok, 2017).

1.8.2. Economic Activity

Agriculture is the predominant economic activity in the state while those living the state capital and other urban centre within the state are mostly civil servants. Other economic activities in the state include trading, banking, transportation, construction and other vocation. It is said that exquisite asset is of Niger state is the fertile land. However, the latent potentials are yet to be extensively explored. The Climate, minerals and agricultural resources also make plain the economic base of the state. Thus, Niger state is mostly referred to a virgin land with whole lots of intact potentials. Some natural mineral found in the state include but they are not limited to talc, gold, silica, clays Kaolin, lead, quartzite, limestone amongst others. Also, the three hydro-electric power stations in the country (at Kainji, Jebba and shiroro) are all located in Niger state. (Bereau of public Affairs, 2008)

I .9 Brief History of Minna

Minna is a city (estimated population 304,113 in 2007) in west-central Nigeria. It is the capital of Niger State, one of Nigeria's 36 federal states. It consists of 2 major ethnic groups: the Nupe and the Gbagyi. Archaeological evidence suggests settlement in the area dates back to about 47,000-37,000 years ago. Muslim culture filtered into Minna by way of the ancient Saharan trade routes and the city contains many mosques and Muslim organizations. Christianity is a major population in Niger State, where Sharia is valid. (National Oceanic and Atmospheric Administeration, Retrived 2016) Cotton,guinea corn

(sorghum), and ginger are the main agricultural products of the city. Yam is also extensively cultivated throughout the city. The economy also supports cattle trading, brewing, shea nut processing and gold mining. (The concice Britannica Encyclopaedia, 2007)

1.10 The Health care units (Minna general hospital).

The General Hospital, Minna, established under Decree 36 of 1999 [now, Act 36 of 1999, was commissioned on 22 May I999 by the Former Head of State, His Excellency, General Abdusalami Abubakar, and opened its door to patients on 11th October 1999, when the first baby [female] was delivered. The present medical director is in person of Dr Isah Jibril.

The general Hospital is an institution that provides a broad range of medical services to sick, injured, or pregnant patients. Hospitals employ medical, nursing, and support staff to provide inpatient care to people who require close medical monitoring and outpatient care to people who need treatment but not consant medical attention. (World Health Organisation, 2018) Hospitals provide diagnosis and medical treatment of physical and mental health problems, surgery, rehabilitation, health education programs, and nursing and physician training. Many hospitals also serve as centres for innovative research and medical technology. According to the medical director the hospitals annually admit up to 34 thousand patients who are assigned a bed and receive medical or surgical treatment as inpatients. Hospitals also provide outpatient treatment in clinics or other walk-in. or ambulatory, settings for an additional 488 thousand patients every year.

CHAPTER TWO

2.0 **LITERATURE REVIEW**

2.1 Healthcare Delivery Types

The healthcare primary is the first point of contact for someone that has illness, injury or new symptoms in their body. It is generally regarded as gateway to receive more specialist care. First point of contact will be with a 'general physician or dentist or optician. The healthcare delivery model is classified into secondary health care model and tertiary health care. (WHO, 2013)

1.   Secondary healthcare: when a patient has been provided with a primary healthcare it may be referred to a secondary care professional- typically with a specialist with expertise on the patient's issue. These are consultant-led services which include cardiology, psychology, psychiatry and orthopaedics. they are usually delivered in a hospital/clinic with the initial referral being made by the primary care (Torrey, 2019)

2.   Tertiary healthcare: once a patient is hospitalised, they may require highly specialized treatment and care within the hospital or research centres. This type of care requires professionals usually surgeons, with specific expertise in a given field, to carry out investigation and treatment for the patient which includes, neurosurgery, cardiac surgery and cancer management (Torrey, 2019)

healthcare and hospital facilities are constantly needed to maintain a clean and healthy environment. It is important that healthcare facilities personnel should ensure quick response to service request and also ensure that efficient and preventive maintenance schedules are set in order to maintain operations without interruptions.

These facilities can be categorised in two constructs, clinical and non-clinical facilities. The study shall be narrowed down to clinical and non-clinical in tertiary healthcare centres in other to assess the consistency in the improvement of the healthcare conditions.

Clinical facilities such as; Suction machines, Wheel chairs, Electric beds, Hospital beds, X-ray machines, Heart mirror, Sterilizing equipment's, Respirators, Arthroscopic equipment's Stethoscope, Oxygen, Ambulance and so on

Non Clinical facilities such as; Pumps, Generators, Air- conditioners, Air- purifiers, Landscaping, Car-park spaces, Road network, Drainages, Electricity, Waste water system. Water supply system, Offices, Walk way and so on.

2.2 Facilities in hospital and their service delivery

2.21 Existing and standard Facilities in a Hospital

Many hospitals offer a wide range of services, including emergency care, scheduled surgeries. labour and delivery services, diagnostic testing, lab work, and patient education. Depending on their health situation, patients may receive inpatient or outpatient care from a hospital (world health organisation, 2009).

According to maintenance connection (2017) Healthcare and hospital facility management is constantly needed to maintain a clean and healthy environment. It is important for medical facilities to ensure service requests are responded to quickly and efficiently and preventive maintenance schedules are set up in other to maintain operations without interruptions. Many hospitals and clinics can set up maintenance procedures and preventive maintenance schedules for managing hospital facilities and equipment in the following areas; Generators, Suction machines, Sterilizing equipment, Wheel chairs, Electric beds, Arthroscopic equipment, X-ray machines, Heart monitor.

The quality of facilities present in a hospital as the number of bed and its spacing per ward. The term "bed" isalso used to describe the amount of space in a health care facility, as the capacíty for the number of patients at the facility is measurèd in available "beds." It Is specially designed for hospitalized patients; they have special features for the comfort and well-being of the patient and also for the convenience of health care workers. (NABM,1964) suggest that for a hospital to have the bed facility, there must be adequate and standard bed types and spacing to meet patients need and enable them have a rapid recovery.

2.2.1.1 American national standard for hospital facilities.

This is proposed by NFPA, (2005) National Fire Protection Association, (2005) suggested the standard for healthcare facilities which involve electrical equipment, Electrical Systems, Gas Delivery Equipment, Health care Emergency Management. Hyperbaric and Hypobaric Faci1ities, Laboratories, and Piping systems. This standard was approved as an American National Standard.

Therefore, American National Standard 11w Hospital Facilities as opined by NFPA. (2005) should also include a standard reception, Administrative office. Consulting rooms, Nursing sections, Injection, Dressing rooms, casualty, Pharmacy Laboratory (Microbiology, Biochemistry, Pathology), Inpatient ward, outpatient Maternity, Theatre (Changing Room, Scrubbing room, theatre facilities), Utility and Sundry (Generator, lnverter, water, car park space, security, cleaning), Maternity (Antenatal, first stage, second stage/Delivery room, post Natal ward), Radiology. These should be provided with adequate staffing and medical Personnel this is considered as a standard for hospital to run effectively.

2.2.1.2   Indian Institute of Technology health standards

Indian institute of Technology, (2019). Opined that the key to a good facility lies in assessing the right kind of hospital that is required for the market. The market requires cost effective solution which should be for masses and not classes. Experts say that though we need buildings that reflect best quality design, this should serve the functionality. Infrastructure should be planned so as to keep the initial cost low. In his study he reviewed that the number of entrances to a hospital building should be minimal to keep security cost low. Too many toilets should not be built because it is costly to create them and even more expensive to maintain toilets.

The study further elaborated on some of the facilities that are necessary and should be provided for day to day running of a hospital to enhance its effective and efficient performance of the medical officer, patient and visitors.

According to hospital Unit, Indian Institute of Technology Delhi List of facilities which should be available in a Hospital

2.2.2 Out Patient Unit

Patient are registered at the reception and are seen on first come, first see basis, however out of turn consultation may be provided in case of emergency and senior citizen. Patient have the right to consult any doctor, In OPD, clinical consultation is provided to u patient who includes history taking, clinical examination, diagnosis and providing prescription to patients besides advising laboratory tests in some cases. OPD has a waiting hall with chairs, a TV, public utilities like drinking water and toilets. Sub waiting areas are available in front of individual consultation rooms. Wheel chairs, trolleys and attendants are there to help very sick patients (Indian Institute of Technology, 2019).

2.2.2 Dental facility

An experienced Dental surgeon provides procedures like Dental Extractions, RCT, Scaling/Cleaning, Fillings, Local curettage.

Dental instruments are tools that dental professionals use to provide dental treatment. They include tools to examine, manipulate, treat, restore and remove teeth and surrounding oral structures. These instruments include mirror, probes, operative burs, escavators, fine scalers, curettes removable prosthondonthics and dental forceps. (Indian Institute ofTechnology, 2019).

2.2.4 Ward Indoor facility:

Ward facilities for observation and management of medical problem like typhoid, acute gastroenteritis, COPD, bronchial asthma., malaria, viral fever, pneumonias etc. There are 3 wards, one special room and one well equipped emergency. (Indian Institute of Technology, 2019)

2.2.5 Minor OT:

Provides services q for minor surgical procedure like dressing of lacerated wound, suturing of minor lacerations & resuturing, excision of corns and sebaceous cysts (done under local anaesthesia.) (Mutispeciality, 2019).

2.2.6 Physiotheraphy:

Range of physiotherapy services to assist the patients to recover from wide range of musculoskeletal pain-full disorders. Available modalities are MWD, SWD, U/S, TENS, IFC laser therapy traction unit, magnolia. (Mritunjay Hospital, 2017).

2.2.7 Laboratory services:

Trained laboratory staff are providing best services which includes painless blood withdrawal Services of one NABL accredited laboratory are also available for carrying out specialised tests, they collect sample from 8 AM to 12 noon. (Indian Institute of Technology, 2019).

Sample collection time for ITT laboratory is 8 am to 10.30 am while emergency tests like blood sugar, platelet count & blood grouping done in emergent cases throughout OPD hours. (Indian Institute of Technology, 2019)

2.2.8 ECG Services:

24hours ECG including machine report, done by trained staff. (Indian Institute of Technology, 2019).

2.2.9 Pharmacy:

Free reliable quality medicines are available to beneficiaries on doctor prescription during OPD hours. Medicines not available are provided by systolic output signed by prescribing Doctor and head and collected from on campus chemist shop (Indian Institute of Technology, 2019)

2.2.10 Radiology/X-ray facility:

XRay pleophos-D, 300 MA Siemens available, X-rays done on all working days during OPD hour. Sonoline G-50 U/S machine, Siemens. Ultrasounds are done once week. (Indian Institute of Technology; 2019)

2.2.11 Ambulance Services:

24 hours patient transport vehicle available. Patients are transported from home (on campus) to ITT hospital and patients referred by emergency duty doctor to empanelled hospital for specialized case. (Indian Institute of Technology, 2019)

2.2.12 Doctor's Office

A doctor's office is a medical facility where one or more doctors provide treatment to patients. Doctor's offices are often focused on one type of medicine; the health providers operating there are either general practitioners or practice a common specialty. Doctor's offices provide routine care as well as treatment for acute conditions that do not require immediate intervention. While these facilities are traditionally called a doctor's office, the doctor is rarely the only medical professional on staff. In many cases, physician assistants and nurses also contribute to the delivery of patient care. (Top masters in health care, 2019)

2.2.13 Urgent Care Clinic

When patients are unable to get to their doctor's office or want basic medical care without an appointment, an urgent care clinic might be the perfect choice. Sometimes called walk-in clinics, these facilities offer outpatient care immediately. However, it is important to note that an urgent care clinic is not the same as a hospital's emergency room. If the issue is something that you would normally see your doctor for like a stomach virus or a sprained ankle, then an urgent care clinic is appropriate. If you have a complex health situation or

your issue is a truc medical emergency like chest pain, breathing difficulties, broken bones or an extremely high fever, then you should head to the hospital's emergency room without delay. (Top masters in health care, 2019)

2.14 Operation theatre

Dijo (20 1 7) Gone are the days when loved ones of the patients waited outside eagerly to know how an operation went on. All our operation theatres have an observation gallery from where attendants can watch and see how the operation proceeds. This way they would know exactly what was happening in the room, which increases the awareness of operations amongst the general public. At present this is being implemented in a few hospitals but as awareness increases patients would look for a hospital that is transparent. So while building a new hospital it is best to build it according to the latest standards and guidelines though you might spend a little more. Another facility that could be included is to be able to talk to those in the observation gallery right from the operation theatre. This futher reduces their fear and assuring that the doctor is in touch with them.

2.3.0 Facility management service delivery in hospital
2.3.1 Facility management concept

keith (2003) assumed that there is a misconception between the concept of maintenance and facilities management. Often mistaken to mean the same thing, facilities Management however is more an umbrella under which maintenance falls, and has moved the simple notion of building maintenance to encompass the supportive services of organization

Judge (2017) defined facilities management as the process by which an organisation delivers and sustains support services in a quality environment to meet strategic needs. The intention of the researcher is deduced from the observation that all organisations would have a particular aim for which it is in existence; however the smooth running of these processes to ensure that the aim of the organisation is met is what is referred to as facilities management here.

Facility Management is an integrated process that ensures the functionality of a built environment by integrating the people, place and process, dealing with the ability of a laid down management team to coordinate the workplace by managing space and people to promote the efficiency of an organisation, flexibility of resources is not much considered without the immediate built environment of the organisation, these definition suggest only the presence of facilities after the existence of the built environment.(IFMA, 2007).

Oladejo (2014) carved his own definition of facility Management to including the need to upgrading the existing systems of facilities Management. He termed it a continuous reorientation of working space and environment, system and services to Support core operations in other to achieve strategic objectives. Which means facility management would need to be constantly reviewed and analyse for a better way of management. (xenon group) 2017 opined that there is a wide variety of different service delivery options available for the Facilities Management functions but they will usually fall into one of the following categories.

In-House Service Delivery

In-house de1ive of services essentially means that the organisation employs its own entire staff to undertake the support services. Cleaners, caterers and security guards, for example would all be directly employed by the organisation.

Outsourced Service Delivery.

Outsourcing means using another company to provide the services for you. For example, rather than employing your own chefs you might use a specialist catering company to provide all the catering for your organisation or you might use a window cleaning company to clean the windows of your building. There are different options available for outsourcing services. - .

1. Single service outsourcing- as its name suggests, your organisation would award a contract for a single service to an external company so the examples given in the paragraph above would all be forms of single service outsourcing. One service is provided by one company. Often, this form of outsourcing is used in combination with a degree of in-house provision and so is considered to be a form of Partial Outsourcing.

2. Bundled services – in this instance, one company provides you with two or more services, for instance cleaning, general waste disposal and provision of hygiene services.

3. Total Facilities Management (T FM) in a TFM scenario you outsource ALL your FM requirements to a single company for a fixed price. For this to be successful it is vital

that the client provides enough detail of the requirements to enable the FM Company to be able to scope the service fully and manage the various services efficiently.

In other words, suggest that facility Management service can be delivered through in-house and outsourced service delivery whereby employing of either staff present in the organisation or employed for the purpose of performing its task help to run the organisation goal more effectively

2.3.2 Contemporary issues in healthcare facility management

There are some contemporary issues in the healthcare sectors subject to series of debates. These include Service Quality, Perceived Service Quality and technical quality which are discussed underneath (Zeithaml & Bitner, 2000).

2.3.2.1 Service quality

Opined that service quality is vital in the health care sector, a service bears intrinsic attributes such as: perishability, intangibility, heterogeneity and inseparability and these distinguishes it from goods Zeithaml & Bitner (2000) and Parasuraman &berry (2000). Service quality refers to deeds, processes and performances, Parasuraman *et al* (2000) also defines it as meeting customer specifications. In defining service quality, Park, S. (2005) claim that, it is a consumer's overall mental picture of the relative inferiority or superiority of the organization and its' services, Zeithaml *et al* (2000) and Pui-Mun Lee (2006) defined it with special attention on expectation by arguing that, it deals with meeting or exceeding customer expectation. Zineldin (2006) claim that, the delivery of quality floats around the service provider; he claims that, it relates to doing the right thing at the right time, in the right way for the right person. Bergman & Klefsjo.(1994) Evans & Lindsay (1996) and

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Bojanic (1991) further argued that the definition of quality by sonne researchers accentuate 'the satisfaction of customer needs these expands the definition beyond satisfaction of customer needs by comparing satisfaction derived from one service provider with an another service provider. Gronroos (1984) describes service quality as a subjective conceöt from the view of the customer by describing it as the result of what customers received and how they receive it. Essentially, a number of researchers have defined service qualjty in relation to gaps between customer expectation and perception of a service (Lewis & Booms, 1983; Parasuraman *et al*., (2000); Webster, 1989).

2.3.2.2 Perceived Service Quality

The importance of service quality to organizations cannot be overemphasized as scholars generally agree that, a company's economic success depends on establishing a strong perception of high quality service in the minds of customers (Parasuraman *et al*., 2000; Brady & Cronin, 2001; Gilbert & Veloutsou, 2006). Service quality is particularly important in today's highly competitive market as companies seek differentiation and the establishment of customer loyalty (Parasuraman *et al*., 2000; Hutton & Richardson, 1995; Brady & Cronin, 2001; Gilbert' & Veloutsou, 2006). According to Park, (2005) citing Zeithaml *et al*, (2000) stated that perceived service quality is the consumer's judgment about excellence of overall health services including every dimension of service such as: technical, functional, environmental and administrative aspects based on perceptions of what is received and what is given a positive perception of service quality occurs when a consumer's expectation of what should happen in a more general sense is met (Laroche, Linda, Shuzo, Mark, & Peter, (2004); Park, S. (2005). A consumer satisfied with specific

service encounter will overtime, establish a positive perception of the overall quality of service (Parasuraman 1988; Hutton *et al*, 1995). In a highly competitive market environment, firms must not only meet their customers' expectations but often must exceed them; striving to provide consumers with total satisfaction (Pritchard & Howard 1997; Schneider & Bowen, 1999; Le Bel, 2005).

2.3.2.3 Technical Quality

(McGlynn, 1997) define that quality of healthcare in technical terms as the degree to which health services for individuals and population increase the probability of desired health outcomes which are consistent with current expert understanding Nevertheless, Brook, *et al*. (1975) address more emphasis on the accomplishment of high health standards as they debate that, technical quality relates to the ability of hospitals to achieve high ethical values of patients health through medical diagnosis, procedures and treatment geared at creating physical or physiological effects on patients. This definition has been expounded by Tomes and Ng (1995) who maintain that, it includes the competence and clinical skills of doctors, nurses, laboratory technicians (with expertise in running test) etc. However, Donabedian (1982) conceptualizes the salient aspects of clinical quality as the qualifications of the provider; using the proper diagnostic equipment and selection, timing and sequencing of the medical diagnosis and treatment. The elements of technical quality are usually quantitative and somewhat straightforward to measure. Examples include: mortality and morbidity rates, treatment errors, average length of stay, readmission rates, and infection rates (AnderSon & Zwelling, 1996; Fitzsimons, 2000)

2.3.3 Challenges inherent in healthcare facility management

The main challenges of managing tertiary healthcare facilities are the highly diverse network and range of functions which are needed to maintain operations as well as the complexity of the support services. Esther, Obinna & Charles (2015) state that tertiary healthcare hospitals render specialist services with sophisticated healthcare structures, equipment and machinery that can only be maintained by experts. Maintenance is a combination of both technical and administrative actions which are aimed at keeping the components of a facility in the most appropriate condition for effective use. Al- Zubaidi (1993) observed that the main goal of maintenance is to minimise related operating costs. An all-encompassing maintenance builds in the performance of the buildings, maximises personnel safety, minimises operational costs, environmental threat and the risk of material damage.

(a) healthcare facility maintenance

Shohet (2003) considered healthcare facility maintenance as one of the key elements for successful delivery of healthcare services.

Hospitals and healthcare facilities are among the most complex, costly and challenging facilities to manage (Loosemore and Hsin, 2001). However, the goal of the facility maintenance organisation in a hospital environment is to achieve zero defects in the hospitals physical operation, especially in areas where small problems can have huge consequences and be a matter of life and death. One of the main challenges of managing hospital facilities is the highly diverse network and range of functions which are needed to maintain operations as well as the complexity of services which are required to support them.

Loosemore and Hsin (2001) enumerated competent areas of coverage of hospital facilities maintenance to include: maintenance of all plant, equipment, building, infrastructure and landscape through a comprehensive maintenance program.

It is usually said that 90% of the lifecycle of any asset is dependent on FM. Looking around today; this notion becomes instructive, as most public health institutions are mere shell buildings, and new private ones are also fast giving way to wear and tear. The reasons for these remain that all the attention was given to the design and construction of these facilities, while less though went into the life of the buildings after construction (Femi, 2016). The dilapidated nature of most of these assets is responsible to the in conducive environment and the shortened lifespan of most healthcare facilities.

However, where FM is introduced, healthcare assets can fulfil their lifecycle, maintenance cost can be tracked to continuously ascertain the profitability of the asset, equipment failure can, be predicted and prevented to improve productivity, and downtimes can be minimized to reduce the total cost of maintenance,

i.   Maintenance of all medical and laboratory equipment through a comprehensive maintenance programme.
ii. Cleaning of general areas as well as specialised areas including supply of toiletries and consumables.
iii. Supply of clean new tailored •linen, collection, transporting and laundering of soiled linen, repair of tom or damaged linen and provisions of curtains, cushion covers, and screens including consumables and facilities for bagging.

iv. Supply of consumable items such as waste bins, sharp containers and coloured bags, collect and transport waste from the source of generation within the hospital to the incineration plant for disposal.

Esther *et al* (2015) states that in other hospital setting in some part of Nigeria healthcare facilities maintenance is centered mainly on structure, equipment and machinery used by healthcare institutions while the cleaning of wards, offices and general areas as well as the supply of clean linen and disposal of waste bins were carried out by the facility management unit.

Tertiary healthcare facilities function round the clock, seven days of the week, all year round. It requires effective support of critical infrastructure of healthcare, such as power supply for operating theatres and medical gas in intensive care units, sophisticated equipment and machinery for diagnosis and treatment etc. With public enlightenment on the radio, television and newspapers on the activities of the National Health Scheme (NHS) more patients arc visiting tertiary hospitals where they pay very little or nothing to receive healthcare. This has increased patient admissions and more pressure is exerted on the available facilities leaving them to yearn for 'urgent maintenance. (Esther *et al* 2015) Unlike maintenance in corporate organisations, tertiary healthcare maintenance involves sophisticated healthcare structures, equipment, plants and machinery that are in constant use all through the year.

Oladejo (2015) in a study of tertiary healthcare institutions in South East Nigeria takes a closer look at the maintenance units of University of Nigeria Teaching Hospital Enugu, Enugu State Ebonyi State University Hospital, Federal Medical Centre Owerri, Imo State and Nnamdi, Azikiwe University Teaching Hospital Awka, Anambra State and observes

that the maintenance units lack competent staff considering the nature of the facility they are to maintain. This is linked to failures and delays in rectifying breakdown of crucial medical equipment.

Tertiary hospitals will continue to make use of more sophisticated facility. The present calibre of staff in maintenance units of hospitals are obviously incompetent to carry out maintenance on these machineries. With their continued presence, maintenance in tertiary hospitals will continue to be failure. Some secondary hospitals outsource the maintenance of sophisticated healthcare equipment to service providers who specialise in them but this has also met with failure in the absence of close monitoring and supervision. Some other secondary outsource their facilities maintenance to reduce cost or to cut down on the financial burden of employing qualified maintenance staff.

However, effective maintenance is a means to the success of an organization. Constant equipment failure will prevent secondary hospitals from achieving their aim. In the healthcare sector, constant equipment failure means putting the lives of patients at a very high risk. Although the tertiary hospitals under study admitted having a schedule for maintenance but, that schedule is not being adhered to. Maintenance is carried out when there is crucial equipment breakdown or when emergencies are involved. Maintenance is in the form of "complain and response", if the cost involved can be borne by the maintenance Department, otherwise the maintenance work holds on until if a regular sufficient fund is made available by the management of the hospital. maintenance schedule is followed, unfortunate patients will not die in medical theatres due to sudden failure of medical equipment and supporting generations. (Esther *et al* 2015).

Micheal, (2013) also on major challenges inherent in Facility Management Organizations are continually battling conflicting priorities. Customers complain on the need to focus on delivering high quality patient care, preventing infections, maintaining hospital security, and ensuring patient safety and satisfaction— all with extremely stretched resources (Michael, 2013). There are top five challenges that healthcare organizations around the world are facing today:

(b) Financial challenges and hospitals productivity:

According to Sullivan (2013) Hospitals are the second most energy-intensive buildings after restaurants, and globally, healthcare costs are on the rise. These financial challenges in addition to an aging world population and increasing energy costs which are putting pressure on healthcare organizations to do more with less without compromising quality of care.

(c) Maintaining patient safety:

Every year an estimated 20,000 people in the U.S. and 5,000 in the U.K. die from an infection they received while in the hospital. Reducing the risk of infection, as well as other potential risks, such as power failures, is crucial in ensuring a high quality of care and maintaining the organization's reputation. (Micheal, 2013).

(d) Controlling principles as well as developing drive commands:

Noncompliance with regulatory standards can lead to a disruption in operations, poor quality of care, safety issues, and substantial fines. At the same time, as energy demand rises, many countries are requiring healthcare facilities to reduce carbon output and meet mandates for energy reductions. (Micheal, 2013).'

(e) Hospital security

Healthcare facilities are often open 24/7, and those visiting are often under a great deal of stress when life and health are at stake. Violence, infant abductions, patient wanderings, and theft of drugs and hospital assets are major concerns. (Michael, 2013).

(f) Patient satisfaction:

The well-being of patients is a key to reducing length of stay and preventing readmissions. According to the American Society for Healthcare Engineering (ASHE), in green hospitals, patients are discharged an average of 2.5 days earlier compared to traditional hospitals. Additionally, patient satisfaction can also affect a hospital's revenue. If the systems are operating poorly or not at all, quality metrics such as Hospital Consumer Assessment of Healthcare Providers and Systems can be adversely affected. (Micheal, 2013). So, how can healthcare organizations deal with these challenges while controlling costs, reducing waste and implementing a sustainability strategy? By utilizing an open and integrated solution that provides the right information to the right user at the right time. (Michael, 2013). For a hospital looking to combat rising energy costs and consumption, an intelligent infrastructure can be used as the central tool for monitoring and controlling facility systems with the installation of meters and sensors, energy information is collected from designated areas of the hospital. Together, intelligent control, management, and analytics improve infrastructure efficiency and allow maintenance to be scheduled to reduce system downtime.

(g) Integrated security system & location system tracking

Michael (2013) assumes someone tries to remove an infant from a hospital ward, in a hospital that utilizes an integrated security system with real-time location system tracking.

Specific sequences can be implemented to protect against infant abduction, Staff would receive alerts so they can respond according to their standard operating procedures. Alarms would sound; access control systems would lock designated perimeters and internal doors to push the abductor to a staircase, where he or she can be apprehended, Video cameras can scan the area and send live camera feeds to security staff, as well as provide identification for police.

While these are just a few examples of the benefits that fully integrated solutions can provide to address the top challenges, hospitals must 'also be ready to respond to both expected and unexpected changes, such as possible increased regulatory demands, environmental mandates, and future healthcare innovations, (Michael, 2013).

(h) Inadequate planning of the Integrated Healthcare Facilities Management

It is no news that one the major channels through which Foreign Exchange earnings leave Nigeria is medical tourism. In fact, a 2013 Business Day report revealed that 47% (18,000) of Nigerians, who visited India that year, did so for medical reasons and expended up to N41.6 billion.

In addition, no one needs to be told that in spite of the fact that approximately 60% of the country's health services are provided by the private sector, the general state of the Nigerian healthcare infrastructure facilities still leaves much to be desired.

Experts say this declining status and the attendant lack of confidence in the healthcare system in Nigeria can be traced to inadequate planning of the Integrated Healthcare Facilities Management Model (IHFMM) of most healthcare institutions before construction.

Ironically, Nigerian doctors and healthcare professionals rank at par with their counterparts in most of the countries where Nigerians seek medical attention. In fact, available record showed they are in large numbers practicing in most hospitals abroad, where they give good accounts of themselves. This is fuelling an increase in brain drain, as most of them have to go abroad to get expose to modern medical equipment, which are lacking in Nigerian hospitals. (Abubakar, 201 8), So if Nigeria must reduce the rising capital flight on account of medical tourism, improve the state of its healthcare facilities to earn patient's confidence, and retain some of its brilliants medical experts to develop its healthcare sector; here are some of the areas to focus, and how Facilities Management will-help

(i) Unavailability of Modern Equipment and Obsoleteness of Existing Ones

This is about the biggest issue with the Nigerian healthcare system. It is responsible for why foreign medical trips remain the only option for affluent Nigerians or patients in dire need of the right diagnosis. It is common place to trace the root causes of most of the wrong diagnoses to lack of the right equipment or the faulty nature of existing ones. (MO, 201 1)

Rather than just focusing on outright purchase and installation of these life-saving equipment without recourse to their lifecycle management and Service Level Agreements (SLAs) with manufacturers, FM can come to the rescue by defining processes around the required SLA, and planned scheduled replacement of the obsolete inventory. (Nwofoke, 2018).

These can help keep existing equipment in good shape and adequately plan for the disposal and replacement of out-dated or faulty ones.

(j) Avoidable Harm to Patients

It is not unusual to hear stories of medical errors and how they have accounted for avoidable deaths in some Nigerian medical facilities. This is also one of the many reasons why most Nigerians remain uncomfortable with healthcare practices in the country and will rather go abroad for medical attention.

Ironically, medical errors are not peculiar to Nigeria; in fact, a landmark study in the U.S once revealed that between 44,000 and 98,000 Americans died annually because of medical errors committed in hospitals. But patients' confidence in Nigeria's healthcare keeps dropping due to unavailability of operational procedures, or lack of clear processes to ensure procedures are followed, where available.

Specialized FM service can help curtail the spate of medical errors by defining and implementing processes that will ensure that the procedures are sufficiently adhered to (Femi, 2016)

(k) Integrated & Effective Heating, Ventilation and Air Conditioning (HVAC) system:

Anyone who has visited healthcare facilities in the country will admit that HVAC is a major challenge. Very often the air released and which permeates the healthcare environment is odious and capable of infecting otherwise healthy people with new disease(s), due to microbial and fungal growth within the circulating air. However, FM can help improve this condition with a well-integrated and effective HVAC system, which often ensures internal climate controls (temperature, humidity, air flow, and air filtering), and identify energy-saving opportunities through an implementation, monitoring and evaluation plan. The

energy management system as a result of this improvement is also known to check fungal and allergens growth that could easily lead to asthma and other health challenges. (Femi, 2016)

(m) Effective Waste Management System

A common observation in most healthcare institutions is the uncoordinated approach to waste management. It should not be taken for granted that healthcare facilities implement a sustainable process that properly separates regulated from non-regulated medical waste at all times, Unfortunately, only few medical institutions could boast of an effective system than manages both solid and liquid wastes.

For FM, an effective medical waste management process will encompass a regular collection, handling, storage, transportation and processing of waste, This, in addition to creating conducive environment, can significantly reduce the transmission and spread of microorganism infections in healthcare facilities. (Femi, 2016).

(n) Efficient Structure Process and Output (SPO) Model

Every organisation is expected to rely on a mix of functions and services to provide the supporting essentials to its core business operations. Ensuring that these supports arc available in 'the right form, at the light quality and for the right cost is a major task-for Facility Management.

At another level, the there is a major void in efficient management of process that integrates the entire activities that happen within the healthcare facilities. For instance, In most of our existing health institutions, it is difficult to specifically speak to what a process is in the reception of an emergency, assures efficiency through the treatment period and keeps a patient comfortable through the recovery phase.

However, FM can come to the fore with a well-defined SPO model that can enable improved operational structure, clinical process, and enhance patients' outcome.

In all, current economic realities and state of Nigeria's healthcare system is beginning to call for improved healthcare system that can save the country from the increasing capital flight and improve the productivity of its people. (Femi, 2016) Healthcare management is a catastrophe in the country; Nigerians have to suffer from long queues, lack of medications and inexperienced doctors and this only the beginning of a long list of struggles among the problems facing healthcare management in Nigeria, (George, 2017).

(o) Difficulties for patients to access I-IC facilities:

A fundamental challenge in location planning is minimizing the distance between facility and demand points (patients). Among different distance planning methods for a given number of facilities and locations, the P-median model seeks to minimize the total travelling distance from all clients to their closest serving facilities. This model, introduced by Hakimi 119641 is one of the most popular models for facility location problems. P-median models have been extensively used in formulation of healthcare facility location problems. It has also been useful in planning control over disease.

ReVelle and Swain L 19701 formulated one important way to measure the effectiveness of a facility location is to determine the average distance travelled by visitors. P-median is a basic model with the single objective; therefore, many other contributions have been made based on this model to cope with problems in healthcare facility location. Challenge

2.3.4 Competence of the maintenance unit in tertiary hospitals

The competence of the maintenance crew in tertiary hospitals has always been questionable especially during emergencies. In a study of tertiary hospitals in South East Nigeria, (Oladejo 2014) observes that the maintenance unit of tertiary hospitals are poorly staffed. Only very few qualified staff is recruited, the host are technicians which in turn render the staffs incompetent to handle emergencies involving equipment failures most technician admitted that the maintenance unit is not competent in handling emergencies involving equipment failure according to the report from Oladejo (2014). The researcher is of the opinion that the responses of the respondents are personal opinions and do not reflect on the actual situations in tertiary hospitals. (Esther *et al* 2015).

2.3.5 Strategies of healthcare facility management, a global perspective

Elizabeth *et al* (2010), define strategies as a set of activities or interventions that together are designed to achieve a pre-specified objective. The seven categories are each associated with a certain mind-set, or mental model, drawn from particular academic disciplines; each strategy will be optimally effective under particular conditions.

There are seven major strategy areas potentially useful for improving performance among health care organizations proposed by (Elizabeth *et al*, 2010).

    1) Standards and guidelines,

2) Organizational design,

3) Education and training,

4) Process improvement and technology and tool development,

5) Incentives,

6) Organizational culture, and

7) Leadership and management,

We provide illustrations of facility-level interventions within each of the strategy areas and highlight the conditions under which certain strategies may be more effective than others. The study propose that the choice of strategy targeted at organizational level to improve performance should be informed by the identified root causes of the problem, the implementation capabilities of the organization, and the environmental conditions faced by the organization.

Measuring and improving organizational performance is complex because organizations are diverse and dynamic. Users of this guide should take away a toolkit of concepts and methods that can help them identify which questions to ask and how to answer them in the context of defining, measuring, and improving performance of health service delivery organizations. Having this broad set of tools with which to understand and enhance organizational performance can contribute to improving health service delivery and ultimately health outcomes.

Based on our reading of the literature, we identify seven broad categories of potential strategies for improving organizational performance. We define strategies as a set of activities or interventions that together are designed to achieve a pre-specified Objective. The seven categories are each associated with a certain mind-set, or mental model, drawn

from particular academic disciplines; each strategy will be optimally effective under particular conditions Underlying each strategy are assumptions about both the drivers of human behaviour and the root causes of poor organizational performance. Furthermore, the strategies are not mutually exclusive; several strategies may be used together depending on environmental conditions and implementation capability.

Although this report focuses on the micro-level of the health care facility, these strategies can also be applied at broader levels of the health system. For instance, at the micro-level, a subnational district health system 'Might develop a strategy for multiple facilities in its jurisdiction that arc facing similar root causes of low performance. At the macro-level, a Ministry of Health might initiate a national strategy to improve certain elements of performance in health facilities across the country, A major challenge in moving from micro- to meso- and macro-levels is maintaining alignment of the strategies selected with the relevant environmental conditions and implementation capabilities of the targeted level of organization. To ensure alignment, decision makers at the meso- and macro-levels should have valid facility-level data infrastructure and participation from facility-level staff to develop and implement effective strategies for improving organizational performance.

These strategies can also be used to improve the performance of organizations operating at the meso- or macro-levels of a country's health system. A district health agency or national Ministry of Health represent meso- and macro-level organizations whose performance is determined by many of the same factors as hospitals or clinics. For example, low levels of staff motivation can be a root cause of poor performance within a single hospital or within the district or the national health agency.

2.3.6 Strategies of healthcare facility management, Nigeria perspectives

Nigerian healthcare system is planned into primary, secondary and tertiary healthcare ranks. The local government areas (LGAs) are in control of primary healthcare; the state government are in control of providing secondary care while the Federal Government is responsible for policy growth, rule, overall stewardship and providing tertiary care (Pharm access, 2015). However, (Eboreime, 2014) states that as it is in other parts of the world, Nigeria is regarded with its own health problems and challenges in communities, town, states and cities, few of these challenges are: inadequate supply of water, poor food supply, improper nutrition, poor maternal and child healthcare, lack of family planning and infectious diseases. In a bid to put an end to this menace, strategy was put in place to reduce minimally or stop the poor health condition of the country. Few out of these strategies was made by the Federal Government to set up Primary health care which are to be supervised by local government areas, PPP and so on.

Primary health care: This strategy was conceptualised by the Ama Ata declaration of 1978. The strategy is meant to address the main health problems in the community providing original, preventive, curative and rehabilitative services (Olise, 2007), It is the first level of contact of individuals, families and communities with national health system, bringing healthcare as close as possible to where people live and work, it takes its services outside its own precinct to the homes of people within its jurisdiction. In Nigeria there 3 primary healthcare recognised centres: a) Comprehensive health centres (CHC), b) the primary health centres (PHC), c) the basic health clinic (BHC). For Nigeria to ensure better equity in other to access healthcare facilities, which would facilitate achievement of some health-related sustainable development goals(SDGs), quality of services at its healthcare

facilities should be improved (Oyekaye, 2017), This key stakeholders help to identify specific offerings and potentials, opportunities exist also across the value chain, from transaction advisory, to infrastructure development, equipment's, staffing and training and management of all healthcare facilities' (Phamaccess, 2015). However, the Local Government which serve as the supervisory and controller of this strategy is the least funded and organised level of government and therefore has not been able to properly finance and organise the strategy, creating a very weak base for the healthcare system. (pharmaccess, 2015). Public, private partnerships: Additional scheme that the federal and state governments are implementing to advance healthcare facility and operations are public, private partnerships (PPPs), some of the different models that are currently being used in Nigeria are (Pharmacess, 2015).

    a. Government solely finances infrastructure and contracts a private operator to operate the facility

    b. Government and private partner co-invest and co-own the facility as well as agreement and autonomous reserved operator

    c. Worker co-invests with government to display pledge and share threats

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research design

A descriptive research design was adopted for this study as it provides analysis of precise details collected randomly from the population and also describes a number of features on the data collected.

3.2 Population for the study

The study population includes the major participants in healthcare facility in the selected hospitals. These participants include patients, users, medical personnel and maintenance officers, the researcher also visited (General Hospital and standard Hospital in Minna) for interview and question airing.

3.3 Sampling Technique

Simple random sampling was used to select the maintenance officers, patients and visitors as well as medical personnel's and selection of the case study that was studied which were the focus of questionnaires administration. This technique was selected to avoid unbiased and fair representation of the group,

3.4 Sample frame

Given the dispersed nature of the study population, the sampling process involved two stages, selecting maintenance unit and medical personnel with the patients and users. The first stage adopted purposive non-probabilistic sampling, All the medical staff and maintenance personnel were selected to solve the requirements of the study. Kronsnik (1999) criticized the use of purposive. sampling which will produce non- representative sample. The second stage is convenient sampling which is less aggressive non- probabilistic sampling. The technique was used for both patients and the users, it is adopted to the patients that responded to the questionnaire at the point of interview, the technique application was efficient since it was collected on the same day that they were distributed, the total of 4845 questionnaires was employed in the study which are therefore represented in A, B, C, and D for both hospitals.

Table 1: Population of study in general hospital Minna.

CATERGORY	TARGET POPULATION	SAMPLE FRAME
A	Patient	1199
B	Users	1570
C	Medical staff	875
D	Maintenance personnel	118
TOTAL	3762	3762

(Source: Field Survey, 2019)

Table 2: Population of study in private hospital

CATERGORY	TARGET POPULATION	SAMPLE FRAME
A	Patient	518
B	Users	490
C	Medical staff	43
D	Maintenance personnel	32
TOTAL	1083	1083

(Source: Field survey, 2019).

In arriving at category I and 2 of the two study areas an average number was taken because in any hospital patients are not stable, there is variation in the registered number of patients which in turn shall also affect the visitors visiting them.

3.5 Sample size

The sample size refers to the actual number of elements, cases or entities in a population that will be studied. This is done to secure a representative group which will enable the researcher to gain information about a population. The sample size is determined using the smith formula. The record showed that the sample frame is categorized and arrived at four thousand eight hundred and forty-five (4845) patients, visitors, medical personnel's and maintenance officers in both selected Hospital. Therefore using smith formula the sample size to be arrived at is....356.01437 the populations of the areas in Minna which will be used for the research are shown.

Table 3 Population size to be used for the study

Location	Population frame	Sample size
General hospital Minna	3762	249
Standard Private hospital	1083	107
Total	**4845**	**356**

(Source: Field survey, 2019).

$$n = \frac{\left\{ Z^2 \text{ x } \sigma^2 \text{ x } \left[\frac{N}{(N-1)} \right] \right\}}{\left\{ ME^2 + \left[\frac{Z^2 \text{ x } \sigma^2}{(N-1)} \right] \right\}} \qquad (3.1)$$

Where n = Sampling

      z = Standardized normal value and it is taken as 1.96 for a 95% confidence interval

      c = Standard of deviation; 0.5

      N = total population

      ME = Margin error put at +/- 5%

      Thus computed as follows:

$$n = \frac{\left\{ 1.96^2 \text{ x } 0.5^2 \text{ x } \left[\frac{4845}{(4845-1)} \right] \right\}}{0.05^2 + \left[\frac{1.96^2 \text{ x } 0.5^2}{(4845-1)} \right]}$$

$$n = \frac{\{0.9604 \; x \; 1.000206441\}}{(0.0026982)} = 356.01437$$

n = 356.01437

Thus a total of three hundred and fifty six questionnaires will be administered to both private and public hospitals

3.6 1Instrument for Data Collection

These are methods that are established and used in measuring or recording information.

The study instruments for the researcher comprise of; personal interview, field survey and questionnaire administration. For the purpose of this work, the subsequent instrument was implemented as well as meant to help in the accuracy of data collected for the study.

i. Field survey

A survey of the study area was carried out to know the registered private hospitals, real estate surveyors and the number of patients and visitors in the hospitals

ii. Questionnaire

Series of structured questionnaires (both closed ended and open ended questions) were administered for collection of primary data from respondents. The researcher administered the questionnaires by personal visit to private hospitals as well as Public hospitals. The researcher ensured that the questionnaires were accompanied by a cover letter so as to briefly explain to the respondents about the significance of the study and assuring them that their responses would be utilized for research purposes and also that confidentiality will be

observed. See appendix for research questionnaire targeted at the users and patients of the selected hospitals?

3.7 Sources of data

The two major sources of data collection are primary and secondary information.

i. Primary sources: the primary source of, data collection is those data and information collected by the researcher himself specifically for the goal in mind. In other words, it is referred to firsthand information concerning a research work. Facts and data were attained from field survey through questionnaire administration, personal interview and field survey.

ii. Secondary sources: secondary data are gathered from indirect sources. The secondary sources of information gathering are typically attained by the researcher from published and unpublished materials.

3.8 Technique of Data Analysis

The study employs descriptive statistical methods of data analysis, these provides, as Trochim (2006) mentions, simple summaries about the sample and about the observations that have been made. These summaries can either be quantitative, that is, summary statistics, or visual, that is simple to understand graphs and qualitative. These comprise frequency distribution, percentages and cross tabulation. The frequency distributions are an indication of the basic features of the data on the respondents which includes patients, visitors, medical

personnel and maintenance officers as well as data employed in the subsequent statistical analysis. The descriptive statistics like mean were used to rank the variables in addition to frequency and percentage distributions and both quantitative and qualitative method of analyzing data were employed.

3.9 Technique for analyzing the objectives

3.9.1: Objective 1: The first objective was analyzed using frequency and percentage in accessing the available facilities in the case study, the objective also employed the use of - mean satisfaction index to examine the condition of the facilities. A 5-point Linkert scale (5- very satisfied, 4- satisfied, 3-Neutral, 2- dissatisfactory and l- very dissatisfactory) was also adopted to measure the level of satisfaction of the respondent.

3.9.2: Objective 2: The second objective employed the use of 5 point Linkert- scale (5- Highly adopted, 4- Adopted, 3- Undecided, 2-Rarely Adopted, l- Highly not-adopted) and decision rule. Mean satisfaction scoring was employed to assess the level of satisfaction, frequency and percentage was also adopted to view the level of response to clarify fault.

3.9.3: Objective 3: The third objective first employed the use of 5 point Linkert scale (5- strongly agree, 4- Agree, 3- undecided, 2- disagree, l- strongly disagree) to determine the weighted mean and ranking of the challenges, factor analysis and principal component anålysis was employed using kaiser-Meyer-Olkin Measurement of sampling adequacy and Bartlett's Test of sphericity to check for the suitability of the sample method employed, chi-square, eigenvalue, percentage of variance and cumulative percentage were used, component matrix was used to analyze the variables into components and factor analysis table was also adopted to arrive at the final result.

3.9.4: Objectives 4: The method of data collection for the fourth objective is through interview and questionnaire distribution, these therefore require the use of both qualitative method of sampling to retrieve data on the existing strategy employed by the case study and quantitative method of sampling to analyse the recommended strategy for the case studies, with the use of tables and 5-point linkert scale (5- Highly adopted, 4- Adopted, 3-fairly not adopted, 2- not adopted, 1- Highly not adopted) the relative importance index and ranking was arrived.

3.10 Definitions of Terms

SA — This stands for 'strongly' agree meaning that the respondent just agrees with the statement that were put forward in the questionnaire

A- This stands for 'agree' meaning that the respondent just agrees with the statements

UD- This stands for 'undecided' meaning the respondent neither agree nor disagree with the statements

D- This stands for 'disagree' meaning that the respondent disagree with the statement

SD- This stands for 'strongly disagree' to mean that the respondent is completely indifferent with the statements

Decision rule - A decision rule is a Procedure that is employed to decide whether to accept or reject the hypothesis.

Relative Importance index – Relative importance index(RII) or weight is a type of relative importance analysis used for the analysis to check the importance and the acceptability of the recommended strategy. RII— EW/A*N, where W- weighting given to each statement by the respondents, A- Higher response integer; and N- total number of respondents.

Mean satisfaction Index: is an economic indicator that measures the satisfaction of consumers

Factor analysis: This is a statistical method used to describe variability among observed, correlated variables in terms of a potentially lower number of unobserved variables called factors

Principal component Analysis: is a mathematical procedure that transforms a number of (possibly) correlated variables into a (smaller) number of uncorrelated variables called principal components.

Through these reactions the researcher is able to determine how significant the factors are effective in health care facility management strategy for patients ad visitors.

Table 4 Proposed Analytical methods required for the objectives of the study.

Objectives	Data required for the study	Analytical method	Sampling method
1.To examine the available facilities in the selected healthcare unit	Data on the condition of the available facilities present in the selected healthcare	Mean, satisfaction index, frequency and percentage	Convenient sampling
2. To examine the standard of facility provided in the selected hospital in accordance to best practice.	Data on standard Facility provided in the selected healthcare unit according to best practice.	Descriptive statistics, Mean satisfaction scoring	Convenient sampling
3. To identify challenges in inherent in healthcare facilities provided	Data on challenges affecting healthcare facility in the healthcare unit selected.	Weighted mean, Factor Analysis and principal component analysis	Convenient sampling
4. To assess sustainable strategy for the hospitals service delivery and customers satisfaction	Data on existing strategy and recommended strategy for service delivery and customers satisfaction.	Relative Importance	Convenient sampling

(Source: Field survey, 2019)

CHAPTER FOUR

4.0   RESULTS AND DISCUSSION

4.1 Nature of Data Required for the Study

The nature of the data required for the study is quantitative data. Time period of the data collected for the study ranges among maintenance unit, patients and users in both private and public hospital. Data analysis carried out for the development of an effective health care facilities management strategy for patients and users in Minna, include response analysis from maintenance unit, patient and users in private and public hospital, which was carried out to promote the objectives of this study.

Findings from the Interviews and walk through evaluation processes carried out are presented according to the objectives of the study, The available and existing Facilities were measured based on the provision of the "approved American National Standard of Facility created by NFPA, (2015) condition rating scale for Standard Hospital Facility definition. The scale to be used is as presented below:

Table 5 Condition Rating scale for standard Hospital Facilities.

RATING	CONDITION	DESCRIPTION
5	EXCELLENT	The facility, service, equipment or infrastructure is either new or has been recently maintained: it does not show any signs of deterioration
4	VERY GOOD	The Infrastructure, Facility, equipment or service shows wear and tear, minor defects, and minor signs of deterioration to surface finishes and requires maintenance/servicing. It can be restored with restored with routine scheduled or unscheduled maintenance.
3	FAIR	Important unit or basics require repair usually by a specialist, the service or facility, infrastructure and equipment has been subjected to abuse in use and its poor state of repair is beginning to affect the surrounding facilities. Backlog maintenance work exists.
2	POOR	Major facilities, equipment, infrastructure and service have deteriorated badly, suffered structural damage and require critical repairs, upgrading or replacement. When there is a serious risk of failure, state of repair has a significant impact on the surrounding elements or creates a potential health or safety risk.
1	VERY POOR	The facility, equipment, service and infrastructure have failed, is not operational or deteriorated to the extent that it does not justify repairs but should rather be replaced. The condition of the element actively contributes to the degradation of surrounding facilities, equipment's, services and infrastructure or creates a safety, health or life risk.

(Source: Field survey, 2019).

4.2 Questionnaire Administration

Structured and unstructured questionnaires was distributed to the population target, in other to retrieve concise and precise information needed for the analysis, 249 questionnaires were administered to General Hospital Minna while 106 questionnaires were administered to the selected private Hospital and all were retrieved

Table 6 Questionnaire Administration

Respondents	Number of population	Calculated Sample Size	Number of Questionnaire Administered	Number of Questionnaire Returned	Response Rate in %
General Hospital	3762	249	249	249	100
Standard private hospital	1083	106	106	106	100

(Source: Field survey, 2019).

Table 6: shows data analysis from the response of questionnaire distributed to general hospital and standard private hospital in Minna. The table revealed total number of questionnaire distributions to the two selected Hospitals. The numbers of questionnaire administered to the respondent (hospital maintenance unit, Medical staff, patient and users in general Hospital is 249 while that of private standard Hospital is 106, and the exact number given out was retrieved for proper analysis. The response percentage recorded is given to be 100%.

4.3. Demographic Profile and variables of the Respondents

The demographic profile of the respondent was taken in other to know the participants details and to enhance result. Among the variable so gotten are gender, age range,

Qualification and number of years spent in the Hospital, these will help the researcher to also identify some fundamental factors that may affect case study.

Table 7 Participatory characteristics of Respondents

Variables	Frequency	Percentage (%)
Gender		
Male	169	47.5
Female	187	52.5
Total	**356**	**100.00**
Age range	-	-
20 – 30	134	37.6
31 – 40	150	42.1
41 – 50	48	13.5
51 – 60	12	3.4
Total	**356**	**100.00**
Qualification (Medical personnel		
National Diploma	150	42.1
NCE	30	8.42
Higher National Diploma	53	14.8
B-Tech/BSC	54	9.6
PHD	12	3.4
Total	**356**	**100.00**
no of years spent in the Hospital		
1 – 5 years	211	59.3
6 – 10 years	119	33.4
11 – 15 years	26	7.3
Total	**356**	**100.00**

(source: Field Survey, 2019).

The study shows that majority of the were 40 years of age and below, 47.5% of the respondent represents males while only 52.3% represents females, the age ranges were also represented, Majority of the respondent have their educational Qualification National Diploma (42.1%), while the least in population is PHD (3.43/0) No of years of years spent in the Hospital are equally represented in the Table with their corresponding percentages.

4.4 Examining the available Facilities in the Selected Healthcare Units

In other to identify the available facilities in the healthcare unit, understanding of the standard for hospital facility is required in other to benchmark and rate the facilities present in the case study, in view of these American. standard for hospital facility is adopted, this is reviewed in the literature review.

Research Question l: How can the facility available in the selected healthcare units be examined?

Table 8: Existing Healthcare facilities in General Hospital

Facilities	Frequency	Percentage
Cleaning/domestic services	242	97.1
Waste disposal	204	81.9
Security & safety	240	96.3
Maternity	233	93.5
Electricity	230	92.3
Water	201	80.7
Car park spaces	170	68.2
Eatery	100	40.2
Sustainable & Environmental Management	238	95.5
Theatre	180	72.2

(Source: Field survey, 2019).

Table 4.5 shows that the participants agreed that cleaning service is readily available in the hospital with 97.1% which shows the highest percentage while 6.5% do not agree to cleaning service been available, followed by security and safety (96.3), maternity (93.5), electricity (92.3), waste disposal (81.9), water (80, 7), Theatre (72.2), while eatery ranked the least percentage with 40,2% agreed to eatery available within the hospital while 59,8% disagree, The study revealed that this facility has met approved NFPA, (2005) American standard for Hospital Facilities in general,

4.5 Existing Healthcare Facilities in Standard Hospital Minna

The healthcare facility available in standard private Hospital id discussed in the table below, and rated appropriately.

Table 9 Existing Healthcare Facilities in Standard Hospital Minna

Facilities	Frequency	Percentage
Cleaning/domestic services	100	94.3
Waste disposal	82	77.3
Security & safety	85	80.1
Maternity	80	75.5
Electricity	70	66.0
Water	78	73.5
Car park spaces	60	56.6
Eatery	59	55.6
Sustainable & Environmental Management	84	79.2
Theatre	102	96.2

 (Source: Field survey, 2019).

Data shows that 94.3% of the respondent agree to availability of cleaning Service while 5.7% do not agree in standard Hospital, 77.3% attest to the availability of Privacy and dignity ward while 22.7% do not agree, security and safety (80.1%), sustainable & environmental management (792%), water (73.5), car park space, eatery theatre, emergency arc also represented in the table above, this indicate that the selected Hospital meets NFPA, (2005) Standard for Hospital facility.

Table 10 Mean satisfaction Index of the availability and condition of Facilities in general Hospital Minna.

Variables	Very satisfactory	Satisfactory	Average	Fair	Poor	MSI
Electricity	670	200	165	14	4	4.22
Cleaning service	485	472	72	6	7	4.18
Waste disposal	655	348	60	16	7	4.36
Security	260	388	231	20	13	3.66
Maternity	435	448	141	6	0	4.14
Water	240	480	210	22	0	3.8
Car pack	245	292	165	120	12	3.34
Eatery	375	280	117	78	26	3.51
Sustainable environmental management	600	200	165	34	7	4.04
Theatre	410	240	120	86	24	3.53

(Source: Field survey, 2019).

Table 10: The table above assess both the availability and the condition of some facilities in general hospital Minna. The following facilities are analysed based on variable very

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satisfactory, satisfactory, average, fair and poor in other to access the condition and state of the available facilities present in the selected hospital and to measure the satisfaction of these facilities to patient and users. Electricity/power supply in the selected hospital is very satisfactory at 54.2% which gives a mean satisfaction Index of (MSI) of 4.22, these shows that electricity is the most significant facility in the selected public hospital, The lowest ranked facility is car park space(29.2%) and mean satisfaction Index of (MSI), 3.34, this can be attributed to rack of enough land spacing to accommodate car parked in the tertiary healthcare, other satisfaction variables according to MSI were cleaning 8), waste disposal (4.36), security (3.66), maternity (4.14), water(3.80), eatery (3.51), sustainable environmental management (4.04) and theatre (3.53)

Table 11 Mean satisfaction Index of the availability and condition of Facilities in Standard Hospital Minna.

Variables	Very satisfactory	Satisfactory	Average	Fair	Poor	MSI
Cleaning/domestic	205	200	30	6	2	4.17
Privacy/dignity ward	280	148	24	12	2	4.39
Security/safety	110	164	99	8	5	3.64
Emergency	255	84	72	14	3	4.03
Electricity	255	88	69	12	1	4.01
Water	105	204	90	8	0	3.83
Car park space	105	124	69	34	10	3.22
Eatery	160	120	51	34	10	3.53
Sustainable environmental Management	255	84	72	14	2	4.02
Theatre	175	84	51	36	10	3.35
Maternity	185	188	60	4	10	4.10

(Source: Field survey, 2019).

Table 4.7 above shows the availability and the condition of the facility in the selected private healthcare, most of the respondent were very satisfied with the privacy and dignity

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ward and it had the highest MSI of 4.39, and therefore has the highest ranking. The lowest ranked is car park space with (28.0%) and MSI of 3.22, and therefore has the lowest ranking, other facilities conditions are clearly represented in the table above. This shows that people are most satisfied with the privacy and dignity ward, it also means that this ward makes the patient feel more comfortable, it is common to have a private ward in most private hospital to give extra satisfaction to patients who can afford it, Satisfaction with the car park space is the least ranked in the case study, this can be attributed to the little land space available in the hospital. Moreover, this has a negative effect on the health care facilities.

Table 12 Distribution frequency of Satisfaction level after been treated in general Hospital

Satisfaction Variable	VS	S	N	D	VD	MSS
Get better after been treated	1000	52	18	50	5	4.52

(Source: Field survey, 2019),   VS: Very Satisfactory, S: satisfactory, N: neutral, D: Dissatisfactory, V D: Very dissatisfactory, MSS: mean satisfaction scoring

Table 12: Data above shows the level of respondent's satisfaction with the treatment in general Hospital (Minna), Most of the respondents were satisfied with the hospital treatment with MMS of 4.52. This means that people very satisfied with the treatment they get from the Hospital. Often, it is regular for Hospitals to deliver its service adequately while 14% of the respondent expresses their dissatisfaction through interview, that most of the nurses are not polite in their approach, waiting for a long queue before getting to their turn. This can negatively affect people's impression on the choice of hospital.

Table 13 Distribution frequency of Satisfaction level after been treated in Standard Hospital

Satisfaction variable	VS	S	N	D	VD	MSS
Get better after been treated	445	24	24	4	3	4.71

(Source: Field survey, 2019).

Data above shows the level of respondent's satisfaction with the treatment in Standard Hospital (Minna). Most of the respondents were satisfied with the hospital treatment with MMS of 4.71. This means that people are very satisfied with the treatment they get from the Hospital. This Hospital is ranked to have very satisfied their customers. Often, it is regular for Hospitals to deliver its service adequately but 3% of the respondent expresses their dissatisfaction through interview, that the cost of service in the Hospital is costly, and treatment will not be carried out if the patient bill is not cleared before treatment. This can negatively affect people's impression on the choice of hospital.

Decision Mean = 3.00

Criteria for interpretation.

0.1 - 1.9 = Very dissatisfied

1.5 - 2.49 = Dissatisfied

2.5 - 3.49 = Undecided

3.5 - 4.49 = Satisfied

4.5 - 5.00 = Very satisfied

4.6: Examining the standard of Facility Management service delivery in accordance to best practice.

Research Question: How is facility management service delivered in the selected hospital according to the best practice?

Table 14: Level of satisfaction on Facility Management service delivery strategy in General Hospital Minna.

Maintenance strategies	Highly adopted	Adopted	Undecided	Rarely adopted	Highly not-adopted	MSS
Preventive	940	80	75	20	6	4.50
Corrective	339	473	114	42	4	3.90
Condition based	486	151	126	119	12	3.01

(Source: Field survey, 2019).   **Decision mean = 3.00**

Criteria for interpretation   (Total weighted mean/ No of respondent)

0.1	-	1.9	= Very dissatisfied
1.5	-	2.49	= Dissatisfied
2.5	-	3.49	= Undecided
3.5	-	4.49	= Satisfied
4.5	-	5.00	=Very Satisfied.

The table above shows that preventive method of maintenance strategy is highly adopted with 75.5%, which in turn also have the highest Mean satisfaction scoring (MMS) of 4.50,

this considers general Hospital Minna to be rated very satisfied in the facility management service delivery.

Table 15 Level of satisfaction on Facility Management service delivery strategy in Standard Hospital Minna.

Maintenance strategies	Highly adopted	Adopted	Undecided	Rarely adopted	Highly not-adopted	MSS
Preventive	440	20	15	6	4	4.50
Corrective	75	300	18	8	6	3.83
Condition based	360	28	21	30	5	4.1

(Source: Field survey, 2019).

The table above shows that preventive method of maintenance strategy is highly adopted with 83.01%, which in turn also have the highest Mean satisfaction scoring (MMS) of 4.50, this considers Standard Hospital to be rated very satisfied in the facility management service delivery.

Table 16: Distribution frequency of the means of assessing complains and faults from the facilities users

Variable	Frequency	Percentage
Memo/report	225	63.2
Forms	85	23.5
Verbally	54	15.2

(Source: Field survey, 2019).

The table 16 shows the frequency representing means of accessing complain from the facilities user, this means is either through Memo (63.2%) while 36.8% do not, (23.5%) assessed complain through forms while 76.1% do not, verbally (15.2%) assessed their complain while 99.2% do not. It shows the most adopted means of assessing complain is through memo (63.2%). The table reveals that the users' accesses complain and fault mostly through memo or report. This reveals the level of facility management service delivery in the selected Hospital.

Table 17: Distribution frequency of Patient and user view on the time taken to clarify any fault in the selected hospitals.

Variable	Frequency	Percentage (%)
Month	6	1.7
Annually	5	1.4
Other	9	2.5
24 Hour	233	65.4
42-72 Hour	24	6.7
Total	356	100.00

(Source: Field survey, 2019).

Data above shows hospital management view on the time taken to attend to fault and clarify them in the selected hospital. The table shows faults are clarified faster daily at 65.4% than monthly clarification at 1.7% or annually at 1.4% or 42-72 hours at 6.7%. From the analysis of data above, it shows a very coordinated and quick time to clarify faults and issue rising at the selected hospital.

Table 18: Distribution frequency of facility maintenance unit in meeting patients and users need

Variable	Maintenance unit		Patents & users	
	Frequency	(%)	Frequency	(%)
Fair	36	(10.1)	13	(3.7)
Good	248	(69.7)	47	(13.2)
Average	47	(13.2)	206	(57.9)
Better	19	(5.3)	90	(25.3)
Other	6	(1.7)	0	(0.00)
Total	**356**	**(100.0)**	**356**	**(100.0)**

(Source: Field survey, 2019).

Table 18: The data above represent the level of response from facility maintenance unit in meeting hospital management needs and patient needs. The above shows a good (69.7%) and positive response of the facility maintenance unit in meeting the needs of hospital management and an average response in meeting the needs of patient/users. To improve effective health care in patient/user, a good response from the facility maintenance unit needs to be improved above decision mean z: 3.00.

4.7 challenges inherent in the healthcare facility management.

Research Question 3: What are the challenges inherent in healthcare facility management?

Table 19: Mean distribution frequency on challenges Inherent in Healthcare Facility Management.

FACTORS	SA	A	UD	DS	SD	Mean
Attitude of users and misuse of facilities	155 (43.3)	87 (24.4)	1 (0.3)	18 (5.1)	95 (26.7)	3.53
Insufficient funds for maintenance Works	91 (25.6)	91 (25.6)	0 (0.00)	30 (8.4)	144 (40.4)	2.87
Poor workmanship	54 (15.2)	73 (20.5)	6 (1.7)	87 (24.4)	136 (38.2)	2.50
Lack of discernable maintenance culture in Nigeria	139 (39.0)	37 (10.4)	25 (7.0)	28 (7.9)	127 (35.7)	3.09
Inadequate training and development of personnel	99 (27.8)	55 (15.4)	0 (0.00)	40 (11.2)	162 (45.5)	2.69
Use of poor quality components and substandard materials	67 (18.8)	24 (6.7)	24 (6.7)	54 (15.2)	186 (52.2)	2.25
Persistent breakdown through indiscipline and ignorance	134 (37.6)	151 (42.2)	12 (3.4)	34 (9.6)	25 (7.0)	3.94
Absence of planned maintenance programs	132 (37.1)	110 (30.9)	12 (3.4)	63 (17.7)	38 (10.7)	3.66
Lack of successful maintenance programs by maintenance department	83 (23.3)	31 (8.7)	36 (10.1)	38 (10.7)	168 (47.2)	2.50
Lack of skilled personnel in maintenance department	47 (13.2)	24 (6.7)	6 (1.7)	63 (17.7)	216 (60.7)	1.94
No long term arrangement made for supply of essential parts for replacements	70 (19.7)	133 (37.4)	48 (13.5)	73 (20.5)	32 (9.0)	3.38
Frequent shortage of materials and spare parts due to absence of efficient inventory system	138 (38.8)	103 (28.9)	18 (5.1)	38 (10.7)	59 (16.6)	3.63
Most often the facilities are over used	85 (23.9)	80 (225)	6 (1.7)	32 (9.0)	153 (43.0)	2.75
Natural deterioration due to age and environment	157 (44.1)	122 (34.3)	12 (3.4)	47 (13.2)	18 (5.1)	3.99

(Source: Field Survey, 2019).

Table 19: The table above shows various Challenges encountered at the selected hospital which are analysed based on variable strongly agreed, agreed.

The most challenges faced is natural deterioration due to age and environment which is strongly agreed at 44.1%, attitude of users and misuse of facilities at 43.3%, lack of discernable maintenance culture in Nigeria at 39.0%. Frequent shortage of materials and spare part due to absence of efficient inventory system at 38.8%. Persistent breakdown due through indiscipline and ignorance and absence of planned maintenance program at 37.1% and 23.3% respectively. The above challenges are more faced at the selected hospitals compared to lack of skilled personnel in maintenance department at 13.2%, Use of poor quality components and substandard materials at 18.8%, Insufficient funds for maintenance works at 26.6%, Inadequate training and development of personnel 27.8%, No long term arrangement made for supply of essential parts for replacements 19.7%, Lack of successful maintenance programs by maintenance department at 23.3% and Most often the facilities are over used at 23.9%. Several challenges faced at the hospital are not dependent and may vary over time. The challenges faced in the hospital are largely dependent on the hospital management, patients/users.

Table 20: Further study on the challenges inherent in Healthcare FM using Factor analysis

The table shows the challenges that are available in the healthcare facility in the case studies; hence the variable coding interprets the information for precise and better

Variable coding	Types of
Q12	Attitude of users and misuse of facilities
Q13	Insufficient funds for maintenance works
Q14	Poor workmanship
Q15	Lack discernable maintenance culture
Q16	Inadequate training and personnel development
Q17	Poor quality component and substandard materials
Q18	Persistence breakdown through misuse and Ignorance
Q19	Absence of planned Maintenance Program
Q20	Lack of successful maintenance program after been planned
Q21	Lack of skilled personnel
Q22	Lack of supply for essential parts for replacements
Q23	Frequent shortage of materials & spare parts
Q24	Over usage of facilities
Q25	Natural deterioration due to age

(Source: Authors Analysis, 2019).

The chi-square, correlation matrix, Kaiser-Meyer-Olkin(KMO) and Bartlett's test of Sphericity was employed to test the suitability. Pallant (2005) notes that for the study data to be considered suitable for factor analysis, the correlation matrix should show at least some

correlations of FO.3 or greater. Pallant also mentions that the KMO index ranges from 0 to 1. She suggests 0.6 as the minimum value while noting Bartlett's test of sphericity should be significant (p 0.05) for data obtained for the factor analysis to be considered good and appropriate. Other studies have proposed that a sample with a KMO value between 0.5 and 0.7 is marginal, and thus reliable for factor analysis. A sample with a KMO value lower than 0.5 is considered to be inappropriate for factor analysis (Oladapo *et al* (2019).

Table 21: Adequacy Test of the study Instrument

KMO and Barlett's Test	
Kaiser-Meyer-Olkiin Measurement of sampling Adequacy and Barlett's Test of Sphericity	.687
Approximate Chi-square	440.231
df	91
Sig.	.000

(Source: Authors Analysis, 2019).

The reported chi-square value of 0.687 is indication of a satisfactory level of adequacy and association among all items of the questionnaire. This value validates the adequacy of the instrument to measure the acquired information. Hence the result of the various test, form the basis of the analysis of challenges inherent in secondary healthcare in the selected case study.

4.8 Inherent challenges faced by secondary healthcare hospitals

The results of the principal component analysis shown in Table 22 and the scree (Appendix) shows five components were extracted based on Kaiser's criterion having eigenvalues above

1.0 (5.228, 2,084, 1.671, 1.188 and 1.021). Component 1 with an eigenvalue of 5.228 accounts for 37.34% of the variance in the dataset. Components 2 with an eigenvalue of 2.084 accounts for 14.88% of the variance. Component 3 with an eigenvalue of 1.671 accounts for 11.93% of the variance. Component 4 with an eigenvalue of 1.188 accounts for 8.48% while component 5 with an eigenvalue of 1.021 accounts for 7.29% of the variance. Subsequently, all the five components account for 79.94% of the variation in the challenges been faced by general hospital and standard hospital, Minna.

Referring to the catell's scree plot in (Appendix), there are five components above the point where the curve changes it bearing and become horizontal. Therefore the five components should be retained, This confirms the result in table 22 where the five components with eigenvalues is greater than one were extracted based on Kaiser's criterion.

Table 22a: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of squared loading			Rotation sums of squared loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.228	37.343	37.343	5.228	37.343	37.343	4.581
2	2.084	14.883	52.226	2.084	14.883	52.226	1.945
3	1.671	11.935	64.161	1.671	11.935	64.161	2.134
4	1.188	8.487	72.648	1.188	8.487	72.648	1.245
5	1.021	7.296	79.943	1.021	7.296	79.943	3.119
6	.604	4.311	84.255				
7	.540	3.854	88.109				
8	.455	3.251	91.360				

9	.368	2.629	93.989
10	.250	1.789	95.778
11	.217	1.547	97.325
12	.167	1.193	98.518
13	.121	.864	99.382
14	.087	.618	100.00

(Source: Authors Analysis, 2019).

Table 23: Rotated component matrix

The five factors were determined using Kaiser's criterion and Cattell's scree test in other to check the suitability and adequacy of the sample. Factor rotation were based on the Varimax Orthogonal rotational technique was employed to reveal the pattern of loadings in a way that it gives a precise explanation. Following previous studies by Oladapo *et al* (2019), factors with total values less than 0.3 correlations loading Were suppressed to make the output easier to understand.

Table 23a: Component Matrix

S/No	Variables	Component 1	2	3	4	5
1	Inadequate training and personnel development	.837				
2	Absence of planned maintenance program	.769				
3	Lack of skilled personnel	.578				
4	Lack of successful maintenance programs	.703				
5	Facility overused	.578				
6	Attitude of users and misuse of facilities		.730			
7	Poor workmanship		.830			

Table 23b: Component Matrix

8	Lack of maintenance culture	.778		
9	Persistent breakdown	.690		
10	Poor quality component		.651	
11	Poor replacements of materials		.436	
12	Shortage of materials		.728	
13	Natural deterioration due to age			.681
14	Insufficient fund for maintenance work			.834

(Source: Authors Analysis, 2019).

Table 23 explains five components which are extracted as challenges faced by secondary health hospitals in the study area. The first component has significant correlation loadings for a group of five variables which represented above these variables are referred to as Human components based on previous studies (component

1). The second component has significant correlation loadings for a group of four represented above based on previous studies are related to Attitudinal factors (component 2). Looking at component three, it Shows that variables as shown above which are three, the components was named Economic factors (component 3) based on its content, further looking at component four, the variable which natural deterioration due to age is called Physical factors (component 4). The last component named as Financial factor corresponds with the variable of insufficient fund for maintenance work (component 5).

The roles played at each of the components differ as they account differently for variations in challenging faced by secondary hospitals.

Table 24: Factor Analysis

Factors	Factor loading	Eigen value	% of variance
Factor 1: human factor		5.228	37.343
Inadequate training	.837		
Absence of planned maintenance program	.769		
Lack of skilled personnel	.578		
Lack of successful maintenance programs	.703		
Facility overused	.678		
Factor 2: attitudinal factor		2.084	14.883
Attitude of users and misuse of facilities	.730		
Poor workmanship	.830		
Lack of maintenance culture	.778		
Persistent breakdown	.690		
Factor 3: Economic factor		1.671	11.935
Poor quality component	.651		
Poor replacements	.436		
Shortage of materials	.728		
Factor 4: Physical factor		1.188	8.487
Natural deterioration due to age	.681		
Factor 5: Financial factor		1.021	7.296
Insufficient fund for maintenance work	.834		

(Source: Authors Analysis, 2019).

Table 24 shows the name of each component, the variables and its percentages, the study reveals that the component which constitutes the largest variation of (37.34%) human factor and with an eigenvalue of 5.228, the variables which are inadequate trainings, Absence of planned maintenance program', lack of skilled personnel, lack of successful planned maintenance program and over use of facilities contributes immensely to the challenges affecting secondary hospitals in the case study area explained by the data base. Hence it plays an important role if these challenges are responded to and build upon to provide a responsive strategy to manage the hospital Facilities, the second component attitudinal factor with 2.08 eigenvalue and accounts for 14.88% of the total variance, these component can be said to play a modest role in challenges faced by healthcare facilities.

Overall the findings imply that the human factor play an important role, attitudinal factor and economic factor play moderate and limited roles respectively in challenges faced by secondary hospital facilities in Minna,

Objective IV: To develop sustainable strategy for the hospitals service delivery and customer's satisfaction.

As the study reveals in objectives three the major factors that contributes to the challenges been faced by secondary hospitals in the case study are considered to be Human factors. To understand the organization of health practices at secondary healthcare hospitals, a qualitative approach need is vital as opined 5 (Emeka *et al* 2019). Data was obtained from medical staff and individual healthcare professionals and health service users through interview, these are further explained and built upon to serve as a measure to improve and form an effective strategy in managing healthcare facilities in the case study.

But before the study elaborate on the challenges, the researcher employed interview technique in other retrieve information from the hospitals on the existing strategy adopted by the hospitals to manage their facilities.

4.9 Existing Management strategy adopted in General Hospital Explained

This information was gotten through random interview from the respondent (Medical personnel and maintenance unit), overtime various hospitals have different management strategy been adopted in' other to run their administration and to enhance a better service delivery and customers satisfaction peculiar to them. A walk through survey was caried and information was retrieved from various respondents

There are various management strategies adopted by the selected Hospital

1. Improve patient experience Patients experience is an important factor for hospitals, patients do have the opportunity to share their hospital experience. Often hospitals benefit when patients tell others about a great experience & encourage them to receive care there as well.

2. Measurement and report quality performance of staff.

   The hospital adopts quality measurement and rating systems and focus on doing well in the areas, they are measured on hospital, promotes their positive results prominently to current & potential patients.

3. The hospital has adopted pay-for-value model from fee-for-service, this is the charge levied on patients for the use of hospital facilities. These charges are subsidised including tax charges.

4. Adoption of health insurance exchanges NHIS (National Health insurance scheme) health management program scheme is adopted in the hospital; this is a government healthcare insurance sector to leverage the cost of assessing health facilities to barest minimum in a manner that funding will not affect the patient. Certain amount is deducted from the salary/account every month, this hospital, register or work in patients' collaboration with this sector in other to market their services.

5. The hospital also adopts the use of financial incentives by the physicians to work together and also the use of health information exchange system.

6. The use of health systems to compute data in other to capture as many patient in a short time, and also retrieve patient information as possible to make the journey to population health management easier.

4.10 Existing management strategy in Standard Hospital Explained

As earlier said there are various management strategies adopted by various hospitals or rather peculiar to certain hospital which will, help to enhance their productivity, customer's satisfaction and better service delivery. The following are the strategies adopted by Standard Hospital in Minna.

1. Sensitization of Hospital patients of trending epidemic diseases and free prevention treatment program.

2. Staff relationship and cultural diversity is enhanced

3. Frequent staff training and career development in healthcare.

4. Patients care and support

5. Assessment of complain through information/ complain box available in the hospital.

6. Adoption of human resource management and development.

Hence the strategies above contributes about 50% to the improvement of service delivery in the case study, this shows that the adopted strategy been implemented by the case study are fairly effective in the management of the hospital facilities.

Table 25: challenges and recommended sustainable strategies for healthcare service delivery

S/NO	Challenges inherent in secondary healthcare	Recommended solution to the challenges	Existing management strategy	Strategy for effective service delivery
A	Human factor			
1.	Inadequate training	Regular training should be implemented by the management staff and feedback mechanism should be adopted to check for its adequacy	Frequent staff training and career development in healthcare	Implementation of frequent staff training and career development by management and adoption of feedback mechanism to check for adequacy
2.	Absence of planned maintenance program	Initiative planned programs organisation for maintenance unit periodically to educate personnel how to care for healthcare facility and adoption of ICT programs	Assessment of complain through information/complain box available in the hospital	Initiative planned program for maintenance unit on how to maintain healthcare facilities and equipment and adoption of ICT program in other to assess complain
3.	Lack of skilled personnel	As revealed by the study in the demographic profile, the largest population of medical staffs are OND, employment of skilled and experienced staff should be prioritized	Adoption of human resource management and development	To adoption of human resource management and employment of skilled and experienced staff
4.	Lack of successful maintenance program	Creation of quality assurance department to checkmate organised maintenance program/training periodically	Staff relationship and cultural diversity is enhanced with measurement and report quality performance of staff	To create quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance report to staff.
5.	Facilities are overused	Improved facility management department and pre-sensitisation mechanism should be employed in other to get healthcare facility users aware on how to use the facilities	Adoption of health insurance exchanges	To adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility users on the use of the facilities.

(Source: Field Survey, 2019).

The table above further explains the analysis of recommended solution as effective strategy for healthcare facilities, the challenges which was analysed in objective three shows the key important factor that causes challenge to healthcare facility management is caused by Human factor which merges five variable under these factor, Inadequate training, Absence of planned maintenance program, Lack of skilled personnel, Lack of successful maintenance program and overuse of facilities, these challenges in turned are developed as strength to serve as a mechanism to develop effective strategy for improved service delivery. These strategies are represented in the table above.

Table 26: Relative importance Index and positioning of recommended sustainable strategy.

Sustainable strategy	Highly adopted	Adopted	Fairly adopted	Not adopted	Highly not adopted	RII	Position
Implementation of frequent staff training and career development by management and adoption of feedback mechanism to check for adequacy	208 (58.42)	52 (14.6)	43 (12.07)	20 (5.61)	33 (9.26)	0.1169	1
Initiative planned program for maintenance unit on how to maintain healthcare facilities and equipment adoption of ICT program in other to assess complain	125 (35.11)	48 (13.48)	29 (8.14)	102 (28.65)	52 (14.60)	0.0702	3
To adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility	67 (18.82)	118 (33.14)	92 (25.84)	40 (11.23)	39 (10.95)	0.06662	5

Table 26: Relative importance Index and positioning of recommended sustainable strategy.

users on the use of facilities							
To create quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance report to staff	182 (51.12)	71 (19.84)	62 (17.41)	20 (5.61)	21 (5.89)	0.1022	2
To adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility users on the use of facilities.	89 (25.0)	121 (33.98)	48 (13.48)	41 (11.51)	57 (16.01)	0.0679	4

(Source: Field Survey, 2019).

Table 26 shows the distribution frequency and percentage of the recommended strategies in the selected healthcare; Implementation of frequent staff training and career development by management and adoption of feedback mechanism to check for adequacy is highly adopted with (58.42%) of the population with relative importance index of 0.1 169, followed by the second ranked with creating quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance(position 2) which is highly adopted by the study population with RII(O. 1022) the least ranked which is "to adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility users on the use of the facilities" (position 5) is adopted with' (33.14%) with a RII (0.0662). These further justify the study of (Alexander *et al* 2018) that the best strategy to improve healthcare facility is to implement frequent staff training and career development, Hence the most significant strategy adopted in the analysis using cronbach value should not be less than (0.07) are 1 (Implementation of frequent staff training and career development by management and adoption of feedback mechanism to

check for adequacy), 2 (To create quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance report of staff) and 3 (Initiative planned program for maintenance unit on how to maintain healthcare facilities and equipment and adoption of ICT program in other to assess complain). These strategies are set to provide an effective improvement to healthcare service delivery.

4.11 Summary of findings

According to the analysis of information gathered for the study, while major findings Obtained are as follows:

1.   Most of the facilities available in the selected healthcare hospital meets the required standard for hospital facilities as proposed by (NFPA, 2005), Electricity/power supply in the selected hospital is very satisfactory at 54.2% which gives a mean satisfaction Index of (MSI) of 4.22 while most of the respondent were very satisfied with the privacy and dignity ward and it had the highest MSI of 4.39 in the private hospital, and therefore has the highest ranking, but there is no provision of car park space to house the patient's vehicle, the level' of Satisfaction of the respondent is therefore considered good.

2.   This means that this ward makes the patient feel more comfortable and increase the rate of health recovery. it is common to have a private ward in most private hospital to give extra satisfaction to patients who can afford it. Satisfaction with the car park space is the least ranked in the case study, this can be attributed to the little land space available in the hospital

3.   Most of the challenges faced by secondary healthcare are numerous, which are later subdivided into component, which further reveal that they are significantly human factors,

these are often influenced by poor maintenance programs, lack of skilled personnel and lack sensitisation program to train the maintenance unit

4.   Most of the respondents were satisfied with the hospital treatment with MMS of 4.52. This means that the study population were very satisfied with the treatment they get from the Hospital. Often, it is regular for Hospitals to deliver its service adequately while 14% of the respondent expresses their dissatisfaction through interview, that most of the nurses are not polite in their approach.

5.   The two selected case study hospital in the analysis shows that preventive maintenance strategy is adopted in the maintenance of their equipment and facility with (75.5% and 83.01 respectively.

6.   The level of response from the facility maintenance unit to the users and patient is good (69.7%), this shows a non-satisfactory response from the study population.

7.   Challenges encountered at the selected hospital The most challenges faced is natural deterioration due to age and environment which is strongly agreed at 44.1%, using weighted mean technique to analyse, Hence, further analysis carried out with factor analysis technique reveals that Human Factor Eigenvalue (5.228) and percentage of variance (37.343). these shows that human factor contributes immensely to the challenges faced by most secondary healthcare.

8.   These challenges were built upon and used as a measure to improve and form an effective strategy in managing healthcare facilities in the case study, the study shows that the existing management strategy is not effective and hence there is need for improved and effective strategy for healthcare service delivery.

9.   The solution recommended by the researcher Implementation of frequent staff training and career development by management and adoption of feedback mechanism to check for adequacy was highly adopted by the study population with (58.42%) and RII(O. 1169), the second ranked with creating quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance (position 2) which is highly adopted by the population with RII(O. 1022) the least ranked which is "to adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility users on the use of the facilities" (position 5) is adopted with (33.14%) with a RII (0.0662).

10.   The maintenance of tertiary hospitals is not effective. Maintenance is reactive instead of proactive. The reactive approach to maintenance is still subject to the availability of funds.

Although maintenance schedules exist in the tertiary hospitals studied, they are not out to use. The inefficiency of the maintenance unit in tertiary hospitals is shown by their very poor response rate to facilities breakdown. Resources allocated for facilities maintenance in tertiary hospitals are inadequate. The maintenance unit attributes reasons for their inefficiency to inadequacy of funds.

11.   Maintenance units of tertiary hospitals have very few professional qualified staff. A greater number of their staff are technicians who do not have the professional training and experience to handle sophisticated medical equipment.

CHAPTER FIVE

5.0 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The comparative review carried out in the selected hospital revealed that there are existing strategies put in place. This includes the physical performance of the facilities as well as the ability to address the need of the users (staff and patient) with a percent relative above average. With a considerable assessment of the data output, the highest numbers of staff with highest form of qualification fall between OND qualifications at 42.1% and the most least of qualification is PHD at 3.4%. The most years of experience in the selected hospital falls between 1-5 years at 59.3% compared to the more years of experience Il-15years at 7.3%. These indicate that the total percentage of staff with standard qualification to provide effective health care is relative low. This conclusion was drawn based on the data available on the qualifications they possess in terms of degree, professional qualifications and years of experience. Accomplishment of available facilities in the selected hospital is realized to a reasonable extent in terms of improved state of health of patients after their stay at the hospital, services available for users and services provided by the facilities maintenance unit to the users. Since much is expected from a tertiary hospital, quality services are expected to be available to deliver a full range of in and outpatient services and users.

5.2 Recommendations

Facility Management (ICT) continuous cycle Healthcare which has the largest sector in Nigeria serves as investment to the country, the major players which are public 'and private investors have totally changed the scenario of health care delivery. This study explores developing a sustainable strategy to provide quality service delivery. This study

recommends a combination of higher level in information and communication technology (ICT) and improved facility management.

5.3 Improved Facility Management.

- Facility management department should be established in hospitals to maintain a constant clean and healthy environment

- The department should encompass in the day to day activity and running of the hospital

- Facility management department which is multifaceted discipline should employ the service of estate surveyors to be in charge of the infrastructural management such as hospital buildings, drainages, car parking areas, provision and maintenance of extra accommodation for the patients visitors to provide comfort and better service delivery.

- Estate surveyors who is certified to carry out valuation on plant and machinery should work under the facility management department and act as supervisors to the maintenance units.

- Estate surveying discipline which entails the supervision, controlling, management and ensuring the organisation goal is met should play a major role in the supervisory and controlling of the hospital facilities and to ensure service requests are responded to quickly and to ensure efficient and preventive maintenance schedules are set up

- Periodic review of the hospital equipment's and infrastructural conditions should be carried out often in other to keep in check all departments in function in the hospital

- Estate surveying and valuation department should be introduced into healthcare system in other to improve the administrative and use of the hospital facilities as well as improve the finance management of the hospital.

- Facilities and estate surveyors department present in the hospitals should make use of the information technology system as a database to store information's and periodic checks and conditions reviewed over time which will serve as archives for the hospital management.

5.3 Information, Communication Technology

- Information technology system should also be made a key role for improving and transforming healthcare, it can reduce human errors, improve clinical outcomes and tracking data overtime.

- This department should create a database that can link communication to the professionals in the aspect of bill payment and clearance by the patient, this will help reduce the long queue and fast track the service delivery

- Awareness and training should be carried on both the professionals and non-professionals to adopt the information, communication technology when giving report for their work and doctors when giving out prescription for their patients

- An advanced communication network or planon should be adopted to receive feedback from the patients and their users in other for prompt and immediate response.

From the result of the study, it can be deduced that the analysis to improve an effective health care facilities management is attained in the hospital selected in this study. This calls for an awakening of hospital management board, governments, policy makers on health

issues to improve facilities provided in hospitals. Hospitals are expected to deliver a full range of high quality service to users. Below are the recommendations for this study

1. Strategic organization planning needs to be implemented in health care organizations to take advantage of available opportunities that offers clear purpose, support, resources, commitment and overcome the challenges faced to successfully maintain smooth operation business.

2. Hospital facility management is constantly needed to maintain a clean and healthy environment. It is important that request for medical facilities and patients/users' needs are responded quickly and efficiently. Preventive maintenance schedules should be set up in order to maintain operations without interruption.

3. Quality staffs should be accountable in terms of years of experience and professional qualifications to ensure smooth running and coordination of users to access health care facilities.

4. The government at the local, state and federal level should play an important role in regulating the financing of the hospital system. Funding should be available to provide adequate facilities for effective management of health care facilities.

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RESEARCH TOPIC: DEVELOPMENT OF EFFECTIVE HEALTHCARE FACILITIES MANAGEMENT STRATEGIES IN SELECTED PRIVATE AND PUBLIC HOSPITALS" IN MINNA

TYPE A (MAINTENANCE UNIT)

Please Tick as Appropriate

1. Name of Respondent

2. Sex of Respondent: (a) Male( )   (b) Female   (   )

3. Age of Respondent: (a) 20-30 ( )   (b) 31-40 (   ) (c) 41-50 ( ) (d) 51-60   (   )

4a Qualification of Respondent (a) ND (   )   (b) HND (   )   (C) B-TECH/BSC (   )

(D) MSC( ) (E) PHD( )

4b. professional qualification of respondent

…………………………………………………………………………………………..5

. Number of years spent in the Hospital (a) 1-5 yrs. (   )   (b) 6 – 10 yrs. (   )   (c) 11-15

yrs. (   )   (d) 16 – 20   (   )   (e) 21 and above (   )

6, What are your sources of funding to maintaining the facilities in your hospital? a. State

Government (   ) b. Non-Governmental Organization (   )   c. internally (   )   d. others

(please specify)……………………………………………………………………………

7. How often is maintenance work carried out within the hospital?

    a. Daily   (   )

    b. Weekly (   )

    c. Monthly   (   )

d. Quarterly ( )

e. Yearly ( )

f. Others   (please   specify)

………………………………………………………………………

8. What are the means of accessing complain and faults from the facilities users?

   a. Through memo or report ( )

   b. Through forms ( )

   c. Verbally ( )

9. How long does it take to clarify a fault?

   a. week ( )   (e) 24 hours ( )

   b. Month ( )   (f) 42 – 73 hours ( )

   c. Annually ( )

   d. others (please specify)…………………………………………………

10. What is the level of condition of the facilities present in the hospital?

   (a) fair ( )   (b) good ( )   (c) average ( )   (d) better ( )   €

   others (please specify)……………………………………………………….

11. What level are these maintenance strategies used in the management of facilities

   Use scale 1-5 to answer the questions. Please tick (√) in the space.

   5 = highly adopted, 4= adopted, 3= undecided, 2= rarely adopted 1= highly

   not adopted.

S/N	MAINTENANCE STRATEGY	5	4	3	2	1
1	Condition based					
2	Corrective					
3	Preventive					

12. The following are the factors affecting maintenance management of tertiary health centers.

use scale 1 – 5 to answer the questions. Please tick (√) in the space

5= strongly agree, 4= agree, 3= undecided, 2= disagree, 1= strongly disagree

S/N	FACTORS	5	4	3	2	1
1	Attitude of users and misuse of facilities					
2	Insufficient funds for maintenance works					
3	Poor workmanship					
4	Lack of discernable maintenance culture in Nigeria					
5	Inadequate training and development of personnel					
6	Use of poor quality components and substandard materials					
7	Persistent breakdown through indiscipline and ignorance					
8	Absence of planned maintenance					

	programs					
9	Lack of successful maintenance programs by maintenance department					
10	Lack of skilled personnel in maintenance department					
11	No long term arrangement made for supply of essential parts for replacements					
12	Frequent shortage of materials and spare parts due to absence of efficient inventory system					
13	Most often the facilities are over used					
14	Natural deterioration due to age and environment					

FOR PAT1ENTS AND VISITORS

Please Tick as Appropriate

1. Name of Respondent ………………………………………………………

2. Name of facility…………………………………………………………..

3. Type of facility (A) General hospital

                  (B) Private hospital

4. Managing authority (a) Government/public

                  (b) NGO/ private Not-for-profit

                  (c) Private for profit' '

                  (d) Mission/Faith based.

.

5. Outpatient only   (a) yes   (b) No

6. Sex of Respondent: (a) Male ( )   (b) Female ( )

7. Age of Respondent: (a) 20-30 ( ) (b) 3 1 -40 ( )   (c) 41 -50 ( )   (d) 51-60( )

8 Type of patient (a) in—patient ( )   (b) out—patient ( )   (c) specialised patient ( )

9. How long have you been admitted in the hospital

(A) 1-10 days ( )   (b) I0-30 days ( )   (c) 1-3 months ( )   (d) 36 months ( )   (e) 7month and above ( )

10. What level is the facilities present in the hospital meeting the need of your present condition relating to healthcare sector?

(a) Very satisfactory (b) satisfactory (c) average (d) fair (e) poor.

I1. What level is the condition of the facilities in the hospital?

(a) Bed (a) very satisfactory (b) satisfactory (e) average (d) fair (e) poor

(b) Ward (a) very satisfactory (b) satisfactory (e) average (d) fair (e) poor

(C) Air condition/fan (a) very satisfactory (b) satisfactory (c) average

(d) fair (e) poor

(d) Electricity/power supply (a) very satisfactory (b) satisfactory (c) average

(d) fair (e) poor

(e) Cleaning services(a)very satisfactory (b) satisfactory (c) average (d) fair

(e) poor

(f) Security (a) very satisfactory (b) satisfactory (c) average (d) fair (e) poor

(g) Water (a) very satisfactory (b) satisfactory (c) average (d) fair (e) poor

(h) Functioning cellular/telephone (a) very satisfactory (b) satisfactory (c)

average (d) fair (e) poor

(i) Eatery (a) very satisfactory (b) satisfactory (c) average (cl) fair (e) poor

(j) Car park (a) very satisfactory (b) satisfactory (e) average (d) fair (e) poor

.

12. What is the level of response from facility maintenance unit in meeting patients need?

    (a) Highly responsive (b) responsive (c) good (d) fair (e) poor.

I3. For the past 7 days was electricity available during at all times when the facility was open for
    services (a) Yes (b) No (c)Don't know

14. How often is this facility cleaned and kept in good condition?

(A) hours (b) per days (c) per week (d) per month

15. PLEASE TICK THE AVIALABLE SERVICES AVAILABLE IN THESE

SERVICES.

(a) cleaning/domestic services

(b) Privacy and dignity

(c) Catering

(d) Ward Housekeeping

(e) Security and safety

(f) Bedside communication system '

(g) Waste Disposal

(h) Sustainable and environment management

1 6. Do you get better after been treated from this facility or you get sicker

(a)Yes   (b) No (c) Don't know

17. Do you wish to patronize this hospital again for treatment

(A) Yes (b)No (C) Don't know

TYPE C

Do you think if' this strategy is adopted for this hospital it will further enhance the

service delivery and satisfaction of customers?

Use scale 1-5 to answer the questions. Please tick appropriately in the space provided

5= HIGHLY ADOPTED, 4=ADOPTED, 3=ADOPTED, 2=ADOPTED, 1=HIGHLY NOT ADOPTED

s/no	Recommended strategy	HA	A	FA	NA	HA
1.	Implementation of frequent staff training and career development by management. and adoption of feedback mechanism to check for adequacy					
2.	Initiative planned program for maintenance unit On how to maintain healthcare facilities and equipment and adoption of ICT program in other to assess complain.					

3.	To adopt health insurance program and integrate improved FM department in other to sensitise healthcare facility users on the use of the facilities					
4.	To create quality assurance department in other to improve staff relationship and cultural diversity with measurement and of quality performance report of staff					