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ORIGINAL ARTICLE

Assessment of Primary Healthcare Centres for Care of Non-Communicable Diseases in the Federal Capital Territory, Abuja, Nigeria

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Keywords

Low-and-Middle-Income Countries,

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ABSTRACT

Background: Non-communicable diseases are the world's biggest killers with an upward trajectory in the deleterious effect on global health burden. The aim of this study was to assess the capacity of the primary healthcare centres (PHCs) in the Federal Capital Territory (FCT) to implement WHO Essential Package for NCDs (WHO-PEN)

Methodology: This was a cross-sectional health facility-based survey conducted in 32 selected PHCs in the FCT. The WHO rapid assessment tool for primary healthcare facility capacity assessment for NCDs was adapted and used for data collection. Data was analysed using SPSS version 20. Approval for the survey was given by the Federal Ministry of Health.

Result: All the PHCs had at least 2 trained nurses and 6 community health workers. Also, 31% had medical officers while 71% had laboratory technicians. Basic equipment for NCDs such as weighing scales and sphygmomanometers were available but only about 50% of the PHCs had glucometers. Devices such as pulse oximeters, peak flow meters, nebulizers, electrocardiographic machines and blood cholesterol assay kits were unavailable. Oral antidiabetic drugs and insulin were not available in 60-90% of the PHCs. The most available anti-hypertensives were hydrochlorothiazide and alpha methyldopa. The prevalence of NCDs among the patients was 5.3%. Healthcare was financed by individuals and supported by the local government. None of the centres had a registry.

Conclusion: Critical gaps were identified in the management of NCDs in PHCs. This will provide the basis for the implementation of strategies to strengthen PHCs and make WHO-PEN implementable in low-resource settings.

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INTRODUCTION

Non-communicable diseases (NCDs) have been the most common cause of death and disability globally for at least the last 3 decades. In Sub-Saharan Africa, NCDs contribute a third of the disability-adjusted life year burden. The four major NCDs namely cardiovascular diseases

(CVDs), diabetes, cancers and chronic respiratory diseases (asthma and chronic obstructive pulmonary disease) kill more people each year than all other diseases combined.[1,2] These diseases contribute significantly to adult mortality and morbidity, and they impose a heavy economic burden on individuals, societies and health systems.

According to the World Health Organization (WHO), the mortality, morbidity, and disability attributed to the major NCDs account for 60% of all deaths and 47% of the global burden of disease; these figures were expected to rise to 73% and 60% respectively by 2020.[3]

The bulk of the mortality burden falls on low -and middle-income countries (LMICs) where 80% of all NCD deaths, and 90% of all deaths before the age of 60 years attributed to NCDs occur. In 2015, 3.1 million (33.7%) of the 9.2 million deaths were due to NCDs.[4,5]

A recent systematic review on the data profile of major NCDs in Nigeria showed an overall crude prevalence of diabetes at 4.1%, while the International Diabetes Federation puts the prevalence of diabetes in Nigeria at 4.5%.[6,7] In Nigeria, a study on hypertension and its related complications found a prevalence of 8–46%, and about 25% of the adult population had hypertension.[8] Another study in Nigeria found a crude pooled prevalence of 31.2%.[6] Overall incidence of cancer was found to be 57.2 per 100,000, with 27,000 cases reported between year 2009 and 2013.[6,9]

There was a clustering of risk factors in individuals and communities as a result of the adoption of new hazardous lifestyles and behaviours. These shared risk factors include tobacco use, harmful use of alcohol, physical inactivity and unhealthy diets such as excessive consumption of red meat, salt, saturated fat, refined sugars in foods and drinks, suboptimal consumption of the following - fibre, micronutrients [such as zinc, iron, selenium, molybdenum, etc.], vitamin A, folic acid, vegetables, fruits, etc.[1]

WHO estimates that up to 80% of NCDs are preventable through lifestyle changes since the four common NCDs share modifiable risk factors such as tobacco use, unhealthy diets, physical inactivity and harmful use of alcohol. Effective primary prevention strategies exist and require risk assessment and management.[2,10,11]

WHO-PEN intervention has been developed as a risk management package for NCDs to facilitate multiple risk factor assessment and treatment in low-resource settings. The goal of the WHO Essential Package for NCDs (WHO-PEN) is to close the gap between what is needed and what is currently available to reduce the burden, healthcare costs and human suffering due to major NCDs by achieving higher coverage of essential interventions in PHCs.[12]

Nigeria has three levels of health care delivery system comprising tertiary, secondary and primary which are provided by federal, state and local governments respectively. Whereas the LGAs are designated the providers of PHC, they

are the weakest link in the health care system as they have the lowest capacity and commitment to health development in the country. Since the PHCs in Nigeria are the weakest as regards capacity to prevent and manage NCDs, there is a need to know what is currently available and identify the gaps to scale up essential interventions in PHCs for NCDs care.

A study in Ghana assessed the capacity of selected healthcare facilities for a pilot implementation of PEN intervention and found that apart from health financing, major gaps exist in human resource capacity, medicines, diagnostics, equipment and medical information management systems.[13] Other Studies in India and several facilities across some low-and-middle-income countries have reported similar deficiencies in human resources, medicines and technologies.[14,15] In Nigeria, the WHO-PEN protocol has been adapted for country use. The aim of this survey, therefore, was to determine the capacity of the primary healthcare centres in the FCT to implement WHO-PEN risk management package for NCDs.

METHODOLOGY

This was a cross-sectional health facility-based survey conducted in the Federal Capital Territory (FCT) in 2018. The FCT has a population of about 5 million and a land mass of 7315 km^2, made up of 6 Area Councils namely Abuja Municipal Area Council (AMAC), Bwari, Kuje, Kwali, Abaji and Gwagwalada. Of the 230 Primary Health Centres (PHCs), 32 PHCs were selected from the 6 area councils using a stratified sampling method. Five (5) PHCs were randomly selected from each Area Council except AMAC (the largest Area Council), where 7 PHCs were selected considering the large size.

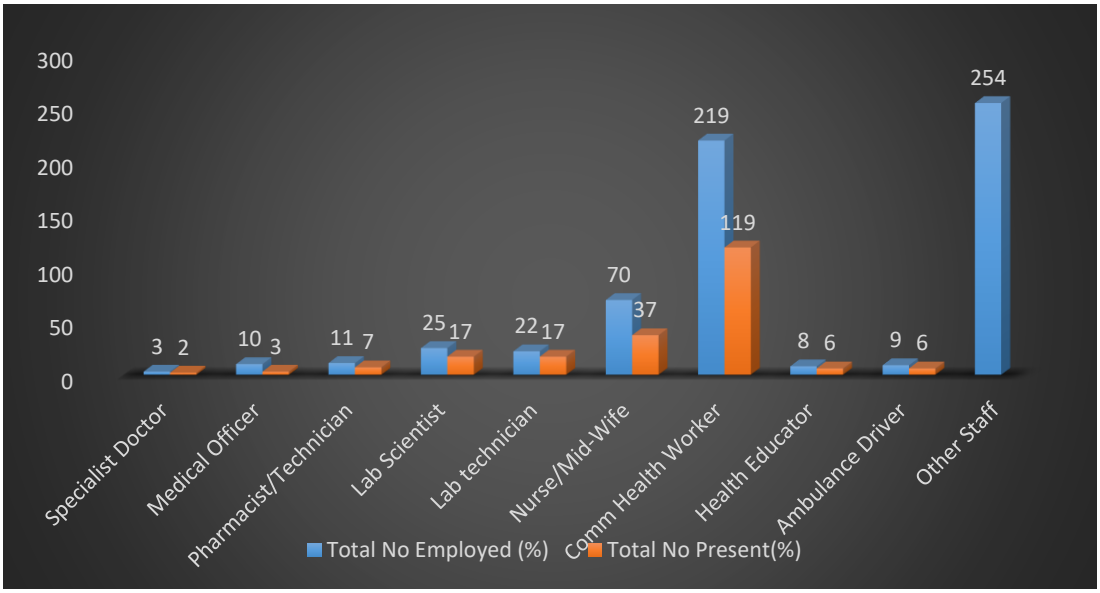

Figure 1: Human Resources for Managing Major NCDs in the PHCs

Approval for the survey was given by the Federal Ministry of Health. Permission was also sought from the heads of the primary healthcare facilities involved. Trained personnel collected data from each of the selected PHCs via structured interviews using the WHO rapid assessment tool. The trained personnel toured the PHC assisted by a designated officer of the facility. The WHO rapid assessment tool for primary health-care facility capacity assessment for NCDs was adapted and used for data collection. Information was obtained on human resources, equipment, service utilization, medicines, referrals and health financing. When necessary, responses were validated by inspection.

Data was entered into an Excel sheet, cleaned and analysed using SPSS version 20. Descriptive statistical analysis was done and categorical variables were expressed as frequencies and relative frequencies.

RESULTS

Human Resource*:* All the PHCs had at least 2 trained nurses/ midwives and 6 community health workers. Thirty-one percent of the PHCs had medical officers and 9% had specialist doctors, while 71% had a laboratory scientist or technician. Twenty-five percent had health educators who give health talks in the PHCs and sometimes in the community through house–to–house engagements.

Table 1: Equipment and Diagnostics: Some basic equipment for managing NCDs such as blood pressure monitoring devices (BPMD) and weighing scales were available in 95% of the centres, while about 50% had glucometers. Only 5(15.6%) of the PHCs had laboratories. However, 78% of the PHCs had urinalysis testing kits, while 28% had sickle cell disease testing kits. Devices such as pulse oximeters, nebulizers, peak flow meters and electrocardiographic machine were not available in any of the centres. Evidence-based protocols and flow charts were hardly available as well.

Table 3: Availability of Essential Medicines*:* oral antidiabetic drugs are not available in 60-80% of the PHCs, while insulins were not available in 80-90% of them. 50% dextrose in < 50%. The most available anti-hypertensives were HCT and alpha methyl dopa in 50% of the PHCs. In 30-50% of the PHCs, salbutamol/steroid inhalers or tablets were available. Most drugs for the management of NCDs were not readily available in most of the health centres.

Service utilization*:* In the last month before the survey, 1380 patients were seen in the PHCs. Out of this, 5.3% were due to NCDs (Cardiovascular diseases 2.7%, Diabetes Mellitus 1.8%, Asthma 0.9%). All the facilities had medical registers where patients' attendance records were documented. Only 25% kept patient folders/files which are retrieved each time they visited the facility. Less than 50% use the medical stock card.

Patients visits to the PHCs were either via walk-in or appointment. Twenty-two percent of the PHCs provided health talks on the prevention and management of the four common NCDs. All the PHCs were able to refer patients to the secondary

or tertiary health facility, though the family members usually found their own means of transporting the patient. Lack of feedback from the referral centres to the PHCs is a major challenge mentioned by all the PHCs.

Health Financing: The PHCs were managed by the local governments. Consultations, investigations, and medications were free in 84%, 69%, and 68% of the PHCs, respectively. Government and NGOs paid for the medications in 59% and 9% of the PHCs, respectively.

DISCUSSION

WHO-PEN intervention is a prioritized set of cost-effective, high-impact interventions through the primary healthcare approach for the prevention and management of NCDs. This requires prioritizing health system strengthening at the primary care level by adequately equipping the facilities and providing the required capacity to deliver care.

The facility assessment showed that each PHC has fairly sufficient non-physician health workers who can be trained to deliver NCD interventions consistent with their level of training and care. The assessment, however, showed gaps in other human resource needs required for the management of NCDs at the PHC level, such as medical officers, pharmacy technicians, laboratory technicians, health educators and ambulance drivers. The human resources were grossly insufficient for WHO-PEN implementation. Pakhare, in his work in India, has recommended training of non-physician health workers for task-shifting in cardiovascular disease care needs.[14]

Basic equipment such as sphygmomanometers, stethoscopes and thermometers were found in all the facilities, while some vital equipment e.g., Nebulizers, pulse oximeters, automated external defibrillators, peak flow meters, spacer devices, ECG machines, blood cholesterol assay kit and glucometers were not available at all. This aligns with the reports from several other studies done in developing countries.[4,6,9-14] This inadequacy in basic equipment may be caused by general economic difficulties and inadequate health budget allocation.

Essential drugs were available to some extent, but antidiabetics, anti-hypertensives and anti-asthmatics were mostly unavailable apart from Metformin, HCT and Salbutamol. The availability of medicines for NCDs reflects the capacity of the PHC to care for persons with NCDs. The unavailability of medicines such as 50% dextrose, injectable salbutamol, and anti-hypertensives means that the PHCs will be handicapped in emergencies. Similar reports from low-resource settings have been published by several authors.[1-4,13-16] The common denominators in low-resource settings that may be responsible for inadequate essential medicines are the harsh economic realities and inadequate budget allocation to the health systems.

Table 1: Basic Equipment and consumables available for Managing NCDs

Equipment/Consumable	Always Available N (%)	Sometimes Available N (%)	Not Available N (%)
Clinic Instruments			
Thermometers	31(96.9)	1(3.1)	0(0.0)
Stethoscopes	29(90.6)	2(6.3)	1(3.1)
Blood pressure Machine	32 (100.0)	0(0.0)	0(0.0)
Cartridges for POCT	0(0.0)	1(3.1)	31(96.9)
Measuring Tape	32(100.0)	0(0.0)	0(0.0)
Weighing machine	30(93.8)	1(3.1)	1(3.1)
Stadiometer	28(87.5)	0(0.0)	4(12.5)
Disposable tongue Depressor	14(43.8)	6(18.8)	32(37.5)
Pen Torch	3(9.4)	1(3.1)	28(87.5)
Tuning Fork	1(3.1)	0(0.0)	31(96.9)
Cusco Speculum	30(93.8)	1(3.1)	1(3.1)
Angle Poised lamp	19(59.4)	2(6.3)	11(34.4)
Examination Couch	30(93.8)	0(0.0)	2(6.3)
Emergency Equipments			
Peak flow meter	0(0.0)	0(0.0)	32(100.0)
Spacer Device	0(0.0)	0(0.0)	32(100.0)
ECG	0(0.0)	1(3.1)	31(96.9)
Nebulizer	0(0.0)	1(3.1)	31(96.9)
Pulse Oximeter	0(0.0)	1(3.1)	31(96.9)
AED	0(0.0)	1(3.1)	31(96.9)
Laboratory Materials			
Lugols Iodine	4(12.5)	1(3.1)	27(84.4)
Acetic acid	1(3.1)	4(12.5)	27(84.4)
Glucometers	16(50.0)	1(3.1)	15(46.9)
Blood glucose Strips	16(50.0)	1(3.1)	15(46.9)
Urinalysis Strips	24(75.0)	2(6.3)	6(18.8)
Lipid profile kit	1(3.1)	2(6.3)	29(90.6)
PSA kit	2(6.3)	0(0.0)	30(93.8)
Faecal Occult blood test	11(34.4)	2(6.3)	20(62.5)
Nursing Station Materials			
Methylated spirit	30(93.8)	2(6.3)	0(0.0)
Dressing Mirror	3(9.4)	1(3.1)	28(87.5)
Gallipot	30(93.8)	0(0.0)	2(6.3)
Scissors	31(96.9)	1(3.1)	0(0.0)
Cotton wool	31(96.9)	0(0.0)	1(3.1)
Lubricant	16(50.0)	5(15.6)	11(34.4)
Exam Gloves	31(96.9)	0(0.0)	1(3.1)
Gauze	29(90.6)	1(3.1)	2(6.3)
Kidney dish	31(96.9)	0(0.0)	1(3.1)
Sanitary pads	10(31.3)	4(12.5)	18(56.3)
Forceps	32(100.0)	0(0.0)	0(0.0)
Face mask	25(78.1)	2(6.3)	5(15.6)
Syringes	31(96.9)	1(3.1)	0(0.0)
Plasters	32(100.0)	0(0.0)	0(0.0)
Cannula	27(84.4)	1(3.1)	4(12.5)
Infusion Sets	31(96.9)	1(3.1)	0(0.0)
Others			
Protocols (evidenced Based)	4(12.5)	2(6.3)	26(81.3)
Flow charts	4(12.5)	1(3.1)	27(84.4)
Patient clinical Records	30(93.8)	0(0.0)	2(6.3)
Medical Info Register	31(96.9)	0(0.0)	1(3.1)

AED=automated external defribrillator, POCT=point-of-care testing, ECG=electrocardiography, PSA=prostate specific antigen.

Table 2: Laboratory Facility / Routine Investigations conducted in the PHCs

Procedures	N =32	%
Presence of Laboratory	5	15.6
Sickle Cell Dx Testing	9	28.1
Urine Albumin	25	78.1
Urine Glucose	25	78.1
Blood Glucose	16	50.0
PCV/Hb	24	75.0
Lipid Profile	1	3.1

Dx=disease, PCV/Hb=packed cell volume/haemoglobin

Systems for managing patients' information for continuity of care were inadequate in all the facilities. None of the facilities had a database of their patients that could facilitate follow-up. This will hinder the implementation of WHO-PEN because NCDs are life-long diseases and require long-term care and long-term follow up; thus, having a good data management system will aid WHO-PEN implementation. This gap in the adequate and efficient management of health information systems also existed in many primary, secondary, and some tertiary health institutions in Sub-Saharan African and some Southeast Asian countries.[4-8, 11-14]

All the centres refer patients when the need arises but feedback from the centres is a big challenge as expressed by the heads of the centres. The main cause of poor feedback between the referral and referring centres was inadequate logistics including poor internet facilities, funding gaps, and poor appetite for feedback by the referring centres. This challenge can hinder the efficient implementation of WHO-PEN policies.

The local government subsidizes to some extent for consultation fee. Laboratory investigations and medicines are mainly out-of-pocket. These are financial barriers that will negatively affect the implementation of essential NCD interventions at the primary care level. These funding gaps, especially in low-resource settings, have also been reported by several international and local studies.[1-5,8-11,14-16] This may be explained by poor budget allocation to the health sector.

The capacity of the health centres is not strong in the area of health promotion. Only 25% of the PHCs have health educators and there were no flow charts, protocols, or IEC materials for NCDs in the PHCs. However, some awareness creation still goes on in some of the PHCs. This is a universal problem mostly linked to inadequate funds in least-developed countries.[1-4, 7-13]

The current study has shown that comprehensive care of NCDs, from prevention, and early diagnosis to treatment and complication management at the primary care level, is sub-optimal. The same findings were reported by, Nyarko et al., Pakhare et al., and Mendis et al. [13,14, 15] The growing burden of NCDs needs to be countered by the strengthening of primary care facilities especially for the five major NCDs in Nigeria.[16,17] There is a need to strengthen the referral system within the three levels of health care delivery. Also, community health insurance needs to be encouraged to reduce out-of-pocket expenditure on health.

Table 3: Availability of Essential Medicines at the PHCs

Medications	Always Available N=32 N (%)	Sometimes Available N=32 N (%)	Not Available N=32 N (%)
Antibiotics			
Oral Penicillin V	7(21.9)	4(12.5)	21(65.6)
Phenoxymethyl Penicillin	4(12.5)	2(6.3)	26(81.3)
Erythromycin	22(68.8)	5(15.6)	5(15.6)
Amoxycillin	29(90.6)	2(6.3)	1(3.1)
Flucloxacillin	8(25.0)	5(15,6)	19(59.4)
Ciprofloxacin	23(71.9)	7(21.9)	2(6.3)
Antidiabetics			
Glibenclamide	3(9.4)	5(15.6)	24(75.0)
Glimepiride	1(3.1)	3(9.4)	28(87.5)
Metformin	8(25.0)	4(12.5)	20(62.5)
Insulin Long Acting	3(9.4)	3(9.4)	26(81.3)
Insulin Soluble	2(6.3)	3(9.4)	27(84.4)
Cardiovascular drugs			
Aspirin	12(37.5)	3(9.4)	17(53.1)
Glyceryl Trinitrate	1(3.1)	2(6.3)	29(90.6)
Isorsobide Dinitrite	0(0.0)	1(3.1)	31(96.9)
Statins	2(6.3)	2(6.3)	28(87.5)
CC Blockers	11(34.4)	6(18.8)	15(46.9)
B-blockers	4(12.5)	5(15.6)	23(71.9)
ACEI/ARB	3(9.4)	6(18.8)	23(71.9)
Alphamethyldopa	16(50.0)	6(18.8)	10(31.3)
Diuretics	11(34.4)	8(25.0)	13(40.6)
Hydrochlorthiazide	24(75.0)	6(18.8)	2(6.3)
Epinephrine	7(21.9)	2(6.3)	23(71.9)
Asthma Medications			
Prednisolone	18(56.3)	10(31.3)	4(12.5)
Beclomethasone Inhaler	2(6.3)	3(9.4)	27(84.4)
Ipratropium Bromide	0(0.0)	1(3.1)	31(96.9)
Salbutamol/Steroid Inhaler	11(34.4)	4(12.5)	17(53.1)
Salbutamol Injections	2(6.3)	4(12.5)	26(81.3)
Salbutamol Tablets	19(59.4)	8(25.0)	5(15.6)
Theophylline Tabs	0(0.0)	2(6.3)	30(93.8)
Analgesics			
Paracetamol	32(100.0)	0(0.0)	0(0.0)
Ibuprofen	29(90.6)	2(6.3)	1(3.1)
Codeine	0(0.0)	2(6.3)	30(93.8)
Oral Morphine	1(3.1)	1(3.1)	30(93.8)
Morphine Injection	0(0.0)	1(3.1)	31(96.9)
Emergency tray			
Diazepam	21(65.6)	7(21.9)	4(12.5)
Magnesium sulphate	16(50.0)	5(15.6)	11(34.4)
Promethazine Inj	24(75.0)	3(9.4)	5(15.6)
Paraldehyde	11(34.4)	7(21.9)	14(43.8)
Phenobarbitone	3(9.4)	6(18.8)	23(71.9)
Intravenous fluids			
50% Dextrose	11(34.4)	8(25.0)	13(40.6)
Dextrose Infusion	29(90.6)	3(9.4)	0(0.0)
Normal Saline	26(81.3)	5(15.6)	1(3.1)
Supplements			
Ferrous sulphate	29(90.6)	0(00)	3(9.4)
Folic Acid	31(96.9)	0(0.0)	1(3.1)
Vitamin C	31(96.9)	1(3.1)	0(0.0)
Others			
Oral Anticoagulants	2(6.3)	2(6.3)	28(87.5)
Antacids	29(90.6)	2(6.3)	1(3.1)
Piriton	29(90.6)	2(6.3)	1(3.1)
Heparin	2(6.3)	2(6.3)	28(87.5)
Dicynone	2(6.3)	2(6.3)	28(87.5)
HB vaccine	26(81.3)	1(3.1)	5(15.6)
Hydroxyurea	1(3.1)	2(6.3)	29(90.6)
SENNA	2(6.3)	3(9.4)	27(84.4)

ACEI=angiotensin converting enzyme inhibitors, ARB=angiotensin receptor blockers

CONCLUSION

The preparedness of the PHCs in the FCT for the implementation of WHO-PEN intervention is inadequate. Critical gaps exist in virtually all key areas and items such as human resource/training, medicines, diagnostics, equipment, financing and medical information management systems. It is important to train non-physician health workers for task-shifting as a priority. Furthermore, Effort should be made to increase access to affordable, safe and effective quality medicines for the management of NCDs in the PHCs while additional technologies to measure serum creatinine, lipids and perform electrocardiography are provided in the PHCs.

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