



Availability and Type of Human Resource for Health in Public Primary Health Care Facilities in Selected Communities, Edo State.

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ABSTRACT

Background: Health human resource capacity is one of the major determinants of an effective health care delivery system. It is more importantly so in the Primary Health Care system, which is the key component of every health system. This study assessed the available and type of human resource for health in public primary health care facilities in selected communities in Edo State. It also compared them with the expected manpower, using the Ward Minimum Health Care Package (WMHCP).

Methods: A cross-sectional study was carried out in Edo State and the study units were selected using a multistage sampling technique. An observational check-list was used to assess the available health manpower in the public primary health facilities which was compared with the recommended manpower in the WMHCP.

Results: A total of 15 public PHC facilities were assessed in the study. The available health work force varied in densities between 9 per 17,857 population (or 0.50/1000 population), 3 per 11,905 (or 0.25/1000 population) and 2 per 22,988 population (0.08/1000 population) for CHEWs, Medical Officers and Nurses/midwives respectively. In relation to the recommended number by WMHCP, CHEWs were most extensively distributed with about 170% of the expected number in Owan East LGA, closely followed by Nurses/midwives with a value of 133.3% of the expected number in Etsako East LGA. Community Health Officer (CHO) was absent from all the PHC facilities.

Conclusion: The available manpower based on density per population and in comparison with WMHCP recommended number revealed an abnormal trend; skewed in favour of the CHEWs and against CHOs (which was completely absent). Community Health Extension workers in the study area should be sponsored through CHO training programme by the State Government. There should be employment of more JCHEWs and CHOs and redistribution of excess manpower to areas of need based on the type of PHC facilities for the achievement of Universal Health Coverage.

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INTRODUCTION

Primary Health Care (PHC) is defined as “essential health care based on practical, scientifically sound and socially acceptable methods and technology, made universally accessible to individuals and families in the community through their full participation, and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination”. It is the first level of contact of individuals, the family and community with the national health system, bringing health care as close as possible to where people live and work, and constitutes the first element of the continuing health

care process.¹ The implementation of PHC is primarily through services carried out at the primary health centres and this can only be achieved by the human force (Human Resources for Health) at these centres.²⁻⁵

Health workers are defined as all persons eligible to participate in the national health labour market by virtue of their training, accreditation and skills.⁶ Globally, the most common categories of health workers include: physicians, nurses and midwives. However, the health workforce concerned with the delivery of PHC services also includes pharmacist (or pharmacy technicians), laboratory technicians, environmental health technicians and community

health workers.⁷ The nomenclatures for community health workers vary from country to country. A physician is defined as a health worker involved in the diagnosis, treatment and prevention of illness, disease and injury and other physical and mental impairments and maintains general health in humans through application of the principles and procedures of modern medicine.⁸ Nurses, on the other hand provide treatment, support and care services for people who are in need of nursing care due to the effects of ageing, injury, illness or other physical or mental impairment, or potential risk to health, according to the practice and standards of modern nursing.⁹ The functions of a midwife are slightly different from that of a nurse, but they primarily plan, manage, provide and evaluate midwifery care services before, during and after pregnancy and childbirth.

Community health workers (CHWs), as defined by WHO are health workers trained in some way in the context of the intervention in health care delivery, but have received no formal professional or paraprofessional or tertiary education. They are expected to be members of the community where they work, be selected by the communities, be answerable to the communities for their activities and should be supported by the health system.⁸

Shortages and inequities in the distribution of these health workers remain a common problem in many low and middle-income countries. In the least developed countries, there is a distribution of about 1 health worker per 2400 people, compared with 1 per 100 people in the industrialized countries.¹⁰ The density of health worker above a threshold of 2.5 workers per 1000 population has been reported to make an enormous difference in health interventions. Globally about 75 countries are below this threshold and they are classified as low density countries.¹¹ Sub-Saharan Africa contributes to more than half of this group. Data from WHO reveal that an estimated 4.3 million health workers are needed to fill the gap of 57 countries in Africa and Asia.⁸ Few

countries have been observed to have the required density of health workforce that conforms to the real needs of the community. Other contributors to human resources problems include skill mix imbalances and mal-distribution the health workforce. In most developing countries, there is an unsatisfactory distribution of health workers in such a way that majority of them, often 80%, are working in and around urban areas were about 20% of the population live.^{10,11}

Existing data concerning human resources for health (HRH) across the different zones in Nigeria, reveal uneven distribution with shortages in the northern zones and rural areas of all zones in the country.¹² The current 3 doctors per 10,000 population in Nigeria is grossly inadequate when compared to 20.69 and 24.20 per 10,000 for Canada and USA respectively.¹³

Furthermore, the average density of doctors, nurses and midwives of 20 per of 10,000 population in Nigeria is less than the minimum threshold ratio (of 23 per 10,000) for the achievement of health related Millennium Development Goals (MDGs)/ Sustainable Development Goals as prescribed by WHO.^{47,13,14} The imbalance is shown in the estimates of nurses and midwives; with densities of 124,629 (10.3 nurses/10000 population) and 88,796 (6.7 midwives/ 1000 population) for nurses and midwives respectively.¹⁵ Report from previous studies also reveal that only 12% of the total doctors in Nigeria are working in primary health care facilities (both private and public).¹⁴

The nature and type of PHC facility determines the number and type of human resources that may be required. In Nigeria for instance, the PHC facilities are classified into four main types by the National Primary Health Care Development Agency (NPHCDA).⁷ The first class (or health post) is manned by the Junior Community Health Extension Workers (JCHEW).^{5,16} As for the second type of PHC facility (or Basic Health Clinic), the staff complement include two CHEWs and four

JCHEWs.^{5,7,15} The third class of PHC facility (Ward Health Centre) has a staff complement of one Community Health Officer (CHO), one Public Health Nurse (PHN), three CHEWs, four Nurse/Midwives and one medical Assistant. The fourth class of PHC facilities is the comprehensive health centres. It should have a staff distribution of three doctors, one CHO, one PHN, three CHEWs, four Nurse/Midwives and one medical Assistant.^{7,15}

The aim of this study was to assess the available and type of health workforce in public primary health care facilities in Edo State and to compare them with the recommended number using the Ward Minimum Health Care Package (WMHCP).

METHODS

This descriptive cross-sectional study was carried out in Edo State, in the South-South geopolitical region of Nigeria. Edo State is located in the heart of the tropical rain forest and lies between longitude 5°E and 6°42'E and latitude 5° 45'N and 7° 35'N of the equator.

Health services in Edo State are generally organised into the tertiary, secondary and primary levels of care. The State government funds the secondary health facilities whereas the Local government funds the primary health care facilities. The tertiary health care facilities in Edo State are funded by the Federal government and private organisations. There are also several privately owned secondary and primary health care facilities.¹⁷

Edo State is made up of a projected population of 3,725,771, based on 2006 Census.¹⁸ There are 924 health facilities in the State; with an average of 25 facilities per 100,000. The public health institutions include: 6 tertiary, 47 secondary and 322 primary health institutions. There are 6 training institutions in Edo State for Nurses, Midwives and Community Health Extension workers. There are also three tertiary institutions for training of Medical doctors.¹⁸

The projected population of the communities were obtained from Edo state National Population

Commission. The figures were cross-checked with the population used for routine immunization at the Local Government Levels. This is based on certain assumptions in Nigeria: that infants under one and women of child bearing age represent 4% and 22% respectively of the population of that community.¹⁹

A multistage sampling technique was used to select the PHC facilities included in the study.

First, a simple random sampling method was used to select Edo North Senatorial district from the three Senatorial districts that make up Edo State. Secondly, three LGAs were selected from the six LGAs that make up the Senatorial district using simple random sampling method. Thus, Owan West (OWLGA), Owan East (OELGA) and Etsako East (EELGA) LGAs were selected

Finally, 15 PHC facilities were selected from 13, 20 and 8 PHC facilities in EELGA, OELGA and OWLGA respectively which were the only sources of health care in these communities. In each of the selected LGAs, one CHC was present, and so was included in the study. A disproportionate simple random sampling was therefore used to select 4 PHC facilities from the 3 LGAs. Thereafter, from a list of the remaining 12 PHC facilities in EELGA, 4 were selected using a simple random sampling method. The same procedure was used to select 4 PHC facilities from the remaining 18 facilities in OELGA and 4 from the remaining 6 PHC facilities in OWLGA. In all, a total of 15 PHC facilities (5 each from the selected LGAs) comprising 3 CHC, 5 Primary health centres, 4 basic health centres and 3 health posts were assessed. There was no tertiary health institution in any of the selected communities. Public Primary Health care facilities were the only sources of health care in the selected communities.

An observational check-list was used to assess the manpower availability in the PHC facilities in the selected LGAs. The available manpower was compared with the recommended manpower by the Ward Minimum Health Care Package.

In order to estimate the percentage of the expected staff in the selected LGAs, the aggregate numbers of the various types of health manpower present in the selected PHC facilities in each LGA was divided by the aggregates recommended numbers by WMHCP for each type of manpower and this was expressed in percent.

Ethical approval was obtained from the Ethics and Research Committee of University of Benin Teaching Hospital (UBTH).

RESULTS

A total of 15 PHC facilities were assessed in this study. Details of the availability of the health workforce (in densities per population) and comparison of the available with the recommended manpower, based on the WMHCP are presented.

Table I reveals the available human resources in the public PHC facilities in the selected LGAs in Edo State. CHEWs were the most adequately distributed category of health workers'; with densities ranging from 9 per 17,857 population (or 50.4/100,000 population) in the CHC in Owan East to 6 per 22,988 population (or 26.1/100,000 population) in Owan West LGA. Junior Community Health Extension Workers (JCHEWs) were the most inadequately distributed group of health workers with a value of 2 per 11,905 populations (or 16.8/100,000 population) present in one of the communities.

Medical doctors were adequately distributed across the CHCs in the three selected LGAs; with densities ranging from 3 per 11,905 (or 25.2/100,000 population) in Owan West to 1 per 23,256 population (or 4.3/100,000 population) in Etsako East LGA. Nurses/midwives were more adequately distributed in the CHCs, with values ranging from 5 per 11,906 population (42.0/100,000 population) in Owan East to 2 per 22,988 population (8.7/100,000 population) in Etsako East LGA.

Table I: Manpower Distribution of Public PHC Facilities in Relation to Population in Edo State, Nigeria

LGA/Category of staff	Cadre/ 100,000 Population of communities with CHC			Cadre/ 100,000 Population of 4 communities with other PHC facilities		
	CHC	WHC	BHC	HP	Total	
Owan West						
Doctors	3	25.2	1	0	0	1 3.9
Nurses/Midwives	5	42.0	1	1	0	2 7.9
CHEWs	6	50.4	1	3	1	5 19.8
JCHEWs	2	16.8	0	0	0	0 0.0
Total	16	134.5	3	4	1	8 31.6
Etsako East						
Doctors	1	4.3	0	0	0	0 0.0
Nurses/Midwives	2	8.7	0	2	0	2 22.9
CHEWs	6	26.1	0	5	1	6 68.7
JCHEWs	0	0.0	0	0	0	0 0.0
Total	9	39.2	0	7	1	8 91.6
Owan East						
Doctors	3	19.1	1	0	0	1 7.4
Nurses/Midwives	5	31.8	0	0	0	0 0.0
CHEWs	9	57.2	4	2	2	8 59.6
JCHEWs	0	0.0	0	0	0	0 0.0
Total	17	108.1	5	2	2	9 67.0

Key: CHC = Comprehensive health centre; WHC = Ward health centre; BHC = Basic health clinic; HP = Health post; the denominators used included: projected population of the LGAs (based on 2006 Census)²⁸ = Owan West LGA (11, 892); Etsako East LGA (22,969); Owan East LGA (15,727); population of 4 communities with other PHC facilities (combined population for the four communities)²⁸ = Owan West LGA (25,348); Etsako East LGA (8,732); Owan East LGA (13,427).

Table II: Available Number and Types of Human Resources in the Public PHC Facilities Compared with the WMHCP Recommended Number in Selected LGAs in Edo State

CATEGORY OF STAFF	ETSAKO EAST LGA			OWAN WEST LGA			OWAN EAST LGA		
	E	P	% P	E	P	% P	E	P	% P
Doctors	3	1	33.3	4	4	100	4	4	100
CHO	1	0	0	1	0	0	1	0	0
Nurse /Midwife	3	4	133.3	6	7	116.7	6	5	83.3
CHEWs	9	12	133.3	12	11	91.7	10	17	170
JCHEWs	13	0	0	21	2	9.5	18	0	0

Key: E= Expected number of staff; P= number of staff present; % P= Percentage of expected staff present

Table II shows the available health workforce in

Table III: Available Manpower in the various types of PHC Facilities in Comparison with WMHCP Recommendation

Health Workers	3CHC			2WHC			6BHC			4HP		
	No P	Min EXP	% P	No P	Min EXP	% P	No P	Min EXP	% P	No P	Min EXP	% P
Doctors	7	9	78%	1	2	50%	0	0	0%	0	0	0%
CHO	0	3	0%	0	3	0%	0	0	0%	0	0	0%
N/M/	12	9	133%	1	9	16.7%	3	0	300%	0	0	0%
CHEWs	21	9	233%	11	9	122%	10	12	83.3%	4	0	400%
JCHEWs	2	18	11%	1	12	8.3%	0	24	0%	0	4	0%
TOTAL	42	48	88%	13	26	50%	13	36	36%	4	4	0%

Key: CHO = Community Health Officer; N/M = Nurse/Midwife; CHEW = Community Health Extension Worker; JCHEW = Junior Community Health Extension Worker; No P = Number present; Min EXP = Minimum expected; % P = Percentage present

comparison with the recommended number by the WMHCP. CHEWs were relatively the highest group of HWs; in excess of the recommended number in Etsako East (133.3%) and Owan West (170.0%). CHOs were completely absent from the LGAs assessed. JCHEWs were only present in Owan West; with 2 HWs (9.5% of the expected number). Medical doctors were adequate in number, in Owan West (100%) and Owan East (100%). Nurses/midwives were in excess of the recommended number in Etsako East LGA (133.3%) and Owan West LGA (116.7%).

The available health manpower in the various categories of PHC facilities in selected LGAs is shown in table III. As for the Comprehensive Health Centres, CHEWs were the highest number of HWs; being in excess with 233% of its recommended value across the three CHCs. CHOs were however completely absent from all the PHC facilities. Among the CHCs, the number of medical doctors present was about 78% of the recommended number. Nurses/midwives were also slightly in excess of the expected number, being 133% available in the CHCs. Only 11% of the recommended number of JCHEWs was available at the CHC. As for the Primary Health Centres (or

Ward Health Centres), CHEWs were available in excess (122% of the recommended number). Also, here the CHO was completely absent. Nurse/midwives were present in 3 out of the 6 BHC.

DISCUSSION

Community health extension workers were the most adequately distributed category of health workers; revealing excesses of the expected number of staff in cadre per 100,000 population (using WHO threshold value of 10 per 100,000 population),^{15,20} with a range of 50.4 per 100,000 population to 26.1 per 100,000 population in the comprehensive health centres. This is consistent with the age long global concept of the use of this cadre at the entry point of health care where they are expected to provide general preventive and pre-referral services.^{20,21} Furthermore, this is agreeable with a previous publication, that for every formally qualified doctor or nurse, there are at least three or more uncounted health workers including community health workers.^{11,22} The attendant excesses of CHEWs in some PHC facilities may result in wastage of manpower; which may among other things result in neglect of duties/roles by some of them. This in

itself negates the concept of skill mix which is particularly important in manpower distribution for the achievement of Universal Health Coverage (UHC).⁸ Community Health Officers were completely absent from all the PHC facilities assessed. This has serious implication because of the major role this group of health workers plays in the implementation of primary health care using the ward health system in Nigeria. This is particularly important because of the emphasis of UHC on the paradigm shift, with emphasis on utilization of skilled personnel for specific duties; looking beyond merely resolving the problems of shortages.⁷ However, this complete absence of CHOs is at variance with previously published data in Nigeria in which the distribution of CHOs varied from 19 per 100,000 population in the North Western Nigeria to 5 per 100,000 population in the Federal Capital Territory (FCT).^{23,24}

Medical doctors were adequately distributed across two of the three selected LGAs in this study, with values greater than the average for Sub-Saharan Africa and conversely less than the national average for Nigerian doctors (30 doctors per 100,000 population).²³ This is at variance with data from a previous study which showed that only about 12% of the total number of doctors in the Nigeria are working in the PHC facilities.⁴ The number of doctors was specifically skewed against Etsako East LGA compared to the others. This may be related to the distance of this place from the state capital, and based on the remoteness of the environment. This finding is consistent with the reports from previous studies on factors affecting health manpower distribution, in which the various types of health facilities in the remotest areas lacked the required highly skilled health workers who prefer working in urban areas.^{21,25,26} Medical doctors were observed to be specifically poorly distributed among the WHCs, BHCs and HPs, which may not be unrelated to the fact that the smaller types of PHC facilities are expected to be manned by the less skilled staff in the

hierarchy.²³

Nurses/midwives were apparently in excess in two out of the three CHCs; being higher than the national average of 21 per 100,000 in Nigeria, but lower than Sub-Saharan Africa average of 72 per 100,000 population.^{15,20} and values for industrialized countries like Canada and USA (with density of nurses and midwives of 1000 and 980 per 100,000 population respectively).¹³ However this category of HWs (nurses/midwives) were poorly distributed in the remaining PHC facilities; WHCs, BHCs and HPs. This does not augur well, because of the need to have skilled birth attendants at least at the WHC.⁸

Junior Community Health Extension Workers were inadequate in all the LGAs. This trend is somehow compensated for by relative excesses in the distribution of CHEWs which should ordinarily not be found in HPs. The implication of this is under-utilization of the services of the JCHEWs; due to a relative lack or mal-distribution of available few. A possible explanation for this gap in JCHEWs is that most of the CHEWs at the time of the survey were initially employed as JCHEWs but have had promotions and conversions to become Senior CHEWs, This assumption is buttressed by the low or scanty employment that had been carried out in Edo State over the past 10 years.²⁷

With particular reference to the types of PHC facilities, nurses/midwives were the second most adequately distributed cadre of HWs; being in excess of the expected number (using the WMHCP) in the CHCs. The observed trend in the distribution of nurses apparently negates the concept of equity in universal health coverage. The presence of nurses at some facilities designated as health post is also at variance with distribution of HWs based on the type of PHC facility. Medical doctors were slightly more than three quarters of the expected number. This is particularly important since the CHC serves as a referral point to the other facilities at the primary health care level. This is corroborated by guidelines and data from previous studies.^{15,23}

CONCLUSION

The available manpower in the PHC facilities in comparison with the recommended number based on WMHCP criteria revealed an abnormal trend; skewed in favour of the CHEWs who were in excess in the PHC facilities and against CHOs who were completely absent. Community Health Extension workers in the study area should be sponsored for CHO training programme by the State Government. There should be employment of more JCHEWs and CHOs and redistribution of excess manpower to areas of need based on the type of PHC facilities for the achievement of Universal Health Coverage.

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