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Availability and Continuity of Care for Maternal Health Services in the Primary Health Centres in Nnewi, Nigeria (January - March 2010)

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ABSTRACT

Background: In some primary health care settings, even where the health services are not available, provisions are not made to ensure continuity of care. This study aimed to determine the availability and level of continuity of care for maternal health services in the primary health centers (PHCs) in Nnewi, Nigeria.

Methods: This was a cross-sectional survey. Using multistage sampling technique, 280 women utilizing maternal health services from four randomly selected public PHCs in Nnewi, Nigeria were chosen for the study. Data collection employed a mix of quantitative and qualitative methods.

Results: The mean ± standard deviation for age of the respondents was 29.2 ± 5.9 years. The facilities studied provided out-patient services, but the only in-patient services provided was for women who delivered or those in labor. None of the facilities is equipped to provide even basic essential obstetric care services. None had standardized a protocol for referring clients, referral forms, a transport system, or a community loan scheme in place. Forty-four (15.7%) women were referred for care outside of the PHCs for the following reasons: Lack of drugs and supplies (9.1%); lack of equipment (90.9%), lack of skilled personnel (45.5%) among others.

Conclusions: This study showed that despite the unavailability of some services, appropriate strategies were not in place to ensure the coherent pattern of services within and between the PHCs and other levels of care. Delivery to the clients of comprehensive and integrated maternal health services, and efficient referral systems are thus recommended.

Keywords: Availability, level of continuity, maternal health services, Nnewi Nigeria, primary health care level

INTRODUCTION

Maternal health care services aims at reducing maternal mortality and morbidity by ensuring that pregnant women remain healthy throughout pregnancy, deliver safely and recover fully from the physiological changes that occur during pregnancy.[1] To achieve this aim, services must be available and

of good quality. In addition, the system of services should be functionally organized to optimize care, ensuring linkage to other health services as well as the existence of a functional referral system.[2]

Continuity of care implies a coherent pattern of services between and within various health delivery systems.[3] It includes: Women held antenatal record and home-based records, prenatal referral for family planning and immunization; referral for emergencies or conditions that cannot be handled at the primary health care centre (PHC); and feedback to peripheral staff that have referred a client.[3-5] In rural areas for instance, a woman with an obstetric emergency may find the closest facility equipped only for basic treatments and may not have access to a regional center with better resources. The function of the PHC workers is to provide appropriate primary care according to the standing order, identify and refer difficult cases to a higher level of care, and mobilize the community. These workers are known to increase access to care and facilitate appropriate use of health resources by providing outreach and cultural linkages between communities and health delivery systems. They also reduce costs by providing health education and basic emergency services.[6]

Continuity as a component of quality of care ensures that MHC services are available whenever needed. However, in most PHC settings in Nigeria, the referral systems are defective while in some cases they are bypassed.[7] This practice leads to increase in treatment cost, an overload of higher level facilities and underutilization of the lower ones. It is obvious that breaks in the continuity of care will affect effectiveness, while referral can only be justified if the referral facility provides care of good quality.[8] The aim of referral will be to ensure that women reach a suitable functional facility in time to receive quality MHC services. This is pertinent because most maternal deaths can be prevented by timely intervention. This is often not the case, and a considerable proportion of maternal and perinatal mortality has been attributed to substandard referral level care.[8-10] Therefore, as a first step, the quality of services at each referral level should be ascertained, monitored, and improved.

Studies have been done to assess the quality of MHC at the primary health care level in developing countries. Not much study has been done to determine the availability and level of continuity of care for quality maternal health services at the primary health care level in the study area. This study aimed to determine the availability and level of continuity of care for maternal health services in the primary health centers (PHCs) in Nnewi, Nigeria.

METHODS

Study design and participants

Description of study area
Nnewi North Local Government Area (NNLGA) is one of the 21 Local Government Area (LGAs) in Anambra, South-Eastern Nigeria. It is a one town LGA that has an area dimension of 72 km^2 and an approximate total population of 391,222 people with a sex ratio of 1.02 male/female.[11]

The health program of the LGA conforms to the National Health Policy and its goal to establish a comprehensive health care system, based on primary health care that is promotive, protective, preventive, restorative, and rehabilitative to every citizen of the country within the available resources so that individuals and communities are assured of productivity, social well-being, and enjoyment of living.[12] Federal, state, and local governments shall support, in a coordinated manner, a three-tier system of health care. Thus, the LGA has a number of health facilities; a federal teaching hospital, Nnamdi Azikiwe University Teaching Hospital, Nnewi and the College of Health Sciences of the Nnamdi Azikiwe University. There is no public secondary health facility in the LGA. There are about 114 private hospitals and clinics, 12 public primary health care centers, and 12 health posts.[11] Twelve of the 24 PHCs provide at least three MHC services, with a staff strength of one Medical Doctor, 12 community health officers, 12 nurses/midwives, 80 community health extension workers, and 48 health attendants in these 24 health facilities as at the time of this study. Alternative health care providers and patent medicine vendors also abound in the area.

Study design
This was a cross-sectional descriptive study.

Study population
This comprises women accessing maternal health services in public PHCs in NNLGA during the period of the study (between January 2010 and March 2010). Women utilizing any of the maternal health services in health facilities that provide at least three of the maternal health services viz.,: Family planning, antenatal care (ANC), safe delivery services, postnatal care services, and basic essential obstetric care (EOC) were enrolled into the study. The emergency obstetric care signal functions include: Administration of parenteral antibiotics; administration of parenteral oxytocic drugs; administration of parenteral anticonvulsants for preeclampsia and eclampsia; manual removal of the placenta; removal of retained

products of conception; assisted vaginal delivery; blood transfusions; surgery (caesarean section).

Sample size determination
Data collection in this study employed a mix of quantitative (client exit interviews and observation checklist) and qualitative key informant interview (KII) methods.

For the client exit interviews, the sample size was determined using the formula for the calculation of sample size in populations >10,000, $n = z^2pq/d^2$.[13] Where n = calculated sample size; z = standard normal deviate at 95% confidence interval = 1.96; P = percentage of births attended by skilled attendants; q = the complementary probability of $P = (1 − P)$ that is, percentage of births not attended by skilled attendants and d = precision level 5% =0.05. In a study in South-Eastern Nigeria, 81.8% of births were reported to have been attended by skilled attendants.[14] Therefore, P = 0.82, while n, the estimated minimum sample size required for the study was 227 clients that is,

$$\frac{(1.96)^2 \times 0.82 \times 0.18}{(0.05)^2}$$

Anticipating a response rate of 90%, an adjustment of the sample size estimate to cover for nonresponse rate was made by dividing the sample size calculated with a factor f, that is, n/f, where f is the estimated response rate.[13] Therefore, the calculated sample size = 227/0.90 = 252. However, 280 questionnaires were distributed, completely filled and were thus analyzed.

Sampling technique
A multistage sampling technique was used to enroll clients and PHCs into this study. NNLGA is made up of four administrative zones/quarters, and 12 PHCs provide at least three of the services needed to meet the inclusion criteria.

- Stage I: A simple random sampling technique was used to select one health facility from each of these four administrative zones of the LGA
- Stage II: Then the sample size determined was proportionately allotted to the 4 health centers based on the average number of clients that presented for ANC at this facility within the period of the study
- Stage III: Based on the average for the 3 months preceding the month of the study, the total monthly antenatal attendance for the 4 facilities was 300. The total number of clients that was interviewed for each health facility was calculated thus:

$$\frac{\text{The average monthly antenatal attendance for the health facility}}{\text{Total monthly antenatal attendance for the 4 health facilities}} \times 280$$

- Stage IV: Then, eligible and consenting respondents utilizing maternal health services were recruited consecutively by systematic sampling technique at the point of exit from the health facilities until the required number allotted to each selected facility was obtained.

Data collection and study instruments
A pretested standardized semi-structured interviewer administered questionnaire was used to obtain information on sociodemographic characteristics of the clients, reasons for referral, reasons related by respondents for avoiding referral, and suggested ways of improving referral. A comprehensive checklist adapted from the report on the status of PHC in Nigeria by National Primary Health Care Development Agency, May 2001 was used to cross-check health workers practice in the select health facilities.[15] This was used to obtain information on the components of services available in the health facilities and the availability of MHC service records in the health care facilities.

Statistical analysis
Quantitative data were scrutinized and entered into the computer. Data cleaning was done by carrying out the range and consistency checks. Data were analyzed with respect to sociodemographic characteristics of the clients, reasons for referral, reasons related by respondents for avoiding referral, and suggested ways of improving referral. Descriptive statistics was carried out using Statistical Package for Social Sciences SPSS (International Business Machines IBM USA) version 16. Frequency distributions of all relevant variables were presented in tables and charts. Means and standard deviations (SDs) were determined.

For the KIIs, two heads of facilities from the four select PHCs were selected at random and key information obtained from them include: Status of personnel, supplies, and equipment; level of quality of care and ways of improving services. KIIs were recorded and translated, while findings were reported verbatim and analyzed thematically and necessary quotes presented. Qualitative data added depth to the findings of the quantitative survey.

Ethical consideration
Consent
All authors declare that written informed consent and co-operation of the respondents and the heads of the select health facilities was solicited and obtained for the conduct and publication of this research study.

Ethical approval
All authors hereby declare that permission was obtained from the Anambra State Ministry of Health, and The Nnewi North Local Government PHC department, while the study has been examined and approved by the Nnamdi Azikiwe University Teaching Hospital Ethical Committee, Nigeria and, therefore, has been performed

in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

RESULTS

Table 1 summarizes the sociodemographic characteristics of respondents. A total of 280 mothers were interviewed and they included; 92 women attending Umuenem Otolo PHC, 79 women at Okpuno Nnewichi PHC, 56 women at Edoji Uruagu PHC, and 52 women at Eme Court Umudim PHC. The mean ± SD for age of the respondents was 29.2 ± 5.9 years. Majority of the respondents, 231 (82.5%) were married while most of them, 216 (77.2%) attained at least secondary level of education, only 7 (2.5%) did not have any formal education.

Table 2 summarizes the components of services available in the health facilities. All the facilities provided outpatient services, health education, immunization, antenatal care, delivery, postnatal care, and family planning services. The only in-patient services provided was for women who delivered or those in labor. Three-quarters of them were involved in home visits, environmental sanitation, and provision of essential drugs. None of them provided post-abortal care and adolescent health services. The only components of EOC observed at the facilities studied are: Parenteral administration of oxytocics; parenteral administration of antibiotics; and manual removal of placenta. None of the facilities studied had an ambulance/transport system or a community loan scheme in place.

Table 3 summarizes the availability of MHC service records in the health care facilities. All the facilities had a record system in place, but with varying functionality. Forms or records for most services were available in all the facilities except for referral forms, home-based records that were not available in any of the facilities. There was no women handheld antenatal records as well as a standardized protocol for referring clients.

Forty-four women (15.7%) were referred for care outside of the health facility, for the following reasons: Lack of drugs and supplies (9.1%); lack of equipment (90.9%), lack of skilled personnel (45.5%); sociocultural preferences; distance of place of residence from health facility [Figure 1].
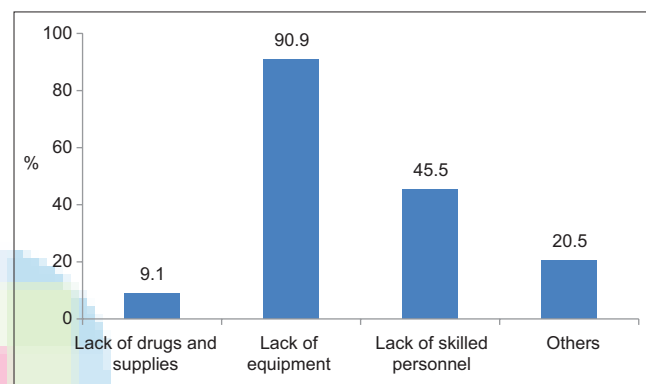

Figure 1: Reasons reported by respondents for referral. Others include: Sociocultural preferences; distance of place of residence from health facility; respect for women's social needs and choice

Table 1: Sociodemographic characteristics of the respondents studied

Sociodemographic characteristics	*n*=280 (%)
Age group (in years)	
<19	12 (4.3)
20-29	135 (48.2)
30-39	116 (41.5)
40-49	15 (5.3)
Nil response	2 (0.7)
Total	280 (100)
Marital status	
Married	231 (82.5)
Never married	39 (13.9)
Separated	10 (3.6)
Total	280 (100)
Highest educational level	
Nil formal	7 (2.5)
Primary	57 (20.4)
Secondary	169 (60.4)
Tertiary	47 (16.8)
Total	280 (100)

Mean±SD for age of the respondents=29.2±5.9 years. SD=Standard deviation

Table 2: Components of services available in the health facilities studied

Services	Number of facilities=4 (%)	
	Yes	No
Health education	4 (100.0)	0 (0.0)
Immunization	4 (100.0)	0 (0.0)
Antenatal care	4 (100.0)	0 (0.0)
Essential obstetric care	0 (0.0)	4 (100.0)
Delivery	4 (100.0)	0 (0.0)
Postnatal care	4 (100.0)	0 (0.0)
Family planning	4 (100.0)	0 (0.0)
Laboratory services	1 (25.0)	3 (75.0)
Home visits	3 (75.0)	1 (25.0)
Environmental sanitation	3 (75.0)	1 (25.0)
Post-abortal care	0 (0.0)	4 (100.0)
Adolescent health	0 (0.0)	4 (100.0)
Provision of essential	3 (75.0)	1 (25.0)
Food demonstration	1 (25.0)	3 (75.0)
Outreach services to VHW and TBAs	2 (50.0)	2 (50.0)
Transportation system	0 (0.0)	4 (100.0)
Community loan scheme	0 (0.0)	4 (100.0)

VHW=Village health worker, TBAs=Traditional birth attendants

Tables 4 and 5 show the reasons related by respondents for avoiding referral as well as the suggestions by respondents for improving referral. Common reasons reported by respondents for refusing to accept referral to higher level of care are: Lack of transport (22.9%), fear of the unknown (13.9%), lack of emotional support and unfamiliar environment (11.4%). Suggestions for improving referral include: Provision of ambulance/means of transport (22.9%), provision of good access road (17.9%), and ensuring good emotional and social support for clients (12.1%).

Results of the key informant interviews with heads of the PHC facilities

The maternal health services provided by the various facilities include: ANC services, delivery care, family planning, counseling, and postpartum care.

Status of personnel, equipment and supplies

The heads of facilities complained about the insufficiency of personnel and equipment. Such equipment as Sphygmomanometer (Accuson, Kris Aloy, England) weighing scale (Harson H89) were mentioned. One head of facility said: "For the past 5 years that I have been heading this facility, they have never changed our stethoscopes and sphygmomanometers. We are just patching, using them as they are. Sometimes, they do not give us accurate results."

Level of quality of care

The heads of facilities described the level of quality as fair, within the conditions they are made to operate. "Irrespective of our limitations, our patients still come in good number, this shows they appreciate what is available and how we attend to them." One of the heads of facilities, however, said that there are areas of service delivery that needed to be improved on. She mentioned such areas as lack of pharmacy technicians, record personnel, power supply, and lack of at least one ambulance for a referral for the facilities in the LGA.

Ways of improving services

Suggestions offered on ways for improving the quality of maternal health services in the health facilities include: Employment of more health personnel-doctors, midwives, nurses, record clerks, laboratory personnel and pharmacy technicians, procurement of basic equipment and supplies; procurement of a vehicle for use for referral by the health facilities in the LGAs; involvement of the community in the running of the PHC centers.

DISCUSSION

This study was conducted in the four health facilities selected from the twelve that offered at least three MHC services during the period of the study, out of the 24 public health facilities in the study area. This is a pointer to the level of quality of MHC services as well as the need for putting in place an efficient mechanism for the continuity of care. The study revealed that the MHC services commonly accessed by the clients in these facilities include: ANC, child welfare services, delivery care, and postpartum care services.

This study found out that none of the health facilities studied had the capacity to deliver even the full range of basic EOC. This agrees with the findings in a Nigerian

Table 3: Availability of maternal health care service records in health care facilities studied

Records/cards	n=4 (100%)		
	Availability	Correctness	Completeness
Antenatal care card	4 (100.0)	4 (100.0)	4 (100.0)
Women held antenatal record	0 (0.0)	NA	NA
Immunization	4 (100.0)	3 (75.0)	2 (50.0)
Family planning	3 (75.0)	2 (50.0)	2 (50.0)
OPD	4 (100.0)	2 (50.0)	2 (50.0)
Postnatal care card	1 (25.0)	0 (0.0)	0 (0.0)
Standardized protocol for referring clients	0 (0.0)	NA	NA
Referral forms	0 (0.0)	NA	NA
Home-based records	0 (0.0)	NA	NA
Partograph	0 (0.0)	NA	NA
Delivery record	4 (100.0)	3 (75.0)	2 (50.0)

*NA=Not applicable, OPD=Outpatient department

Table 4: Common reasons reported by respondents for avoiding referral (n=280)

Reasons	n (%)
Lack of transport	64 (22.9)
Fear of the unknown	39 (13.9)
Lack of social and emotional support	32 (11.4)
Unfamiliar environment	31 (11.1)
Stigmatization	30 (10.7)
Discrimination	4 (1.4)
Lack of referral notes/forms	5 (1.8)

*Multiple responses

Table 5: Suggestions by respondents for improving referral (n=280)

Suggestions	n (%)
Provision of ambulance/means of transport	64 (22.9)
Provision of good access roads	50 (17.9)
Ensuring good emotional and social support	34 (12.1)
Ensuring availability of skilled personnel	15 (5.4)
Ensuring availability of services at the referral center	12 (4.2)
Good interpersonal relationship with HCWs	9 (3.2)
Communication with referral center before clients arrival	5 (1.8)
Communication with referral center	5 (1.8)

*Multiple responses. HCWs=Healthcare workers

study in 1998, the 2003 and 2008 Nigerian National Demographic Health Surveys and a study in Peru in 2006, that the met need for EOC is still low.[14,16-18] It also conforms with the finding of a 2003 study, where only 42% of public health facilities in Nigeria met internationally accepted standards for EOC.[19] EOC is one of the four pillars of safe motherhood, and has been identified as the main intervention strategy with the highest impact on maternal health.[20,21] Essential care for high-risk pregnancies and complications should be provided to all women who need it. Thus the World Health Organization and United Nations Children's Fund recommended one comprehensive and four basic EOC facilities for every 500,000 population.[22] The availability of services is a prerequisite to its accessibility and utilization.

Laboratory services are important support services to MHC. Despite this, the findings of this study showed that essential laboratory facilities for obstetric care was lacking in three out of the four facilities. This corroborates the finding by Ibor *et al*., in Ibadan, Nigeria that lacks of access to emergency obstetric care and services have contributed to high maternal mortality in the area.[23] This agrees with the finding in Zimbabwe; where the poor quality of care provided by the health center staff was attributed to limited availability of services.[24]

This study revealed a lot of deficiencies and inadequacies of the record system. None of the four health facilities studied had all the required Health Management Information System (HMIS) forms. Where some of these forms were available, a lot of deficiencies were observed with regards to completeness and correctness of filling them. Similar problems relating to record systems such as unavailability of required forms, inconsistencies in record keeping, incompleteness and inaccuracies have been reported by some authors.[21,25] Every health facility is required to maintain records of its activities including MHC services. The LGA should ensure regular supply of HMIS forms. In addition, they should employ record officers, while monitoring and evaluation officers should ensure these forms are available, timely, completely and correctly filled. By so doing, evaluation of services rendered by the facilities would be carried out satisfactorily and areas of deficiencies revealed would be improved on.

None of the centers studied had evidence in terms of printed referral forms or register to confirm referral, though they claimed referrals were done to secondary or tertiary institutions. Thus, there was no two-way referral system in place. Furthermore, none of the health facilities had transport facilities for referring women to the next level of care. Findings of this study showed that about one-fifth of clients noted lack of means of transport as one of the difficulties experienced during referral. The same proportion of respondents also related provision of ambulance/means of transport as a way of improving

referral. This is worrisome as no such structures exist even at the community level for example which have been found to reduce maternal mortality.[4,26] Other reasons given by clients for avoiding referral include: Fear, lack of social and emotional support, unfamiliar environment, stigmatization, and discrimination. These were similar to reasons given elsewhere for avoiding referral to other levels of the health care delivery system.[4,7,27] With respect to antenatal record keeping, the finding of this study shows that individual antenatal records were kept at the health facilities. This practice, also reported in most Nigerian health facilities is contrary to what is presently recommended.[4,5] This detracts from the ability of clients to be in control of their care and is associated with loss of information if care needs to be transferred elsewhere.

Limitations of the study

The client exit interview questionnaires were interviewer administered and this might have influenced the responses from the participants. However, in the training of research assistants it was ensured that efforts were made by these research assistants to assure respondents of confidentiality of their responses. Observation checklist and qualitative data were also used to cross-check the quantitative results obtained from the questionnaires. The findings of the study may not be generalized to give a comprehensive perspective of quality in the LGA as it is a public facility based. However, the study was designed to gauge Government's preparedness to meet the Millennium Development Goal 5.

CONCLUSIONS

This study found lack of comprehensive and integrated maternal health services, while none of the health facilities had the capacity for even basic EOC. The record system was defective, while the lack of vehicles designated for referral was also found as a factor that impeded the delivery of quality care. We, therefore, recommend as follows:

The Nnewi North Local Government through the PHC department should strengthen the capacity of the existing PHC facilities to provide at least basic EOC through the employment of more health personnel, training of existing ones and the provision of equipment, drugs, supplies, and other necessary logistics and services. The health facilities in Nnewi North Local Government should ensure the delivery to the clients of quality comprehensive and integrated maternal health services. Referral systems should be supported and strengthened by the LGA and the communities, via the provision of referral forms, reliable means of transportation or ambulances for all centers, and appropriate linkages to specialist centers instituted.

ACKNOWLEDGEMENTS

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