Niger J Paed 2014; 41 (3):181 –187

ORIGINAL

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Level of health care and services in a tertiary health setting in Nigeria

DOI:http://dx.doi.org/10.4314/njp.v41i3,5
Accepted: 29th January 2014

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Abstract: *Background:* There is a growing awareness and demand for quality health care across the world; hence the need to describe the level of health care and services provided to meet the patient centered care by the frontline stakeholders.
Aim of study: To determine the current level of care provided in a tertiary hospital in a developing country setting. Study design: prospective, descriptive and questionnaire based survey.
Methods: The study was conducted at the National Hospital Abuja, a tertiary care setting in Nigeria. 157 health workers were enrolled, who responded to questions on the clinical, support and corporate services of the hospital. Response were either yes, no or do not know. The result were analyzed and presented in tables and charts.
Results: Of 157 respondents, 66 males (42.0%) 91 females (58.0%). Doctors and nurses formed 64.3% of the study population. 114 (72.6%) of the health staff agreed that patients received appropriate medical needs and treatments, 118 (75.2%) that care was planned with patient involvement, 107(68.2%) that patients were informed of results and final care processes, 127 (80.9%) that patient were aware of consent processes and 112 (71.3%) that patients at discharge were aware of their ongoing and subsequent care. 90 (57.3%) of the respondents agreed that the patients records were accurate with patients' participation and medications well managed to prevent errors and adverse reactions (75.2%). Infection control and routine surveillance were low. Safe blood sample collection measures (74.5%), measures to reduce break in skin integrity (77.7%), and bed sores rare and effectively managed (38.9%). Some agreed that patient received appropriate nutrition (58.0%). Information on patients' rights and responsibilities, and continuous quality control measures rates were low. Others were adverse incidences reported and treated (50.3%), feedbacks mechanism (66.9%) and complaints management rates (54.8%). Hand washing practice rates were low among doctors and nurses and patient relatives. Staff rated that both workforces planning that
supported needs and recruitment and appointment systems low. Records were not updated to meet with international standards (ICD-10); (22.9%) and had low rates for use in future purposes. Also low were the level of medical and environmental research, informal relationship and security, but the management had a high level of social responsibility in form of emergency and disaster management to the immediate community; (83.4%).
Conclusion: Health workers agreed that some of the patients' needs were met.

Key word: Health care, health workers, services

Introduction

Health care seeks to diagnose, treat, and improve the physical and mental well-being of patients across the lifespan by helping people stay healthy, recover from illness, live with chronic disease or disability, and cope with death and dying[1]. Quality health care delivers these services in a way that is safe, timely, patient centered, efficient, and equitable[1]. Care delivery involves a complex organizational or structural matrix, by diverse professionals. The three basic dimensions of quality in health care organization include the structure of the health systems, the processes involved and the eventual outcomes[2]. The structure consists of the care providers

and whether it's a hospital, nursing home or clinics setting. The care processes refer to the actual performance of the activities of care, from identification of patient need and the patient interaction with the health care system; and lastly to eventual outcome as to whether the person got better or worse or suffered an adverse event or even died[2]. The poor health care provided to the American people was highlighted in a committee report 'crossing the quality chasm' of the Institute of Medicine (IOM) in 2001[1]. That the U.S. health care delivery system did not provide consistent, high quality medical care to all people, a care system based on the best scientific knowledge, which was evidently lacking. Instead it's health care harmed patients too frequently and routinely fails to deliver its potential benefits, with a chasm between the health care they were receiving and what it should be. Several factors had combined to create this chasm, among which were advances in medical sciences and technology at an unprecedented rate during the past half-century, the growing complexity of health care, hence the nation's health care delivery system failure to meet the rapid changes to translate knowledge into practice and to apply new technology safely and appropriately[1].

Health care services are always associated with some risks, errors and adverse events, hence the need for measures that aim at continuous quality assessment and improvements[3]. Medical errors to patients are defined as a preventable adverse effect of care, whether or not it is evident or harmful, that includes an inaccurate or incomplete diagnosis or treatment of a disease, or care but executed incorrectly[4-6]. They may result in little or no disability, re- admissions, and worse off than no treatment, inconveniences distresses, permanent damage, and deaths. Medical errors are often described as human errors in healthcare[7]. Medical errors usually occur in hospital inpatient settings that may lead to excess length of stay, extra costs and mortality[8]. Quality health care may mean different thing to different people[9], but can be simply defined as getting the right care to the right patient at the right time- every time'[10]. The Institute of Medicine (IOM) defined it as the 'the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge'[11]. The aim of this report is therefore is to describe the current level of care and services as perceived by the health care professional and understanding of a patient – centered care as a measure of quality.

Methodology

The study location is the National hospital Abuja, a 350 bedded inpatient tertiary specialist facility that provides care for the general population. It is staffed with qualified medical consultants and supportive staff, providing specialist services in the major medical and surgical fields. Patients are seen in the hospital as either referred or walk in, in- patients and outpatients (ambulatory) care , and either through the national health insurance or pay out of pocket.

The study survey was prospective, descriptive and questionnaire based. The questionnaire was developed from the EquIP5 standards and criteria document of the Australian council on healthcare standards (ACHS) - 2010[12]. The EquiIP5 documents assess levels of clinical, support and corporate services. The clinical section assesses the care given to the patients in terms of medical needs, ongoing processes, outcomes and follow up. Others include questions on the organization risk identification, minimized and managed, patient's right and responsibilities, feedbacks. It contained 29 subsections out of which we generated 20 questions related to this subsection for the questionnaire. The support section (human resource and record information) were based on the organization workforce and recruitment policies and medical information system. It contained 20 subsections out of which four questions were generated. Lastly the corporate section assessed the organization environmental safety measures and well being of the patients and staff, emergency responses and security issues. It has 12 subsections out of which four questions were generated. A total of 28 questions were included in the study questionnaire. A pilot survey on 10 participants was carried out and these were included in the overall study. They had to be answered as yes, no or do not know. Only staffs that consented to filling the questionnaire were included. These were randomly selected among staffs that were on duty in the morning hours from 8am to 4pm in the various department's wards and clinics. Staffs who did not give consent to filling the questionnaire were excluded.

The sample size was calculated with the formula[13] $N= z^2pq/d^2$; where N was the desired sample size (when population under study is less than 10,000); z confidence interval at SD=1.96 for 95percent confidence interval; p= prevalence of 10 percent was used (10percent as estimated rate of adverse events as there was no previous reports in the environment), q= proportion 1-p; d= absolute sampling error, fixed at 5percent (0.05). $N= 3.84*0.10*0.90/ (0.0.05)^2 = 138.24$; N= 138 plus a 5percent attrition rate = 152.

Data was analyzed with student statistical package for students (SPSS) version 16. Mean, SD, proportion, percent, chi-square x^2 test were calculated and a p value of <0.05 was considered statistically significant. Ethical approval was obtained from the hospital Ethical Review/ Institutional Review Board.

Justification for the study

Providing the right care and services that meets the patient's expectations and needs with no harm done should be the goal of every health care system. Because of the routine in medical care, most times error occur without full consideration of a patient's preferences and values, with health care systems that may be inefficiently and unevenly distributed across the populations. The report

of the IOM tagged to "To Err is human" brought to the fore-light the issues of medical errors and patient mismanagement, and that these errors were system based because they involved human beings. This led to some significant reforms in most developed nations that had high burden of aging population with associated chronic illnesses, with an increased demand for new technological services and drugs, contributing greatly to increasing cost and wastes. The Nigerian health system still has to handle a high burden of preventable disease conditions, with a slowing rising rate of non- communicable diseases, in the presence of poor infrastructure, low funding, inter-professional disputes, recurrent strikes and a host of other issues.

The ideal situation in care and services should do no harm, but to provide a level of care that is satisfactory to the client. Medical science and technology is advancing rapidly, to which the health care system has to respond. Patient in the center is demanding his/her rights, and with globalization, growing medical insurance claims and litigations, the health care providers must have to respond appropriately.

Quality in health care is system based and our level of care must be reviewed frequently to meet up with current scientific knowledge and patient satisfaction, hence in need of urgent redesign. To truly achieve this we must now focus on the patient as the center in line with best practices and international standards. With these global challenges, the aim is to draw attention to the present level of care and services as viewed by the health care providers themselves.

Results

157 responses were received, males 66 (42.0 %) and females 91 (58.0%), giving a male: female ratio of 0.73: 1. One hundred and one (64.3%) of the respondents were doctors (50) and nurses (51), 22(14.0%) pharmacists and 12(7.6%) laboratory scientists. Others were physiotherapist (6), records officers (4), nutritionist, administrators, biologists and statisticians three each.

Responses of health workers on patients' clinical care processes

The health workers agreed that patients' needs for medical care and treatments were identified (72.6%), patients were involved in planned care (75.2%), patients were informed on results and final care (68.2%), were aware of consent processes (80.9%) and were given information at discharge of ongoing and subsequent care (71.3%) as shown in table 1a. Ninety (57.3%) of the respondents agreed that the patients records were accurate with patients' participation, 118 (75.2%) that patients medications were managed to prevent errors and adverse reactions, 55(35.0%) of staffs reported that routine surveillance was done by the infection control unit, and 117(74.5%) that safe blood sample collection measures were taken.

Table 1a: Distribution of the responses of health workers on patients' clinical care processes

Parameters	Yes(%) (CI)	No(%) (CI)	Do not know (%)(CI)	Total(%)
Medical needs/ treatment Identified	114(72.6%) (0.65, 079)	29(18.5%) (0.13,0.35)	14(8.9%) (0.05,0.15)	157(100%)
Patient involved in planned care	118(75.2%) (0.68, 0.81)	27(17.2%) (0.12,0.24)	12(7.6%) (0.04, 0.13)	157(100%)
Patient informed of result and final care	107(68.2%) (0.60,0.75)	32(20.4%) (0.14, 0.28)	18(11.5%) (0.07,0.18)	157(100%)
Patient informed of consent process	127(80.9%) (0.73, 0.87)	14(8.9%) (0.05, 0.15)	16(10.2%) (0.06, 0.16)	157(100%)
Discharged patients aware of ongoing and subsequent care	112(71.3%) (0.64, 0.78)	25(15.9%) (0.11,0.23)	20(12.7%) (0.08, 0.19)	157(100%)
Health records are Accurate with patients' participation	90(57.3%) (0.49,0.65)	43(27.4%) (0.21,0.35)	24(15.3%) (0.10,0.22)	157(100.0)
Medications are managed to prevent errors/adverse reactions	118(75.2%) (0.68, 0.82)	22(14.0%) (0.09, 0.21)	17(10.8%) (0.06,0.17)	157(100.0)
Routine surveillance done by infection control unit	55(35.0%) (0.28,0.43)	52(33.1%) (0.27,0.41)	50(31.8%) (0.25,0.40)	157(100.0)
Safe blood sample collection	117(74.5%) (0.67,0.81)	19(12.1%) (0.07,0.18)	21(13.4%) (0.08, 0.20)	157(100.0)

One hundred and twenty two (77.7%) agreed that measures were in place to reduce incidence in skin breaks of patients, 61(38.9%) that bed sores where rare and effectively managed and 91(58.0%) that patients had appropriate nutrition given to them while on admission. Forty three (27.4%) agreed that patients were informed of their rights and responsibilities, and 49(31.2%) that continuous quality control measures was in place, 70 (50.3%) that adverse incidents were reported and treated, 105 (66.9) that patients were encouraged to give feed backs and 86(54.8%) that complaints and feedbacks were managed to help improve services as shown in table 1b.

Hand washing practice was reported in 29(18.5%) of the doctors, 36(22.8%) of the nurses and in 6(3.8%) of the patient relatives (p value <0.05) as shown in table 1c

Responses of health workers on support services

Forty nine (31.2%) health workers agreed that workforce planning supported needs; 69 (43.9%) that the recruitment and appointment system was good, 36 (22.9%) that health records were according to ICD10, and that the records were useful for future purposes by 74 (47.1%).

Responses of health workers on corporate services

Of the health workers 5 (3.2%) agreed the hospital encouraged and conducted medical and environmental safety research, 129 (82.2%) that the hospital had no facilities for both indoor and outdoor games activities,

131 (83.4%) that the hospital provided emergency and disaster management to the community and 75 (47.9%) that the hospital security unit was effective.

Table 1b: Distribution of the responses of health workers on patients' clinical care processes

Parameters	Yes(%) (CI)	No(%) (CI)	Do not know(%) (CI)	Total (%)
Measures to reduce break in skin integrity	122(77.7%) (0.70,0.84)	15(9.6%) (0.05,0.15)	20(12.7%) (0.08,0.19)	157 (100.0)
Bed sores rare/ managed effectively	61(38.9%) (0.31,0.47)	40(25.5%) (0.19,0.33)	56(35.7%) (0.28,0.44)	157 (100.0)
Patients' receive appropriate nutrition	91(58.0%) (0.50,0.66)	32(20.4%) (0.14,0.28)	34(21.7%) (0.15,0.29)	157 (100.0)
Patients' informed of rights / responsibilities	43(27.4%) (0.21,0.35)	82(52.2%) (0.44,0.60)	32(20.4%) (0.14,0.28)	157 (100.0)
Continuous quality control measures in place	49(31.2%) (0.24,0.39)	58(36.9%) (0.29,0.450	50(31.8%) (0.25,0.40)	157 (100.0)
Adverse incidence reported and treated	79(50.3%) (0.42,0.58)	40(25.5%) (0.15, 0.33)	38(24.2%) (0.18,0.32)	157 (100.0)
Patients encouraged to give feed backs	105(66.9%) (0.59,0.74)	35(22.3%) (0.16,0.30)	17(10.8%) (0.06,0.18)	157 (100.0)
Complaints and feedbacks managed to improve services	86(54.8%) (0.47,0.63)	31(19.7%) (0.14,0.27)	40(25.5%) (0.19,0.33)	157 (100.0)

Table1c: Distribution of the responses of health workers to clinical care- hand washing practice

Parameters	Yes(%) (CI)	No(%) (CI)	Do not know(%) (CI)	Total(%)
Hand washing by doctors before seeing patients	29(18.5%) (0.13,0.25)	86(54.8%) (0.47,0.63)	42(26.8%) (0.20,0.34)	157 (100.0)
Hand washing by nurses before seeing patients	36(22.9%) (0.17,0.30)	73(46.5%) (0.39,0.55)	48(30.6%) (0.23,0.28)	157 (100.0)
Hand washing by relatives before seeing patients	6(3.8%) (0.01,0.08)	103(65.6%) (0.58,0.73)	48(30.6%) (0.23,0.38)	157 (100.0)
x^2	342.83	94.6	235.44	
p-value	P<0.05			

Table 2: Distribution of the responses of health workers on support services

Parameters	Yes(%) (CI)	No(%) (CI)	Do not know(%) (CI)	Total (%)
Workforce planning support needs	49(31.2%) (0.24,0.39)	70(44.6%) (0.37,0.53)	38(24.2%) (0.18,0.32)	157 (100.0)
Good recruitment and appointment system	69(43.9%) (0.36,0.52)	44(28.9%) (0.21,0.36)	44(28.0%) (0.21,0.36)	157 (100.0)
Health records according to international code(ICD-10)	36(22.9%) (0.17,0.30)	48(30.6%) (0.23,0.38)	73(46.5%) (0.39,0.55)	157 (100.0)
Health records useful for future purpose	74(47.1%) (0.39,0.55)	55(35.0%) (0.28,0.43)	28(17.8%) (0.12,0.25)	157 (100.0)

Table 3: Distribution of the responses of health workers on corporate services

Parameters	Yes(%) (CI)	No(%) (CI)	Do not know(%) (CI)	Total (%)
Hospital encourage and conduct research (medical and environmental safety)	5(3.2%) (0.01,0.07)	129(82.2%) (0.75, 0.88)	23(14.6%) (0.09,0.21)	157 (100.0)
Hospital has facilities for indoor and outdoor games	5(3.2%) (0.01,0.07)	129(82.2%) (0.75,0.88)	23(14.6%) (0.10,0.21)	157 (100.0)
Hospital provides emergency/disaster management	131 (83.4%) (0.77,0.89)	11(7.0%) (0.04,0.12)	15(9.6%) (0.05,0.15)	157 (100.0)
Effective security unit	75(47.9%) (0.40,0.56)	52(33.1%) (0.27,0.41)	30(19.1%) (0.13,0.26)	157 (100.0)

Discussion

This report is on the level of care and services provided in a tertiary health center, with facilities for both in and out- patient care. Doctors and nurses accounted for 64.3 % of the care processes. The patient values and preferences are the pivot in any 'patient- centered care' oriented process[1,7]. The health workers' agreed that most of the time, the patient's medical treatment needs are identified and managed. This would mean that patients had their conditions properly diagnosed, had appropriate treatment and expected outcome resulted in recovery and discharge. This may be a response to justify their professional competence and skills in the care of patients, however patient's needs are varied, including psychological and financial[14].

Patients to some extent were reported to have been involved in their planned care by the heath workers. Patient's involvement should include obtaining information from them, access to vital signs and documentations, involvement in follow up laboratory results, and seeing that their records match the medical documentation and information. The report shows that some

patient were informed of results and final cares; which may be a reflection of the level of communication between health workers and patients. When patients are not fully informed of the results and their final care, the result in poor coordination and integration of care especially after discharge and follow up. Health workers admitted that some discharged patients were aware of their ongoing and subsequent care. This is particularly important when patients have chronic conditions and need long term care, either as outpatients or home services. Patients' were reported to be aware of the consent processes by 80.0percent respondents. Patient consent must be sort especially in emergency surgeries as this is a common point of medical errors. This most times is achieved through involvement of patient's relatives for proper integration of care. Health records were reported to be accurate and had patients' participation in 57.3 per cent. These records were obtained mostly by the attending physicians and nurses with the record staff from the patients and relatives. Patient involvement at every level of care is the very key to patient- centered care[1, 3, 9,15,16].

Routine surveillance and infection control were rated low in the responses, which is vital to identify disease trends as the responsibility under coordination of a multi -disciplinary team. Some measures to ensure safe blood collection and reduce inconveniences to patients and staff from needle prick injuries and bed sores were observed to be in place as universal prevention. The ability to effectively manage bed sores is mainly in the domain of nursing care and is related to the effective use of appropriate bedding materials that prevent bed sores, appropriate nursing care, whether it's an acute care center or rehabilitation center. Prolonged hospital stay as seen in newborns, orthopedic patients with fractures and/ or neurologic disorder present risk factors, for bed sores due to long confinement to bed over one week, fecal incontinence, prolonged diarrhea, dementia, and other hypoalbuminaemia states[17].

This report showed that patients averagely received appropriate nutrition (58.0 percent). An adequate nutrition and special diet for sick patients promotes healing especially in some disease conditions and groups. The respondents agreed that only 27.4percent patients' had knowledge of their own rights and responsibilities. Possible reasons may include low health seeking attitude, language barrier and ignorance. It then becomes the responsibility of the care giver to educate and inform his client, as it is a legal requirement. In this report staff agreed that medication were managed to prevent errors and adverse incidence (75.2 percent). The reporting and adequate treatments of adverse events and errors would ensure improvements to health systems. The administration of drugs and medications mainly fall in the domain of doctors, nurses and pharmacist; done manually. Every drug administration should ensure the right patient; drug, dose, route and time (5Rights) are ensured to minimize hazards. Errors in clinical practice are common and these should be reported for effective management and preventive measures[18,19]. Because medical errors can have lifelong consequences there is need for full reporting and continuous medical audit and research measures in place[3,7,8,18-22]. The use of patient safety practices, such as electronic medication errors monitor, bar coding scanning alert, computerized physician order entry, use of simulators are current measures to minimize drug errors. These systems are necessary for any organization that is committed to continuous quality improvement.

Complaints and feedback from patients were reported on the average. Probably these complaints were mostly against services levels that would include attitude of health workers, the environment, costs of services and food. Some feedbacks could also be complementary, in appreciation of services. Audits and feedback mechanism help bridge the gap of patients' expectation. Patients should be encouraged to ask questions and should be provided with information materials that encouraged shared decision making[23].

This report showed that the culture of hand washing was low among health workers and patients' relatives; This low level of hand washing among health professionals and the public has been highlighted by various reports[24-27] Nurses and doctors fail to wash their hands the recommend times, between patient contacts and procedures. The reasons for this low level of hand hygiene can be due to the busy hospital and clinics, lack of soap/ detergent and alcoholic solutions, and running tap water. Also, the poor attitude of the health workers to wash their hands has been found to be a contributing factor[26,27]. A study report showed that physicians hand washing rate was 42 percent if the first person failed to performs hand hygiene, but the compliance rate rose to 66 percent ($p < 0.001$),[27] when the first person leading the team of physicians in the patient encounter practiced hand hygiene enforcing the role of peer effect. In whatever settings, effective hand washing helps in the prevention and control of infections especially antibiotic resistant organisms (AROs)[28]. Relatives were also reported to have very low rate of hand washing, (3.8%) before attending to the sick patients. This may be a reflection of poor hand washing rates outside the hospital setting. A randomized study report among squatter settlements in Pakistan household showed that hand washing promotion had a 50% reduction in incidence of pneumonia, a 53% lower incidence of diarrhea and a 34% lower incidence of impetigo[24]. Patients should be told and taught the benefits of hand washing to them and their sick relative because the human hands carry infections.

A low level of work force planning that supports needs, recruitment and appointment system was reported by the staff. The health care workforce is the backbone of the health system in terms of infrastructure, as a sufficient number of providers is important for care delivery system and can be an indicator of the quality of care. A shortage of professionals exists all over the world at varying degree, especially among several specialties, example; nurses and physicians[29].

The health records standards based on international classification of diseases (ICD 10) was very low, 22.9 percent. The ICD 10 standard provides data for best practices and proper international disease classification. The use of updated information technology and electronic health records is vital for accurate data storage and retrieval for epidemiological use and quality. The usefulness of the health records for future use was reported to be available from 47.1 percent respondents. This may be related to the lack of electronic medical records which would have provided a standard structured and coded accurate, clinical diagnosis that makes patient data potentially computable. However, a third agreed the available health records were not useful for future planning. An ideal electronic health records (EHR) when generated along with the Personal Health Record (PHR), help with interactive with patients. Physician can track the patient adherence through electronic communication with the pharmacy to determine compliance through refill frequency. Medical records data is the source for all statistics and planning for development and are legal documents.

Research on medical safety and environmental safety were low along with facilities for games. Informal interaction helps build confidence and create satisfaction for workers and their employees and patients. The health of the population is greatly enhanced with physical exercises. There was significant involvement of the hospital in emergency services and disaster management within the community, as part of its corporate social responsibility to the local community. Security reported by the health workers was low which could contribute to low staff morals and insecurity at workplace. Staff wants to be protected from physical harm while at workplace, such as assaults from angry patients and relatives, hence adequate measures that protect staffs on duty helps boost the morale, especially when it provides compensation for injuries.

Conclusions and Limitations

This report describes and provides information on the level of care and services process as a measure of quality, with a focus on the health care workers response to patient – care. The health workers agreed that his/ her patients' medical needs for care, which included identification and treatment, were mostly met. Core clinical staff may not have enough knowledge of the workings in the administrative section and verse visa, because our hospital operates the traditional departmental lines of care, organized into skill areas and professional scopes of practice. Non- clinical staffs have limited contacts with patients, however with improved communication and information flow across departments, this creates better decision making, and helps moves an organization from a silos type to a processes based trend[30]. Another limitation of this report is that only the health workers own perspective is provided.

Conflict of interest: None
Funding: None

Acknowledgement

I wish to appreciate my work colleagues for their assistance during the time of data collection and advice during the write up of the manuscript.

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