ORIGINAL ARTICLE

Health Managers' Perception of the Primary Health Care Management Information System: A Case of Bama Local Government in Northern, Nigeria

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ABSTRACT

Background: *Evaluating the quality and performance of Primary Health Care (PHC) systems depend on the information system's capacity to generate reliable and accurate information, within social, cultural, and economic context. This paper reports an assessment of a PHC health management information system from PHC Managers' perspectives.*

Methods: *An adapted 3-part Donabedian model informed our assessment of the structure, process and outcomes of the PHC health information system. Pre-tested, semi-structured questionnaires were administered to the PHC Coordinator, 6 Deputy Coordinators, and 18 officers responsible for the health facilities in Bama Local Government Area of Borno State.*

Results: *Majority of the respondents (n=11) believed that staffing at PHC level was inadequate. Only 5 (27.8%) of the managers had training specific to completing HMIS forms. All the facilities were reported to possess registers for the study year (1993), but their numbers dropped by half consecutively down the preceding years to 1990. None reported a health facility that had a copy of the requisite M&E manual guide to HIMIS. Nonetheless 14 reported that report submissions were timely; chief factors causing delays were lack of transport (35.5%), bad roads (16.1%), and scarcity of forms (9.7%). Twelve (12) of the managers judged that the data collected were always or sometimes accurate. Though only 5 crosschecked data to verify accuracy of the submissions. Eight (8) were of the opinion that computerisation was not necessary for rural PHC information system, and eleven (11) felt that the Bama PHC was not ready for computerisation. Twelve (12) of them felt that the quality of the PHC information system had improved since its devolution to the LGA, however, the main suggestions offered to improve the MIS in general were personnel training (32%), feedback from higher levels (20%), and availability of transportation (16%).*

Conclusion: *The information system is only as good as the organisation it serves. Results of this study show major gaps in the structure of the HMIS at the PHC level which is responsible for gathering data onward to the federal level that culminates in epidemiological and health information for the country. Emphasis for intervention for strengthening information systems should be on starting with generating information for local use, and building local capacity to utilise derived information for daily PHC planning, decision-making and management before the prospect of collecting data for upward submission to higher levels.*

KEYWORDS: PHC; Health Management Information System; Assessment; Nigeria.

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INTRODUCTION

Primary Health Care (PHC) is a means to accessible and affordable basic health service wherever people live and work. It is a potentially effective strategy when properly implemented and sustained. The adoption of PHC in Nigeria following the 1978 Alma Ata declaration brought about significant changes in the country's health systems. This also necessitated the establishment of mechanisms and instruments for monitoring and evaluating PHC to ensure effectiveness of services and programmes. However assessing the quality and performance of health systems including PHC, depend on the state of its information system, particularly its capacity to generate reliable, relevant, and accurate information, while keeping social, cultural, political, and economic realities of the context in consideration[1]. In human societies, a method by which any phenomenon is measured shapes the collective perception of it (Black *et.al,* 2005)[2]. Furthermore, better information supply and utilisation have been shown to deliver cost-saving health system efficiencies, including increases in quality and coverage, and even improved health outcomes (Stansfield, 2005)[3].

Health information system includes people, procedures, and equipment involved in data collection, processing, and provision of information to health workers and the population for informed decisions (Osuga, 1994)[4].

The National Health Management Information System (HMIS), which was established to gather health data on set PHC indicators, and to provide managers, planners,

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and policy makers with needed information at all levels of the health care system, has been inundated with problems from inception. And despite an almost perpetual revision and modification of HMIS data collection processes and tools particularly in the 1990s, the situation still appears grim.

The aim of the study was to describe the perceptions of health managers at the PHC level of the Health Management Information System at a period of a series of revision. Lessons from this report is particularly relevant in view of the pivotal position of PHC and data emanating from the PHC level in defining national health status; the value of information obtainable from self-appraisal and audits of systems' operatives themselves; and also the timeliness of the recent launch of the highly information-dependent National Health Insurance Scheme (NHIS).

METHOD

Study Site

The study site, Bama Local Government Area (LGA), is about 75 km southeast of Maiduguri, the capital of Borno State. The LGA had four administrative districts with several villages: *Gulumba* (8 villages), *Wuloji* (11 villages), *Dara el Jamal* (6 villages), and *Bama* (11 villages). The population, estimated at approximately 196,285 (based on the 1991 census), is mostly rural, comprising mainly farmers and traders.

The Bama PHC Department had 6 functional units: Water and Sanitation, Guineaworm Control, Essential Drugs and Equipment, Disease Control, Expanded Programme on Immunisation (EPI) and Oral Rehydration Therapy (ORT), Maternal/Child Health (MCH) and Family Planning, and Monitoring and Evaluation (M&E). The department was responsible for the effective implementation and management of PHC programmes including the HMIS in 1 general hospital, 7 health clinics, 3 dispensaries, 2 maternal and child health clinics, 10 leprosy clinics, and 3 dressing stations.

HMIS Components

The concept used for the definition/description of the components of the Bama HMIS that were studied was adapted from the Donabedian Model (Donabedian, 1980)[5], which identified a health system as a 3-part unit made up of *structure*, *process*, and *outcome*.

Structure implies the quality and quantity of all resources used in the Bama HMIS but the study focused only on distribution of health facilities, distribution and qualification of workers, experience and training, arrangement of the organisation, management structure, policies, operating procedures and manuals, and record-keeping tools.

Process relates to those activities carried out in the process of data planning, collection, analysis, reporting, and use. This study focused on processes employed for identification of quality problems, and approaches used to ensure that standards are met such as supervision.

Outcome is based on the extent that changes in the HMIS can be attributed to preceding activities, and aims to measure attainment of the HMIS objectives. The study investigated outputs such as adequacy of data collected and accuracy; and perceptions on means of improving PHC.

PHC Managers

PHC Managers are the senior health workers responsible for planning and coordinating PHC services; and active in the collection, processing and use of health data in the PHC system. For this study of Bama LGA, all managers were eligible. The PHC Coordinator, the 6 Deputy Coordinators responsible for the six PHC units at the local government headquarters,, and the 18 officers responsible for managing the various health facilities within the LGA, were included in the study.

A pre-tested, semi-structured questionnaire was employed. It comprised eighty-one questions: questions 1-33 covered issues relating to *structure*; questions 34-48 comprised elements of *process*; 49-55 centred on *outcome*; while the remaining questions investigated issues on inter unit/departmental integration, computerisation of the MIS, and general views on the functionality of the entire PHC since its devolution to the LGA.

One Facility Officer and one unit co-ordinator participated in pre-testing the questionnaires.

RESULTS

Eighteen (18) of the 25 questionnaires administered were returned and used for analysis, representing a compliance rate of 72%. The cadre of the respondents is shown in Table I; most of them were Community Health Assistants (n=8, 44.4%). The number of years of service ranged from 1-27 years. Length of time in current managerial position went from less than one year (3 persons), 1-5 years (9), 6-10 years (2), 11-15 years (3), and 16 or more years (1 person).

Structure

The distribution of PHC facilities against the number of villages in each of the 4 health districts in Bama LGA is displayed in Table II. Only Bama District

recorded a general hospital which is however a secondary health facility, which appears to make up for the relatively fewer number of PHC facilities to population size. However the oral reports from the health managers did not tally with archival data on the *total* number of facilities available in the districts 10 versus 15 (excluding the ten Leprosy Clinics). The respondents reported that over 35 skilled and 49 unskilled staff man these facilities. In addition to these, 97 Village Health Workers (VHWs) and 105 Traditional Birth Attendants (TBAs) were reported to serve the communities. Majority of the respondents (n=11) believed that this level of staffing was inadequate, while the rest seven (7) said they had enough staff. Regarding training specifically for the interviewees, 4 had had general training on medical records, 5 (27.8%) had training specific to completing HMIS forms, 3 reported only having the general health care training, while 6 respondents did not specify.

There are several data collection tools used at the PHC level ranging from home-based personal health cards for adults and children used by VHWs to Books 2HF 1-8 containing 27 forms used to record activities at the health facility level. The maintenance, over a 4-year period, of the health facility register, the most vital information storage system at the facility level was investigated. All the managers reported that the health facilities had up-to-date registers that were in good condition for the study year (1993), but only half of them (9) could account for 1992 registers, just four (4) for 1991, and two (2) for 1990. The health facility officers gave numerous reasons for the loss or non-availability of past registers as follows: eight (8) of them said they were new to the facility and so could not account for past records; six (6) persons reported that old registers were discarded - *one officer said past registers were used to wrap drugs for patients*.

Availability of other basic materials needed for the local MIS was also explored: none of the managers reported a health facility that had a copy of the requisite M&E manual guide to HIMIS, and less than half reported that they had data collection forms. Five (5) of the managers acknowledged that required materials (including pens, pencils, paper, and forms) were always available, 10 said sometimes available, 1 person, rarely available, while the rest two (2) gave no response.

Process

In terms of *timeliness* of reports, 38.9% said reports were always on time, 38.9% reported that submissions were usually on time, 11.1% said sometimes, 5.5% rarely timely, and 5.5% gave no response. A number of possible *factors that contributed to delay in repor*t submission were explored: lack of transport 35.5%, bad road 16.1%, and scarcity of forms 9.7% Table III.

Most respondents (72.2%) *supervised* their workers monthly, 11.1% rarely supervised workers, 5.6% conduct daily supervision, and 11.1% offered no response. Eight (8) of them reported that they conduct staff *meetings* regularly, and seven (7) admitted that meetings were not regular, while 16.6% gave no response. Regarding *interval of staff meetings*, it was reported that meetings were held with staff monthly by 38.8% of the managers, 27.7% said quarterly, 11.1% weekly, and 5.5% annually, while 16.6% gave no response.

Outcome

Accuracy is a quality characteristic of good information, and refers to the degree information is free from error, the more accurate the information the higher its quality and the more managers can rely on it (Adindu, 1995)[1]. Six (6) of the managers reported that data collected were always accurate, another six said usually accurate, one person respectively reported that collected data were sometimes accurate, and never accurate, while four (4) of them offered no response. The managers were tasked on how they *assess collected data for accuracy*; 38.8% reported that they simply go through submissions by their officers, 27.7% reported that they double-check by comparing the reports with facility records, and 33.3% gave no response.

Computerisation of Rural Management Information System

Eight of the respondents were of the opinion that computer/computerisation was *not* necessary for rural PHC information system, while six (6) said it was necessary, and four (4) gave no response. Some of the *advantages of computerisation* listed include accuracy of data, time saving, easy retrieval of information, use of data in health planning and management. Conversely, inaccuracy, improper management of the computer, inappropriateness for the LGA, difficulty in its operation, and the lack of qualified personnel were given as disadvantages. More than half of them (11) felt that the Bama PHC was not ready for computerisation, only 2 managers felt it was ready, and the other five did not respond.

Improving the PHC Management Information System

To improve quality of data processing, 33.3% said

there was need to establish proper record keeping system, 26.6% said training and motivation of staff, while others mentioned setting up a separate unit for data collection and processing, and the remainder said appointing an officer for data processing. To improve the PHC MIS in general, training of staff was reported as a measure by 32%, 20% mentioned getting feedback from higher levels, and 16% said making transportation available.

The opinions of the managers were also sought on whether the quality of the information system had improved since the PHC MIS was transferred to the LGA; 50% of them accepted, 22.2% did not, while 27.8% gave no response.

Table I. Cadre of Respondents

	n	%
Public Health Superintendents	3	16.7
Community Health Officers	3	16.7
Community Health Assistants	8	44.4
Community Health Supervisors	2	11.1
Registered Nurses	2	11.1

Table II. Districts, Population, and Health Facility Distribution

Health District	Population* & Village Units	Health Facilities
Bama	153,000 11 village Units	1.Bama MCH 2.Tandari MCH 3.Soye Health Clinic 4.Army Clinic *#Bama Hospital (secondary facility)*
Dara el-Jamal	8,000 6 village units	Health Clinic (1)
Woloji	52,000 11 village units	1.Woloji Comprehensive Health Centre 2.Kumshe Health Clinic 3.Banki Dispensary 4.Taramuwa Clinic 5.Bakari (not functioning)
Gulumba	10,000 8 village units	1.Kashimiri Clinic 2.Gulumba Clinic 3.Amchaka Clinic 4.Walasa Clinic 5. Bembem Clinic

*Based on the 1991 National Population Commission census

Table III. Factors that delay submission of reports

Factors	No.	Frequency (%)
Transportation	11	11/18 (61.11)
Bad roads	5	5/18 (27.78)
Scarcity of forms	3	3/18 (16.67)
No motivation	2	2/18 (11.11)
Inadequate supervision	3	3/18 (16.67)
Lack of skilled staff	2	2/18 (11.11)
No response	5	5/18 (27.78)

DISCUSSION

Results of this study show major gaps in the structure of the HMIS at the PHC level which is responsible for gathering data onward to the federal level that culminates in epidemiological and health information for the country. Health managers and researchers in developed nations understandably tend to emphasise greater attention on *process* of health service provision, while *structure* is taken for granted and presumed readily available.

In the Nigerian context and other developing countries, very basic equipments and resources (including human) and are often inadequate or not available. Weaknesses such as unclear objectives, inadequate training, limited understanding of value of data for local decision making, lack of basic materials, and lack of transportation demonstrated in this study, weakened and made HMIS ineffective. The situation is even bleaker today. The introduction of the National Health Insurance Scheme (NHIS) rekindles fears of imminent failure since it cannot operate effectively without effective HMIS. Director General of the NHIS was the National Coordinator of the NHMIS, and understands the need for effective HMIS.

Advocacy for computerisation is perhaps predicated on expected improvement of information in the system, but what is fed to the computer is what is given out; if quality of input is poor, certainly quality of output is poor, and the quality of the input depends on the people who collect, record, organise, analyse and interpret data (Gould and Merret, 1992)[6]. Well-articulated and delineated objectives relevant to PHC information needs in that context is a priority. Computer is useful after rural health workers have gained control of the information system, and use to it to enhance their work and not to fulfil needs for higher levels.

CONCLUSION

Finally, the information system is an inextricable part of the health system; the information system is only as good as the organisation it serves, if the structure and management of a health system are faulty, the information system will not be different.

Quality assessment must start foremost by understanding the quality and quantity of resources and basic materials available, and especially within the local context. Emphasis for intervention should be on strengthening information systems, starting with generating information for local use, and building local capacity to utilise derived information for daily planning, decision-making and management. These are enabling factors that would yield greater dividend before the

prospect of collecting data for upward submission to higher levels.

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