

## Health Information Utilisation and Decision Making in Tertiary Hospitals in Nigeria.

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### **Abstract**

*This study examines the health information utilization and decision making in some selected teaching hospitals. Clustered sampling with random selection of 280 principal officers/managers from the three University Teaching hospitals in the Southwest, Nigeria. Out of which 200 responded. The response rate achieved was 90.0%. Seven research questions were tested, the study found that health information were not adequately available and utilized, information availability and information utilization should influence the decision making of the respondents.*

*The study also found that there are some problems affecting inadequate health information and accessibility of health information due to lack of attention by the management.*

*The study therefore recommends that the board of management in these teaching hospitals should make a wide range of health information resources available for use of the principal officers/managers and the managers should intensify efforts in making extensive use of health information in their decision making, health professionals should be allowed to take decisions regarding his/her profession.*

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**Keywords:** Health Information, Utilisation, Decision making, Teaching Hospital, Southwest, Nigeria.

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### **INTRODUCTION**

The hospital is a complex organization, to achieve its ultimate objective of better patient care; the hospital has to be managed on scientific lines to execute the managerial functions of planning, organization, staffing, directing, coordinating, reporting and budgeting, there is need for availability of accurate, high quality health information, at the right place and at the right time. this calls for a health information system that can gather, organize, analyze, and summaries data into reports and assist in administrative audit and utilization review(White head,1991).

Information is the knowledge accumulated by people in different forms and from various sources. It can be used in making rational decisions by individuals, group of individuals, civic organisations, health institutions, governments and so on. The individuals, group of people, business organisations; health civic organizations, local, state, federal, governments need information for uncertainty reduction, for decision making in a problem solving situation, therefore, both the government and the governed need relevant and accurate information to perform various important functions (okwilagwe 1993).

information reduces the users level of uncertainty in a particular decision making. information is the suggestion or processing of data to provide knowledge or intelligence, information is concerned with ideas and the using of it is a complex process, which includes taking in and giving out. Ideas can be in the form of some laid down facts, opinion, reasoning, or emotion. These ideas will hen have to be put into the meaningful form and finally expressed in a language which is understandable to those for whom it is intended (Aiyepetu 1992).

oxford English concise dictionary (1984) defined information as "informing knowledge desired, items of knowledge, news on, or about tracing of information study group, theory, quantitative study of information by signals".

according to the national health policy (1988), the planning, monitoring and evaluating of health services are hampered by scarcity of reliable data on a national scale.

The basis of health service are also hampered by paucity of reliable health data on size structure and distribution of the population, hence it is difficult to calculate, the simplest indication of crude death rate, crude birth rate, mobility and mortality statistics. Health information is required for the following aspects of National health policy(1988).

1. National Health care system: this refers to the three levels of health care deliver system i.e Federal, state, and local governments.
2. National Health Strategy: The primary health care is the only strategy for achieving health care for all
3. National Health System Management: They are set up to coordinate, supervise and integrate all health information system:
- 4: National Health System: this is a system set up to provide information on national health information system from various sources.
- 5.National Manpower development: this involves the organization of workshops and seminars, to build the capacity of health personnel.
6. National health research: this involves the conduct of research in to nations health problems.
7. National Health Technology: the appropriate use of trained teaching and medical professionals in the process in the process of bringing health care to the door step of the citizen.
8. National Health care financing: the appropriation of funds for the current expenditures and working capital for health care development.

The information needs of the above listed would bring development for the overall social and development of the community. The key and leading thought to national Health information system, as contained in the national health policy states that the effective management of health service demands the establishment of a national health information system. Basic demographic monitoring of health services simple but efficient information system shall be established and supported to grow both in quality and quantity.

The national health management system (1996) defines health information system as a system

setup to provide information from various sources used to derive information about health status, health care provision and use of service and their impact on health. the national health policy (1996) asserts the need for it to provide social research, to determine reaction of target population to governmental policies and action in the health economy of the country. social research requires the supply of adequate health information. The interest in health information management science is not to acquire knowledge for the sake of knowledge, but to place health information in its various forms, sizes, and dimensions; it helps to enhance health institutional performances through an efficient allocation of scarce resources. it also deals with the subject area of social indicators for monitoring and evaluating of policy formulation, implementation, appraisal and operational activities of the government.

The framework that can link Health Improvements and Information Technologies is the National Health Information system because they are in a dynamic technological era where dramatic transformations in information and communication technologies offer innovative and unprecedented opportunities for health improvements on a national and global scale. The health information system enables the health care provider to have access to the patients health information: peer group (ward round consultations), and support services, greater choice of care: tracking of health histories over a lifetime: and increased accountability for quality and costs. new electronics tools such as automated reminders and decision support systems will encourage patients adherence to treatment and health maintenance plans and improve the quality of care, A national health information system must serve the public as well as professionals and support informed-decision-making across the full spectrum of health needs at all levels. The content of the health information system includes clinical, population, and personal data, practice and guidelines, biomedical, health services, and other research findings and patient health information.

Currently health information is stored in many locations. The information system is seeking ways to connect that information where links are appropriately authorized by law and patient permissions are protected by security policies and mechanism. In effect, the content moves beyond data to information and ultimately, to knowledge based on analysis and experience.

Huffman (1972) defines health information utilization as the use, reviews, evaluating and analysis of medical care to assure quality and efficiency of health services.

Barnard (1979) opine that the skill of many medical and paramedical specialists are jointly involved, which entails the use of written communications and prompt recording of all findings so that a complete health information of care and treatment of the patient will be available to any clinical concerned with the care of the patient. Good medical care means good health information, and inadequate health information often reflects poor medical care.

According to Hull (1994), decision making, is a conscious process of making choices among one or more alternatives with the intention of moving towards some desired state deviation between the current and desired situation. it is the gap between 'what is' and "what ought to be". A problem is a situation that could prevent an organization from reaching its goal. Simon (1990) asserts that the organization as a system emphasize the need for information and channel of communication, in order to assist effective decision making in a comprehensive approach to problem analysis and innovative thinking in developing solution strategies ( Anard 1979).confirmed that patient care, by its information-intensive nature, involves extensive

information processing for decision-making and requires the support of an effective and efficient information system. it also requires an information system that helps match resources to need and demand, ensures efficiency in delivery of sources and planning and implementation of priorities.

Moehr (2000),described health information science as the study of how health data are collected, stored and communicated, how those data are processed into health information suitable for administrative and clinical decision making, and how computer and telecommunications technology can be applied to support those processes, the Health records officers/managers learn to identify what information and data are needed by doctors, other hospitals administrators, government planners and other health care professionals and how they are used in order to make effective health care.

Health information is a concept aimed at all levels of health care and the sharing of technical and scientific information by personnel participating in health care delivery. it must include accurate and complete data, ranging from socio-demographic data, to morbidity. Health information forms an integral part of the national health system and it is a basic tool of management as well as key input to the progress of any country. the provision of better management for quality care, for all levels of health care system can be effectively achieved, only if there is a well articulated organized and efficient health information which can be used to monitor health of the population, as well as to provide accurate, adequate, and timely information for management decision making at every level within and outside the health sector (Agbalajobi,1989).

However, Herdman (1993)) asserts that health information and the medical records reveal some of the intimate aspects of an individual's life. In addition the medical record includes the details of persons family history, genetics, history of diseases and treatments, history of drug use, sexual orientation and practices, and test for sexually transmitted diseases, subjective remark about a patients demeanor, character and mental state, are sometimes a part of the record. The medical record is also the primary source for much of the health care information sought by parties outside the direct health care delivery relationship. These data are important because health care information can influence decisions about an individual's access to admission to educational institutions, and his/her ability to secure employment and obtain insurance. inaccuracies in the information or its improper disclosure can deny an individual access to these basic necessities of life and can threaten an individual's personal and financial well-being. At the same time, accurate and comprehensive health care information is critical to the quality of health care delivery, and to the physician/patient relationship. Many believe that the efficacy of the health care relationship depends on the patients understanding that the information recorded by physicians will not be disclosed. Without these assurances, many patients might refuse to provide physician with certain types of information needed to render appropriate care.

Barnette (1990) asserts that the patients' record's the principal repository for information concerning a patients health care. It affects in some way virtually everyone associated with providing, receiving or reimbursing health care services, despite the many technology advances in health care over the past few decades the typical patient record of today is remarkably similar to the patient record of fifty years ago. This failure of patient record to evolve is now creating additional stress with the already burdened national health care system as the information needs of practitioners, patients, administrators, third- part payers, researchers and policymaker often go unmet.

Lindberg (1979) described medical information system or a patient record system as a typical information system which handles both the administrative and clinical functions, or the set of formal arrangements by which the facts concerning the health or health care of individuals patients are stored and processed in computer. According to the national policy of health information (2001) health information management is defined as an organised collection of people, procedure, database a device used to provide routine information to decision makers. the health information management can be grouped into three categories.

Health Information System, Disease information, Clinical support services

Health information

These are the patient personal, physiological and clinical information that are recorded in the patient's medical case notes during the period of treating a patient, such as individuals patients identification, attendance data, admission data, discharge /death/transfer data, appointment data, other services department.

Disease information

The following are the morbidity data that is the information relating to the different types of diseases occurring and the types of care given in the hospital- statement of diagnosis, severity of illness, treatment and procedures, health care providers, outcomes of treatment and care.

Clinical support services

The following are the services that other specialists in the hospital, performs in the process of contributing to patients care; they are Laboratory services, pharmacy drugs and chemical services and other Nursing patient care, radiotherapy services, operating theatre, physiotherapy services, Medical rehabilitation services, radiology services, laundry services, catering services, Administrative support services.

Adequate health information is essential in order to evaluate some indices/rates from the following records:

- Birth and death records system: These are records showing the arrival into live and departure from life.
- Immunization records system: they are records showing the immunization status of a child.
- Occupational health records system: they are records indicating some occupation that are hazardous to people.
- Family health records system: they are records that store health information concerning a particular family.
- Patients billing health records system: they are records showing the data of admission, date of the discharge, types of operations, for the purpose of computing the cost of health services received by the patient.
- Health monitoring and evaluation health records system: it involves adequate follow up of

patient health problems and assessment of health services rendered to the patient.

- Accident and emergency health records system: it involves the incident report of the occurrence and the prevention against the reoccurrences of such accident in future.
- Ambulatory health care system: these are methods of out-patient services attended to within the hospital walls.
- Hospitals services administration health records system personnel and financial records of the organization.
- Medical and health insurance health records system: it entails accurate documentation of patients health information for registration with the National Health Insurance.

The National Health Policy (1996) asserts the need for it to provide social research to determine reaction of large population to government policies and action in the health economy of the country. Social research requires the supply of adequate health information.

case studies (selected teaching hospitals)

The organisational structure of a teaching hospital has a pyramid with three levels of management like other organisations. They are top-level management, middle level and lower level management. The top level management is called strategic management. They provide the organisation with the overall directions, formulate hospital policies, formulate hospital policies, direct, supervise and control the administration and facilitate the execution of the functions of the hospital, Members of the board include representatives of various interest-group, the community, the federal and state Ministries of health, the professional groups (Nigeria Medical Association and so on) and the University where the teaching hospitals resides. The Chief Medical Director, the chairman Medical Advisory Committee and the Director of Administration is the Secretary to the board. The strategic level disseminate information which consists of its strategic goals and directives, on how to meet the objectives of the organisation, downwards, to the middle level which is the middle level which is the tactical level. The middle level which is also called the tactical Management level, are involved in the development of the goals and strategies outlined by strategic management level.

The category of the officers that belong to the middle level group are Directors, Assistant Directors and heads of Departments of various hospital health professionals in the hospitals. They are members of the medical advisory committee. Te tactical level of disseminates information that occurs horizontally across to the functional department and work team in another unit, they have information that could assist other departments in performing good health care services to the patients, this includes direct supervision, coordination of different units, information on admission and discharge procedures, accounting procedures, procedures for requisition of drugs and supplies, purchase of hospital equipment, building and expansion of wards and so on.

The lower level is otherwise called operational management level. This level is concerned with the management of the work process and direct the day-to-day operation and implementation of the goals and the strategies of the organisation. They are senior hospital staff in the various hospital departments.

The operational level processes and disseminates information on the current situation of work and the state of the organisation, based on daily transactions, upward to the middle level.

The availability of health generated and utilised for effective performances of the state of the organization, based on its daily transactions upward to the middle level enhance effective decision-making and facilitate the accomplishment of planned objectives.

This study covers the top level management which is also called the strategic management level. They provide directors for the organization, formulate hospital policies, control the administration and functions of the hospital, and disseminate information to the tactical level.

#### Principal sources of health data and information

The health information and vital data can be obtained from the following principal sources on a regular basis for planning, monitoring and evaluation, medical research and administrative purposes.

- Population and household census
- Vital events register, births, deaths, marriage legal regulation and statistical records.
- Routine health service data, mortality, morbidity, immunisation, disease treatment, outpatient attendances etc.
- Epidemiological surveillance data covering notifiable diseases and indication of disease incident and prevalence.
- Disease register for specific morbidity and mortality from cancer, sickle cell disease, handicapped persons etc.
- Budgetary allocation data cutting across the three tiers of government.
- Community surveys on local health incidences.
- Register of Health institutions and health personnel.

#### Importance of health information

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Health information collected from various sources i.e community, local, state and federal, government NGOs, private and public health services can be put to many uses, particularly after it has been properly analysed and integrated. Often, it needs to be disaggregated by geographical location, social group, occupational group, age, sex, disease, etc. the following are among the more specific uses of health information.

- to assess the state of health of the population
- to identify major health problems
- to set priorities in health development on local, state and national levels target.

- to provide indicators for evaluating the performances and impacts of health services.
- To provide information for decision making.
- Helps in the formulation of national health policy.
- Provides information to draw profile of community by age, sex, diseases, mortality and morbidity.
- Provides a surveillance system that can be used to recognise, diagnose and control at an early stage of disease outbreak.
- Helps in the development of Essential Research Programme (ERP).
- Helps in the elimination or reduction of deficiencies in the quantity of care.
- Provides revenue of data and timely access to information for quick intervention.
- Help to increase output and population coverage.
- Provides basis for medical handling and more efficient use of resources.
- Improves standard of quality of health care.
- provides useful sources of information for health workers.
- Increase in acceptability of services from the community and,
- Promotes greater and more efficient involvement of the community in planning decision - making and management.
- Helps in the allocation of funds, resources and distribution of health facilities.
- Helps to evaluate the utilisation of health facilities and services rendered to the community.
- Provides basis for medical auditing.
- Helps to direct policy makers towards appropriate use of health technology for delivering health care services.
- Provides relevant information for training and developing the skills, the acquisition of new innovative scientific breakthrough by health professionals through seminars, workshops and conferences.
- Provides data for computerisation, networking and sharing of health information.
- Provides data for planning and programme implementation.

Patient health records provides reliable health information for the identification of problems and deficiency in the services as well as alternative solutions and finally take the best decision that will solve the problem.

Challenges facing health information management



The federal ministry of health (2003) field studies to a representative number of states ministry of health and local government health departments revealed the following constraints.

- Inadequacy of funds, due to the absence of specific budget for HMIS at all levels of health care.
- Shortage of qualified staff at all levels of healthcare thereby hampering the collection of health information.
- Shortage of materials, the basic facilities for health information collection, compilation and management are not always available.
- Transportation difficulties often prevent immediate forwarding of the returns for processing.
- Inadequate coordination of health data flow. there are multiple channels of information with little interaction, collaboration or coordination.
- Inadequate knowledge of the role of health information to planning and programme implementation.
- Complexity of data collection and non-uniformity of forms, forms are filled at all levels of government, many of these forms are too complex for a health worker with other primary job-function.
- Lack of feedback in the data collection system. results of data generated and collected from the health centre to the FMOH should be sent back to all the channels to ensure that the data are used and to appreciate their performances at each level.
- Lack of processed data. there is a backlog of unprocessed data publications on health analysis which are usually many years behind.
- Lack of motivation to the health records officers that are generating and collecting the information in terms of training, local and foreign skills acquisition and managerial use of data.
- Lack of standard ease(disease) definitions.
- Lack of clarity with regards to data submission and responsibilities
- Inadequate quality control measures
- Inadequate and ineffective staff training in data analysis, interpretation and use at all levels.
- Mix-reporting of conditions.
- Poor understanding of data because they are not introduced in a non-technical language and graphic forms.
- Low confidence and acceptability.
- Weak monitoring, evaluation and managerial capacity at the periphery.
- Absence of a strong central coordinating institutional framework

- Overdependence on external assistance for the development and sustainability of the health information system causes the collapse of significant components of the natural HIS (e.g, the loss of USAID support).

- Lack of computerisation and networking of the nations health case delivery system.

- Lack of political will to fund the health information system at all levels of care and to recognise the importance of health information in planning monitoring, programme implementation and evaluation.

#### Computer Applications in Health information management

One of the most significant activities of the health care industry is health information management. Enormous amount of health data is collected about patients for storage and analysis. or this reason, information technology is an extremely useful tool for the healthcare industry. clinical information about patients will be stored and transmitted electronically, instead of the paper records kept by health records officers/doctors.

According to Afuye (1996) no meaningful health information computerisation of health information department i.e Medical records department.

The computerised health information system develops an overall plan for an integrated system, A particular phase of the integral system can be computerized in a planned sequence. An up-to-date record is to be made available so that inquiries may be answered with timely and accurate information, this reduce duplication and inconsistency and makes possible sharing of information.

Roger (1990) asserts that the health care industry is currently moving toward linking institutions through a proposed information infrastructure and communications network. Linkage would allow transfer of patient data from one care facility to another to coordinate services, and would allow collation of clinical records of each patient overtime among providers and at various health sites to provide a longitudinal record, one that from cradle to grave or birth to death in view of patients health care history.

as a result of the linkage of computers, patients information will no longer be maintained, accessed, or even necessarily` originate with a single institution, but will instead travel among a myriad of facilities.

The institute of medicine USA (1997) stated that electronics health records HER contain all health information generated by all the health care providers an individual interacts with during a persons lifetime. Each interaction will result in an incident report that reside in a system. A computer-based patient record (CPR) is an electronic patient record that resides in a system specifically designed to support users by providing access to complete and accurate data, alerts, reminders, clinical decisions support systems, links to medical knowledge and other aids.

The EHR also contains the underlisted:

1. The EHR contains a problem list that clearly delineates the patients clinical problems and the current status of each.

2. The EHR encourages and supports the systematic measurement and recording of the patients health status and functional level to promote more precise and routine assessment of the outcomes.
3. The EHR states the logical basis for all diagnosis or conclusion as a means of documenting the clinical rationale for decisions about the management of the patients care.
4. The EHR can be linked with other clinical records of a patients from various settings and time periods to provide a longitudinal (life long) record and events that may have influenced a persons health – a concept of a longitudinal record of patients health and health care from cradle to grave.
5. The EHR system addresses patients confidentially comprehensively, particularly ensuring that the EHR is accessible only to authorized individuals.
6. The EHR is accessible for use in a timely way at any or all times by authorized individuals involved in direct patient care.
7. The EHR system allows selective retrieval and formatting of information by users.
8. The EHR system can be linked to both local and remote database and systems so that such information is readily available to assist practitioners in decision making.
9. The EHR support structured data collection and stores information using a defined vocabulary. It support direct data entry by practitioners.
10. The EHR can assist and, in some instances, guide the process of clinical problem solving by providing clinical with decisions analysis tools, clinical reminders, prognostic risk assessment and other clinical aids,
11. The EHR can help individual practitioners and health providers institutions manage and evaluate the quality of costs of care.
12. The EHR is sufficiently flexible and expandable to support not only today’s basic information needs but also the evolving needs of each specialty and sub-specialty.

The national health management information system.

Revised national health information system (1996) states that:

“the availability of accurate, timely, reliable and relevant health information is the most fundamental step toward informed public health action”. Therefore, for effective management of health and health resources, government at all levels have overriding interest in supporting and ensuring the availability of health data and information as a public good for public, private and NGOS’ utilisation. The role of government must extend to ensuring and strengthening relevant organisations.

Structures for health management information system for planning, monitoring and evaluation, as well as the health policy emphasise on the procurement and installation of appropriate information technology staff training and collection, storage, analysis, dissemination and use of health information as well as in financing essential system and biological medical research.

The establishment of an effective national health management information system by all the governments of the federation serve as a management tool for informed decision making at all levels. Government has the responsibility to collect, analyse and make available information on health status, health behavioural risk practices, prevention and containment of epidemic

outbreaks, and support for essential national health research. Government should facilitate standardisation to ensure cooperation and coordination among agencies be it public and private and make information available to the communities and individuals for choice in matters relating to their health.

The establishment of a national health information system by all the governments of the federation to be used as a management tool for the health sector. Thus the medical statistics and health information system activities have evolved as part of the department of planning, research and statistics in federal ministry of health.

Health information and medical statistics supports operational research and planning. As a result of neglect and underfunding over the years, the national health information management board suffered a lot of setbacks and could not meet the objectives for which it was set up, that is to provide an efficient basis for planning, management and evidence-based decision making. The totality of all health information sources make up the national health management information system. The NHMIS involve the articulation, establishment and development of the systems constituent parts, including the provision of appropriate infrastructures to make the system function optimally at all levels. The federal national health management information system unit is at the apex of the national health information system and provides a focal point for coordinating health information activities nation wide.

#### Decision making concepts

Jefferey (1994) said that decision making is a conscious process of making choices among two or more alternatives with the intention of moving towards some desired state of affairs. A problem is a deviation between the current and desired situations. It is the gap between “ what is” what ought to be” it can prevent an organization from reaching its goal.

Cole (1986) said that decision making is an accepted part of everyday human life.

An individual make decisions on the spur of the moment or after much thought and deliberation, or at some point between two extremes. He stressed further that our decisions may be influenced by emotions, by reasoning, or by a combination of both, feelings, interpersonal, relationships and considerable time and effort may be spent in assessing problems, developing alternatives solutions and evaluating their consequences before arriving at an agreed decision. Managerial decision making tends to be rational in its approach.

#### Factors Influencing Decision-Making

The factors influencing decision-making are as follows:

- (1) **Information:** Generally, information is used to reduce the degree of uncertainty in a decision situation. Information about alternative courses of action, about the resources available, morbidity and mortality rate in the country or organization plays an important role in the quality of decision. Therefore, the decision maker should acquire the necessary information before making a final decision. The more information that is available, the degree of uncertainties associated with the decision-making process.

- (2) Time: Cost decisions made by management are relatively complex which require a great deal of time, in such decision-making process insufficient time to study a situation may lead to a hasty and costly decision.
- (3) Capability of the decision-maker: The more experienced and capable the decision-maker the better is likely to be the quality of the decision.
- (4) Organization Culture: This is the pattern of basic assumptions that a given group has invented, discovered or development or developed in learning to cope with the problems of external adaptation and internal integration. It is the culture that sometimes shapes the beliefs and behaviors of organizational members and also influences the decision-making process. The more rigid the organizational culture the easier the decision-making process.
- (5) External Environment: This consists of those variables which are outside the control of the decision makers, but which can influence the quality of the decision. Such as economic situation; technological development; sociopolitical factors, and the natural environment.

## Conceptual Approach

### Review of Literature

#### Health Information

Hull (1992) said that access to health information provides knowledge of services available, expand the capacity for easy care and use of preventing measures, help people know when external assistance is required and build the confidence people need to effectively seek out and use available health care. The Federal Ministry of Health (1988) agreed that there is need for collection of data since health information should be disseminated to all individuals and communities to enable them to have greater responsibility to their health and well-being.

Henshaw and Imoh (1990) agreed that there is need for collection of data since this data go back to the people in form of messages. So this calls for proper education of patients, proper information organization of data, updating demographic information which are all important to improve the health system. Epstein and Kurtzig (1994) in supporting this point, revealed that by early 1994, 38 states in United States of America had invested in data collection, analysis and dissemination on the use, performance of hospitals, costs effectiveness, to control cost, encourage prudent purchasing, monitor effectiveness and outcomes of health care, guide health policy and promote informed decision making.

Read-Fourquert *et al* (1994) emphasized that establishing a private health care network with a single entry to the point to the internet should be adopted while Mitchel (1994) advocated for an information therapy which is a new term for supplying patients with health information that will enable them to make informed decisions about their health and well-being and thus, decrease the utilization of health care resources.

Ayede (2006) said that health information is a mechanism for the collection, processing, analysis and transmission of information required for organization and operating health care and research services. He further said that the primary objectives of Health Information System is to provide

reliable, relevant, up-to date, adequate , timely and reasonably complete information for health managers at all levels of health care delivery system.

Fatiregun (2006) said that Health Information is a combination of people, equipment and data collection and processing methods coordinated to produce information in support of planning, decision making and management of a health care system. Olumide (2006) stated that health information management system is a collection of database, personnel, procedures and instruments which are organized to develop and utilized to become information which will be used to facilitate decision making, they are made operational by indicators. Indicator is a measure of performance which enables the assessment of progress toward attainment of achievement.

Aduroja (2006) stressed that patient record is the vehicle for communication of clinical information. A patient may receive attention from doctors, nurses, radiographers, pharmacy, laboratory. The health information data are gathered by health information managers from various hospital department. Clinical and financial information are usually to be integrated for proper cost analysis and for evaluating the efficiency and effectiveness of health care.

Paietta (2000) stated that there is a variety of life event information available on the internet such as illness, caring for an older parent, bereavement, death and diagnosis, the health information managers are the important link in keeping and maintaining such information, and within the health sector, the choices made in detecting health problems, defining priorities, identifying innovative solutions and allocating resources to improve health outcomes.

Bernhard (1900) said that countries that have a weak health sector are made so because they have weak health information. Harron (1996) stated that some donor agency are interested in disbursing funds only to countries that provide reliable health information, many countries are ill-equipped in the field of health information. Oyeyemi (2006) stated that Information Technology (IT) supports for health care centers begins with health records system which brings about the increase in the quality of medical records in term of completeness, legibility, standardization, improved communication between health care providers and patients and easier continuity of care, appropriate care and follow-up are facilitated, easier retrieval of information, appointment scheduling systems, and prescription system becomes logical. Furthermore, medical audit becomes easier, and accurate clinical research is facilitated by improved data collection and automatic analysis, while the accuracy and timeliness of national health statistical information improves.

White (1997) opined that current health care industry infrastructure suffers from deeply entrenched paper-down processes with limited access to information which hampers the ability to manage, monitor or reengineer clinical and business processes.

### **Health Information Availability**

Ogbewe (1997) said that the availability of reliable health information is important for the development of health care research and education as well as for planning and implementing government health programmes. This is valid for both developed and developing countries. However, developing countries, due to absence of consistent information policies, weak information resources, absence of political will, cultural influence and lack of necessary

technology and communication resources face enormous challenges to create the conditions to make accessible relevant information's at all levels.. Airhiebuwa (2000) asserts that for health information to be available there must be a well-established machinery and methodology for its effective collection, collation and analysis. The objectives of any health information system are to ensure availability of basic demographic data on registration of birth and death as well as showcase available health status indicators. He stressed further that the developed countries of the world can show-off their information data as an index of achievement, while Nigeria as a developing country is yet to attain the desired level of effectiveness. To achieve a sustainable growth rate, the process is evolving in stages beginning with the compressive health centers, primary health centers dispensaries and maternity homes, private practitioners' clinics and designated location for registration of birth etc., in the local government areas. States and federal governments support these efforts in order to improve the quality of volume of information gathered, and utilize or available channel to obtain, collate, analyze and interprets health and released data on a national scale.

Minimum categories of indicators are required for effective monitoring and evaluation of the level of health care availability, such as health policy indicators, utilization of health care facilities with legislative backing and enactment of 5% of Gross National Product (GNP) to the provision of health care in the country. The health status indicators are:

- National status as indicated by weight of babies at birth.
- Weight measurement of infants and children in relation to age.
- Child (1-4 years) mortality rate.
- Crude death rate – Crude birth rate.
- Life expectancy at birth and at 5 years of age.
- Total fertility rate.
- The Socio-economic indicators are.
- Rate of population increase – Gross Domestic Product (GDP).
- Income distribution, work conditions, adult literacy rate by sex – availability of food, housing etc.

The indicators above show the level of well-being of the population and expose any inadequacy within the health care system for managerial action.

Rogers (1990) stressed that availability of accumulated health information enable providers to develop optimal approach to care, therefore substantial reliance on telecommunications and information technology reduce costs and improve health care delivery through the process of health information linkage and exchange of information.

Islein (1990) stated that available and accessible information can be used to make decisions. Decision involves the ability to know enough about the various possibilities. They probably would not be to choose between different options without knowing something about them. Lebon and Arnaud (2001) argued that information accessibility and utilization enable decision makers to understand the decision being faced and the situation it is located in. without this understanding, any attempt to make managerial decisions is likely to be flawed through making error about what the situation is really like.

Bekerinsterin (2003) said that information availability and utilization usually aid wise decision making, this shows that one must not ignore its importance unless we risk both missing our information values and allowing them to distort our view of the situation, the problem, what matters, our opinion and ability to implement managerial decision. It should be noted that information availability improves managerial decision. Creative thinking is the generation of thoughts, ideas, at different stages in the process of decision making.

### **Health Information Accessibility**

David and Wave (1988) stated that information must be shared among the multiplicity of health care professionals who constitute the health care team. These professionals represent the health information managers, the physicians, nurses, dentists, therapists, pharmacists etc.

Bronson *et al* (1978) confirmed that patients may also have access to records. Some providers advocate greater patient input into the process of care through patient identification of preferences among treatments. Rogers (1996) proposed a smart card as a means of to computerized and maintain health care information. Smart card can function to store information, which can be accessed when carrying out security function to maintain a more secure and efficient access control system for health care information.

Patrice (1995) said “The information age has already arrived, but most organizations are woefully unprepared making it easier for perpetrators to steal, spy, or sabotage without being noticed and with little culpability if they are”

According to the security of patients, releasing patient’s health information without the knowledge of the patient is regarded as intrusion or threat, therefore it has a great concerns over the privacy and security of electronic health information which fall into two categories.

1. Concerns about inappropriate release of information from individual organizations, and
2. Concerns about the systematic flow of information throughout the health care and related industries.

Inappropriate releases from organizations can result either from authorized users who intentionally access or disseminate information in violation of organizational policy or from outsiders who break into an organizations computer system. The systematic concerns refer to the open disclosure of patients identifiable health information to parties that may act against the interest of specific patients or may otherwise be perceived as invading a patient’s privacy.

Haynes *et al* (1989) stated that health care professionals routinely need access to appropriate compilation of thorough, up-to-date knowledge and advice to make prompt information decisions regarding patients care. Barnett (1990) asserts that providing high quality health care is an information process, indeed the practice of medicine has been described as being “dominated” by how well information is processed or reprocessed, retrieved or communicated.

### **Health information utilization.**

Huffman (1994) defined utilization as the evaluation and analysis of medical care to assure quality and efficiency of services and that in the modern practice of medicine the skills of



many medical and paramedical specialists are jointly involved. This entails the extensive use of written communication and prompt recording of all findings so that complete health information care and treatment of the patient will be available to any clinician concerned with the care of the patients. Good medical care generally means a good health information and an inadequate health information, often reflects poor medical care.

Bankole (1991) asserts that in a country where resources are limited and diminishing, and the population in need of health care is increasing, appropriate use of health care resources becomes a high priority exercise. Medical care audit system based on objective use of professionals, and peer groups as opposed to lay managers. He stressed further on a detailed and accurate recording of all relevant data on the basis of which clinical decisions are taken, on decisions for further investigation; therapeutic intervention or for patient education. A recording of the observed result of / or reactions to such decisions, form the only objective basis for making critical judgment as to whether such clinical decisions were right, effective or even appropriate considering the resources available and other variables that have a bearing on clinical management decisions. The greatest usefulness of Health Information is their more sophisticated form as a recording of the dynamic thought process leading to problem identification and problem solving in the course of the total care of a patient by all members of the health team. A computer-based committee report stated that administrators and managers of health care institutions require health information to manage the quality of care provided and to allocate resources (e.g. labour, supplies, equipment and facilities) according to the institutions patients' case, they link financial and patient care information to develop meaningful budget, measure productivity and costs and evaluate market position; long-term planning recruitment, acquisition and facilities development depend on anticipated trends in patient's health information population needs.

Institute of Medicine (1990) confirmed that utilization of health information is needed for quality assurance activities and for accreditation of hospitals by the Joint Commission on Accreditation of Health Care Organization (JCAHO). Institute of Medicine (1989) said patient health information is used to adjudicate claims for reimbursement made to third-party players which is an additional area of data needs. Patient data now are used for coverage decision (e.g. Pre-admission review) as well as for payment. Cost curtailment approaches such as utilization management rely on individual patient data for making short-term decisions, they also rely on aggregated data to make judgments about the effectiveness of medical services in the long-term.

The U.S. Public health service (1990) identified public health surveillance as a primary means of supporting the national disease prevention, therefore, data are needed to understand the health status of the country's population and to develop, administer, and evaluate public health programmes aimed at controlling and preventing adverse health events. The public health service report specifically mentioned data on:

Mortality, morbidity and disability from acute and chronic condition, injuries, personal, environmental, and occupational risk factors associated with illness and premature death, preventive and treatment service and costs.

Institute of medicine (1989) confirmed that today's clinical and health services researchers pursue questions on quality, cost, effectiveness, and appropriateness, therefore, efficacy and

safety are no longer sufficient criteria for assessing a technology whose purchaser also want to know. Whether it is effective and safe outside the controlled environment of clinical trials, whether it is cost effective and produces the desire outcomes.

Federal Ministry of Health Nigeria (NHMIS, 1996) NHMIS unit plan of action confirmed that indicators that point to the level of people's well being are the provision and utilization of health care facilities and the services rendered in terms of data gathered from the facilities. The utilization of Health care indicators are:

Information and education concerning proportion of population with access to main media outlets, and measurements of adult literacy activities to the community, food and nutrition, water supply and sanitation. and utilization of health care facilities and the services rendered in terms of data gathered from the facilities. The utilization of Health care indicators are:

Information and education concerning proportion of population with access to main media outlets, and measurements of adult literacy activities to the community, food and nutrition, water supply sanitation.

Family health indicators include proportion of children receiving child health services, proportion of pregnant women receiving antenatal, essential obstetrics and postnatal care, and proportion of eligible women receiving family planning advise. Immunization indicators shall include the percentage of children at risk who are immunized against the major childhood diseases. The incident of the six diseases in children under 5 years of age, and mortality rate to the six diseases in children under 5 years of age.

Prevention and control of epidemic and endemic diseases, indicators shall specify disease specific incidence and prevalence rate, mortality rates from communicable diseases, proportion of leprosy and tuberculosis detected, as well as under regular treatment and lastly vector indices. Treatment of common diseases and injuries indicators shall include proportion of cases of diarrhea in children under 5 years, proportion of fevers treated with chloroquine, proportion of respiratory infections treated with common antibiotics, proportion of malnutrition treated with supplementary feeds, and proportion of injuries or accidents treated by first aid or simple treatment.

Provision or essential drug indicators shall specify provision of essential drugs, vaccines, and supplies, standard drug lists and availability of such items. Coverage by referred system indicators shall state the proportion of the population in a given area with access to the services within five kilometers or one hour travel time, the proportion of referred cases who made use of the services and the availability of referral services e.g. pediatric, obstetric, surgical, medical etc, provision of mental health indicators, promotion of oral health indicators promotion of school health services.

### **Decision making**

Eugene (1986) said that hospital libraries are of crucial importance and lack of support for health information centres will have far-reaching consequences. Reduction in library support will hurt the physicians, patients and their families' in short medical information is a requirement for decision-making on cost effective delivery of health care. Cooper (1985)

stated that health care professionals need to keep up with current medical trends in order to make informed decisions on research, teaching and clinic practice.

Mutheson (1985) stated that a database management system could be developed so as to organize, package and deliver information to augment clinical decision-making and learning process. Calam (2000) stressed that the qualitative study of patients' health information obtained from clinical department of the hospital assist the physician to take decisions as to diagnosis and prognosis of patients' problem and to guide educational initiatives, residents and for family health practice. Swta (2004) stated that Health Information System provides decision-makers with information necessary to take effective decision. It allows the organization to create and manage innovative products and services quickly, effectively and efficiently. Sunjeev (2004) opined that the compliant and potential impact of today's health care crisis require a comprehensive approach to problem analysis and innovative thinking in developing solutions strategies. Patient care by its information-intensive nature, involves extensive information processing for decision making, it also requires an information system that helps match resources to need and demand, ensures efficiency in delivery of services and planning and implementation of priorities.

Prieditis (2000) said that a good decision is one of that maximize our future utility where utility is some measures such as profit or loss, pain or pleasure. Rodney (2000) stated that interdisciplinary communication about decisions on hospital policy facilitates high quality supportive care to patients and encourage patients dealing with hospitalization.

Opeke (2002) observed that decision-making will also be needed in some cases, to establish and maintain adequate monitoring and evaluation processes. An essential supporting framework for this to occur is the provision of knowledge and information on the cause and effect (target) relationships that operate in one's environment and the availability and access to information that adequately describe these relationships and enable monitoring and evaluation. The aim of these quality and information is that they are necessary for developing best practice and for the development of targets in the hospital. Horis and Demarking (1993) maintained that we are all individuals and the decision we make will suit our individual personalities, needs and satisfactions. That is, if information is made available, it will enable us to know whether we have given a lot of thought to our future prospect or not. This thought is designed to give us some practical assistance in making a quick decision, feeling that we are under pressure can actually make it more difficult to sort out ideas in ones mind. Therefore, decision-making can be a slow process if adequate information is not made available to the users.

Sanchez (1999) opined that if information is available, and totally, and dully utilized, it will make the job seekers aware that the employers are looking for functional skills (marketable skills) in anew graduate. Sanchez (1997) asserts that information communication allow decision makes to know that there are many personal skills or attributes which may be developed during their time in the organization, this includes the ability to work as a team, the ability to get on well with other people, competitiveness and a sense of direction to make good decision. Islein (1990) observed that the available and accessible information can be used to serve as a guide for a meaningful decision making by the medical professionals in the hospital. To make decisions, they need to know enough about various possibilities, any good information that is easy and utilized would help them to find out more about different

opinions, what make up the organization offers, they use the advice or information from others to form their own opinions.

### **Teaching Hospital**

Airhiebuwa (2000) opined that the teaching hospital is the apex of health care delivery system in the country. The Federal Ministry of Health is the supervisory agency. The teaching hospital is organized through the board of management established by decree or act of parliament to perform the following functions: to equip, maintain and operate the hospital so as to provide facilities for diagnosis, curative, promotive and rehabilitative services and medical treatment, to construct, equip, maintain and operate such training schools and similar institutions as the Board considers necessary for providing the hospital at all time with proper staff, to construct, equip, maintain and operate such clinics, outpatient, department, laboratories, research or experimental stations and other institutions as the board considers necessary for the efficient functioning of the hospital.

Graut (1973) said that teaching hospitals attract the cream of the medical professions that wish to work in the hospital environment. The staff tends to be more abreast of the latest development and improvement in medical care and science. They contain more specialist intensive units, they are frequently better financed. More research tends to be carried out at teaching hospitals with quick application of new knowledge to the benefits of the patients. Thorough instructions are to be given by the specialists to the medical students and junior medical staff, the standard of medical treatments will come closest to the standard of excellence, and therefore, the patient is likely to receive a higher standard of care in the teaching hospital

### **Summary of Reviewed Literature**

Health information should provide management with regular reports containing the information needed to support decision-making. The information managers and decision makers should interact to the extent that they form an integrated of the social system of the organization and not a distinct parastatal with different preparations of information needs and utilization within the same organization. Health Information utilization or non-utilization can be attracted to the prevailing understanding or relationship in a social-psychological sense between information generators and decision-makers. Again, lack of relevant health information dissemination in a relevant format to decision-makers, which ensure transfer or ideas, most frequently, occurs between a source and receiver for proper utilization.

In modern health institutions, the need for systematic and regular Management Health Information flow is regarded as central to effective decision making. It is desirable that there should be a convergence between the health information managers perception of the management information needs of their organization and the decision-makers' perception of the management information need of the same organization. Thus, health information generated should lay emphasis on the use to which the health information generated should be put so as to avoid undue concern with data storage or transmission at the expense of the decision-makers' information needs.

Adeleke (2003) said that decision-making is the genesis of all managerial actions and functions; it should be purposeful and oriented towards some goals and objectives. Health

Information Manager should rationalize the use of resources and efforts, thereby minimizing costs, while enhancing efficiency. Decisions are required to initiate actions effect changes, accept or reject propositions. Managers should make appropriate from the Health Information available to the organization, because decisions are the active ingredients that move organizations along a chosen path.

### Methodology

This study was carried out at the Tertiary Hospitals in South-West Nigeria. This study adopts the use of descriptive survey research design and the population consisted of all the 280 principal officers of the tertiary hospitals. A sample of 220 principal officers/managers were randomly selected from 280 principal officer/mangers.. Data generated through questionnaire were analysed using simple percentage distribution to analyze and answer the research questions posed in the study

### Findings

The study found that lack of attention by the management was responsible for the inadequate and inaccessible health information in the teaching hospitals, which can also lead to wrong priority, mismanagement of funds and mismanagement of patient care services. It was observed that lack of storage space, shelves and the inability to employ skilled: trained health professionals, causes poor health care delivery servicing in the teaching hospitals. The shortage of funds to purchase hospital equipment and maintain the department services resulted to ineffective health care services in the teaching hospitals. It was observes that restrictions of information by the top officers of the teaching hospital management widen the communication gap, promote speculation on management activities and makes it difficult to identify health problems in the teaching hospitals, furthermore, the availability of health information helps the management of teaching hospital to procure drugs that would meet the needs of the hospitals in terms of diseases prevalent in the teaching hospitals

Finally, it was observed that inadequate health statistics information causes mismanagement of funds in terms of purchasing hospital equipment, drugs, reagents and maintenance of department activities, then the vision or projecting the future needs of the hospitals. The analyses of the study were shown on Table 1 to 7 and research questions 1-7 below

The presentations were made on the frequency tables and were summarized as follows:

Research question 1: Do the teaching hospitals have complete health information?

Table 1: percentage distribution showing causes of incomplete health records.

Response	Frequency	Percentage
Inadequate information	48	24.0
Untrained professionals	40	20.0
Lack of fund	53	26.5
Lack of enough medical practitioners	29	14.5

Lack of equipment	30	15.0
Total	200	100.0

Table above shows that most of the respondents (about 70%) that is 26.5%,24.0% and 20.0% felt that lack of funds and information can be held responsible for the poor quality of health care services in the teaching hospitals because there are shortage of funds to purchase the hospital equipment, morbidity and mortality classification books for use in the health information management department, this has also led to the inability to appoint professionally trained health records officers, medical laboratory technologists, physiotherapists and so on.

This could cause some damages to the health of the patients due to wrong prescription and wrong diagnosis and could pose danger to the health system.

Research question 2: What are the Hindrances to the Availability of Patient Health Records?

Table 2: Percentage Distribution Showing Hindrances

Response	Frequency	Percentage
Lack of skilled health records officers	40	20.0
No computerization of patients records	31	15.5
Lack of storage space	66	33.0
Lack of shelves	63	31.5
Total	200	1000

Table 2: above shows that majority of the respondents (about 84%) were of the opinion that lack of storage space, and shelves can be held responsible for the misfiling and mislaying of patients records in the teaching hospitals and this had led to the delay in patients waiting time, overcrowding of patients records in the hospitals, and patients records scattered on the floor. Therefore, patients records become difficult to have access to, Also, lack of skilled health records because the technical knowledge and professionally trained health records officer that would put on a standardized health record practice and maintain the system is lacking thereby resulting to many inadequacies and bad professional practices.

Research question 3: What are the obstacles facing the hospital management in the utilization of the hospital health records?

Table 3: percentage distribution showing obstacles facing the hospital management.

Response	Frequency	Percentage
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Most managers rely on their Intuition	57	28.5
Restriction of health information by medical doctors because of their inadequacies	75	37.5
Pride or superiority complex	68	34.0
Total	200	100.0

Table 3 above shows the most of the respondents (about 71%) i.e. 34.0% and 37.5% opined that medical officers are restricted to health information because of their inadequacies and superiority complex. The implications to the hospitals is creation of a communication gap between the management and the hospital staff, and the reality and actual hospital activities that are happening on ground. The medical doctors cover their inefficiencies so that it will not tell on them when preparing for promotions and also save their image. This may be difficult in identifying the causes of a particular problem and providing solution to it.

Research Question 4: Why did the management not pay to the issues of Health Records?

Table 4: percentage distribution showing reasons for lack of attention to health records issues.

Response	Frequency	Percentage
They are biased	64	32.0
Failure to recognize the benefit that can be derived from health record	69	34.5
Consideration of some information as classical or strategic	67	33.5
Total	299	100.0

It was observed from table 4 above that most respondents (about 68%) were of the opinion that failure to recognise the benefit that can be derived from health records cause the neglect of the health information management department and the ineffective services that emanates from the department. The implication of the findings will result to inadequate health information for medical research, planning, monitoring and evaluation of hospital activities. Also, the classification of some information as classical or strategic would continue to widen the gap between the management and the hospital staff. The management should disseminate information necessary to improve the efficiency of the hospital staff and create feedback mechanism within the hospitals. The implication of the findings will result to wrong speculations about the management activities, lack of direction, which can affect the attitudes to work therefore leading to inefficient and ineffective services.

Research question 5: Are health information Utilized?

Table 5: Percentage Distribution showing utilization of health information

Response	Frequency	Percentage
Yes	43	21.5
No	157	78.5
Total	200	100.0

Table 5 above shows that majority of the respondents (about 78.5%) felt that health information are not adequately utilized because most managers in the teaching hospitals rely solely on their intuition or they prefer not to expose their inefficiencies and therefore save the image of the hospital. Health records reveal facts; it identifies problems and proffer solutions to health problems. This could result to formulating wrong policies, misplacement of priorities, mismanagement of funds in he teaching hospital services

Research Question 6: What are the Health Information Available?

Table 6: Percentage Distribution showing Health information Available

Health Information	Frequency	%	Percentage utilisation				
			Daily Y	Weekly y	Monthly Y	Quarterly y	Annually y
HIV/AIDS	20	10.0					10.0
Drugs	57						
Maternal Mortality	19	9.5					9.5
Cancer	6.4	3.2					3.2
Hypertension	25			12.5			
Diabetes	23					11.5	
Morbidity	17	8.5					8.5
Stroke	32.6	16.3					16.3



Total	200	100					
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From the table above, about 57.3% of the respondents agreed that health information on drugs were available on daily basis, hypertension on weekly and stroke on annual bases.

The health information available on various diseases treated in the hospitals either on daily, weekly, or annual bases enable the teaching hospital management to procure drugs on dangerous diseases mostly affecting the patients, so as to reduce the epidemic level. The implication of the inability to have enough health information about patients diseases and procuring the correct drugs could lead to malpractice, epidemic of diseases and poor services.

Research question 7: What are the importances of health statistical information?

Table 7: percentage distribution showing importance of health statistical information.

Response	Frequency	Percentage
For allocation	32	16.0
Foe adequate utilization of resources available	38	19.0
For planning and evaluation of health services	39	14.5
For providing adequate knowledge of health services required for decision making	26	13.0
To detect the high risk or dangerous disease group	15	7.5
To project into the future trend of the hospital activities	34	17.0
To reduce the morbidity and mortality rate of occurrence of disease/deaths	26	13.0
Total	200	100.0

The table above shows that 52% of the respondent felt that health statistical information is useful in the allocation of funds, utilization of resources and for projecting into the future needs of the hospital activities.

The available health information should guide the management when disbursing hospital funds in the purchase of hospital materials, reagents and maintenance of departmental services. It

also enables actual use of available workforce to the optimal level of productivity. It will indicate whether hospital staff are enough or not, the future need of the hospital can be projected from the available health information so that shortages or out of stock and inadequacies could be provided for on time. The implication of the findings is that, inadequacies, out of stock, irrational distribution of funds, wrong priorities and above all mismanagement will continue to rear its head where the importance of statistical health information is not felt.

### **Conclusion**

The following conclusions were drawn based on the results of the research findings. It was observed from the study the health information inform of medical journals, case notes, x-ray films, reports, medical dictionaries were not adequately available and utilized as the major source of information for decision making of the respondents in the case studies, information availability and utilization should influence the decision making of the respondents.

The teaching hospitals management should justify their decisions and actions based on the report of hospital activities on ground not on intuitive or other means, also, the board of management of the teaching hospitals should procure equipment that meets the World Health Organisation (WHO) standards, so that it can deliver effective health care services that is comparable with any teaching hospital anywhere in the world.

### **Recommendations**

Based on the findings of this study, it was recommended that:

- There should be provision of enough storage space in the library of the teaching hospitals.
- Computerisation of health records department should be encouraged by the teaching hospitals management,
- There should be provision of enough funds to print hospitals records, and stationery to run the clinic.
- Employment of skilled professionals and skilled staff should be done by hospital management board.
- Medical practitioners should be re-orientated on their professional ethics
- They should also be encouraged to practice in their area of discipline/specialisation and should be able to take decisions regarding their area of disciplines. The situation where the Chief Medical Director speaks or takes decisions on other department, in the absence of a department head should be discouraged.
- Other health workers should be allowed to rise to the top echelon of hospital management position where the decisions are made, that is other hospital departments should be allowed to head the hospital and should not be the exclusive right of the medical officers.
- Management should always create good rapport between them and their subordinates.
- There should be organization of adequate training workshops to enhance better productive and service delivery by the teaching hospital management boards.

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