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## INFLUENCE OF NATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM, ON THE PLANNING OF HEALTH CARE SERVICES IN NIGERIA

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**Authors**

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# **INFLUENCE OF NATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM, ON THE PLANNING OF HEALTH CARE SERVICES IN NIGERIA**

## **Introduction**

Planning, Monitoring and Evaluation of Health Care Services are hampered by the dearth of reliable data. The basic demographic data about the size, structure, and distribution of the population are unreliable on national scale. The system for the registration of births and deaths nationally is defective, and hence, it is not possible to calculate the simplest indicator like crude birth rate, crude death rate, and infant mortality rate. The state of health of the population is assessed on the basis of scanty information, which has been collected in a few limited surveys and research studies. The Health Services at the national, state and local government levels cannot be managed efficiently, on the basis of the available data.(National Health Policy, 2004).

For effective planning and management of health care services, efficient National Health Management Information System (NHMIS) is required. The National Health Management Information System Policy (2006), asserted that government mandate requires that a National Health Information System (NHIS) shall be established by all governments of the federation to be used as a management tool to support evidence based decision making and planning of health care services.

The guiding principle of the National Health Management Information System is to keep things simple, practicable and sustainable. The data collection formats consist of a fewer number of summary forms for communities, health facilities, local government areas (LGA) and states, including Federal Capital Territory (FCT), and health facility registers which serves as tally sheets. The system offers information services for intervention and active participation to the government at all levels, the organized private sector, the Non-Governmental Organization (NGO), and international organizations, to develop and strengthen the public health care delivery services in Nigeria.

Omole (2009) opined that planning of health care services is a complex assignment and to achieve its ultimate objectives a result oriented health care delivery template has to be designed on scientific lines, based on the available facts and figures. Hence, to execute the statement of intent of direction, there is need for availability of accurate, high quality health information at the right place and at the right time.

## **Methodology**

This study is a desk top study. The method used for this study is literature review and theoretical analysis. Inferences were drawn from existing records and literature to establish the influence of national health management information system, on the planning of health care services in Nigeria.

## **National Health Policy**

A policy is a purposive course of action or inaction followed by an actor or a set of actors in dealing with a problem or matter of concern (Anderson, 2007). It's a systematic statement of intent, of direction, a planned or agreed course of action to solve a problem. Olumide (2007), referred to policy as a broad statement of goals and means of attaining them. The defining of National Health Policy by Ayede (2006), agreed with the duo, that, National Health Policy is an expression of goals for improving the health situations, the priorities among those goals and main direction for attaining them. It usually comprises national policies strategies and plan of actions. The principal aim of National Health Policy is to provide the federal, state, and local government, health institutions and their functionaries, other health related organizations, including international agencies and non-governmental organizations a formal frame work for appropriate national direction in health development in Nigeria, (National Health Policy, 2004)

The National Health Management Information System Policy (2006) asserted that, the seven (7) major thrusts of the National Health Policy relate to:

- I. **National Health System and Management:** All Nigerians shall have easy access not only to primary health care facilities, but also to secondary and tertiary level as well.
- II. **National Health Care Resources:** Resources for health development are, an important and indispensable component of an effective health care delivery services.
- III. **National Health Interventions:** There is need to mount appropriate health intervention capable of achieving the goal of health for all Nigerians.
- IV. **National Health Information System:** The availability of accurate, timely, reliable and relevant information is the most fundamental step towards informed public health action and planning of health care services.

- V. **Partnership for Health Development:** The federal and state ministries of health and local government health authorities shall undertake measures to foster the necessary partnership with other agencies.
- VI. **National Health Research:** Mechanism shall be devised to promote, support, and coordinate research activities in high priority areas.
- VII. **National Health Care Laws:** One important, health legislation which needs to be put in place immediately, is the national health act; which shall define the national health system and spell out the health actions of each level of government.

### **National Health Management Information System**

The National Health Management Information System consist of the provision of appropriate infrastructure, the establishment of mechanisms and procedures, for collecting and analyzing health data to provide needed information (NHMIS Policy, 2006). The system comprises of, a set of inter- related components that are designed to achieve the specific goals of collection, processing, analyzing, presentation and dissemination of health related information for decision making and planning of health care services (Fartiregun, 2006).

The main goal of NHMIS, is the establishment of an effective national health management information system by all governments of the federation to be used as a management tool for informed decision making at all levels ( Osundina 2014).

### **Objective of National Health Management Information System**

National Primary Health Care Development Agency (NPHCDA, 2012) defined objectives as specific statements of intent, which tell us what a health programme is set out to achieve. Objectives are expressed in such a way that they are specific, measurable, and attainable, relevant and time bound in terms of a particular programme(s).Therefore, the specific objectives of National Health Management Information System are:

- To assess the state of the health of the population.
- To identify major health problems.
- To monitor the progress towards stated goals, and target of the health services.
- To provide indicator for evaluating the performance of the health services and the impacts on the health status of the population.
- To provide information to those who need to take action, those who supplied the data and the general public.(NHMIS Policy, 2006)

## **Development of National Health Management Information System**

National Health Policy (2004) established that the development of the Information System shall include the following components, which shall proceed as follows:

1. The information system shall be developed in a phased manner, starting with the simplest data which can be collected at the peripheral institutions. Efforts shall be made to implement community-based systems for the collection of vital health statistics of births and deaths. Such data shall be used for the planning, monitoring and evaluation of health services at the local level.
2. The state ministry of health shall promote and support the collection of health data by the local government health authorities, to improve the quality and quantity of health information. The methods of collection and recording shall be standardized, as much as possible, to facilitate their collection and comparison.
3. As and when feasible, LGA, and state health authorities shall use simple electronic data processing equipment for storage, retrieval and analysis of health data.
4. At the federal level, in collaboration with the federal office of statistics, the department of health planning and research, (DHFR) of ministry of health shall be responsible for obtaining, collating, analyzing and interpreting health and related data on a national basis.

## **Sources of Health Data And Information**

Osundina (2007) reported the principal sources of health data and information as stipulated in the national health policy (2004), which include the following:

- I. **Population and Household Censuses:** As prepared and projected by the national population commission and federal office of statistics; household census will produce data on health related services; such as, housing, water supply, toilet facilities and overcrowding.
- II. **Vital Event Registers:** Legal registration, statistical recording, and reporting of vital events, such as births, deaths, marriages and divorces. Records of the registration of vital events shall be available at appropriate state authority.

- III. **Routine Health Service Data:** Dealing with morbidity and mortality, immunization, disease treatment, outpatient attendance and from the records of health services in both public and private institutions.
- IV. **Epidemiological Surveillance Data:** To cover immunization records, notifiable diseases, and indications of disease incidence and prevalence.
- V. **Disease Registers:** For specific morbidity and mortality, shall be kept, such as for cancer, sickle cell disease, and handicapped persons.
- VI. **Budgetary Allocation Data:** To be obtained from federal and state ministries of finance, and economic planning; as well as local government authority.
- VII. **Community Surveys:** shall be undertaken in collaboration with national population commission, federal office of statistics, university department and non-governmental organization.
- VIII. **Sentinel Surveys on Hiv/Aids,** poliomyelitis and other diseases.
- IX. **Data from school** Health periodic medical examinations, e.g. prevalence of skin disease.
- X. **Data/Information** from special national health programmes; e.g. roll back malaria, acute flaccid paralysis surveillance and tuberculosis and leprosy control programmes.
- XI. **Essential Drugs Programmes;** and family planning or reproduction system shall be an integral part of NHMIS.
- XII. **Other Health Data Sources:** Including libraries, archives registers of health institutions and health personnel.

National Primary Health Care Development Agency (2012) identified various data capturing tools for NHMIS activities, such as; community based summary form (NHMIS. 000), Health facility based forms (NHMIS. 001), LGA, summary form (NHMIS. 002), State and Federal summary form (NHMIS. 003). These forms are meant to be used at every level of NHMIS activities' implementation. (That is, Community level, Health facility level, L.G.A, Level, State and Federal levels).

Kuti, Sorungbe, Oyegbite and Bamisaiye (2010) opined that Monitoring and Evaluation, through a collection of routine statistical health information, generated via National Health Management Information System is an important tool for measuring the progress of health care delivery service. Hence, NHMIS needs a lot of skills, community participation, and political will, for it to be effective. Monitoring and evaluation of health care programmes is crucial for the

attainment of a sustainable health care delivery system. Monitoring and evaluation are effective tools for enriching quality of interventions and services.

### **Monitoring and Evaluation**

NPHCDA, (2012) describe monitoring as a systematic and continuous process of examining data, procedures and practices, to identify problems, develop solutions and guide interventions. Monitoring is conducted regularly, (daily, weekly, monthly, and quarterly). It is linked to the implementation of program activities. The information collected directs programme activities.

Evaluation on the other hand, is a periodic assessment of overall programme status; performance, effectiveness and efficiency. It is linked to policies, programme processes system under which the programme operates strategic choices, outcome, and impact. It assesses the relevance, performance and success of the ongoing and completed programmes. It determines whether or not inputs into an operation were utilized effectively to produce results. It usually take a certain amount of time, before sufficient evidence of results can be observed and attributed to an intervention.(NPHCDA, 2012).

### **Objectives and Indicator**

Objectives are specific statement of intent, which tell us what a health programme is set out to achieve. Without prior determined objectives, no evaluation of health programme is possible. If you do not know where you are going, are can you decide whether you have reach your destination? Hence, objective should be specific, measureable, attainable, and relevant and time bound.

Indicators on the other hand are variables used to compare performance, in terms of efficiency, effectiveness and result. Indicators measure achievements against the expected result and objectives. Indicators are used in monitoring, and evaluating signs that shows changes and provide evidence of the progress towards attainment of the objectives. Hence, indicators should be simple to interpret, measureable and sensitive to change. They are designed to provide standard against which measure, assess, and show progress of the health services activity; against stated targets and achieving the objectives (NPHCDA, 2012). Hence, in order to ensure the comprehensive monitoring and evaluation of health care services, the minimum indicators shall be as follow: Health policy indicators, health status indicators, socio-economic indicators related

to health and living standard, including provision and utilization of health care services indicators.

Therefore, the outcome of an effective Monitoring and Evaluation activity is fundamental to the production of a blue print that will guarantee an evidence based situation analysis, for a result oriented, health care service planning: through generation and production of accurate timely, reliable and relevant, health information, by the National Health Management Information system.

### **Planning of Health Care Services**

Planning is the most basic of all health care services management functions. It is the predetermined course of action, over specific period of time. Planning is deciding in advance, what to do, how to do it, when to do it, and who is to do it. Planning bridges the gap from where we are to where we want to go, and it is concerned with the future and the relationship between ends and means; the relationship between goals and ways of achieving those goals (Ijilegan 1998). Olumide, (2008) opined that planning involves selecting and relating of facts by making use of assumption regarding the future in the visualization and formation of proposed activities believed necessary to achieve desired result. Planning encompasses setting of goals or objectives, and forecasting. Forecasting is the process of using past and current information to predict future events. It involves estimating and considering alternative courses of action.

Thomas, (2003) described Health services planning as “A process that appraises the overall health needs of a geographical area or population and determines how these needs can be met in the most effective manner through the allocation of existing and anticipated future resources”. Public Health Action Support Team (PHAST, 2011) posited that health care needs vary according to the age, structure and health profile in a population. Ultimately all planning comes down to identify the needs of the target population and then determining the best means for meeting those needs. The like hood of people seeking health care is determined by range of social and economic factors and will impact upon demand of health care. The like hood of people receiving health care is determined by policy decision and this will impact upon the volume of activity in health system.

However, within the health sector, there is uniqueness about planning process; that doesn't occur in other sector of the economy. This includes;

- ★ **Emotional dimension:** fluctuations in demand and the fact that health services providers are often dealing with life and death situations.
- ★ **Complex relationship:** the health care industry is also made of many separate entities operating in a virtually uncoordinated manner and often at cross purposes and characterized by a variety of different customers.
- ★ **Financial characteristics:** different from other industries whereby the end user may not make the consumption decision or pay for service provided
- ★ **Diversity of functions:** different entities perform different functions and single entities e.g. hospital performs multiple functions simultaneously.

### **1.0 Initiating Health Services Planning**

There are many reasons for initiating a health services planning process, which can emerge from the community, an organization or the interest of a particular group or individual. However any health care services plan is going to reflect the influence of available health information, political, social and economic considerations, that are within the particular health care environment. Health care service planning can therefore be undertaken on the basis of change arising from;

- I. **Health Care Reform-** which have change the accountability and decision making within the nation health system.
- II. **Health Care Needs:** This can change over time according to the age structure and health profile in a population.
- III. **Technological Advancement:** which continuously challenge the health services. Putting in place a robust, and integrated, information and communication technology (ICT) infrastructure have significant potential to improve the outcomes and the efficiency of health care services.
- IV. **Evidence:** based programmes- setting quality standards and specifying service, which have been introduced through a set of national health management information system frameworks, identifies key intervention and their implementation strategies. (PHAST, 2011)

### **Health Service Planning Approaches.**

There are various different approaches to health service planning, which can range from problem solving, long term versus shorter operational plans, narrative approaches which uses

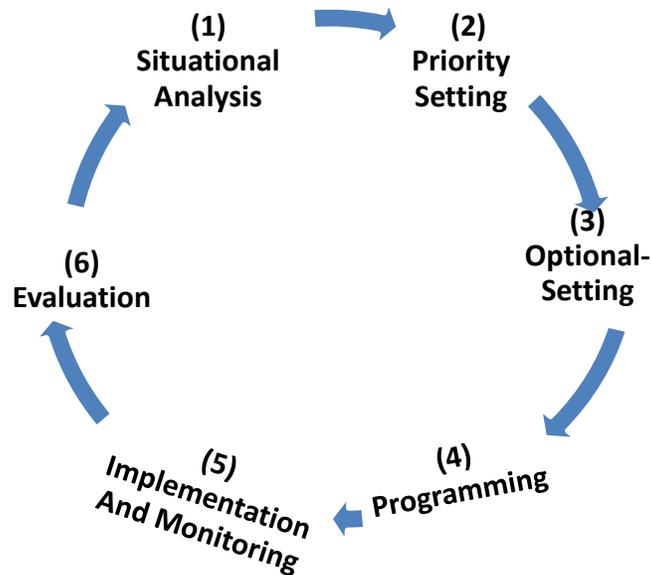
metrics, presenting a nested set of objectives set in tabular form. Plan may also aimed at particular services such as primary health care programmes (e.g. AIDs control), or institution (e.g. hospitals), or at a wider geographical area, such as a district. Within health service planning, there are two broad types of approaches.

1. **Activity planning**- is concerned with the maintenance of existing situations and the setting of monitor able implementation timetables.
2. **Allocative planning**- is concerned with the possibility of change and making of decision on how resources will be used and which activities will be undertaken

### **Relationship between National Health Management Information System and Health Care Service Planning**

The National Health Policy, (2004), reiterates that, the availability of accurate, timely, reliable, and relevant information is the most fundamental step towards informed public health action, and planning of health care services. Also, the relationship between planners, policy maker, service managers, communities and other stakeholders, in the planning process is critical, to the success of the health care service planning. Because the dilemma that gives rise to the need for planning is often, the gap between the available resources and health needs, which are identified via available information, leading to the requirement to make choice as to how to use these resources efficiently (PHAST, 2011). The planning spiral by, Green (2007) presents a cyclical set of information dependent activities, which are frequently found during planning process. The end point of each cycle forms the starting point of the next cycle but at a higher plane.

**Fig.1 The planning spiral by ; (Green, 2007:36)**



Each stage is briefly described below, with links to examples in the field:

a) **Situational Analysis:** involves assessing the present situation and it includes:

- ❖ Current project demographic characteristics of the population
- ❖ Physical and socio-economic characteristics of the area and infrastructure
- ❖ Analysis of the health needs of the population
- ❖ Service provided by health and non-health sector, focusing on the facilities provided their functions and service gaps together with organization arrangements.
- ❖ Analysis of the policy and political environment including existing health policies
- ❖ Examination of resources in the provision of the services including their current efficiency, effectiveness, equity and quality.

b) **Priority Setting:** stage ensures that the priority set are feasible, within the social and political climate and within the context of available resources. Clear criteria are therefore, required for selection of priority problems: which reflect the goals and target of the organization involved. In some situations it may be helpful to clarify first what are not priorities.(e.g. where local needs are low, where expectations cannot be met, or significant achievements have been made and needs are less pressing)

c) **Option Appraisal:** stage involves the generation and assessment of the various alternative strategies for achieving the set objectives and targets. Options may be discarded at this stage due to high resources implication, political and social unacceptability, or technical

unfeasibility. The results of this stage will be a list of preferred strategies or combination of approaches which will then form part of the plan.

- d) **Programming And Budgeting:** Programme budgeting (PB) is an appraisal of past resources allocations in specified programmes, with a view to tracking future resource allocation in those same programmes. In addition, marginal analysis (MA) is the appraisal of the added benefits and added costs of a proposed investment. (or the cost benefits and lower costs of a proposed investment).

Together, PBMA is a priority setting framework that helps decision makers maximizes the impact of health care resources on health needs of local population.

- e) **Implementation And Monitoring:** Is an essential part of the planning process which involves transforming the board strategies and programmes into more specific time and budgeting set of tasks and activities, and involves drawing up more operational plans which can then be monitored
- f) **Evaluation:** Provides the basis for the next situation analysis and is an integral component of the process. Reflection upon whether the process has enhanced joint working, the needanalysis has been sufficiently appropriate and comprehensive, and if there are any gaps or areas of concern that need further analysis.

Therefore, using the planning spiral helps to focus on all aspect of the health care service planning, as a coherent and unified process. Planning within this structure will help to ensure that plans are fully considered, well focused, resilient, and practical and cost effective. These are possible where the health information system and other sub system are properly designed, inter connected, needed resources available, and underpinned by accountable leadership. (Anthonia-Adindu, 2008). Adindu, (2008) established that, well designed and managed health information system generate reliable, relevant, accurate and understandable information, useful to decision makers for an evidence based health care planning. Quality health information generated from a reliable Health Management Information System is an indispensable platform for a result oriented health service planning. Every health organization regardless of the size and purpose needs reliable health information for planning and management of their services.

She stated further that; organizational ability to effectively respond to internal and external changes and challenges, depend on the quality of available information which enables the organization to compare means with ends; actual results with planned health programmes, the

quality of health services, and performance of individuals and groups. Effective response to health care needs and demands is possible where information is available in the right quality and quantity, when needed to guide decisions and actions for a robust health care service planning.

NPHCDA (2012) supported that above by asserting that; effective health information system is equally essential for the sustenance of health care system, because; It promotes information for effective health service planning and implementation; it allows timely corrective measure to be taken in the event of the programme encountering problem; it encourages efficient use of resources and improves programme effectiveness and it promotes feedback based on empirical facts that can be used for programme review and re-planning. Therefore, weak, uncoordinated and the dearth of reliable data and health information system can hamper the measurement of the impact of health care services on the population, which may negatively affect health care service planning activities (Osundina, 2014).

### **Challenges of NHMIS and Health Care Service Planning in Nigeria**

Abubakar (2014), identified the following, as challenges facing NHMIS and HCSP implementation in Nigeria: Finance, shortage of staff, shortage of materials, inadequate coordination of data flow, complexity and overlap of data collection instrument, lack of feedback to peripheral levels and huge backlog of unprocessed data.

### **Summary of Findings**

The quality of any health care service planning in any Nation depends on the quality and quantity of relevant health information that is available to the policy makers, through the National Health Management Information System. Therefore government at all level should ensure standardization and financing of health data infrastructure, especially with respect to establishing and strengthening relevant organizational structures for Health Management Information system in Nigeria.

### **Conclusion**

In the course of the study, inferences were drawn from existing literatures and postulated models that, there is significant influence of National Health Management Information System on the planning of health care services. NHMIS policy (2006), confirmed this by reporting that; the availability of accurate, timely, reliable, and relevant health information is the most fundamental step towards informed public health action.

Therefore, for effective management of health and health resources, government at all level have overriding interest in supporting and ensuring the availability of health data and information as a public goods for public, private, and non-governmental organizations (NGOs) utilization. The role of government must extend to ensuring the standardization, digitization, dissemination and adequate funding of the National Health Information Management System in Nigeria in order to promote effective health care service planning and implementation.

### **Recommendation**

Based on the above conclusion the following recommendations were made:

1. It is imperative for government at all levels to extend procurement and installation of appropriate information technology, staff training and capacity building to enhance the sustainability of the NHMIS (especially the use of the new DHIS2 online based package).
2. Government should put mechanism in place to facilitate timely collection, storage, analysis, dissemination and the use of health information as well as in financing its essential sub-systems, and components.
3. The interface between the government, the private sector, and communities is desirable for a more comprehensive health profile of population.
4. However, as a public good, the onus is largely on the government to collect, analyze, and make available, information on health status, health behavioral risk practices, prevention and containment of epidemic outbreak and support for essential national health research, especially at a local level.
5. Government should facilitate standardization and financing of health data infrastructure (especially the DHIS 2- web based application) with respect to establishing and strengthening relevant organizational structures for Health Management Information System activities in Nigeria.

