ASSESSMENT OF CHALLENGES AFFECTING COMPLIANCE ON CONTEMPORARY HEALTH INFORMATION SYSTEMS IN IMO STATE-OWNED SECONDARY AND TERTIARY HOSPITALS

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Abstract: **Compliance with current events in health information systems in government-owned hospitals is a major concern, documentation of patient records is still done manually, leading to medical errors, unnecessary waiting, and miss of patient records. Challenges affecting compliance are too numerous. During covid 19 lockdown, many preventable conditions claimed lives because health workers were avoiding to people in attendance, the problem would have been avoided if they complied with the modern technologies that would allow attending to patients from distance. The total population used for the study was 2,391(Two thousand three hundred and ninety-one) health workers from 13 (thirteen) hospitals comprising; teaching hospitals, specialist hospitals, hospital management boards, and general hospitals, from government-owned secondary and tertiary hospitals. The study was carried out between April to November 2022. The research design used was a descriptive survey as well as an experimental study. A cross-sectional analysis of health workers was interviewed using a well-structured and pretested questionnaire. The sample of the study was 342 health workers. The researcher adopted a Systematic random sampling technique in getting a response from respondents. Findings in Table 4.22, reviewed some challenges delaying compliance with health information contemporary. lack of Modern Technology (87, 24.5%) was identified as the highest challenge affecting the compliance of Health Information System current trends in hospitals in Imo State. Others following Mobile Technology are technical data integration (58, 21.7%), Adaptation (52, 14.6%), political instability (47, 13.2%), and poor data quality (46, 13.0%). Data were analyzed using SPSS, one-way ANOVA, and p-test to test hypotheses at 0.05 level of significance. In conclusion, health information contemporary is yet to be fully implemented in Imo state and other states in Nigeria. Recommendation, the government should not politicize healthcare institutions, funding and periodic monitoring and evaluation will help in actualizing full compliance.**

Keywords: **Assessment, Challenges, Compliance, Contemporaries, Health Information.**

1. INTRODUCTION

Hospital Information Systems (HIS) are increasingly becoming an emerging tool in the healthcare arena for the efficient delivery of high-quality health services. HIS is a necessary component of modern hospital infrastructure. HIS is considered a prerequisite for the efficient delivery of high-quality health care in hospitals. The use of information technology in hospitals to improve quality and reduce costs dates back to the early 1960s. Most healthcare providers nowadays use new information management systems like hospital information systems (HIS) to integrate the patients' information and modify communication patterns among different hospital wards and professional staff. Health information systems (HIS) can play a significant role in providing the patient's safety. It can be said that hospital information systems are big and organized databases that are utilized to integrate patients' information to conduct official and administrative undertakings. [1]. defined health information as the collection of data related to a person's medical history including symptoms, diagnosis, procedures, and outcomes. Information services, communication, and information processing/data processing are done with the use of modern data processing technologies. Health information system does not occur in one administration but has a close link to all other systems.

A Health information service is understood as a component of a system, they

are: **Concepts:** (This refers to health and diseases)

Ideas: (This is known as equity: It could be in decision-making or sharing of health resources

Objectives: (It could be a hospital, ambulatory centers, etc.)

Persons: (Physicians and others) [6]. Explained that the components are meant to interact with each other's to support, control, and join one another for the achievement of the organization's aims. The purpose of f health *information* system is primarily to serve the management and minimize health risks and reduce the level of uncertainties related to decisions and achieve the objectives of the organization. The 2017 HIMSS Leadership and Workforce Survey found that 61 percent of vendors/consultants and 53 percent of hospitals had increased the size of their IT workforce in the last year.

Concept of the contemporary health information system; these are the events that are ongoing within the health sectors

Reviewing patient healthcare records, charts, and trend lines in the collection, storage, and analysis of data are playing an increasingly important role in the healthcare field, by the professionals who work with this information.

Examples of contemporary are:

❖ Electronic and manual health records

❖ Monitoring and evaluation

❖ Management information system

❖ Master Patient Index (MPI)

❖ Medical billing

❖ Health information technology

[3] With the modem digitalization (computerization) of health records documentation, paper-based are phased out and replaced with electronic health records. Ensuring safety requires the right information is made available at the right time to support health system management decisions. The challenges affecting compliance with modern health information systems are;

lack of modern technologies, political instabilities, poor knowledge of the application of modern technologies, and many other factors. If complying with modern health information systems at all levels of healthcare in the state and nation, there will be an improvement in quality services rendered in healthcare industries and a reduction in morbidities and mortalities.

Literature Review of Concept of contemporary health information system; these are the events that are ongoing within the health sectors Reviewing of patient healthcare records, charts, and trend lines in the collection, storage, and analysis of data is playing an increasingly important role in the healthcare field, by the professionals who work with this information

[3]. stated that well-being information is the foundation of decision–making across all health system building blocks, it is a system that manages data related to activities of providers and health organizations. it is essential for the health system to develop and implement, governance and regulation, health research, human resources development, health education and training, service delivery and financing.

Electronic Health Record

Electronic health records as longitudinal patient health information generated by one or more encounters in any care delivery setting. The information included are patient (s) demographics, progress notes, problems, medications, vital signs, past medical history, immunization, laboratory data, and radiology reports. The EHR automates and streamlines the clinician's workflow. It has the ability to generate a complete record of a clinical patient encounter, as well as support other care-related activities directly or indirectly via interface including evidence-based decision support, quality management, and outcomes [5].

Electronic Health Records (EHR) concept; **Password Management, Unique User Identification**, **Access** Authorization

Monitoring and Evaluation (M&E) are two separate words meaning two different things but are often used interchangeably, due to their closeness, one leads to the other.

Monitoring is aimed at checking progress against plans while evaluation is the process of making Judgments about the value of any component part of organizational activities. **Monitoring** is the routine process of data collection and measurement of progress towards program objectives to provide the management and the main stakeholders of an ongoing intervention with indications of the extent of achievement of objectives and progress in the use of allocated funds to determine if the outputs, deliverers, and schedules planned have been reached so that action can be taken to correct the deficiencies as quickly as possible and implantation of a course of action so that the end goal will be reached as planned. Data acquired through monitoring is used for evaluation [2].

Monitoring and Evaluation is a process of measuring, recording, collecting, and analyzing data of actual implementation of the program and communicating it to the program managers/ stakeholder so that any deviation from the planned operations are detected, diagnosis for causes of deviation, and suitable corrective actions to ensure its conformity with the original plan and determine the value of specific interventions through data collection, collation, analysis, and interpretation. The aim of monitoring and evaluation is to determine the relevance and fulfillment of objectives, development efficiency, effectiveness, impact, and sustainability which can help guide policymakers toward achieving the desired results [6].

Importance of monitoring and evaluation; It helps stakeholders conclude whether the program is a success.

It helps to make informed decisions regarding ongoing programs to fasten effectiveness and efficiency in the use of resources.

To help determine whether a program is right on track and areas that need changes.

It will help to maintain the quality of healthcare system intervention and to understand whether these interventions have achieved the planned goals.

It allows managers to track the progress of projects, programs or policies vis-a-vis the planned goals.

M & E helps assess the strengths and weakness of a project, program or policy to improve its effectiveness and efficiency through quick corrective measures

Why it is necessary to have Monitoring and Evaluation Plans?

1. To construct baseline data describing the problems to be addressed.

2. Clarify program or project objectives and set specific targets in accordance with the objectives.

3. Ensure performance (process) monitoring.

4. Impact evaluation of the specific indicators to be used for monitoring and evaluation purposes.

5. Define shared vision (Internal/External) and source and extent of interest [2].

Health Informatics:

Health Informatics is concerned with the application of computer science principles, information technology, and communication technology to address problems in healthcare systems. The three major areas of health informatics are (1) analytics--- focuses on data analytics, knowledge discovery, and predictive modeling; (2) systems—which focuses on building healthcare informatics systems like architecture, framework, design, engineering, and application; (3) human factor that focuses on understanding users or context, interface design, health behavior and user studies of healthcare informatics [3].

[10]. Viewed health informatics as the acquiring, storing, retrieving, and using of healthcare information to foster better collaboration among patients' various healthcare providers.

health informatics is the application of information technology to healthcare delivery. He further stated that health informatics is separated from bioinformatics there are other related terms including medical informatics, nursing informatics, clinical informatics, and biomedical informatics (BML) It is the study of both informatics evaluation approach to information knowledge management in clinical and public health [9].

Health informatics encompasses the following areas: Information systems, which include both national and international registration systems, hospital information systems, departmental and physicians' office systems, document handling systems, electronic medical record systems, standardization, system integration, etc. Computer-aided medical decision support systems using heuristic algorithmic and statistical methods as exemplified in decision-making theory, protocol development, artificial intelligence, etc. Educational computer-based programs pertaining to medical informatics or medicine in general. Organizational, economic, social, and clinical impact, ethical issues and cost-benefit aspects of IT applications in health care.

Areas of Health Informatics; Research Translational Systems: in this system, research informatics systems are used for storing managing or reporting data used in research. The research data might come from different countries to support collaborative translational research to speed the translation of basic science into clinical practice

Training programs: using health informatics as a training program was a good development in the informatics field. All medical nursing and health informatics programs have been developed. It is having been evaluated into multiple has been evaluated into multiple languages in both developed countries and developing countries [4].

Management Information System

Management information systems (MIS), a serious field of study, are very large due to the development of computers and related technologies. The use of information systems (ISs) has increased in the last 10 years not only by firms but also by individuals and even governments. The use of ISs was encouraged by technological breakthroughs, advancements in telecommunications such as the internet, the globalization that creates a global unlimited marketplace, the strong growth of the information economy, and the rise of competitive digital firms. All of these factors transformed the ISs from data processing systems to decision support systems and became the foundation of the new business environment [9].

Information

Information is a subset of data that means something to the person receiving it that they judge to be useful, significant, urgent, and soon. It comes from data that has been processed by people or with the aid of technology so that it has meaning and value for the recipient. This means that information is subjective since what one person sees as valuable information, another may see as data with no particular significance

Information Quality

Information quality refers to the content and format of the system's outputs so as to ensure they are usable, sufficiently detailed, meaningful, easy to read and understand, and therefore helpful for task completion and decision making. Also, information quality is concerned with the information provided by health IT. Information quality related to the safety issue is denoted by: completeness, relevancy, and timeliness. Information completeness serves as a measure of the prevalence of missing information.

Challenges; despite that current events in health information system, compliance to the trends are faced with issues below. **Technical Data Integration, Adaptation, Mobile Technology, Aging population, Accessibility, Implementation, Data quality is poor, People, Sustainability absence of government involvement in healthcare institutions.**

2. METHODOLOGY

A cross-sectional analysis of secondary and tertiary health workers in Imo State was engaged. The study design was both a descriptive survey and an experimental design.

The target population comprises all the Secondary and tertiary healthcare workers in Imo State. The population is 2,391 (two thousand three hundred and ninety-one) health workers. The researcher adopted a Systematic random sampling technique, research samples were drawn at fixed intervals on a continuum.

Data were collected with a structured questionnaire developed by the researcher. The questionnaire comprises five sections, A – E. the copies of the questionnaire were filled out by the respondents. The sample size for the study was determined using Yanmen, (1967) method of sample size determination.

Below is the formula

$$n = \frac{N}{1 + N \, (0.05)2}$$

Whereas

n= Sample size

N= Target population

1= Constant Value

0.05 = Alpha level (level of significance)

Determination of the sample size

$$n = \frac{2391}{1 + 2391 \times (0.05)2}$$

$$n = \frac{2391}{1 + 6}$$

$$n = \frac{2391}{7}$$

$$= 341.571$$

$$\approx 342$$

The sample size was 342(three hundred and forty-two) health workers.

The researchers numbered the health workers from 1– 7 at intervals and administered shoveled folded papers written yes (1) and no (6). and they were asked to pick, the method was used repeatedly in all the sample areas, till the respondents were selected as part of the sample which sums up to 342(three hundred and forty-two)

3. RESULTS

Data collected were analyzed to identify challenges affecting compliance with HIS contemporaries

A frequency table shows challenges affecting the compliance of Health Information Systems' current trends	Responses		Percent of Cases
	N	Percent	
Lack of technical data integration	58	21.7%	26.2%
Adaptation	52	14.6%	17.7%
Lack of mobile technology	87	24.5%	29.6%
Aging	13	3.7%	4.4%
Accessibility and implementation	25	7.0%	8.5%
Poor data quality	46	13.0%	15.6%
People and sustainability	8	2.3%	2.7%
Political instability	47	13.2%	16.0%
Total	336	100.0%	120.7%

From Table above, lack of modern Technology (87, 24.5%) is identified as the highest challenge affecting the compliance of Health Information System current trends in service areas in Imo State. Others are lack of technical data integration (58, 21.7%), Adaptation (52, 14.6%), political instability (47, 13.2%) and poor data quality (46, 13.0%), people and sustainability (8, 13.2%).
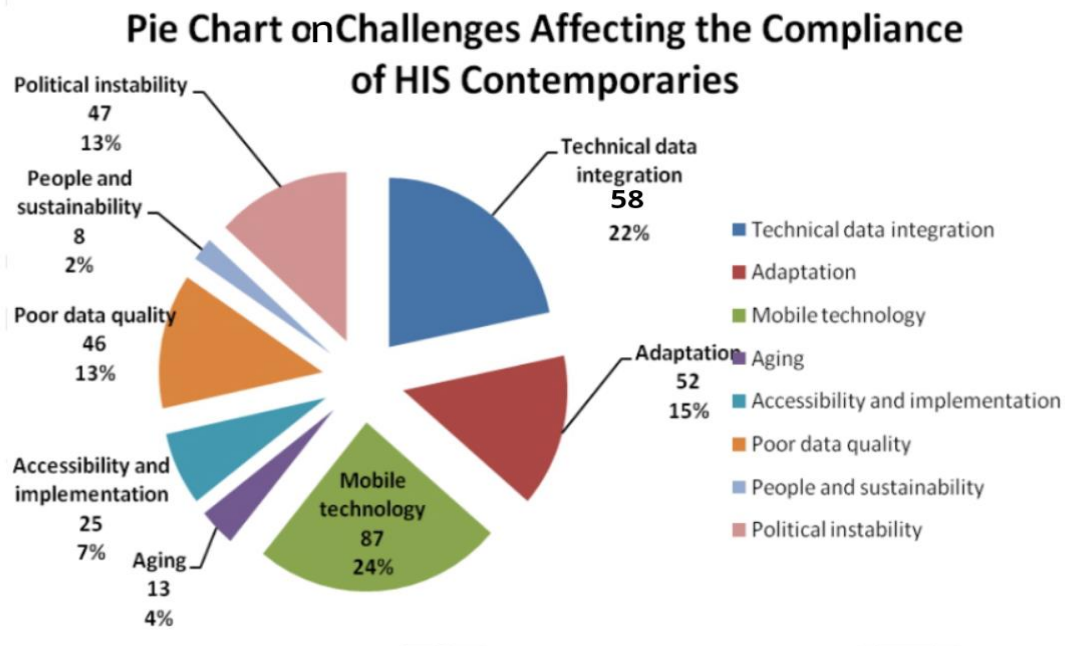
ONE-SAMPLE T-TEST

Hypothesis

H_0: The challenges affecting the compliance of Health Information System current trends are not significant.

H_1: The challenges affecting the compliance of the Health Information System'ss current trends are significant.

Decision Rule: We shall reject the null hypothesis if the p-value is less than the alpha, otherwise, we will not. Alpha = 0.05.

4. DISCUSSION

From the study the data has shown in fig 1 that all the general hospitals in Imo state are not complying with the current trends in health information system due to challenges. Fig 2, revealed that general hospitals in Imo state have no modern technology to comply with the current trends in Health information system.

Recommendations; health information system is a significant tool for quality and efficient patient care, the following recommendation will help in compliance by hospitals, they are;

1) Funding of healthcare institutions by government, agencies, groups nd individuals.

2) Making modern technologies available and affordable.

3) Electronics health records software's should be stored in all healthcare institutions.

4) Scholarship should be given to students to study abroad on EHR and others.

SUGGESTION FOR FURTHER STUDIES

Further studies are encouraged in the area of incorporating

1 Health informatics

2 EHR/EMR

3 Health information interoperability and

4 Electronic coding and medical billing.

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