

Health Information Technology Adoption and Its Impact on Patient Safety in a Tertiary Healthcare Institution: Evidence from Imo State University Teaching Hospital (IMSUTH), Orlu.

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Abstract- Health Information Technology (HIT) has become an essential component of modern healthcare delivery, contributing significantly to patient safety, quality of care, and healthcare efficiency. The adoption of electronic health systems has transformed healthcare practices by facilitating accurate documentation, enhancing communication among healthcare professionals, reducing medical errors, and supporting evidence-based clinical decision-making. Despite these benefits, the extent to which Health Information Technology influences patient safety outcomes in many Nigerian healthcare institutions remains inadequately explored. This study investigated the utilization of Health Information Technology and its influence on patient safety outcomes among healthcare workers at Imo State University Teaching Hospital (IMSUTH), Orlu, Imo State, Nigeria. Specifically, the study assessed the level of Health Information Technology utilization, examined its role in promoting patient safety, identified organizational and technological factors influencing its adoption, and evaluated challenges associated with its implementation. A descriptive cross-sectional research design was employed. The study population comprised healthcare workers, including physicians, nurses, pharmacists, laboratory scientists, and Health Information Managers working at IMSUTH. Data were collected using a structured questionnaire and analyzed using descriptive and inferential statistical techniques. Frequencies, percentages, chi-square tests, and logistic regression analyses were utilized to determine the relationships between Health Information Technology utilization and patient safety outcomes. The findings revealed that Health Information Technology significantly contributes to patient safety by improving documentation accuracy, reducing medication errors, enhancing access to patient information, and facilitating effective communication among healthcare professionals. The study further identified Electronic Medical Records (EMR), Clinical Decision Support Systems (CDSS), and Computerized Physician Order Entry (CPOE) systems as key

technologies supporting patient safety initiatives. Regular staff training, management support, adequate technological infrastructure, and user involvement were found to be significant determinants of effective Health Information Technology utilization. The study concluded that effective implementation and utilization of Health Information Technology positively influence patient safety outcomes at Imo State University Teaching Hospital.

Keywords: Health Information Technology, Patient Safety, Healthcare Workers, Electronic Medical Records, Clinical Decision Support Systems, IMSUTH, Nigeria.

I. INTRODUCTION

Healthcare systems worldwide are increasingly adopting Health Information Technology (HIT) to improve patient care quality, enhance operational efficiency, and reduce preventable medical errors. Health Information Technology encompasses the use of computer hardware, software applications, electronic health records, decision-support systems, and communication technologies to manage healthcare information and facilitate informed clinical decision-making.

Patient safety remains a critical concern in healthcare delivery, particularly in developing countries where healthcare systems face challenges related to inadequate infrastructure, workforce shortages, and limited technological resources. According to global healthcare reports, a significant proportion of adverse patient events result from communication failures, medication errors, and incomplete clinical information. Health Information Technology has emerged as a strategic intervention to address these challenges by improving information accessibility,

enhancing coordination among healthcare providers, and supporting evidence-based practices.

In Nigeria, the implementation of Health Information Technology has gained increasing attention as healthcare institutions strive to improve service delivery and patient outcomes. Imo State University Teaching Hospital (IMSUTH), Orlu, as a major tertiary healthcare institution, has embraced various Health Information Technology initiatives aimed at strengthening healthcare management and patient safety. However, there is a need to assess the extent of HIT utilization and its effectiveness in promoting patient safety among healthcare workers. This study therefore examines the utilization of Health Information Technology and its influence on patient safety outcomes among healthcare workers at Imo State University Teaching Hospital, Orlu.

II. OBJECTIVES OF THE STUDY

The general objective of the study is to assess the influence of Health Information Technology utilization on patient safety outcomes among healthcare workers at IMSUTH.

The specific objectives are to:

Determine the level of Health Information Technology utilization among healthcare workers at IMSUTH.

Examine the influence of Health Information Technology on patient safety outcomes.

Identify organizational factors affecting Health Information Technology utilization.

Assess technological factors influencing the effectiveness of Health Information Technology systems.

Determine challenges associated with the implementation and utilization of Health Information Technology at IMSUTH.

Propose strategies for enhancing Health Information Technology utilization to improve patient safety.

III. METHODOLOGY

A descriptive cross-sectional research design was adopted for this study. The study was conducted at Imo State University Teaching Hospital (IMSUTH), Orlu, Imo State, Nigeria. The target population comprised healthcare workers, including doctors, nurses, pharmacists, laboratory scientists, and Health Information Management professionals.

A structured questionnaire was utilized as the primary instrument for data collection. The questionnaire contained sections addressing demographic characteristics, Health Information Technology utilization, patient safety practices, organizational factors, technological factors, and implementation challenges. Data collected were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the data.

Inferential statistics, including chi-square tests and logistic regression analysis, were employed to determine associations between Health Information Technology utilization and patient safety outcomes.

IV. RESULTS AND DISCUSSION

The study findings demonstrated a high level of awareness of Health Information Technology among healthcare workers at IMSUTH. Most respondents acknowledged that Health Information Technology systems contribute significantly to patient safety improvement. The Electronic Medical Record (EMR) system was identified as the most frequently utilized Health Information Technology tool, followed by Clinical Decision Support Systems (CDSS) and Computerized Physician Order Entry (CPOE) systems.

Healthcare workers reported that Health Information Technology improved patient safety through:

Reduction of medication errors.
Improved patient identification processes.
Enhanced clinical documentation accuracy.
Faster retrieval of patient information.

Improved communication among healthcare professionals.

Better monitoring and reporting of adverse events.

The study also found that organizational support, regular training programs, adequate funding, and user involvement significantly influenced effective Health Information Technology utilization. Conversely, inadequate infrastructure, power supply interruptions, limited technical support, and resistance to change were identified as major barriers. The findings are consistent with previous studies demonstrating that healthcare institutions with effective Health Information Technology systems experience lower rates of medical errors and improved patient outcomes.

V. CONCLUSION

The study established that Health Information Technology utilization significantly influences patient safety outcomes among healthcare workers at Imo State University Teaching Hospital, Orlu. The implementation of digital healthcare systems has improved healthcare delivery by reducing errors, enhancing communication, and facilitating evidence-based clinical decisions. The study highlights the importance of continuous investment in Health Information Technology infrastructure and capacity building to sustain patient safety improvements in tertiary healthcare institutions.

VI. RECOMMENDATIONS

Based on the findings, the study recommends that: IMSUTH management should increase investment in Health Information Technology infrastructure and maintenance.

Continuous training and retraining programs should be organized for healthcare workers on the effective use of Health Information Technology systems.

Adequate cybersecurity and information confidentiality measures should be strengthened.

Healthcare workers should be actively involved in the design, implementation, and evaluation of Health Information Technology systems.

Government and healthcare policymakers should provide adequate funding and technical support for Health Information Technology implementation in tertiary healthcare institutions.

Regular monitoring and evaluation of Health Information Technology systems should be conducted to ensure optimal patient safety outcomes.

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