



## Perspectives

# Effects of ICT on monitoring and evaluation of healthcare delivery systems: A perspective work on Usman Dan Fodiyo University Teaching Hospital, Sokoto, Nigeria

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### ABSTRACT

As a Health Information Management (HIM) professional observing the transformation within Nigeria's healthcare environment, the integration of Information and Communication Technology (ICT) into Monitoring and Evaluation (M&E) represents one of the most significant developments in contemporary health systems strengthening. Over the years, HIM professionals in UDUTH have observed how routine oversight, data quality assurance and performance tracking, once entirely dependent on manual processes have evolved through digital tools. These tools support better accuracy, reliability and speed in health information management. Reflecting on this transformation within Usman Dan Fodiyo University Teaching Hospital (UDUTH), Sokoto, it becomes clear to the authors that ICT has not merely upgraded tools and processes, it has reshaped how health workers think, respond, plan and deliver care.

**Keywords:** *Electronic Medical Records; Evidence-based Decision Making; Health Information Management; Information and Communication Technology; Monitoring and Evaluation, EvidenJigawa State.*

*Edited by AA Adebisi; submitted on 22.10.2025 peer reviewed by LM Ogundiran, TC Anamah, U Isah; accepted 12.11.2025; published 23.11.2025.*

**Please cite as:** Hamza A, Sani HS, Erinola AY. Effects of ICT on monitoring and evaluation of healthcare delivery system: A perspective work on Usman Dan Fodiyo University Teaching Hospital, Sokoto, Nigeria. *Int J Health Recs & Info Mgt.* 2025;8(1):49-52.

**Conflict of interest:** None declared.

**Funding disclosure:** No funding was solicited for nor obtained for this study

## INTRODUCTION/MAIN BODY

### Understanding ICT in Monitoring and Evaluation from a Practical Lens

Monitoring and evaluation in health systems serve as the backbone of evidence-based decision-making. Monitoring provides continuous tracking of health activities, program outputs and workflow performance, while evaluation assesses relevance, effectiveness, efficiency and long-term impact of interventions. In the absence of strong M&E, health systems suffer from poor planning, weak accountability and ineffective policies. Authors' experience aligns with existing scholarship indicating that ICT has become a catalyst for strengthening these processes in modern healthcare environments<sup>1-5</sup>.

In Nigeria, as in many low- and middle-income countries (LMIC), the health sector has

long been constrained by inadequate, unreliable and non-standardized data systems. The National Health Policy (1988) already recognized the need for a strong information system capable of generating timely and good-quality data. Intuitively, ICT has provided an opening to address these long-standing deficiencies by digitizing data, automating reporting processes and enhancing coordination among stakeholders.

Across various hospitals and specifically in UDUTH, the shift towards electronic systems has improved the accuracy of data capture and minimized delays that once hampered program assessments. Studies in Nigeria emphasize similar improvements in health data quality, reporting timeliness and decision-support functions resulting from ICT adoption<sup>6-9</sup>. Observations by the authors support these findings, where ICT tools such as Electronic Medical Records (EMR), Health

Management Information Systems (HMIS) and DHIS2 have played transformative roles.

### **The Context of ICT Use at UDUTH**

The index hospital UDUTH, is one of Nigeria's second-generation teaching hospitals that has evolved significantly since its establishment. Its large workforce, clinical volume and regional influence make it a strategic location for examining ICT-driven M&E systems. Working within this environment, the authors have witnessed firsthand, how ICT bridges the gap between planning and implementation by ensuring that data generated at the point of care flows into decision-making platforms.

Applying Systems Theory to this environment enabled authors' understanding of why ICT makes such a difference. A hospital is a system of interconnected units that rely heavily on information flows for effective functioning<sup>10</sup>. Results-Based Management (RBM) further reinforces this by emphasizing the use of indicators and performance tracking, tasks that ICT performs more efficiently than manual systems<sup>11</sup>.

From this theoretical viewpoint, ICT is not just a technical solution. It is an integrative force that enhances communication, speeds up feedback loops and strengthens accountability, thereby improving the hospital's overall performance.

### **Reflecting on the Effects of ICT on Monitoring and Evaluation**

Years of experience show that the effects of ICT in M&E at UDUTH can be understood through several key perspectives:

#### **1. Enhanced Data Quality, Timeliness and Accessibility**

One of the strongest impressions one has gathered is how ICT reduces errors associated with paper-based systems. By enabling real-time data entry, automated validation and digital storage, ICT significantly improves data reliability. This aligns with the findings of Olayemi *et al.*, who noted improved accuracy and reliability in digitized M&E environments<sup>12,13</sup>. In UDUTH, digital systems have simplified monthly reporting, minimized missing data cases, and improved communication between departments.

These improvements affect clinical decisions, strategic planning and policy formulation.

#### **2. Improved Planning and Forecasting**

Since ICT enables the generation of trends, projections and visual dashboards, M&E officers and managers at UDUTH can forecast service demands more accurately. The data trends produced through ICT tools support decisions on human resources, supply chain management, and infrastructure needs. As reported in the study results, staff overwhelmingly agreed that M&E provides essential information for planning and forecasting. From an insider's perspective, ICT has turned this from a slow, manual process into a fast and reliable one.

#### **3. Strengthened Evidence-Based Decision-Making**

The technology (ICT) enhances analytics and makes it easier to compare the effectiveness of programs or interventions. From an insider's opinion, decision-makers now rely less on assumptions and more on empirical evidence produced through digital tools. This corresponds with global findings, highlighting the role of digital M&E systems in supporting rational decision-making<sup>14-16</sup>.

#### **4. Greater Accountability and Transparency**

Since digital systems automatically log activities, generate time-stamped records and minimize data manipulation, they increase accountability. It has been observed that this transparency has improved supervision and helped identify inefficiencies more quickly.

#### **5. Faster Reporting and Improved Coordination**

Before ICT adoption, compiling reports at UDUTH was laborious and prone to inconsistencies. Today, digital platforms allow easier aggregation, analysis and submission of reports. Departments communicate more effectively and managers access data more readily.

### **Challenges Encountered in the ICT-Driven M&E Process**

Despite the clear advantages, ICT-based M&E in UDUTH still faces considerable challenges:

#### **1. Inadequate Training and ICT Skills**

Many health workers lack the technical knowledge required to effectively use ICT tools.

This skill gap limits the full potential of digital systems. Training programs are often insufficient or irregular.

#### 2. Poor Infrastructure and Unstable Power Supply

Erratic electricity supply and limited internet connectivity frequently interrupt data entry, reporting and access to digital platforms. These infrastructural challenges have been widely reported across Nigerian health facilities<sup>17-19</sup>.

#### 3. Limited Funding for ICT Maintenance and Upgrades

Budgets for ICT procurement, maintenance and capacity building remain inadequate. Without sustainable financing, digital M&E systems face risks of downtime or system failure.

#### 4. Weak Communication among M&E Team Members

Even though ICT facilitates communication, organizational and administrative barriers still hinder smooth collaboration. These issues include unclear roles, hierarchical bottlenecks and delays in information sharing.

#### 5. Absence of Clear Objectives and Indicators

At times, M&E initiatives begin without clearly defined metrics or performance indicators. This undermines the value of ICT-generated data since unclear goals lead to limited interpretation and weak evaluation outcomes.

### **Possible Measures for Improvement: A Perspective for Future Strengthening**

The following measures can enhance ICT-driven M&E processes at UDUTH and similar institutions:

#### 1. Sustainable Capacity Building

Continuous training programs, ICT workshops and refresher courses should be institutionalized. Building digital literacy should extend beyond ICT staff to physicians, HIM professionals, nurses and administrators.

#### 2. Clear Goal Setting and Indicator Development

Every M&E activity should begin with well-defined indicators and objectives such that ICT tools should be configured to capture these specific metrics consistently.

#### 3. Strengthened Communication Systems

Both digital and human communication structures must be improved. Regular coordination

meetings, shared dashboards and cross-departmental information flow can enhance team collaboration.

#### 4. Investment in Infrastructure and ICT Resources

The hospital must expand its investment in hardware, software, internet connectivity and reliable power supply. Without infrastructural improvement, ICT cannot deliver its full potential in M&E.

#### 5. Policy Support and Budget Allocation

Government agencies and hospital leadership should prioritize ICT financing in annual health budgets. Policy commitment is essential to sustain ICT infrastructures.

## **CONCLUSION**

The integration of ICT in monitoring and evaluation has reshaped how health services are delivered in UDUTH and many other Nigerian hospitals. Although challenges remain, such as training gaps, infrastructural weaknesses and inadequate funding, the positive effects are undeniable. The technology has improved health data quality, strengthened evidence-based decision-making, enhanced accountability and made planning more strategic.

Looking ahead, it is believed that sustained political will, continuous capacity building, adequate investment and improved communication structures will determine the long-term success of ICT-driven M&E systems. If these measures are implemented, ICT will not only support monitoring and evaluation, but will significantly contribute to a more responsive, equitable and efficient healthcare delivery system in Nigeria.

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HA conceived of the study, initiated the design, participated in literature search, analysis and coordination. SHS and EAY participated in analysis and coordination. All authors reviewed and approved the final manuscript.