REVISTA CIENTÍFICA SISTEMÁTICA

Toward Enhanced Healthcare Efficiency: The Impact of Digitizing Medical Records

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Crossref doi 10.56238/rcsv14n3-020

ABSTRACT
The digitization of health care records represents a transformative shift in managing patient and service information, offering substantial benefits to efficiency, safety, and quality of care globally. Centralizing and standardizing patient data through electronic record systems facilitates organized storage and swift access to clinical information, reducing reliance on paper records and enhancing decision-making across clinical and administrative domains. Improved coordination among healthcare professionals ensures seamless care delivery, crucial for complex conditions and error prevention. Automated administrative processes streamline operations, reducing errors and costs while bolstering efficiency. Data security is paramount, with electronic systems employing advanced encryption and authentication to safeguard patient information and ensure compliance with privacy regulations. Moreover, digitalization supports robust data analysis, enabling health institutions to identify trends and inform evidence-based practices, contributing to ongoing medical advancements and public health strategies.

Keywords: Health care digitization; Electronic medical records; Patient data management; Healthcare efficiency; Data security.

1 INTRODUCTION

The digitization of health care records represents a significant transformation in how patient and service information is managed. This modernization brings a series of benefits that directly impact the efficiency, safety, and quality of health care delivery. The digitization of health records can aid in managing patient information and enhance health services, even in low- and middle-income countries (Numair et al., 2021).

Firstly, digitization allows for the centralization and standardization of patient data. With electronic record systems, it is possible to store clinical information, medical histories, test results, and treatment data in an organized and accessible manner. This reduces the reliance on paper records, minimizes the risk of information loss, and facilitates quick and accurate access to data, improving clinical and administrative decision-making.

Additionally, digitization improves coordination between different sectors and health professionals. With an integrated system, doctors, nurses, pharmacists, and other professionals can securely and efficiently access and share relevant information. This facilitates continuity of care and communication between teams, which is essential for managing complex conditions and preventing medical errors.

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Another important aspect is the optimization of administrative processes. Computerized systems can automate tasks such as scheduling appointments, issuing prescriptions, and billing. This not only reduces the workload for staff but also decreases the likelihood of administrative errors and accelerates workflow, resulting in more efficient and cost-effective operations.

Digitization also contributes to the security of patient data. Electronic record systems are designed with advanced security mechanisms such as encryption and authentication to protect sensitive information from unauthorized access and breaches. This helps ensure compliance with privacy and data protection regulations, such as the General Data Protection Law (LGPD).

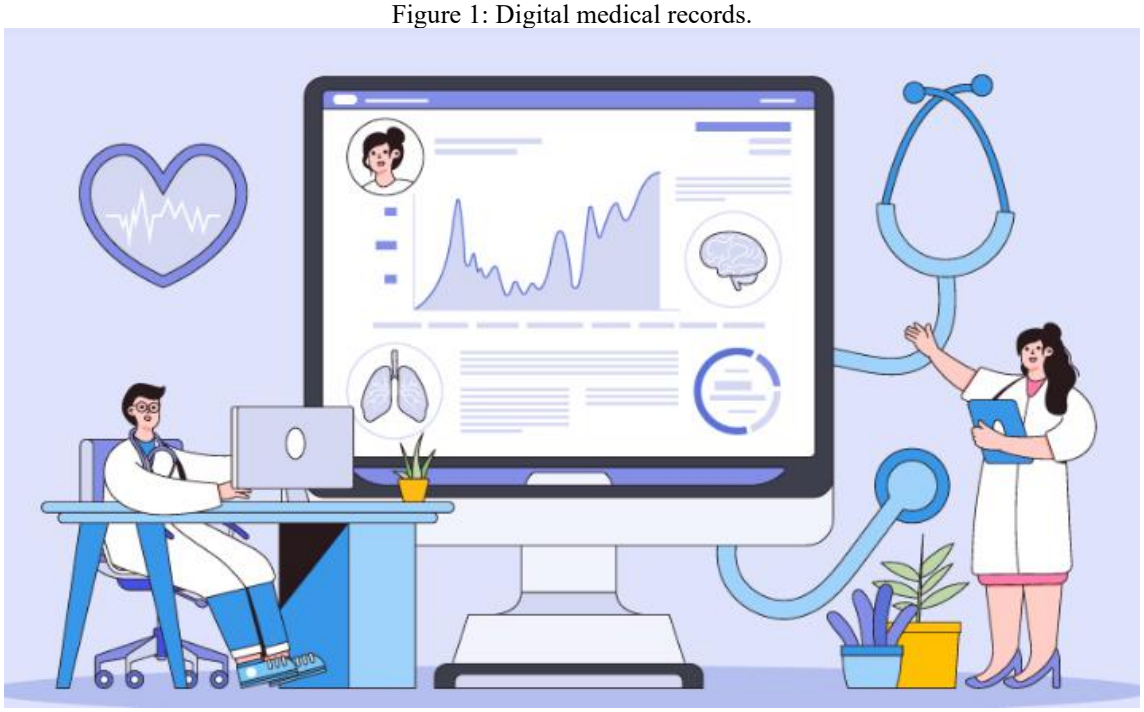
Moreover, digitization facilitates data collection and analysis for research and continuous improvement. With large volumes of data available, health institutions can conduct advanced analyses to identify patterns, trends, and areas needing improvement, contributing to the evolution of medical practice and the implementation of better public health strategies.

2 DEVELOPMENT

Patient registration systems, business systems, and electronic patient record systems are being introduced into hospitals, ambulatory care practices, and most other healthcare organizations. For many, this modernization is eagerly anticipated. Indeed, other service sectors such as travel, personal finance, and an increasing number of government departments rely on electronic systems as the foundation of their operations and cannot envision reverting to manual methods (Rigby, 2004).

Digital medical records are among the latest technologies employed to assist in managing patient information (Bain, 2015). The implementation of digital medical records has been shown to reduce the time and costs associated with managing medical information, helping governments to make current, evidence-based public health decisions while efficiently providing key health indicators toward achieving the United Nations Sustainable Development Goals (SDGs) at a low cost (Novillo-Ortiz et al., 2018).

Figure 1: Digital medical records.



The existing paper-based health records documentation risks compromising healthcare services due to potential data errors and delays, prompting many healthcare systems to adopt digital medical records. Utilizing advanced digital technologies can offer healthcare workers (HCWs) real-time, accurate information access and decision support for improved clinical care. Additionally, digital registration applications enhance monitoring and interaction among healthcare professionals across various healthcare settings (WHO-SEARO, 2024).

Electronic system designs for medical purposes must consider feasibility, flexibility, robustness, scalability, and maintenance—essential principles to ensure proper system integration and improved health services (Adane et al., 2013). For instance, electronic medical records (EMRs) could save more than $81 billion annually. Moreover, effective management of chronic diseases and other social issues through EMRs could result in annual savings of up to $142–371 billion (Hillestad et al., 2005).

Figure 2: Features of electronic health records.

The burden of workload and the motivation to sustain high performance were major challenges in implementing a digital health system (Numair et al., 2021). For many healthcare staff, this is seen as an unwelcome and somewhat daunting initiative. Transitioning to electronic systems isn't just about modernizing for these professionals; it fundamentally changes how they work. This involves two main challenges: becoming proficient with computer technology and adapting to recording clinical work in a structured and seemingly impersonal format. Initially, both of these changes can seem hostile and unwelcoming (Rigby, 2004).

Another key difference is that unlike sectors such as insurance or banking, where employees use new technology as a core part of their roles and are thus willing and able to undergo thorough training, in healthcare, this technology often adds to rather than defines their daily professional duties, albeit crucially. Therefore, computerization in healthcare modernization can be viewed as disempowering and potentially threatening to both seasoned and new staff members alike (Rigby, 2004).

3 CONCLUSION

In conclusion, the digitization of medical records heralds a pivotal advancement in healthcare delivery, offering multifaceted benefits from streamlined patient data management and improved care

coordination to enhanced administrative efficiency and robust data security. While challenges such as adapting to new technologies and navigating workflow changes exist, the transformative potential of digital systems in healthcare is undeniable. With ongoing support and strategic implementation, healthcare institutions can harness these advancements to drive better patient outcomes, inform evidence-based practices, and pave the way for sustainable healthcare solutions globally.

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