CONFRONTING THE CHALLENGES OF DIGITALIZATION ELECTRONIC MEDICAL RECORDS: A SYSTEMATIC REVIEW

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ABSTRACT

Electronic Medical Records (EMRs) have the potential to significantly improve healthcare efficiency, quality, and accessibility. However, their implementation faces substantial barriers that hinder widespread adoption. This systematic review aims to identify and analyze key barriers to EMR implementation in healthcare facilities. A systematic literature search was conducted in Scopus, PubMed, CINAHL, and Web of Science for studies published between 2014 and 2024. The study selection process according to PRISMA guidelines. A total of 462 studies were screened, 59 full-text articles were assessed for eligibility, and 14 studies met the inclusion criteria for final analysis. Five major barriers to EMR implementation were identified: (1) usability and system design challenges, (2) training and workforce preparedness, (3) technological and infrastructure constraints, (4) financial and resource limitations, and (5) impact on workflow and patient care. These challenges reflect core strategic management principles, underscoring the need for structured planning, adequate resource allocation, and continuous evaluation. Overcoming barriers to EMR implementation requires improving system usability, enhancing workforce training, investing in infrastructure development, securing sustainable financial resources, and optimizing clinical workflows. A strategic, comprehensive approach is essential to facilitate successful EMR adoption, improve patient care outcomes, and support sustainable healthcare system advancement.

Keywords: Barriers, Electronic Medical Records (EMR), Healthcare Facilities, Systematic Review, Implementation Challenges.

INTRODUCTION

The move towards digital healthcare infrastructure has made Electronic Medical Records (EMRs) a basic part of clinical information systems in the changing world of modern medicine. Designed to digitise and organise essential patient data, including previous illnesses, diagnostic tests, medications and physician assessments, these platforms allow for streamlined information flow within and between healthcare institutions. EMRs replace traditional paper-based records and serve as vital tools for supporting timely decision-making, patient monitoring and integrated care management at various service levels (Ajami and Bagheri-Tadi, 2013; Grinspan et al., 2013). These systems offer numerous benefits, such as reducing medical

errors, minimizing redundant documentation, improving communication among healthcare providers, and enhancing overall healthcare quality (Gold and McLauglhin, 2016). Transitioning from paper-based records to EMR is considered a crucial step toward improving healthcare delivery efficiency, patient safety, and clinical decision-making (World Health Organization, 2016). As global health systems face increasing pressure due to aging populations, the rising burden of chronic diseases, and the aftermath of the COVID-19 pandemic, the urgency of adopting robust digital infrastructure—particularly EMRs—has become more evident than ever (OECD, 2021).

To promote EMR adoption, various countries have implemented policies and regulations supporting healthcare digitalization. In Indonesia, the Ministry of Health issued Regulation No. 24 of 2022, mandating that all healthcare facilities to implement EMR to enhance service efficiency, patient care, and data management. Similarly, the United States introduced the Health Information Technology for Economic and Clinical Health (HITECH) Act, providing financial incentives to encourage EMR adoption while ensuring interoperability and security standards (Adler-Milstein and Jha, 2017). In the United Kingdom launched the Digital Health and Care Plan to improve EMR system integration across healthcare institutions (Department of Health and Social Care, 2024). Meanwhile, Australia developed My Health Record, a national EMR system enabling centralized patient data access to enhance provider coordination and patient outcomes (Australian Digital Health Agency, 2025). These global efforts reflect a shared recognition of the transformative role EMRs can play in strengthening health system performance.

Financial constraints also pose significant challenges, especially in low- and middle-income countries (LMICs), where the costs associated with EMR infrastructure, software licensing, maintenance, and training are often prohibitive (Ayamolowo et al., 2023). Without adequate financial support, many hospitals and clinics struggle to sustain EMR adoption, limiting the benefits of digital health transformation (Abdulrahman et al., 2024; Kiberu et al., 2017). Concerns over data security and patient privacy further complicate EMR adoption, requiring compliance with stringent regulations to protect patient information from cyber threats (Jabali and Abdulla, 2023). The digital divide between high-income and LMICs not only highlights disparities in healthcare technology access but also emphasizes the importance of context-specific solutions that address structural limitations (Meherali et al., 2020)

This systematic review aims to identify and synthesize key barriers to EMR implementation across healthcare facilities. By analyzing these challenges, the study seeks to inform policymakers, healthcare institutions, and technology developers in formulating strategic, evidence-based solutions to support sustainable EMR adoption, thereby enhancing healthcare accessibility, efficiency, and patient outcomes. Ultimately, bridging the gap in EMR implementation is essential to achieving equitable, high-quality healthcare in the digital era

LITERATURE REVIEW

Despite these initiatives and the substantial benefits of EMR, implementation challenges persist

worldwide, particularly in developing and resource-limited settings. Identified barriers include high initial costs, inadequate technological infrastructure, lack of interoperability, insufficient training, resistance from healthcare professionals, and concerns over data security and privacy (Fritz et al., 2015; Slight et al., 2014). For example, many rural healthcare facilities face limited internet connectivity, inadequate hardware, and power supply issues, complicating the maintenance of digital health systems (Attafuah et al., 2022; Raut et al., 2017). Additionally, human resource challenges, including insufficient IT training, high staff turnover, and resistance to digital systems, further impede successful EMR adoption (Gold et al., 2018; Scantlebury et al., 2017). These issues are compounded by clinicians' skepticism, particularly regarding increased documentation workload, which contributes to low adoption rates (Meigs and Solomon, 2016). Furthermore, limited leadership support and the absence of standardized implementation frameworks often lead to fragmented EMR deployment strategies.

RESEARCH METHODS

Studies were considered eligible if they were published in English between 2014 and 2024 in peer-reviewed academic journals. Acceptable study designs included qualitative studies, mixed-methods studies, cross-sectional studies, implementation studies, randomized controlled trials, and case studies. Studies were included if they focused on the implementation of Electronic Medical Records (EMRs), with specific emphasis on identifying barriers to implementation. Exclusion criteria included studies not available in full text, systematic or literature reviews, and non-original research articles.

A comprehensive literature search was conducted across four electronic databases: Scopus, PubMed (MEDLINE Complete), CINAHL, and Web of Science. The search strategy was developed to identify relevant studies discussing barriers to EMR implementation in healthcare settings. Search terms included combinations of controlled vocabulary and keywords, using Boolean operators: "Electronic Medical Record" OR "Electronic Health Record" AND "healthcare" OR "health facility" AND "challenge" OR "barrier" AND "implementation". The search terms were adjusted as necessary to account for differences in indexing across databases.

The initial search yielded a total of 462 articles: 144 from Scopus, 182 from PubMed, 50 from CINAHL, and 86 from Web of Science. After removing 20 duplicate records, 442 studies remained for title and abstract screening. A total of 59 full-text articles were assessed for eligibility, and 14 studies met the inclusion criteria and were included in this review. The study selection process is illustrated in Figure 1, following the PRISMA guidelines.

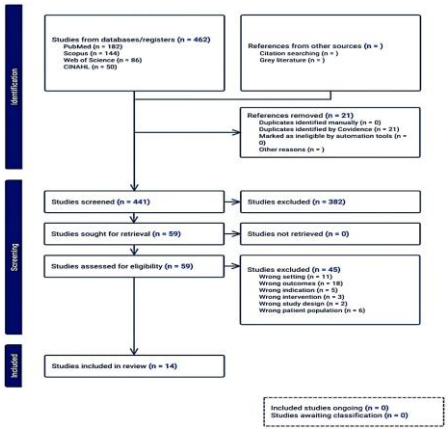

Figure 1. Flowchart Of Study Selection Process

Data Collection Process and Data Items

Data extraction was performed using Covidence® (www.covidence.org). Two reviewers independently screened the abstracts and full texts to determine eligibility. Discrepancies were resolved through discussion and consensus. Extracted data included publication date, study design, country, study population, aims, inclusion and exclusion criteria, key results, and identified barriers to EMR implementation. Risk of bias was assessed independently by two reviewers for each included study. Disagreements were resolved by consensus. The reviewers evaluated methodological quality, potential bias in study design, and relevance to the review objective. A shared spreadsheet was used to document observations and assessments. A descriptive synthesis approach was applied. Identified barriers were catalogued, grouped into thematic categories, and analyzed to detect recurring patterns across studies. No meta-analysis was conducted due to the heterogeneity of study designs and outcomes.

RESEARCH RESULTS

Study Characteristics

Data extraction was guided by the PICO framework. For each article, we collected information on the author(s), title, year of publication, study location, population/sample characteristics, intervention or exposure, comparison (if applicable), outcomes, and key findings or conclusions (Table 1). The included studies varied considerably in geographic distribution, study design, and healthcare contexts. Nine studies (64.3%) were conducted in low- and middle-income countries (LMICs) such as Nigeria, Ethiopia, Ghana, and Nepal, while five studies (35.7%) were from high-income countries, including the United States, United Kingdom, Australia, and Saudi Arabia. Qualitative designs dominated (10 studies, 71.4%), followed by cross-sectional surveys (3 studies, 21.4%) and one mixed-methods study (7.2%). Settings ranged from tertiary hospitals to rural primary health centers, illustrating the diversity of contexts influencing EMR implementation experiences.

Table 1. Summary Of Identified Barriers To EMR Implementation

No	Author(s)/year	Population	Intervention	Comparison	Outcome
1	(Zhang et al., 2016)	Healthcare providers using EMR	Use of EMR systems	Paper-based workflow	Usability issues; patient care disruption; distractions; tension between documentation and care.
2	(Scantlebury et al., 2017)	Clinical staff using dual systems	Transition to integrated EMR	Continued use of dual systems	Confusion, duplication, paper reliance, insufficient training.
3	(Gold et al., 2018)	Hospital staff	EMR implementation	Pre-EMR or early-stage use	Training gaps; workflow inefficiencies; security inconsistencies; redundant data.
4	(Slight et al., 2014)	Health facility personnel	EMR adoption	No EMR implementation	High costs; insufficient training; vendor/infrastructure support issues.
5	(Dolan et al., 2023)	Understaffed health facilities	EMR system access	Facilities with better resources	Limited use; access challenges; inadequate training.
6	(Ayamolowo et al., 2023)	Health workers in Nigeria	EMR system usage	Paper-based systems	Retraining costs; workload stress; lack of policies; manpower limitations.
7	(Attafuah et al., 2022)	Staff in Ghanaian hospitals	Use of computerized EMR	Manual record systems	Low standardization; IT support issues; network problems; low satisfaction.
8	(Tolera et al., 2022)	EMR users in Ethiopia (NGO settings)	NGO-supported EMR systems	Government-led systems	Weak admin support; tech failures; poor literacy; minimal post-training adoption.
9	(Tariq et al., 2014)	Medical staff in South Asia	EMR system implementation	Traditional methods	Poor adaptability; inconsistent

No	Author(s)/year	Population	Intervention	Comparison	Outcome
					layouts; interoperability issues; maintenance problems.
10	(Raut et al., 2017)	Rural healthcare workers	EMR data entry	Manual data recording	Input delays; server issues; HR limitations.
11	(Adedeji et al., 2022)	Nigerian health facilities	Government EMR initiative	Non-digital workflows	Lack of infrastructure, resistance, legislation gaps, untrained staff.
12	(Jabour, 2020)	Physicians in EMR-equipped clinics	EMR system usage	Paper charting	Reduced consultation time; perceived drop in care quality.
13	(Jabali and Abdulla, 2023)	Health professionals of varying experience	Routine EMR usage	Low/no EMR exposure	Time-consuming; need for advanced tech skills; impact of age and experience.
14	(Abdulrahman et al., 2024)	Facilities without functioning EMR	Planned EMR deployment	No system in place	Lack of systems; insufficient funding and training; no qualified trainers.

Identified Barriers to EMR Implementation

Across the 14 studies, 63 distinct barriers were identified. These barriers were synthesized into five overarching themes, reflecting both systemic and contextual factors impacting EMR adoption.

Theme 1: Usability and system design challenges

Twelve studies (85.7%) emphasized usability as a critical barrier (Scantlebury et al., 2017; Tariq et al., 2014; Tolera et al., 2022; Zhang et al., 2016). Common issues included unintuitive interfaces, frequent system downtimes, limited customization options, and lack of interoperability between EMRs and other hospital information systems. For example, a study from Ethiopia highlighted that cumbersome EMR navigation led to clinicians reverting to paper-based documentation, while a US-based study identified decision support system errors as a source of clinical distrust. A recurring barrier identified in several studies involves the usability and interface design of EMR systems. Zhang et al. noted that EMR tasks often compete with direct patient care, leading to workflow interruptions and decreased clinician–patient interaction. Similarly, Tariq et al. highlighted the lack of system adaptability and

inconsistent information layout across EMR interfaces, which hinders clinicians' ability to navigate records efficiently. Jabali et al. also emphasized that time-intensive system use and the high technical skill requirement especially among older or less tech-savvy users create friction in adoption. These findings underscore the critical importance of user-centered design, standardized interfaces, and interface simplicity in ensuring successful EMR adoption.

Theme 2: Training and workforce preparedness

Eleven studies (78.6%) reported deficiencies in workforce preparedness (Adedeji et al., 2022; Ayamolowo et al., 2023; Dolan et al., 2023; Gold et al., 2018; Scantlebury et al., 2017; Slight et al., 2014; Tolera et al., 2022). In LMICs, lack of formal training programs and digital literacy were predominant whereas in high-income settings, frequent software updates without corresponding retraining contributed to user dissatisfaction. Inadequate training and limited technical proficiency emerged as significant themes in multiple studies. Scantlebury et al. and Gold et al. reported insufficient training during and after EMR implementation, contributing to documentation errors and user frustration. Slight et al. and Dolan et al. also observed that training gaps especially among non-technical staff—limited EMR functionality and hindered full system utilization. Abdulrahman et al. further stressed the absence of qualified EMR trainers as a root problem in under-resourced settings. Without structured and ongoing training programs, healthcare workers struggle to adapt, leading to system underutilization and resistance.

Theme 3: Technological and infrastructure constraints

Ten studies (71.4%) identified technological infrastructure as a major barrier (Adedeji et al., 2022; Attafuah et al., 2022; Raut et al., 2017; Tolera et al., 2022). Limited access to functional hardware, inconsistent internet connectivity, and frequent power outages were particularly acute in rural LMIC settings. In contrast, high-income settings reported technological issues related more to system complexity and redundancy. Technological limitations such as poor internet connectivity, server maintenance issues, and hardware inadequacy were prominently discussed. Raut et al. and Attafuah et al. highlighted frequent technical failures and network instability, particularly in rural or low-resource settings. Tolera et al. noted that reliance on donor-developed EMR systems lacking long-term support infrastructure led to sustainability issues. Slight et al. pointed out infrastructure variability across facilities as a major contributor to unequal EMR implementation. These technological inconsistencies challenge the scalability and reliability of EMR systems, especially in decentralized or resource-constrained healthcare environments.

Theme 4: Financial and resource limitations

Eight studies (57.1%) underscored financial barriers (Abdulrahman et al., 2024; Ayamolowo et al., 2023; Slight et al., 2014). LMICs reported prohibitive costs associated with purchasing and maintaining EMR systems, while high-income countries faced budget constraints for continuous system upgrades and user support services. Multiple studies emphasized that financial constraints pose one of the

most substantial barriers to EMR adoption. Ayamolowo et al. and Abdulrahman et al. reported that funding shortages significantly limit the ability of health facilities to implement or sustain EMR systems. High costs associated with retraining, hardware procurement, software licensing, and maintenance were also noted by Slight and Scantlebury. Adedeji et al. added that the lack of government investment and legislative support further undermines national EMR initiatives. Collectively, these findings indicate that without sustainable financing models and supportive policy frameworks, digital health transitions remain difficult to achieve in many settings.

Theme 5: Impact on workflow and patient care

Seven studies (50.0%) described negative impacts on clinical workflows and patient interactions (Jabali and Abdulla, 2023; Jabour, 2020; Scantlebury et al., 2017; Zhang et al., 2016). Several articles described the disruptive impact of EMRs on clinical workflow and quality of patient care. Zhang et al. and Jabour reported that EMR use often reduces consultation time and may compromise clinician–patient interaction. Gold and Jabali identified that adapting clinical routines to accommodate digital documentation could increase the workload and stress levels of healthcare workers. Scantlebury et al. found that dual reliance on paper and electronic systems leads to redundant documentation and inefficiencies. These studies suggest that while EMRs aim to streamline care, improper integration or poor system design can paradoxically hinder care delivery and reduce satisfaction among both providers and patients. Increased documentation burden, dual-system redundancies (paper and electronic), and reduced face-to-face communication between providers and patients were recurrent themes. Notably, a study from Ghana reported that EMR system failures during clinical encounters eroded patient trust in healthcare providers. Table 2 presents a detailed summary of the barriers by theme and corresponding sources.

Tabel 2. Mayor Themes Relamanagemeted to EMR implementation

Theme	Key barriers	Sources
Usability and system design challenges	Complexity and usability issues; lack of interoperability; decision support limitations; reliance on manual workarounds	(Scantlebury et al., 2017; Tariq et al., 2014; Tolera et al., 2022; Zhang et al., 2016)
Training and workforce preparedness	Inadequate training; high turnover and workforce gaps; behavioral barriers	(Adedeji et al., 2022; Ayamolowo et al., 2023; Dolan et al., 2023; Gold et al., 2018; Scantlebury et al., 2017; Slight et al., 2014; Tolera et al., 2022)
Technological and	Limited technological resources; technical issues;	(Adedeji et al., 2022; Attafuah et al., 2022; Raut

infrastructure constraints	policy and administrative gaps	et al., 2017; Tolera et al., 2022).
Financial and resource limitations	High costs; operational costs	(Abdulrahman et al., 2024; Ayamolowo et al., 2023; Slight et al., 2014).
Impact on workflow and patient care	Increased documentation burden; dual systems; compromised patient-provider relationship	(Jabali and Abdulla, 2023; Jabour, 2020; Scantlebury et al., 2017; Zhang et al., 2016)

DISCUSSION

Summary of Main Findings

This systematic review identified five key themes as barriers to Electronic Medical Record (EMR) implementation: usability and system design challenges, training and workforce preparedness, technological and infrastructure constraints, financial and resource limitations, and impacts on workflow and patient care. The persistence of these barriers across diverse settings highlights the complex and multifaceted nature of EMR adoption, indicating that technological innovation alone is insufficient without comprehensive and sustained systemic support.

Firstly, many EMR systems were reported to lack user-friendly interfaces, which often led to disruptions in clinical workflows and reduced the quality of patient-provider interactions. Issues such as poor system adaptability, inconsistent layout design, and high technical complexity were commonly cited, particularly among users with limited digital literacy. These design flaws hinder not only usability but also overall acceptance among healthcare professionals. Secondly, inadequate training and a lack of workforce preparedness were consistent challenges across studies. Insufficient training during initial implementation phases and a lack of ongoing education contributed to underutilization and resistance. These issues were compounded by limited access to qualified trainers, high staff turnover, and overall low digital competence within healthcare institutions.

Third, technological and infrastructural barriers were especially prominent in low-resource or rural settings. Challenges such as unstable internet connectivity, inadequate server maintenance, and insufficient hardware severely limited the effective use of EMR systems. These disparities contributed to uneven adoption rates across healthcare facilities and negatively impacted the consistency and reliability of digital record-keeping. Fourth, financial and resource limitations posed major constraints. High upfront costs for EMR system acquisition, continued expenses for maintenance and updates, and the absence of sustainable funding mechanisms were frequently reported. Additionally, inadequate governmental support and weak policy frameworks left many EMR initiatives vulnerable to failure or limited in scale.

Finally, EMR implementation was found to have a mixed impact on clinical workflows and patient care. In many cases, increased documentation time, reliance on both paper and electronic systems, and misalignment between EMR processes and existing workflows led to inefficiencies. These factors raised concerns among healthcare

providers regarding reduced consultation quality and increased administrative burden. Collectively, these findings suggest that successful EMR implementation requires more than just technological readiness. A holistic approach that addresses design, training, infrastructure, financial investment, and workflow integration is essential for achieving sustainable digital transformation in healthcare.

Comparison with Previous Studies

The identified themes are consistent with prior literature; however, this review emphasizes the interconnectedness of barriers rather than treating them as isolated issues. For instance, usability challenges often exacerbate workflow disruptions, and financial limitations magnify technological deficiencies. Studies by Zhang et al. and Scantlebury et al. similarly highlight that poor system design not only impedes daily operations but also undermines clinician trust in digital health solutions, further hindering adoption. Furthermore, while earlier studies primarily reported on isolated infrastructural or training issues, this review suggests that multifactorial strategies are required. Financial investment without addressing workforce preparedness or usability concerns is unlikely to yield sustainable outcomes, particularly in resource-constrained settings. These insights align with strategic management theory, which emphasizes the need for integrated, adaptive strategies rather than piecemeal interventions.

Critical Analysis And New Insights

A notable gap in current EMR implementation efforts is the insufficient alignment between system development and clinical workflows. Many systems prioritize administrative needs over clinical usability, leading to resistance among healthcare providers. Moreover, the focus on short-term adoption targets, often driven by policy mandates or incentive structures, neglects the long-term operational sustainability of EMR.

This review also highlights a disparity in the prioritization of barriers across different contexts. High-income countries primarily struggle with optimizing usability and interoperability, whereas LMICs are more burdened by infrastructural deficits and financial constraints. Tailored strategies that account for these contextual differences are crucial for effective EMR implementation globally.

Implications For Practice And Policy

Addressing EMR implementation barriers demands a holistic, system-wide strategy. Investments should extend beyond hardware provision to include: Co-design processes involving frontline healthcare workers, Iterative training programs emphasizing usability and clinical relevance, Development of resilient infrastructure, especially in LMICs, Creation of long-term financing models supporting maintenance and upgrades. Policymakers should also promote interoperability standards and ensure that incentive structures align with sustainable digital health adoption rather than short-term implementation metrics.

CONCLUSION

This systematic review highlights that the implementation of Electronic Medical Records (EMRs) across diverse healthcare settings is

hindered by a complex interplay of barriers related to system usability, workforce preparedness, technological infrastructure, financial constraints, and workflow disruptions. These barriers are interconnected and context-dependent, varying significantly between high-income countries and low- and middle-income countries. Addressing these challenges requires a comprehensive, system-wide approach. Investments should not only focus on technological upgrades but also prioritize user-centered system design, continuous workforce training, robust infrastructure development, and sustainable financial models. Active engagement of stakeholders particularly frontline healthcare workers in the design and implementation of EMR systems is essential to ensure alignment with clinical workflows and to enhance provider acceptance. Policymakers and healthcare leaders must move beyond piecemeal interventions and adopt integrated strategies that consider the socio-technical dimensions of digital health adoption. Future research should focus on evaluating the longitudinal outcomes of EMR implementation and on developing adaptable frameworks to guide sustainable digital health transitions, especially in resource-constrained settings.

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REFERENCES

Abdulrahman, M., El-Hassan, O., Redha, M.A.A., Almalki, M., 2024. Adoption Of Electronic Medical Records In Healthcare Facilities In The Emirate Of Dubai. Healthc Inform Res 30, 154–161. Https://Doi.Org/10.4258/Hir.2024.30.2.154

Adedeji, T., Fraser, H., Scott, P., 2022. Implementing Electronic Health Records In Primary Care Using The Theory Of Change: Nigerian Case Study. Jmir Med Inform 10, E33491. Https://Doi.Org/10.2196/33491

Adler-Milstein, J., Jha, A.K., 2017. Hitech Act Drove Large Gains In Hospital Electronic Health Record Adoption. Health Aff (Millwood) 36, 1416–1422. Https://Doi.Org/10.1377/Hlthaff.2016.1651

Ajami, S., Bagheri-Tadi, T., 2013. Barriers For Adopting Electronic Health Records (Ehrs) By Physicians. Acta Inform Med 21, 129–134. Https://Doi.Org/10.5455/Aim.2013.21.129-134

Attafuah, P.Y.A., Abor, P.A., Abuosi, A.A., Nketiah-Amponsah, E., Tenza, I.S., 2022. Satisfied Or Not Satisfied? Electronic Health Records System Implementation In Ghana: Health Leaders' Perspective. Bmc Med Inform Decis Mak 22, 249. Https://Doi.Org/10.1186/S12911-022-01998-0

Australian Digital Health Agency, 2025. My Health Record Statistics [Www Document]. Url Https://Www.Digitalhealth.Gov.Au/Initiatives-And-Programs/My-Health-Record/Statistics (Accessed 6.4.25).

Ayamolowo, L.B., Irinoye, O.O., Olaniyan, A.S., 2023. Utilization Of Electronic Health Records And Associated

Factors Among Nurses In A Faith-Based Teaching Hospital, Ilishan, Nigeria. Jamia Open 6, Ooad059. Https://Doi.Org/10.1093/Jamiaopen/Ooad059

Department Of Health And Social Care, 2024. Build Back Better: Our Plan For Health And Social Care [Www Document]. Gov.Uk. Url Https://Www.Gov.Uk/Government/Publications/Build-Back-Better-Our-Plan-For-Health-And-Social-Care (Accessed 6.4.25).

Dolan, S.B., Wittenauer, R., Shearer, J.C., Njoroge, A., Onyango, P., Owiso, G., Lober, W.B., Liu, S., Puttkammer, N., Rabinowitz, P., 2023. Integration Of A Digital Health Intervention Into Immunization Clinic Workflows In Kenya: Qualitative, Realist Evaluation Of Technology Usability. Jmir Formative Research 7, E39775. Https://Doi.Org/10.2196/39775

Fritz, F., Tilahun, B., Dugas, M., 2015. Success Criteria For Electronic Medical Record Implementations In Low-Resource Settings: A Systematic Review. J Am Med Inform Assoc 22, 479–488. Https://Doi.Org/10.1093/Jamia/Ocu038

Gold, M., Mclauglhin, C., 2016. Assessing Hitech Implementation And Lessons: 5 Years Later. Milbank Q 94, 654–687. Https://Doi.Org/10.1111/1468-0009.12214

Gold, R., Bunce, A., Cowburn, S., Dambrun, K., Dearing, M., Middendorf, M., Mossman, N., Hollombe, C., Mahr, P., Melgar, G., Davis, J., Gottlieb, L., Cottrell, E., 2018. Adoption Of Social Determinants Of Health Ehr Tools By Community Health Centers. Ann Fam Med 16, 399–407. Https://Doi.Org/10.1370/Afm.2275

Grinspan, Z.M., Banerjee, S., Kaushal, R., Kern, L.M., 2013. Physician Specialty And Variations In Adoption Of Electronic Health Records. Appl Clin Inform 4, 225–240. Https://Doi.Org/10.4338/Aci-2013-02-Ra-0015

Jabali, A.K., Abdulla, F.A., 2023. Electronic Health Records Perception Among Three Healthcare Providers Specialties In Saudi Arabia: A Cross-Sectional Study. Healthc Technol Lett 10, 104–111. Https://Doi.Org/10.1049/Htl2.12052

Jabour, A.M., 2020. The Impact Of Electronic Health Records On The Duration Of Patients' Visits: Time And Motion Study. Jmir Med Inform 8, E16502. Https://Doi.Org/10.2196/16502

Kiberu, V.M., Mars, M., Scott, R.E., 2017. Barriers And Opportunities To Implementation Of Sustainable E-Health Programmes In Uganda: A Literature Review. Afr J Prim Health Care Fam Med 9, E1–E10. Https://Doi.Org/10.4102/Phcfm.V9i1.1277

Meherali, S., Punjani, N.S., Mevawala, A., 2020. Health Literacy Interventions To Improve Health Outcomes In Low- And Middle-Income Countries. Health Lit Res Pract 4, E251–E266. Https://Doi.Org/10.3928/24748307-20201118-01

Meigs, S.L., Solomon, M., 2016. Electronic Health Record Use A Bitter Pill For Many Physicians.

Perspect Health Inf Manag 13, 1d.

Oecd, 2021. Health At A Glance 2021 [Www Document]. Url Https://Www.Oecd.Org/En/Publications/Health-At-A-Glance-2021_Ae3016b9-En.Html (Accessed 6.4.25).

Raut, A., Yarbrough, C., Singh, V., Gauchan, B., Citrin, D., Verma, V., Hawley, J., Schwarz, D., Harsha Bangura, A., Shrestha, B., Schwarz, R., Adhikari, M., Maru, D., 2017. Design And Implementation Of An Affordable, Public Sector Electronic Medical Record In Rural Nepal. J Innov Health Inform 24, 862. Https://Doi.Org/10.14236/Jhi.V24i2.862

Scantlebury, A., Sheard, L., Watt, I., Cairns, P., Wright, J., Adamson, J., 2017. Exploring The Implementation Of An Electronic Record Into A Maternity Unit: A Qualitative Study Using Normalisation Process Theory. Bmc Med Inform Decis Mak 17, 4. Https://Doi.Org/10.1186/S12911-016-0406-0

Slight, S.P., Quinn, C., Avery, A.J., Bates, D.W., Sheikh, A., 2014. A Qualitative Study Identifying The Cost Categories Associated With Electronic Health Record Implementation In The Uk. J Am Med Inform Assoc 21, E226-231. Https://Doi.Org/10.1136/Amiajnl-2013-002404

Tariq, A., Lehnbom, E., Oliver, K., Georgiou, A., Rowe, C., Osmond, T., Westbrook, J., 2014. Design Challenges For Electronic Medication Administration Record Systems In Residential Aged Care Facilities: A Formative Evaluation. Appl Clin Inform 5, 971–987. Https://Doi.Org/10.4338/Aci-2014-08-Ra-0062

Tolera, A., Oljira, L., Dingeta, T., Abera, A., Roba, H.S., 2022. Electronic Medical Record Use And Associated Factors Among Healthcare Professionals At Public Health Facilities In Dire Dawa, Eastern Ethiopia: A Mixed-Method Study. Front Digit Health 4, 935945. Https://Doi.Org/10.3389/Fdgth.2022.935945

World Health Organization, 2016. Global Diffusion Of Ehealth: Making Universal Health Coverage Achievable: Report Of The Third Global Survey On Ehealth. World Health Organization, Geneva.

Zhang, J., Chen, Y., Ashfaq, S., Bell, K., Calvitti, A., Farber, N.J., Gabuzda, M.T., Gray, B., Liu, L., Rick, S., Street, R.L., Zheng, K., Zuest, D., Agha, Z., 2016. Strategizing Ehr Use To Achieve Patient-Centered Care In Exam Rooms: A Qualitative Study On Primary Care Providers. J Am Med Inform Assoc 23, 137–143. Https://Doi.Org/10.1093/Jamia/Ocv142