

**ELECTRONIC HEALTH RECORD IMPLEMENTATION:
A PRISMA-BASED SYSTEMATIC REVIEW****Willy George P. Nicolas**wgpnicholas@usep.edu.ph

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ABSTRACT

Based on the PRISMA 2020 manual, this systematic review critically assesses the research outputs released between 2015 and 2025 regarding the integration of Electronic Health Records (EHR) within the Philippine healthcare system. The findings in the study clearly demonstrate that the adoption of EHR has largely been promoted via governance at the national level, especially through the Philippine Department of Health, in partnership with the policy strategies embraced by PhilHealth regarding the compensation of healthcare services dependent on standardized medical records. These support the overall principles of Universal Health Care (UHC), emphasizing the importance of correct, timely, and complete medical data, and monitoring the performance of the healthcare system. Notwithstanding these facilitative policy strategies, the adoption of EHR in the Philippine healthcare system has had issues and challenges regarding the inconsistencies in the successful implementation of these new healthcare technologies. The core reasons underlying the challenges associated with the adoption of EHR in the Philippine healthcare system include the lack of infrastructure, governance, and sectoral policy approaches necessary for sustaining the entire process of the successful implementation of EHR. Critically, the systematic review described in this study brings out the overarching concern that the successful adoption of EHR infrastructure cannot be guaranteed by technology or policy, emphasizing the need for the required institutional capacity development, human capital, or change approaches. If not addressed, the potential performance or utility of EHR may be compromised, especially regarding the efficiency of the healthcare system.

Keywords:

Electronic Health Records; Universal Health Care Act; Philippines; Tertiary Hospital; Health Information Systems; PRISMA

INTRODUCTION:

Electronic Health Record (EHR) is being recognized as a critical component for improving clinical healthcare efficiency, continuity of care, and data-driven decision-making. With the growing complexity of healthcare delivery systems, it has intensified the need for precise, efficient and connectivity of health information management. EHR system enables the systematic collection of patients' health medications and medications, and it reduce medical errors.

Globally, Electronic Health Record adaptation is widely practiced, especially in high-income countries that are particularly in relation to technological readiness, organizational capacity, data governance, and user acceptance. But on the contrary, the implementation of EHRs in low- and middle-income countries, like the Philippines, remains a challenge financially, due to infrastructural, organizational, and human factors. The gap entails a structured and transparent fusion of existing literature in order to better understand the facilitators and barriers in the EHR implementation within the local healthcare context. In the Philippines, the adoption of EHR is strongly driven by the government as a way to strengthen the health care system documentation and to deliver a precise outcome. The enactment of the Universal Health Care (UHC) Act institutionalizes a comprehensive reform of the Philippine health system by ensuring that all Filipino people would have easy access to quality and modest health services. The effective enactment of this law is the adoption of the Electronic Health Record (EHR), which will function as the critical digital infrastructure supporting integrated health system capability,

strengthening Primary Health Care, Efficient Health Financing and PhilHealth Reforms, Continuity and Integration of Care and Health Information Exchange and Interoperability

This PRISMA-based systematic review provides a comprehensive synthesis of Electronic Health Record (EHR) Implementation in the Philippines through integrating related literature in the span of 2015-2025.

METHODOLOGY

Research Design

This employed a systematic Review of Related Literature (RRL) guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework. Focused on literature examining the intersection of EHR adoption, digital health systems, and health system reforms within the Philippine context. That emphasizes the contribution to the objectives of the UHC Act (Republic Act No. 11223), which encompasses policy frameworks, implementation experiences, and challenges affecting EHR utilization in government and private health facilities. The PRISMA approach was adopted to ensure a transparent, comprehensive, and replicable process in identifying, screening, evaluating, and synthesizing existing literature related to the adoption of Electronic Health Records (EHRs) and their role in supporting the implementation of the Universal Health Care (UHC) Act in the Philippines.

Eligibility Criteria

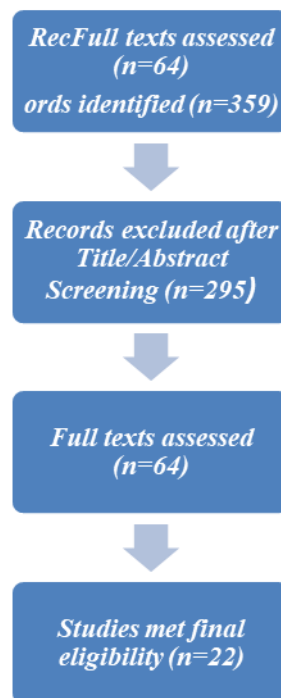
The data that were gathered were published from 2015-2025 and are directly related to the adoption of Electronic Health Record (EHR). These studies that are included are discussed: PhilHealth reforms, health information systems, Publications from 2010 onwards to reflect contemporary digital health and UHC reforms, institutional or technical reports related to EHRs, and Studies conducted in or directly relevant to the Philippine health system. The data that were being excluded were about Literature unrelated to the Philippine context, Studies focusing solely on clinical efficacy without system and opinion pieces lacking empirical

Search Strategy

The selection of the literature for this was primarily focused on the policy documents and reports addressing the adoption of Electronic Health Records (EHRs) and their contribution to the implementation of the Universal Health Care (UHC) Act, Republic Act No. 11223, within the Philippine context. We get this literature from Google Scholar, BMJ journals, DOH, Philhealth, and other Philippine Academic journals. A systematic search used Boolean operators and keyword combinations such as “Electronic Health Records” OR “Electronic Medical Records” OR “Health Information Systems” OR “eHealth” OR “Digital Health”; “Philippines” OR “Philippine health system,” and also Additional sources were identified through manual searching of reference lists and citation tracking of key articles.

Study Selection

The study selection process was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 framework to ensure transparency of the comprehensive literature search. With the literature search, there are 359 records identified from database searching. From the 359 records identified, it excluded 295 because of double entry. With the initial screening, 64 full-text articles were identified for full-text assessment, and 42 articles were excluded after full-text assessment. 22 studies met all inclusion criteria and were retained for qualitative synthesis. As shown in Figure 1, the Study Selection Process Flow

**Figure.1 Study Selection Process Flow Diagram**

RESULT AND DISCUSSION

EHRs as Instruments of UHC Governance

Within the context of the included studies, EHRs were perceived not just as a technological approach but rather as a fundamental tool in the management framework of Universal Health Care itself, facilitating cooperation, accountability, and informed decision-making in this respect. The PRISMA-informed meta-synthesis is indicative of the fact that national leadership has a crucial influence on either facilitating or hindering the scalability or consistency of efforts in EHR programs and projects around the world. Fragmentation in EHRs has been revealed in several studies, which were associated with challenges emanating from a devolved health leadership structure in most of these countries, where freedom at a regional level, to a great extent, resulted in inequitable structures, reduced compatibility, and reduced ability to support EHRs towards their integrative approach for health years.

However, the literature that underwent review uniformly focused on the strategic leadership provided by the Department of Health (DOH) in the digital transformation of health. In this regard, it was clear that within the general strategic frameworks for eHealth, the DOH acted as the lead steward to set policies, standards, and regulate the alignment of various digital health initiatives towards the objectives for Universal Health Coverage (UHC). On conducting the evidence synthesis for the literature based on the PRISMA statement, it became clear that when well-articulated frameworks within the national governance structures, specifically within the domains of interoperability frameworks, data governance policies, or health information standards, are present, the implementation of EHRs showed more alignment within the overall framework for population health surveillance.

In addition, the results show that EHRs play even more significant roles as governance enablers in UHC, as they provide direct associations with information regarding the provision of health services, financing, and mechanisms of surveillance and accountability. Some authors stressed the need to align EHRs and financial repayment mechanisms in an effort to ensure proper accountability. However, the extent to which these challenges can affect EHRs negatively has been determined by this literature review, as some issues, despite causing challenges, often recur. In this respect, it can thus be seen that the PRISMA-synthesized evidence supports the notion that EHRs act as governance enablers in UHC, as their potential is contingent on proper governance.

Implications for Health Financing and System Efficiency

The PRISMA-informed synthesis of the included studies clearly reveals that the digital documentation of medical health records plays a fundamental role in ensuring efficient health financing governance in Universal Health Care (UHC) settings. From the reviewed literature, Electronic Health Records (EHRs) were prominently linked to improved institutional capacity for strategic purchasing, especially through the creation of standardized, verifiable, and longitudinal patient data. The use of EHRs can basically enhance the ability of health insurance bodies in making judgments on health services used, verifying claims, and ensuring that health financing strategies are in tandem with proposed benefits packages and health care guidelines in place. Within this context, EHRs can basically support UHC in making financial protection in health by closing gaps that affect the equal distribution of resources in health care financing.

Further evidence, harmonized by the use of the PRISMA approach, shows that EHR-supported systems increase the efficiency and effectiveness of claims processing and utilization review in health insurance. There exists evidence that the use of electronic health records reduces delays and errors associated with claims processes. Faster insurance processing and better claim tracking ensure quicker insurance reimbursements as well as improved claims compliance. In this case, the utilization review system that uses EHRs helps payers detect misuse, underuse, and overuse, thus enabling them to develop more effective purchasing decisions.

The literature and meta-synthesis of PRISMA-compliant papers and reviews described above emphasize the importance of EHRs and their use within the health sector for the improvement of performance monitoring and accountability. Financial institutions can make use of the data regarding the delivery of health services offered by electronic health records and use it to measure performance and assess the level of compliance with care standards and the effectiveness of the financial expenditure incurred for the delivery of health care. The use of such data would lead to the reinforcement of a more strategic approach to purchases and ultimately result in the improvement of health financing efficiency and sustainability. On the other hand, the PRISMA meta-synthesis above depicts the limitations of implementing the use of EHR data within the health financing sector. These issues can be summarized as the lack of compatibility of health information systems and the consistency of data quality and health sector readiness.

Equity, Access, and Population Health Management

PRISMA-guided synthesis of the reviewed literature shows that EHRs hold significant potential to advance equity, access, and population health management through increasing the availability, timeliness, and granularity of health data. In the studies reviewed, EHRs uniformly figured as a common enabling platform for disease surveillance, epidemiological monitoring, and evidence-informed health planning. Longitudinal and population-level data produced in EHR systems facilitate early identification of disease trends, improve the precision of targeting for public health interventions, and allow more agile allocation of health resources, thus better aligning the implementation of digital health with the equity-oriented goals of Universal Health Care.

However, this PRISMA-based evidence synthesis also shows that the realization of such benefits is constrained by persistent structural disparities across low- and middle-income urban settings. Most of the included studies reported marked variation in the readiness of digital infrastructure, system maturity, and workforce competencies across healthcare facilities, with corresponding uneven EHR adoption and use. Limitations in connectivity, hardware availability, and technical support were frequently reported as barriers that disproportionately affect resource-constrained settings, thereby reinforcing existing inequities in access to digital health-enabled services. Furthermore, gaps in health information management skills and digital literacy among healthcare workers have been shown to undermine data completeness and quality, which limits the utility of EHRs for population health analytics.

Literature further indicates that, in the absence of conscious policy responses, EHR implementation runs the risk of reproducing or widening pre-existing inequities within the health system. While well-resourced institutions were better placed to leverage data from EHRs for advanced population health management, facilities in poor urban and per-urban areas struggled to sustain the use of the system and translate data into useful insights. Hence, PRISMA-guided synthesis underlines the importance of equity-centered digital health governance through targeted infrastructure investments, workforce capacity building, and standardized frameworks for data. Taken together, findings confirm that EHRs are indeed capable of serving as a high-powered tool for population health management and equal access, but their contribution toward UHC goals is determined by addressing structural and institutional disparities that shape digital health preparedness across diverse health care settings.

Synthesis of Evidence

It indicates that the successful adoption of Electronic Health Records (EHRs) in a tertiary hospital is not solely dependent on the availability of digital infrastructure, as it was accompanied by deliberate organizational change management, sustained training, and capacity-building of healthcare workers. To make the EHR implementation most effective.

EHRs adoption is not a one-time technological involvement but also an ongoing institutional journey as it enables Tertiary Hospital to deliver care that is not only more efficient but also supports the healthcare provider with their task daily in ensuring the patients care that they rightfully need.

CONCLUSION

This PRISMA systematic review demonstrates that EHR adoption is occurring in the Philippine health system and in the tertiary government hospital. To move the idea that having EHR as a technological aspiration to a practical necessity. Through various results, EHR has consistently demonstrated to value of improving clinical documentation and strengthening regional PhilHealth claims processing as it aligns with the objectives of the Universal Health Care (UHC) Act.

Implementing the Electronic Health Record (EHR) in a tertiary hospital is not merely complying with national policy or PhilHealth requirements. But also, an opportunity to contribute reliable data to national health planning, enablers of Universal Health Care, and continuity of care.

RECOMMENDATION:

Based on the findings of this PRISMA-guided review, a number of recommendations are proposed to facilitate meaningful and sustainable EHR adoption within the Philippine healthcare delivery system, especially for tertiary hospitals. The adoption of EHRs should not be considered a single technology adoption but rather an ongoing organizational change. Hospitals will need to incorporate these systems into their daily clinical and administrative operations, making sure the technology reinforces care delivery instead of further weighing it down. Leadership and a culture of learning are critical factors to ensure EHRs enhance their effectiveness.

Equally important is investing in the humans who operate with these systems. Readiness of the healthcare staff, confidence and capacity to use digital tools, as well as their willingness to adopt EHR, are key factors for success. By regularly training, mentoring, and designing systems that are user-centric, staff can be empowered to use these tools, rather than the tools being barriers. The national coordination and interoperability should be strengthened. Universal standards, aligned reporting, and technical guidance from bodies such as the Department of Health and PhilHealth can build a more integrated and efficient system.

Lastly, equity must be at the forefront. Investment in infrastructure and resources is required in order to ensure that the benefits of EHR are extended to all hospitals and that the benefits are not confined to some cities in the country. Further research would be helpful in improving approaches in order for health information technology to promote universal, accessible, and high-quality care.

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