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Electronic Health Records in Modern Healthcare: Opportunities, Challenges, and Implementation Insights from Global Case Studies

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ABSTRACT

The paper analyzes EHR systems, where electronic health records (EHRs) have become a fundamental component of modern healthcare systems by enabling efficient st orage, access, and exchange of patient health information. The objective of this study is to examine the opportunities and challenges associated with EHR implementation and to evaluate their impact on healthcare delivery and management. This paper adopts a narrative literature review approach based on peer-reviewed research articles sourced from academic databases, including PubMed, IEEE Xplore, and Google Scholar. Studies published between 2018 and 2024 were reviewed to identify key themes related to EHR adoption, implementation barriers, benefits, and emerging technological integrations. The findings indicate that EHR systems improve healthcare coordination, enhance clinical decision support, reduce medical errors, and support data-driven healthcare practices. However, challenges such as interoperability limitations, clinician documentation burden, privacy concerns, and data security risks continue to affect their implementation. Case studies from Kaiser Permanente in the United States and the Ayushman Bharat Digital Mission in India demonstrate how large-scale EHR initiatives can improve patient outcomes while highlighting contextual implementation challenges. The study highlights the important role of health information management (HIM) professionals in supporting data governance, system integration, and regulatory compliance. Overall, successful EHR implementation requires coordinated efforts in governance, technological infrastructure, workforce training, and policy alignment.

Keywords: Electronic health records, Data security, Artificial intelligence, Integrated care models, Collaborative healthcare, Morbidity and mortality, Health information management, Clinical decision support system, Healthcare technology.

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INTRODUCTION

EHRs, or electronic health records, serve as digital storehouses for patient health data, encompassing details like medical history, diagnoses, treatment strategies, prescribed medications, and test outcomes. In healthcare, EHRs are crucial, as they offer a complete understanding of a patient's medical history. Their significance lies in their ability to enhance patient care by improving data precision, enabling communication among healthcare professionals, and encouraging active patient participation in their health management. Moreover, EHRs support evidence-based healthcare practices, support clinical decision making, and contribute to the mitigation of medical errors.

The concept of electronic health records has evolved over several decades with the advancement of health information technologies. Early attempts at digital medical records, known as electronic medical records (EMRs), date back to the 1960s and 1970s. The shift toward comprehensive EHR systems gained momentum in the late 20th century with advances in information technology. Key milestones include government initiatives like the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009, which incentivized the adoption of EHRs[1].

The large-scale switch to electronic health records is significantly changing healthcare operations, with both advantages and challenges. Carefully weighing the pros and cons of EHRs is important since this technology greatly alters how patient information is handled and treatment provided. Thoughtful examination of optimizing EHR adoption while addressing legitimate concerns can give

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a valuable perspective to help healthcare leaders, policy experts, and IT teams fully realize the potential of digital records. This paper brings together findings from current academic articles, research papers, and studies on EHR benefits, limits, and best practices. Materials were gathered from reliable databases, including PubMed, IEEE, and Google Scholar, from across the globe. By combining evidence from credible peer-reviewed sources across fields, this paper aims to give a comprehensive view of the transformative yet tricky role of EHR systems in modern healthcare [2]

METHODOLOGY

This study uses a narrative literature review methodology to analyze the opportunities, challenges, and implementation practices associated with EHRs. Relevant literature was identified through searches in major academic databases, including PubMed, IEEE Xplore, and Google Scholar.

Search keywords included combinations of the following terms: Electronic Health Records, EHR implementation, health information systems, clinical decision support systems, interoperability, digital health, and healthcare data security. The review focused on peer-reviewed articles published between 2018 and 2024 to ensure inclusion of recent developments in digital healthcare.

Studies were selected based on the following inclusion criteria of Peer reviewed academic publications, Articles discussing EHR implementation, benefits, challenges, or policy implications, and studies related to interoperability, AI integration, or health information management within EHR systems.

Articles that were not relevant to EHR implementation, lacked academic rigor, or were non-English publications were excluded. The selected studies were analyzed using a thematic synthesis approach, where recurring themes such as benefits, barriers, governance, and future technological developments were identified and categorized.

Additionally, two case studies, Kaiser Permanente (United States) and the Ayushman Bharat Digital Mission (India), were examined to provide real-world examples of large-scale EHR implementation.

Benefits of Electronic Health Records

The study[3] demonstrates how electronic health record linkage can be used to examine the association between specific health conditions and the outdoors. A result of this research could include predictions of a particular condition a patient might be more vulnerable to, given their environment, and it would allow the physician to stay on top of patient needs by recognizing conditions and implementing a personalized treatment plan.

Furthermore, the article "Utility in Healthcare Education, Research, and Practice: Systematic Review on the Promising Perspectives and Valid Concerns,"[4] discusses the utility of artificial intelligence, specifically, in health care. In medical settings, artificial intelligence can provide essential insights for medical professionals' data comprehension and decision-making. This, in turn, will improve the quality and precision of healthcare decisions.[2]

Challenges and Limitations of EHR Implementation

EHRs using blockchain technology are explained in this article. It talks about the shift to blockchain technology. This study highlights the potential role of blockchain technology in improving the security, transparency, and interoperability of electronic health record systems due to its discussion of how Blockchain technology can efficiently store patient data and ensure that user data is stored in a universal format that any user can access and use. Interoperability through the power protocols to enable various healthcare ecosystems to communicate and share patient data. The book is a groundbreaker in the field of EHRs, as it explains how blockchain and cryptographic technologies work with EHRs, as discussed by, and how the cloud service it uses makes EHRs secure. It, conversely, sheds light on the downside of data security from many perspectives. However, question the exposure of vulnerability and patient information vulnerability and also require setting measures for patient consent & agreement.[5]

The research is on clinical decision support systems (CDSS). The integration of highly complex health technology like CDSS might create barriers, such as alignment with the prevailing systems, training for the personnel within health services, and handling changes within organizational and governmental infrastructure of the institutionalized health care consumers due to the centralized nature of institutionalization and challenges as listed.[5]

In their research,[6] state that interoperability problems in the healthcare sector can be solved using blockchain. The lack of standardized data exchange among providers poses a significant challenge in the healthcare sector. By using blockchain, a universally available and acceptable data transfer platform can be created.

Role Of Health Information Management

There is credible evidence that Health Information Management professionals play a critical role in the successful implementation of Electronic Health Records. Healthcare professionals are central to the EHR process and should therefore be included in EHR initiative planning and implementation to ensure proper data governance, system integration, privacy, and security.[3] Professional responsibilities in the implementation of EHRs by HIMS include data migration into EHR systems, development of documentation standards, system design, and implementation of EHR training sessions for end-user applications. HIM professionals can also serve as advocates for the measurement and assurance of patient-specific and unit-level data in EHRs, given their prior work in health information exchange, compliance, and data quality management. Due to their formal education and training in emerging technologies and expert clinical terminology, healthcare information specialists bring their capabilities to groundbreaking technologies and their impact on healthcare to create record systems that are more advanced than traditional methods.

CASE STUDIES

Case Study 1: Kaiser Permanente (United States)

Integrating EHR standards in the U.S. is Kaiser Permanente (KP), which aspires to EHR practice. Among the non-profit medical service providers in the country, KP's initiative in EHR technology spanned over 20 years, culminating in the introduction of its across-the-board Health Connect scheme. The program Health Connect was given a go in a new century and, two millennia later, entered the operational state across all Kaiser hospitals and clinics just under a decade later, in 2010,[7] with a budget nearing a sum of over $4 billion. The scope of this project consisted of multiple parts and involved integrating clinical, laboratory, pharmacy, and other administrative data to create an ecosystem capable of a full package patient-centered medicine.

The reinforcement of the ability to assess effects has been notable. In the first three years after the organization's adoption, severe medication errors were reduced by 29% and hospital readmissions by 14%, as KP reported.[8] In addition, EHR-enabled analytics enables the detection of chronic diseases, such as diabetes and heart disease, earlier, leading to early interventions and personalized treatment plans. As the My Health Manager links to the EHR, a patient's account is linked to it, and about 60% of Kaiser Permanente's members now use it to manage their own appointments, monitor their test results, and even send messages to clinicians. The net result of these transformations has been an increase in patient satisfaction levels and a decrease in outpatient visits by 10% due to the high performance of virtual consultations.[9]

Challenges did emerge, particularly in the initial phases. Doctors showed dissatisfaction about the amount of data entry they had to do. A temporary dip reduced productivity due to the system's inability to adapt to changes and poor Quality. Continuous and helpful feedback enables the CIS Project Team to know what is working and what is not. Workflow optimization is a permanent improvement. You should consider Audience Participation: Informative, targeting physicians with user manual training post Go Live, email updates to all users, informative and practical video tutorials, amongst others. Similarly, healthcare organizations, including Kaiser Permanente, have implemented more advanced data governance policies to comply with HIPAA regulations and maintain public trust. KP's solution began with small steps in EDW Integrations. A couple of years later, Epidemic Detection is being implemented. As one of the largest medical organizations in the US, Kaiser Permanente has a duty to stay ahead of its competitors. KP's CI journey has shown how an organization sustains leadership's investments all the way down to the professionals who work with it daily. Moreover, it is groups that embrace lessons learned and cultivate a culture of technology that builds digital literacy within their staff, enabling members to achieve the best possible clinical outcomes. The practices mentioned above show how organizations can mobilize technological resource capabilities to influence tangible clinical outcomes[9].

Case Study 2: Ayushman Bharat Digital Mission (India)

(Table 1)

Envisioned as a central driver of remote healthcare delivery in a developing economy, India's Ayushman Bharat Digital Mission (ABDM) is an ambitious initiative. The most comprehensive digital health system that will link hospitals, diagnostic labs, and pharmacists to health services for better focus and monitoring of individual health. Launched by the Government of India in 2021, this program will use technology to provide 90% of the population. The Ayushman Bharat Digital Mission has emerged as an expansive, far-reaching program to build a standard health information system by establishing a modern digital health ecosystem that connects all stakeholders, including hospitals, dispensaries, labs, insurance agencies, and, most importantly, patients (Government of India, 2023). The establishment of a Health ID, a unique patient identification system; a Health Facility Registry; a Healthcare Professionals Registry; and a Health Information Exchange (HIE) supports programs that facilitate the secure exchange of health data. The health information exchanges being developed enable the sharing of patient information across providers —including hospitals, clinics, pharmacies, and other healthcare entities —to support clinical decision making and patient care.

The only tool we (WHO) have at our disposal that is so strong and game-changing to meet UHC at light speed is this initiative/strategy. Remarkably, the overwhelming share of this response comes from people living in semi-urban and urban regions, testifying to the enormous scale the team has set for itself in 2021. The ABDM provides a standards-based EHR interoperability layer that enables longitudinal health records to be easily and securely accessed and shared using open standard APIs consistent with the HL7 FIH[1] and Health Level 7 (HL7) specifications, along with profiles defined by other international standards development organizations. Moreover, the main advantage is that, as a result of its penetration into the private sector, this will reduce the dependency on other ecosystem members, such as software vendors. The system furthermore integrates with the National Health Authority, the nodal agency responsible for implementing Ayushman Bharat Pradhan Mantri Jan Arogya Yojana (AB PMJAY), which will ensure that each holder receives cashless treatment at impaneled private and public healthcare providers across India.

However, ABDM is far from perfect in addressing all challenges of democratizing healthcare services in India. One significant barrier is the digital divide between rural and urban communities, where internet access is unreliable for healthcare facilities and health IT staff may be in short supply. Besides, any healthcare organization that manages sensitive health data in India has to gear up for the new reality of India's data protection laws, which will come into effect as the Digital Personal Data Protection (PDP) Act in 2023. Alongside these, the ABDM's patient consent mechanisms are still evolving, and complete data privacy awareness is close to non-existent among the program's targets at this time. Also, fragmented legacy systems in both the public and private sectors result in non-uniform adoption.

Table 1: Comparative Overview of EHR factors like Scale, Governance, Key Strengths, Key Challenges, and outcomes

Factor	*Kaiser Permanente (USA)*	*Ayushman Bharat (India)*
Scale	12 million members	1.4 billion population target
Governance	Private, integrated system	Public, multi stakeholder framework
Key Strength	Data integration and predictive analytics	Scalability and inclusivity
Key Challenge	Clinician burnout, data overload	Infrastructure and data privacy
Outcome	Enhanced patient safety and coordination	Ongoing pilot testing; partial success

Despite this, the EHR mission is a promising initiative because it is generic and interoperable, enabling the use of health data across platforms and providing a means for providers and patients to learn from the experiences of other patients with similar diseases. There is evidence that the EHR has promise in some states, such as Andhra Pradesh and Gujarat. In many states, EHRs are available in retail drug stores on an as is basis for all retail patients, coupled with fast, express drug prescriptions and quicker claim processing and digitalization.

Critical Analysis and Discussion

Universal guidelines and the introduction of EHRs are essential for the global expansion of technology use. Implementation and the impact on care and quality may vary among countries or even within organizations. Currently, there has been a big push in the healthcare industry about whether this technology is in use and how effective it may be. The idea of EHRs has evolved from a focus solely on the technology's pros and cons and its capabilities to an encompassing view of the social and technical externalities, as well as the lesser discussed darker side of the patient-physician relationship. Overall, the global adoption of EHRs demonstrates that value must be applied in our era to achieve any sustained success. Leadership, common data standards, and an involved user cannot be fulfilled separately [2]

Health IT policies and incentives, such as the HITECH Act, have spurred EHR adoption in the United States. However, the EHR market remains fragmented, interoperability among EHR systems and beyond is limited to specific use cases, and many physicians are experiencing documentation burnout and other usability challenges [8]. Studies show that while EHRs are associated with improved billing accuracy, greater availability of clinical data, and sophisticated tools for clinical decision support, the time clinicians spend in direct patient encounters is generally reduced, in some cases, significantly (Verma & Gupta, 2023).

In contrast, healthcare information under European systems especially in UK and Netherlands are placed under strict privacy regimes with emphasis on patients' control of data, this is a trust building measure however, in some cases it has the potential to clog or block the data to enable research and AI based analytics in the near future by organizations interested on using that data for other on strict privacy policy requirement organizations like multinational.

While research critically examines how EHRs improve patient care. The studies show that there are many benefits of using electronic health records; however, the dimensions in which they are studied are similar, with almost all stating their benefits. They say that implementing these systems in hospitals results in phenomenal quality of care, reduces the risk of errors in the treatment process, screens for diseases in the population, and improves data quality. The area they limit is the generalization part; they always try to bring it back to the population using them in the US. The studies primarily conducted are based on research from developed nations such as the US and the UK. Such studies primarily challenge the generalizability of their results, as developing nations like India, Nepal, and Pakistan still rely on older methods of storing health records. Furthermore, another point it fails to address is preventing vendor lock in and ensuring data interoperability; there are still limited studies in this area. Admittedly, despite these limitations, there is still a plethora of research evaluating.

A common trend in research on what patients want done with their healthcare data is that people want their medical data related to their medical problems stored securely.

Proposed Conceptual Framework for EHR Implementation

The proposed conceptual framework outlines key components including interoperability, user training, data security, and workflow integration, as summarized in Table 2.

Ethical, Legal, and Policy Implications

Setting value aside, health information and realizing the continuous implementation of interoperable EHR also holds ethical, legal, and political concerns. Ethical issues consequently evolve from patients' autonomy, volunteered personal data, and questions regarding fairness and equity of the data. In recent years, healthcare has moved into the utilization of data in management systems. Machine Learning models developed by the Authority may be used in the Authority's support systems. The issue is raised on whether the use of pharmacovigilance may be complex, whereby, as of now, the life sciences industry has limited resources with the appropriate knowledge and skill set to provide suitable guidance to the public on how to use that data. HROs — organizations in sectors like aviation and nuclear power that maintain a near perfect safety record in high stakes environments — can offer key lessons for healthcare as they fulfill the promise of digital data use to improve patients' lives, who entrust them with their care.

Another challenge is obtaining a patient's permission. The current techniques are either hectic and labor intensive, or there should also be an option to allow number surfing marketing without interference. To solve these issues, dynamic consent

Table 2: Proposed EHR Framework which describes the success factors along with their key components.

Pillar	*Description*	*Key Components*
Governance	Policy, compliance, and ethical oversight	Data standards, privacy laws, interoperability protocols
Technology	Infrastructure and innovation enablers	Cloud systems, AI, blockchain, cybersecurity tools
Human Capital	Skills, training, and adoption support	HIM professionals, clinical training, workflow redesign
Sustainability	Long term performance and equity	Financial models, patient engagement, environmental impact

could be used; it is much better for data use. Dynamic consent enables a patient to change their choices at any time and select where their data is used. Taste of locations includes clinical treatment, research, and secondary analysis. Implementing consent requires specificity within EHRs, including identity management, communication transparency, and patient education about their rights[10,11].

Proponents of this account argue that, instead of merely being non-platformism, a less explicit form of free speech absolutism focuses more on those core values. For example, Partners will include a lawyer, physician, or employee IN countries where such laws allow these kinds of professionals and will provide combined services only IN those jurisdictions. The Privacy Rule, a HIPAA regulation, details in great length the requirements for developing, presenting, and obtaining the required level of patient consent. The (GDPR) General Data Protection Regulation is a law created by the European Union, which forces companies to make sure data collected is accurate and up to date, and if ever asked for that data, must send it across to the user for free. The Government of India, 2023, has stated that the new Digital Protection of Personal Data (DPDP) Act 2023 shall serve as a standard if an illegal action is observed.

Cross-border data movement is also significant and adds another layer of complexity. As complex activities such as multinational healthcare collaborations and telemedicine grow, patient data may crisscross jurisdictions with different data protection laws. One of the most essential things to do is to establish general standards so that laws across countries are consistent and the public knows how they roll, even though different countries have their own policies. This is extremely important to establish because, through the harmonization and standardization of laws across nations, it aids in conducting and regulating. Lawmakers must additionally consider these points and consistently revise the latest laws regarding, for example, new hacking tactics or even disease outbreaks. The modernization of the HIPAA Security Rule would be a great thing to be looking into, training employees about data security, and revealing to patients how to stop phishing attempts.

Governments and other governing bodies will have to make many tough decisions regarding their citizens' privacy, and if making it easier for companies to innovate conflicts with what the public wants regarding consumer privacy and protection. It could be one of the main goals of our marketing efforts. It would really help to require, as a policy, the acceptance of these standards, which are interoperability as well as are created with the structure of the API and the extensive level of regulation and mandate to garner such a secure and functional API environment, just as HL7 FHIR does. Second, we need policies requiring an algorithmic impact assessment to be successful before using a decision support system in a clinical setting.

Recommendations

Many aspects and specialists must experience e-health to the fullest extent. The newest technologies and oversight rules need to be put into place as the final components of an evolved electronic health records system that delivers low-cost, adequate health care to the population. The idea of a modernized or advanced healthcare system that allows healthcare providers to access and use a person's medical history across electronic sources to provide better patient care or experience. An electronic way in which your doctors and physicians connect and use your past health information to deliver you better care. To address this dilemma, governments, suppliers, and multinational organizations should agree on and implement standardized formats for this data. Examples of codification, such as the Fast Healthcare Interoperability Resources (FHIR), proposed by Health Level Seven International (HL7), will refine the way systems communicate by packing data in a format understandable to systems other than the originating one, reduce administrative tasks attendant upon inefficient data exchanges, and allow for the care of patients on a global basis. The relevant conceptual frame for this challenge is: one, it is an ontological issue that underpins health professionals' and patients' collaboration; and two, solutions designed to address it require a detailed understanding of the problem and attempts to grasp it systemically. An ongoing education program should focus on a major area of education, such as data analytics, security compliance and cybersecurity awareness to enable HIM professionals to meet the complex needs of the digital health ecosystems effectively[12].

In the same light, hospitals must have HIM leadership roles in their organizational management structure to guarantee that their information governance and ethical oversight are integrated into the organization's decision-making process. Since data breaches in the health care industry are still a growing field of research, this review provides an opportunity to discuss the correlation between the prevention strategies and the occurrence of data breaches that are varied, such as how hospital monopoly and improved access to quality healthcare can affect the data breaches there, and what regulatory measures need to be improved. To the best of our knowledge, no meta-analysis has yet attempted to summaries global figures on data breaches across healthcare and non-healthcare

organizations. This paper reviews what we know about the characteristics of data breaches, the centers of origin of data breaches, preventive strategies that assist data security, and shares the authors' recommendations for improvement.

When one thinks about the future of EHRs, it becomes evident that Centered Usability becomes tantamount to the design. It is essential that EHRs are now building in voice assistant data entry and more intuitive interfaces so that it is attractive to many, but the user also spends a large amount of their time on documentation-based tasks, and should avoid user fatigue. One should utilize user feedback for future development and the next cycle on the design requirements document, so as to better support the clinical workflows and not to build systems that become hard for users. Not only does improved usability boost provider satisfaction, but it also helps reduce medical errors and enhance patient engagement through improved patient portals and mobile apps[12].

There is a need to develop frameworks for AI governance, given its complexity, lack of transparency, and pervasiveness in healthcare service delivery. The governments are an important player is shaping policies which help reduce harm related to AI at large Conceptually, there is a degree of transparency in the automated algorithm used to determine primary school places, in that the appeal process must be fully documented Parameters for clinical monitoring and feedback will need to be defined to ensure that the system is not 'learning' bad habits while trying to adapt to injury type or healing rate There should be an ethical obligation on funders and journals to both make explicit the questions which a particular study never answered and to support the endeavors of scientists to continue to try to gather intelligence in that area It was evident that the process of teaching a machine learning model to detect facial features has the direct result of improving many facial recognition scenarios. However, many scenarios would not be able to evaluate the task unless they were made to retrain the model and incorporate changes to the collection and extraction processes.

Future Trends and Innovations

The influence of machine learning is continuing to gain greater importance in the area of health, and in a way that is faster because with the development of Algorithms, they have always been most applicable to the large sets of values that were stored in the health record, to the databases of ideas that were produced by the result of the genome and to wearable gadgets. In the case of inquiry made[4], he argues that an AI system can investigate the fault so that it is minimized to a much lower level, give estimates on post-treatment recovery, deliver proper treatment with a precise amount of medicine with less error, as well as provide chatbots for patients' education and auto triage. It is important to note that AI is dominating robotic surgery automation and that deep learning is helping build intelligent chatbots. This helps provide an automated virtual nursing aid to perform routine tasks. Consequently, with continuous evolution, Artificial Intelligence will likely introduce innovation or emerging developments, or a different perception of healthcare in general and enable transformations across the various base points.

Findings from[3] reveal a significant increase in telemedicine adoption during the COVID-19 pandemic, and this trend will continue. Using remote patient monitoring through wearables and at-home internet equipment, early responses in the care process can be taken.

CONCLUSION

Looking ahead, Artificial Intelligence (AI), telemedicine, wearables, and blockchain will help enable more predictive, personalized, and accessible care, but there will be greater oversight to ensure these technologies are applied ethically and serve the public good. Without combined efforts from regulators, technology partners, health care providers, and patients, achieving future health IT will become difficult[6].

EHRs are essential of precision healthcare that real time patient data enable health professionals globally to execute their clinical decision and is instrumental to the national health care strategy and epidemic preparedness like COVID 19 with integrated the EHR systems which assisted in quick identification of at risk populations streamlined vaccination tracking and also supported the epidemiological research, enhancing its further capability to establish it at the central platform of global health resilience tool for interoperability design and timely data exchange[6].

In addition, at the micro level, the stewardship of patient records is being replaced by the stewardship of patients' digital data. The sensitivities that were mitigated by controlling ink on paper are being replaced by the digital security that, for so long, the health system has avoided. This shift in thought process is reflected in the now bioregional Maps [8], which have moved beyond knowledge sharing to become essential to sector strategy and, thus, have grown from the bureaucratic, quasi-academic realms into local government-funded, private sector commercial activity.

However, this digital health revolution also brings its drawbacks. There is a consistent fissure between health data systems, resulting in traffic jams, uneven digital tools, some regions, affluent and grown, and regions that still lack access to simple digital tools, mobile phone implants, and technologies, fancy gadgets that exist in some regions of the world, making a vast price access difference. It brings the progressively mounting inequality around prevalence, capacity and access due to the digital nexus, the progressive decline in variation in your ability to offer apps that have taken daily half of the lives of people globally, ranking them as the most important need of their lives over the essential ones with the highest equity impact in areas that are the most rural, aged, poor, and congested like Africa. Furthermore, a process that fails to include these design considerations properly may offer to widen these gaps instead of alleviating them It is therefore necessary that digital health be designed in a way that protects the rights and privacy of people by enabling everyone, irrespective of their economic capabilities or even limited capacities, and all other locations where healthcare IT technologies are expected to reach the

commonest of people, in other words, the populations marked by the government, people with low incomes, the old people in the remote areas.

As healthcare outcomes vary, the integration of artificial intelligence systems and automated decision-making procedures is also a significant focus of this referral. Patient data is the most critical part of healthcare delivery, as it falls into the hands of healthcare providers and is therefore not restricted in any instance. The key activity in this changing healthcare system will be building trust among patients.

The governments are responsible and should provide clear regulations, while investors, such as healthcare institutions, will also need to be with us as consumers. This can be achieved through cultural and workflow changes to support and enable it in healthcare; therefore, it will be important for technology developers to provide interoperability and security by design. This can happen because it is put in place for the next iteration, not for the current security products that are being planned and yet to be deployed. As healthcare organizations and funders change their expectations and practices, the professionals working in health information management (HIM), epitomizing the role of safekeepers of health information in both paper-based and digital environments, will have a strategic opportunity to expand their professional and organizational scope of activities in terms of data advocacy, quality management, data governance, and data ethics. Moreover, only through this multi-stakeholder cooperation can the healthcare industry build a fully unified, intelligent, and fair digital health infrastructure.

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