

# Electronic Health Records: Patient Care Quality

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## Résumé :

(traduction)

L'avancement de la technologie et son intégration dans une grande variété de domaines a un impact important sur le domaine des communications. Malgré la crainte que l'introduction des technologies de l'information rend la pratique de la médecine plus impersonnelle, son implémentation a un effet positif sur la qualité des soins. On réfère à l'échange d'informations sur la santé par moyen électronique, tel que les dossiers de santé électroniques, par les technologies de l'information de santé, domaine au centre un important effort de recherche. De nombreux supporteurs de ces technologies promeuvent les bénéfices qui leur sont associés : comme l'augmentation de l'efficacité du stockage d'informations et un accès plus facile. D'autres sont plus hésitants, argumentant que la confidentialité et la sécurité de l'information sont remises en question. Des études ont démontré que malgré ces scrupules, une fois l'intégration complète, la qualité des soins augmente.

## Mots-clés :

Technologies de l'information pour la santé (TIS), santé, qualité des soins aux patients, dossier de santé électronique (DSE), relation médecin-patient

## Abstract:

The advancement of technology has led to its integration in widespread fields, heavily impacting areas such as communications. While there is concern that the introduction of information technology into healthcare renders the medical practice impersonal, its implementation has a positive effect on patient care quality. The exchange of health information via an electronic medium, such as the electronic health record (EHR), is known as health information technology (HIT) and has been the focus of many studies. Many supporters of HIT promote the benefits associated with the general rise in technology, such as the increase in convenience and efficiency of information storage; but others are hesitant, often citing privacy and security breaches as primary concerns. Studies show that despite various initial qualms about EHR integration, once the integration is complete, the quality of patient care increases.

## Keywords:

Health information technology (HIT), healthcare, quality of patient care, electronic health record (EHR), physician-patient relationship

## Introduction

The twenty-first century has seen the incorporation of technology in many areas of society, including the healthcare system. Not only does technology allow potential for more effective treatment options, but also for more efficient management systems through healthcare information technology. As Koufi et al. (2013) acknowledge, personalized medicine is optimizing the integration of healthcare information technology (HIT). Tools like electronic health records (EHR), which consolidate social care and genetic data, and clinical decision support systems, are envisaged as having pivotal roles in realizing the individualized approach to healthcare (p. 740). However, a spectrum of legal and ethical reasons may hinder the integration of future EHRs due to security and privacy concerns (p. 740). While there is concern that the introduction of EHRs to healthcare renders the medical practice impersonal, its implementation allows for a positive effect on the quality of care received by the patient.

## Methods

The purpose of this article is to elucidate the relationship of a particular form of HIT –specifically EHRs. As a function of modern technology and a facilitation of information transfer, there should ideally be open-armed acceptance of EHR integration; however, scepticism rests in the safety and privacy concerns associated with its implementation. Varying studies dating across the last decade, which analyze the EHR implementation, will underscore and reveal the current and predicated relationship between the EHR integration and the quality of patient care being delivered and received. Thorough analysis, not simply localized in individual hospitals but across nations will help to clarify the position and stance of integral healthcare workers and patients on the role and image of EHRs in the medical field.

## Results and Discussion

EHRs currently perform a distinctive role in the healthcare system by relating all aspects of patient care from the diagnosis, prescriptions, and clinical results in an integrated patient data file (Koufi et al., 2013, p. 741). The potential of EHRs to achieve a personalized era of medicine is far from exhausted if it can connect to assistive patient medical de-

vices, provide access to social care organizations, and extract information from gene databanks (p. 741).

Although the potential of EHRs has been demonstrated, there also exists the potential for privacy and healthcare issues. One prominent issue is the concern over increased likelihood of patient privacy breaches (Doyle et al., 2012, p. 603). As access to electronic information increases, there is concern that there will be an increase in the number of privacy breaches that can target that information (p. 603). The increased use of technology may serve as another barrier to the physician-patient relationship by degrading the intimacy of the relationship, deplete economical resources and place privacy constraints on the healthcare system given the time and energy needed to change the current practices (Davis et al., 2012, p. 240). Physicians and patients alike often cite electronic media as not only physical barriers between the patient and the physician during the appointment, but also as a distractor that may divert attention away from the physician's focus as well as the physician-patient interaction (Davies et al., 2012).

Despite reluctance to adopt health information technology due “to fear of change and fear of disruption to the physician-patient relationship,” the electronic health record serves as “a valuable tool for providing efficient medical care and improving health care” (Doyle et al., 2012, p. 601). Unlike numerous studies qualifying this technological integration, which are often post hoc surveys, a study by Doyle et al. (2012) offers a comparative pre-post approach: two sets of physician qualitative interviews conducted prior to and following the installation of computers and EHRs. This method allows for analysis of the progression of the physicians' perspectives on their interactions with patients.

Initially, Doyle et al. (2012) found that physicians expressed concerns about “possible breaches of patient confidentiality” and “decreased eye contact” (p. 603-4) negatively affecting the physician-patient interaction. By the second set of interviews, concerns about privacy and confidentiality seemed to have largely dissipated and physicians felt that the EHR served as a communication and collaboration tool with patients (p. 605). They found that “not only had the expected benefits been realized but also the benefits had exceeded in many cases” (p. 606) due to the availability of education resources which allowed for the sharing of online medical treatment plan decisions with patients (p. 601). As well, after a multi-nation study, Davis et al. (2012) conclude the following findings indicating:

*Greater IT functionality or enhanced office IT systems is associated with physicians' feeling well prepared to manage patients with chronic diseases, greater adherence to clinical guidelines, being able to document and follow-up on adverse events, being responsive to patients, and feeling that their ability to provide quality medical care has improved over the past five years. (p. 246)*

This analysis of the former and current state of EHRs is significant in projecting the long-term implications of its incorporation. It suggests that there are many benefits to be realized with EHR integration.

Another area to consider is the financial responsibility associated with the integration of EHRs. As Davis et al. (2012) observe, in areas such as the UK, where the federal government has "established standards, financed, and implemented information technology, nearly all physicians (90%) have electronic medical records, and 83% of physicians report high IT functionality" (p. 246). By contrast, slow adoption or the absence of standards and major financial commitments to HIT by hospitals has been shown to be associated with a failure for physicians to be promptly informed about patient care needs (p.246). The substantial investments in healthcare information technology by the government and hospitals are further indications of the growing consensus on the potential salutatory effect of EHRs on the quality of patient care (Restuccia et al., 2012, p. 1). As noted by Olsen et al., (2014) installation and maintenance of HIT systems, such as EHRs, require some investments, but the amount saved from avoiding paper handling has made such systems profitable. Many prescriptions and updates can now be sent via email and electronic medium thus decreasing the environmental footprint and economic burden in this area. Additionally, gains in the administration and data quality fields have been made (p. 158). The transition to a fully electronic data management healthcare system has obvious advantages regarding cost, data quality, feasibility, and accessibility of information. The initial transition may require time and adjustment; however, the money that will be saved has already made the shift into making these health information technology systems profitable (Olsen et. al, 2014, p. 161).

EHRs, as a facet of healthcare information technology, facilitate collaborative physician-patient relationships. Interestingly, Doyle et al. (2012) are able to demonstrate, through their study, the effect of this technological integra-

tion by analyzing the before and after conditions, illustrating how the physician perspective changed drastically with the implementation of EHRs (p. 246). Benefits of the EHRs seem to not only include the efficiency of these computerized medical records, but also its role as an education tool in increasing the patients' ownership of their own treatment plans. Consequently, while the incorporation of healthcare information technology may surface from a management objective, it demonstrates more significantly the improved quality of patient care that is given and received. Ultimately, the benefits of health information technology integration need to be considered from the perspectives of the patients receiving care.

While the interest in HIT has been in largely directed at improving health care quality, its effect on the quality of care received in hospitals is relatively understudied (Restuccia et al, 2012, p.1). Restuccia et al. (2012) conclude that hospitals with high levels of healthcare information technology implementation, such as EHRs, engaged in a statistically significant increase in patient satisfaction and care quality. This was associated with a greater number of quality improvement strategies and patient satisfaction assessments (p.1).

Statistical analysis of the front-line clinicians' assessments of care, as well as the patients' assessments of the quality of care, was conducted by collecting data from over four hundred hospitals and performing regression analysis on six performance measures of patient care quality (Restuccia et al., 2012, p. 6), to determine the effect of health information technology application. By examining a cause and effect analysis of EHR implementation, a positive association between the activities of healthcare information technology and hospital satisfaction was identified. This large-scale investigation uses the EHR operation as a predictor of its integration success, which allows for a direct relationship to be established, but stifles the understanding of the mechanisms being used under EHR operation. It can be observed that implementation success extends beyond the personal physician-patient relationship to include its acceptance by the entire healthcare system as a whole (Restuccia et al., 2012, p. 7).

Efficiency, perhaps one of the most lauded benefits of technology, has shown to be significantly increased with health information technology incorporation. There is evidence that due to clinical information systems, the collection, analysis, and integration of patient experience data have become more effortless for physicians. "Almost half (46%)

of physicians with high information capacity practices report routinely receiving data on surveys of patient satisfaction and experiences of care” (Davis et al., 2012, p. 244). This was concluded after analysis of surveys across seven nations. The surveys established the common finding that there is greater physician satisfaction as a result of increased ease of patient management through documentation and clinical follow ups while using health information technology (Davis et al., 2012, p. 246). Contrary to initial concerns, humanization of the healthcare system with health information technology is underscored as a broad overview of the features of HIT that can be realized, offering insight into the direct physician-patient relationship.

Intriguingly, Davis et al. (2012) are able to expand on the discussion by analyzing quality of care through three distinct areas: management, patient safety, and responsiveness to patients (p. 240). By accounting for qualitative factors such as different types of patients and illnesses, Davis et al. (2012) investigate the direct effect that incorporating health information technology has on patients in the context of the varying consequences that different environments have on healthcare information technology implementation. This suggests that the incorporation of EHRs is not simply a singular event, but one that requires a developed framework adapted to variability in the specific context and needs of the environment. Regardless, additional developments are needed in nearly all countries, “particularly linking information across sites of care” (p. 246), as this may undermine transitional care with primary care physicians failing to be promptly informed about patient needs following hospitalizations. Consequences of costly re-hospitalizations can be avoided with better health information technology systems. The health care sector has been a laggard in the adoption of information technology in comparison to other industries (Middleton, 2005, p. 1270), as physicians have been mainly concerned about the utility of doing so, yet the potential benefits of information technology to the healthcare system are clear (Davis et al., 2012, p. 246).

There is legitimacy to be drawn from the nature of the privacy concerns, but they can be addressed with growing awareness and action toward a malleable architectural framework for the healthcare information technology system (Koufi et al., 2013, p. 741). An example of such a system is proposed by Koufi et al. (2013): a three-tier model, where different aspects of the patients’ data are accessible by their respective entities and organizations while adhering to a specific security policy so that all bodies are gov-

erned under practices of standard confidentiality and security for safeguarding protected health information (p. 742). The system generates a unique patient number, which is registered in the EHR and enables its transfer from one system to another. Validation checks are run against patient numbers, and patient data is made accessible to the treating physician, nurse, and other parties involved (Olsen et al., 2014, p. 159).

## Conclusion

Effectively, a balance must be achieved between the integration of HIT through EHRs and the policies that are introduced for its smooth and successful transition. The concerns and benefits of health information technology need to be consolidated. As demonstrated by many studies, the apprehen about healthcare information technology integration are valid but serve to moderate the benefits of HIT. It is important, however, to recognize that these issues should not be debilitating and they should not prevent the realization of health information technology development and improvement. The concerns should only manifest cautious and planned execution of EHR policies that can accelerate the spread and use of information technology and the mechanisms for exchange of health information among healthcare providers. Ultimately, the context of health information technology integration will serve a major role in not only impacting the services that it renders, but also its successful incorporation and viability in maintaining and improving the healthcare system.

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