

Chapter 8

Electronic Health Record Patient Portals and the Blockchain Technology

Jorge Tavares

NOVA IMS, Universidade Nova de Lisboa, Portugal

ABSTRACT

The electronic health records (EHR) patient portals are an integrated eHealth technology that combines an EHR system and a patient portal, giving patients access to their medical records, exam results, and services, such as appointment scheduling, notification systems, and e-mail access to their physician. EHR patient portals empower patients to carry out self-management activities and facilitate communication with healthcare providers, enabling the patient and healthcare provider to access the medical information quickly. Worldwide governmental initiatives have aimed to promote the use of EHR patient portals. The implementation of EHR patient portals encompasses several challenges, including security, confidentiality concerns, and interoperability between systems. New technological approaches like blockchain could address these issues and enable a successful worldwide implementation of EHR patient portals.

INTRODUCTION

The world is changing fast, and the healthcare environment is facing a more significant challenge. The warning signs are that the number of patients with chronic diseases is projected to grow by 45% between 2007 and 2025, and the workforce will be 10% smaller (Alpay et al., 2010; Tavares & Oliveira, 2016b). Hence, a new reality is emerging where there will be fewer healthcare professionals available in the future to support patients. The Covid-19 pandemic presented the world with its first big challenge of the digital age, and the countries that had their health systems more prepared, including from the digital standpoint, in general, had a better response to Covid-19 (Morris et al., 2020).

The Electronic Health Records (EHR) Patient Portals are an integrated eHealth Technology that combines an EHR system and a Patient Portal, which give patients access to their medical records, exam results, and services, such as appointment scheduling, notification systems, and e-mail access to their

DOI: 10.4018/978-1-7998-7363-1.ch008

physician (Osborn et al., 2013; Tavares & Oliveira, 2018). EHR Patient Portals empower patients to carry out self-management activities and facilitate communication with healthcare providers, enabling the patient and healthcare provider to easily access the medical information (Gordon & Hornbrook, 2016). This convenience is making the use of the healthcare system more effective and sustainable, not only from the patient care viewpoint but also from the national health systems perspective, due to the lack of human resources and increasing healthcare costs, that can be better managed with the progressive use of digital tools in healthcare. (Alpay et al., 2010; McKee et al., 2012; Metaxiotis et al., 2004).

The challenge of an older patient population with chronic diseases is now joined by the Covid-19 pandemic (Morris et al., 2020). The Covid-19 pandemic only reinforced the weakness of the traditional healthcare systems and the need for digitalization (Morris et al., 2020; Petracca et al., 2020). Many healthcare providers already implemented online video consultation and e-prescriptions via their EHR Patient Portals (Morris et al., 2020; Petracca et al., 2020), avoiding unnecessary travel of people to healthcare centers during pandemic times. The digitalization of healthcare will also allow populations living in remote areas to access more immediate healthcare support (Jordanova & Lievens, 2011; Rho et al., 2015).

Many governments worldwide, including European Union and the United States, promote the use of EHR Patient Portals to increase the efficiency of healthcare systems and give access and control to the patient to their data (Blumenthal & Tavenner, 2010; Commission, 2004). Blockchain is a technology that enables the ownership of virtual property or data to be determined beyond doubt and eliminates the need for a central ledger (Hoberman & Safari, 2018a). This technology also enables transactions' security, efficiency, and transparency, which can be viewed as critical features in a relationship between a patient and their healthcare provider. Showing how blockchain can improve and enhance healthcare, EHR Patient Portals will be addressed further in this chapter.

Methodology

The present study aims to describe how blockchain technology can be helpful to improve the current usage of EHR Patient Portals instead of presenting an extensive review about the structure or technical details of EHR Portals or blockchain technology. To achieve this goal, we searched scientific literature, between the years 2000 and 2021, in the following databases: Scopus, Web of Science, Google Scholar, and IGI global database. The leading search topics were: a) EHR Patient Portals projects; b) blockchain AND EHR; c) blockchain technology in healthcare; d) EHR security AND blockchain AND cyber-attacks. Two hundred and thirty-five references with potential interest were identified and reviewed, and from those, thirty-nine were referenced in this chapter.

BACKGROUND

EHR Patient Portals

To better comprehend the definition of EHR Patient Portals, it is critical to have a clear view of the technologies that support them. The first one is the Patient Portal, healthcare-related online applications that allow patients to interact and communicate with their healthcare providers to perform tasks such as asking healthcare-related questions, scheduling appointments, and requesting prescription refills

8 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/electronic-health-record-patient-portals-and-the-blockchain-technology/282342

Related Content

Embracing the Future of Retail With Virtual Try-On Technology

Rupayan Roy and Swetha Ramakrishnan (2024). *Data-Driven Intelligent Business Sustainability* (pp. 344-359).

www.irma-international.org/chapter/embracing-the-future-of-retail-with-virtual-try-on-technology/334754

Enhancing an Image Using Point Processing: A Perceptual Approach

Shilpa Hiremath and A. Shobha Rani (2024). *Applications of Parallel Data Processing for Biomedical Imaging* (pp. 223-243).

www.irma-international.org/chapter/enhancing-an-image-using-point-processing/345598

Blockchain and the Protection of Patient Information in Line with HIPAA

Colin DeLeon and Young B. Choi (2021). *Research Anthology on Blockchain Technology in Business, Healthcare, Education, and Government* (pp. 1373-1379).

www.irma-international.org/chapter/blockchain-and-the-protection-of-patient-information-in-line-with-hipaa/268666

Vision Conflict Scale: Instrument Profile

J. Louis Spencer and W. David Winner (2021). *Handbook of Research on Advancements in Organizational Data Collection and Measurements: Strategies for Addressing Attitudes, Beliefs, and Behaviors* (pp. 191-209).

www.irma-international.org/chapter/vision-conflict-scale/285197

A Novel Approach Towards Regeneration and Constitution of Data Linked to Distributed Databases

Rashmi Rekha Swain and Sambit Kumar Mishra (2024). *Applications of Synthetic High Dimensional Data* (pp. 1-10).

www.irma-international.org/chapter/a-novel-approach-towards-regeneration-and-constitution-of-data-linked-to-distributed-databases/342982