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# Revolutionizing Healthcare: Harnessing the Power of Blockchain to Ramp Up Medical Tech Operations

*Nicole A. Derdzakyan*

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Blockchain is an evolving database used [between sectors](#) to securely share information through a decentralized network. It can be used in different industries, but it has the potential to revolutionize healthcare management systems by better protecting and exchanging patient data between institutions. This system contains [connected blocks](#) of shared information, allowing any device within the network to stay updated. The system ensures that the patient's healthcare team is up to date with the patient's current health status without missing information about their past medical history. In order to address privacy concerns, Blockchain uses [cryptographic principles](#) to securely exchange information. Blockchain improves patient data security by improving components like access control and [data integrity](#).

Blockchain's transparent and decentralized approach allows for equal information sharing through connected devices. The cryptographic principles that link blocks of information are immutable, making it "[one of the most secure technologies known to man](#)." Thus, the information in a block is not solely found and dependent on the functioning of one device. With blockchain, the patient's electronic health records (EHRs) can be more [accurate](#) as it reduces errors and identifies mistakes, alerting medical personnel if a contradiction is apparent in the drugs administered to the patient.

Blockchain's decentralized network is a shift from the current [centralized databases](#) where a third party manages the data. With a centralized system, not only it is more likely for the

data to be lost due to cybersecurity attacks, but both patients and physicians have less accessibility. Therefore, blockchain is a new means of data sharing through a transparent and [patient-centered model](#), allowing for [permission management](#) of data accessibility and transparent yet regulated access through a two-way form of trust and accessibility. Blockchain allows for “smart contracts” where the patient and the hospital agree to give each other access to manage the data. For example, the patient can allow or deny which individual or entity has access to their data. With this system, all changes are tracked and authorized, ensuring [data provenance](#). This removes the need for a [third-party](#) intermediary to manage the data and reduces the risk of cybersecurity attacks on EHRs. Additionally, these smart contracts allow physicians and medical staff to have immediate access to the patient’s data during an emergency rather than waiting to receive permission for data access. In general, patients would still need the hospital to grant permission to edit any documents in the EHR.

Currently, EHRs are held on different platforms with [no standardized data code](#) to permit data transmission between platforms. Blockchain combats this issue by translating the EHRs into a standardized data code to allow widespread accessibility in different healthcare institutions. In this way, any healthcare institution that the patient visits would have access to their information, reducing the time needed to receive permission to analyze records. Hopefully, blockchain will facilitate [data interoperability](#) in healthcare, allowing seamless and safe information exchange between platforms of different institutions and manufacturers.

The potential applications of blockchain are widespread and could transform healthcare data management systems and potentially produce savings to the healthcare industry of up to [\\$100-150 billion](#) annually. These savings can come from multiple outlets, such as less spending on cybersecurity attacks, administrative costs, and data handling costs. In conclusion, blockchain is

an evolving database that can transform and improve healthcare management systems. It can connect healthcare institutions to securely exchange patient data and identify mistakes to help physicians provide optimal patient care. Blockchain has the potential to improve patient and hospital accessibility to data and create a transparent, decentralized, and secure system that can be used to improve the quality and speed of healthcare delivery.

*The author has no conflicts to report.*