



COULD BLOCKCHAIN CHANGE EVERYTHING FOR HEALTHCARE?

by Commvault

WHAT THIS NEW TECHNOLOGY MEANS FOR HEALTHCARE EHR, INTEROPERABILITY AND DATA EXCHANGE

Over a third (35 percent) of healthcare and life sciences organizations who responded to a recent Deloitte survey plan to begin using blockchain technology in the next 12 months. While blockchain has primarily been known as the foundation for bitcoin, an internet currency, the technology is now becoming more mainstream with emerging uses in many industries, including healthcare and finance. Of all the industries surveyed, healthcare had the highest adoption rate, likely because healthcare systems can realize significant benefits, such as interoperability and increased data security, from using the technology. That said, blockchain is not simply a new technology, but rather a complete shift in prevailing thought on clinical data exchange and data ownership.

WHAT IS BLOCKCHAIN?

Blockchain is a type of data storage and exchange system where data is stored in encrypted blocks. The blocks are strung together to create a distributed ledger of a given transaction. Everyone with access to the blockchain transaction then becomes an active participant in the data, with the ability to update, change and otherwise directly engage with the data with the approval of others on the ledger. As such, data goes from being centralized to decentralized, thus giving access to physicians and clinicians as well as the patient.

The biggest difference in blockchain from a clinical perspective is that all patient data is collectively owned by all parties involved in creating the data, including other providers and patients. This means parties outside your healthcare system would have partial ownership of data even though it is created by providers in your healthcare system. While this is fundamental change in approach may initially feel uncomfortable to organizations, Premier Healthcare Alliance found that sharing data across healthcare systems has the potential to save \$93 billion over the next five years.

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INCREASED SECURITY AND INTEROPERABILITY

The recent Wired article "Moving Patient Data Is Messy, But Blockchain Is Here to Help" describes the security benefits of blockchain as unprecedented. The reason is that with traditional data storage, cyber criminals can access data by hacking a single entry point. However, the distributed ledger structure of blockchain makes it impossible to access data by hacking a single point (or in this case, block). Criminals must hack all the access points on the blockchain at the exact same time to gain access.

Many feel that blockchain could be a promising solution to the interoperability puzzle, which is currently costing healthcare systems considerable time and money, not to mention lower patient outcomes.

By using blockchain technology for storing data, the information can be accessed by anyone with permission, regardless of location or technology.

This would virtually eliminate data silos and allow providers to see a full patient view- updated in real time- to more accurately diagnose and recommend treatment options.

Several technologies currently in development are seeing positive results in the prototype phase. MIT Media Lab researchers recently tested MedRec, a blockchain program, at Beth Israel Hospital for tracking patient medication data. Wired reported that the results were so encouraging, the MIT team is currently working on deploying the technology in additional healthcare systems. IBM Watson Health is currently partnering with the FDA to use blockchain technology for data exchange between EMRs, clinical trials, genomics and health, and devices such as mobile devices, wearables, and Internet of Things (IoT) devices.

IT'S TIME TO THINK OF DATA EXCHANGE IN A NEW WAY

Before implementing blockchain, it's essential that CIOs shift their mindset in order to realize the benefits for their patients and providers. It will be virtually impossible to successfully use blockchain if you approach the technology as a solution where you simply purchase, deploy and use the technology.

Blockchain requires you to completely modify your data exchange processes, and healthcare systems must let go of their existing notions around data exchange and, more importantly, data ownership.

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Previously, data created by a healthcare system was owned by that healthcare system. While patients could view the data or records sent to other providers, the healthcare system completely owned the data in the patient's medical records and providers within the system were the only ones who could alter the data. Other parties could only access the data if the healthcare system that created the data granted them access. With data collectively owned in blockchain, healthcare providers only have a portion of control over the data they create, necessitating a change to the way healthcare organizations think about patient data.

To successfully move to blockchain and realize the benefits of its implementation, especially in terms of security and interoperability, CIOs must adjust their thinking in two primary areas:

- ▶ Data becomes centralized around a specific patient instead of being owned or controlled by the healthcare system or provider creating the data. Healthcare systems must let go of the notion that they own the data they create, which means they are no longer in control of the access, or even the contents. Instead of the healthcare system being the gatekeeper, other parties in the blockchain can share access and request corrections. Providers must also shift their mindset to truly working in collaboration with providers outside their system for the well-being of their patients.

- ▶ Data is created in collaboration with patients, instead of simply being about the patient. While patients have become much more involved in their own healthcare in recent years, and have even begun participating in collecting their own data, blockchain shifts the dynamic even more. Patients now have control over who has access to, as well as the contents of, their data, including requesting changes to inaccurate information. Blockchain enables the patient to go from being a passive participant to the gatekeeper of their own care.

The bottom line is that successfully implementing blockchain technology requires everyone to view data as a shared commodity of which they are users, but not owners. The result is a much more collaborative healthcare experience for everyone involved – both the patients and providers – and, ultimately, better care for the patient.