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December 2018

Blockchain and the Healthcare Revenue Cycle: Emerging Possibilities

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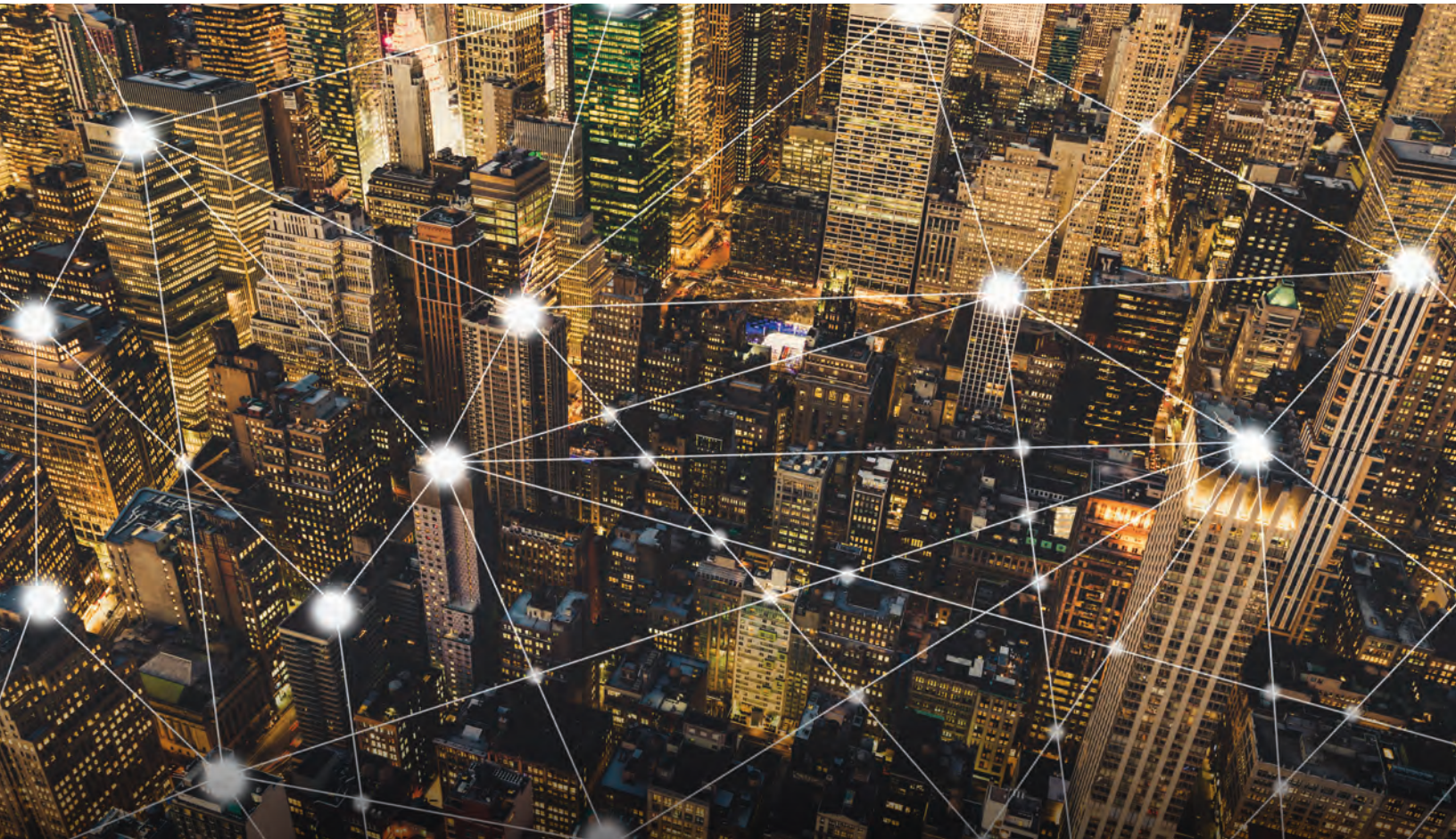


Today's healthcare revenue cycle faces no shortage of challenges, including a stricter regulatory environment, increased scrutiny of claims, and rising claims denials. Using a sample from more than 300 hospitals, Crowe analyzed claims and remittance data for 2017 clients and determined that 9.6 percent of all charges were denied.[1]

The healthcare revenue cycle continues to encounter a general lack of trust among involved parties, including payers, providers, and patients, which often results in a high level of redundancy of several key processes. Moreover, a high percentage of critical revenue cycle processes are still being performed manually.

When confronting these issues, providers and payers can benefit from new opportunities to streamline the revenue cycle. One such prospect comes in the form of an innovative technology known as blockchain.

What is blockchain?

A blockchain is an append-only digital transaction ledger, meaning it can only be written onto with new information. Information that exists on the ledger is stored in "blocks" and cannot be edited or changed in any way.[2] Blockchain is cryptographically secure and uses a technology known as "smart contracts" to facilitate the transfer of information among parties and automate tasks. All transactions made through blockchain technology are validated via consensus process. Through this process, a network of nodes provides a guaranteed ordering and validation of transactions, essentially confirming the correctness of all transactions.

A unique, two-part structure helps to make a blockchain secure. The header contains information such as transaction codes, time stamps, and digital signatures. The block contains a Merkle tree (also called a "hash tree"), which holds all of the transaction-related data.

Another security feature of blockchain is that it is a distributed network. This means all network participants have access to the same records and can see all updates and changes made to the records, in real time. This feature helps to make blockchain a single source of truth. A blockchain network can either be public, as is the case with cryptocurrencies such as bitcoin, or private, used among businesses such as financial services or healthcare companies.

Blockchain technology debuted publicly in 2008 and is perhaps best known as the technology that runs bitcoin. Bitcoin was opened to the public in 2009, but it wasn't until around 2014 that other industries began exploring applications for blockchain, the underlying technology behind bitcoin.[3] The financial services industry was one of the first to adopt the technology, starting in 2017. But it is still in the early adoption stage.

Several characteristics make blockchain a unique, incredibly secure technology. Blockchain is:

- **Valid.** Blockchain verifies that transactions on the network are real and validated. This feature was originally developed to prevent double spending of cryptocurrency but has clear benefit for validating any business transaction.
- **Immutable.** Once a transaction is written onto blockchain, it cannot be removed. In essence, a transaction on blockchain becomes a permanent record.
- **Authentic.** Blockchain technology verifies that a transaction originates from the actual account owner and is not a duplicate. In a healthcare revenue cycle setting, this check can enable organizations to make sure the same patient isn't charged or billed for the same procedure at two different hospitals.

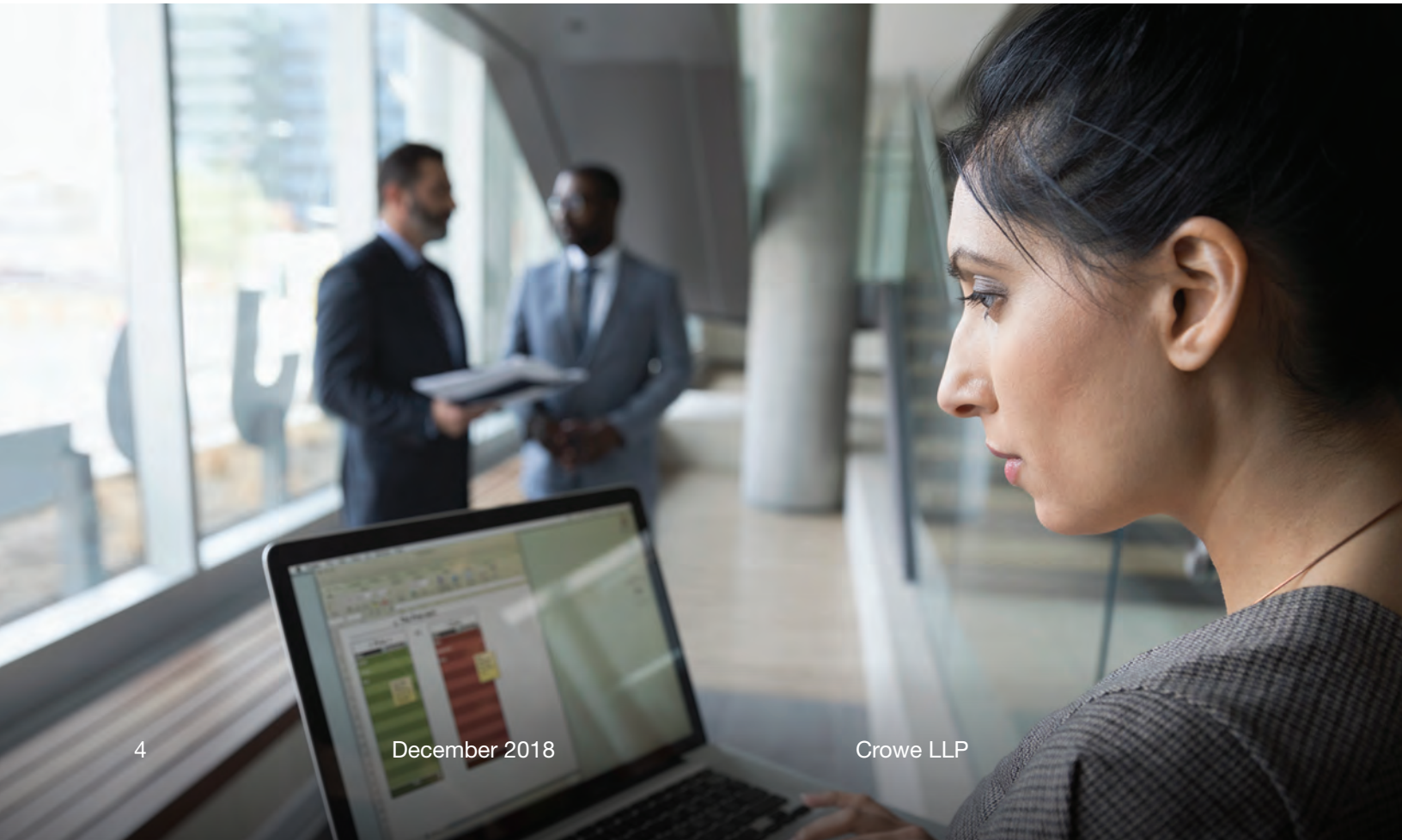
The healthcare revenue cycle

Considering the extreme security and automation characteristics of blockchain, it is easy to see how the technology might find a place within the healthcare revenue cycle function. One particular area that has the potential to be completely transformed by blockchain is confirmation of medical necessity and validation of insurance coverage.

Today, payers have specific, unique conditions that need to be met in order for a procedure or treatment to be deemed medically necessary. Through the use of blockchain, each insurer's conditions could be developed via smart contract and added to a blockchain, automating the approval process. This automation could help reduce many of the redundancies among payers and providers associated with verifying patient identity and insurance coverage.

Using this approach, coverage denials could potentially be greatly reduced or even eliminated. Blockchain further streamlines the denials process by eliminating the need for personnel to input patient information manually.

In addition to confirming medical necessity and validating insurance coverage, other potential uses for blockchain technology in the healthcare revenue cycle further down the road might include automated billing and the possibility to streamline internal audit.



The business case for blockchain

Shifting to a blockchain-based revenue cycle has enormous potential to affect the healthcare revenue cycle positively, from both operational and financial standpoints. For example, operationally, one chronic issue experienced by hospitals and health systems is difficulty forecasting revenue for the coming months and years.

A blockchain-based revenue cycle can allow provider organizations to improve revenue forecasting significantly. Viewing the blockchain record can help the organization to know immediately, in real time, which treatments have been approved and which still are awaiting approval. The approval would be attached to the specific date of the treatment or procedure scheduled for a patient, giving the hospital or health system more clarity regarding the timing of their revenues. In real time, on a validated network, hospitals and health systems can see what treatments have been approved, what treatments will be provided, and when.

Being able to forecast revenue more accurately can allow provider organizations to improve planning and budgeting and affect the bottom line positively. A decrease in denials resulting from more accurate validation of medical necessity and insurance coverage can result in significant cost savings. Organizations can also reap potential savings in the cost of recovering denials, as fewer staff members would be needed to input denials manually.

A transformative technology

Blockchain is not a disruptive technology; rather, it is a transformative technology. While recently adopted technologies such as machine learning or artificial intelligence can be added to current healthcare revenue cycle processes to improve those processes, blockchain is different.

Blockchain has the ability to transform a current process into a completely new process. It isn't a component that can just be implemented into a system; it changes the entire system and creates a whole new way of doing business.

When considering blockchain and its potential, it can be helpful to consider the way business was transacted prior to the internet's public adoption in the mid-1990s.

Think about the difference the internet made within many industries and how companies such as Amazon were not even around until the internet was created. With the arrival of blockchain, the healthcare industry finds itself still operating in the pre-internet world. Soon, however, the industry will reach a tipping point in which processes that have never been used before in business will be created, improved upon, and widely adopted.

Currently, Crowe has a patent-pending blockchain solution in development. It will be exciting to see what the future holds for a transformative, streamlined healthcare revenue cycle, thanks in part to technologies such as blockchain.

Learn more

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[1] Crowe RCA Benchmarking analysis, November 2018

[2] Arthur Iinuma, "What Is Blockchain and What Can Businesses Benefit From It?" Forbes, April 5, 2018, https://www.forbes.com/sites/forbesagencycouncil/2018/04/05/what-is-blockchain-and-what-can-businesses-benefit-from-it/#79460d51675f

[3] 3 Bernard Marr, "A Very Brief History of Blockchain Technology Everyone Should Read," Forbes, Feb. 16, 2018, https://www.forbes.com/sites/bernardmarr/2018/02/16/a-very-brief-history-of-blockchain-technology-everyone-should-read/#28b138617bc4

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FW-19006-002A