

## Let's cut through the noise: Understand near-term and long-range uses for blockchain

As blockchain rapidly grows up, many speculate it will solve a lot of the data problems in health care. It will cure data interoperability. It will prevent data breaches.

It will shift ownership of personal health data from health systems to consumers. It will provide end-to-end transparency of health records in a single source of truth for each consumer. Health care organizations (as well as leaders in big tech) are experimenting with blockchain. They seek to understand what it is, how it can be effectively used and what changes will be necessary to derive real value.

In this series, we outline the possibilities of blockchain in the near term and in the long term. Senior Distinguished Engineer Mike Jacobs and Senior Director of Strategic Initiatives Lorraine Frias, both of Optum, discuss some of the barriers we must overcome as an industry. They also share the best business use cases for blockchain — out of the gate.

### Q1 **What is the current state of blockchain in commercial applications?**

Blockchain is already in its third generation. After its birth in 2008 as the tracking database for bitcoin ownership, companies used blockchain for inter-organizational cooperation. Blockchain 2.0 gave rise to "Ethereum." This is an open-source, public blockchain platform that enables small computer programs called "smart contracts." Smart contracts enable exchange of new financial instruments that have attributes similar to currencies like the dollar, commodities like gold and securities like stocks. Today, in its third phase of maturity, businesses are experimenting with blockchain to track, trade, find, collect, synchronize and validate data. Key to these efforts is finding ways to drive out costs associated with data management.

### Q2 **Isn't blockchain the silver bullet for health data exchange, interoperability and longitudinal health records?**

Some are touting blockchain as a way to end the stalemate for generating longitudinal health records (LHR). There is promise that we could use blockchain to aggregate islands of patient data in single, secure health

#### SUBJECT MATTER EXPERTS



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**Mike Jacobs** is a senior distinguished engineer for product engineering and data solutions at Optum. He's a voting member of the U.S. National Body working on international standards for blockchain and distributed ledger technologies. Before joining Optum, Mike served as chief architect for Mayo Collaborative Services and the Department of Laboratory Medicine and Pathology at Mayo Clinic.

records that are accessed by providers who have permission. But this is a long-term goal that requires we resolve cultural, business, legal and technical issues around patient data.

When we as an industry have addressed these issues, blockchain will help us assemble every detail related to health care for a consumer. We'll know if a customer had a tetanus shot at a retail health clinic and the serial number of his knee replacement prosthesis. Listen to the list of dependencies that must be addressed prior to longitudinal health records on blockchain.

The goal of LHR on blockchain is to provide a historical and real-time, whole-person view of health. This will improve care and give consumers control of their health data. That's a transformational concept.

Hear the list of dependencies that must be addressed prior to longitudinal health records on blockchain.



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Listen to why the market may need incentives to move to blockchain.



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### Q3 **Will providers, payers and consumers flock to this technology?**

There's a lot of hype and misinformation about what blockchain can and can't do today. Blockchain use cases should be strongly vetted to confirm the ROI for participating organizations. We believe payers will take the lead and providers will join them to streamline back-office processes. Consumers will follow in the long-term as their records become available.

Our key takeaway is that CIOs should educate their leadership on the benefits of joining forces with other organizations to tackle data problems and costs together. Blockchain enables organizations to collaborate on problems that pose little or no risk to competitive positions. But even where there's willingness, we may need to create incentives to participate.

### Q4 **Can blockchain be used to speed up and simplify the revenue cycle?**

This is probably a mid-term use case for blockchain. In a traditional revenue cycle workflow, the provider creates a claim. Then the provider sends it to one or more clearinghouses or networks, and then it moves to the payer. Another entity approves or denies payment, which may require additional records. The payer sends information to its bank, which sends money to the provider's bank. In this cumbersome workflow, multiple companies running on different systems are trying to communicate about the same event. Blockchain operates on a shared ledger, instead of multiple systems. It uses multiple permissioned users viewing the same data on a single network. This simplifies and speeds up the entire process.

## Q5 Will smart contracts on blockchain ease the claims adjudication process?

Blockchain won't replace the existing fee-for-service model. Claims adjudication is still heavily biased toward fee-for-service. Moving to blockchain would require re-implementing everything that has been automated. However, a blockchain may supplement fee-for-service processes by producing a single, shared audit trail that tracks the claim through its life cycle across multiple systems.

In the mid-term, as value-based reimbursement (VBR) takes hold, blockchain may eliminate clearinghouses and back-end claims-processing steps. Moving to blockchain may reduce the operating expense of reconciling coverage and payment disputes. This would require use of smart contracts and reimbursement logic. Smart contracts on blockchain may be able to codify the terms and conditions of value-based reimbursement. This would automate those back-office processes and streamline payment timing.

In the long term, blockchain with smart contracts will have significant relevance in the claims adjudication process when patient records, provider data and value-based contracts are codified.

Our advice is to proceed deliberately and quickly to explore how blockchain may help you leap ahead in your business. Blockchain has the potential to give you and your business partners speed and visibility. It can impart the convenience your members demand, and the control and cost-savings you need in health care transactions.

The next blog in our series, offers realistic, near-term use cases to consider where blockchain links your investment to viable and valuable business solutions.

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*“Moving to blockchain may **reduce the operating expense** of reconciling coverage and payment disputes.”*

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A Reality Check on Blockchain  
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