

Let's be practical: Consider "here and now" uses for blockchain

The reality is health care is an industry plagued by data silos. Until blockchain, no technology has been able to solve the issue of data sharing beyond system or enterprise borders.

The permissioned blockchain shares information only with the parties that need it. It draws organizations to the network to append data in a single, secure source of truth. It is visible only to the organizations that have agreed to collaborate around data in a new way. As lines continue to blur across the health care sector, data accuracy and sharing are becoming the linchpin of cost containment.

By way of definition, blockchain is a digital ledger of transactions that are chronologically recorded and tamper-resistant. Blockchain makes it possible to trace information back to its original source and view every detail in between. It simplifies commercial relationships where an organization can track and trade something of value (such as data) without a middleman.

Q1 **How does a health care organization approach blockchain implementation?**

The first step is evaluating the groups of organizations or types of organizations that will benefit from a single source of truth. Where is the overlap of data among organizations? What are the redundant (and costly) processes? The second step is to work with a handful of organizations to gain perspective on who will benefit from data stored on a blockchain. In terms of driving cost out of the system, one of the most significant use cases — for which blockchain is fit to purpose — is provider directories.

Q2 **Why is managing provider directories a realistic, near-term test case for blockchain?**

Today, CMS requires every payer to maintain a census with significant detail about each provider in their network. Inaccurate information can lead to a frustrating member experience and impede access to appropriate care.

SUBJECT MATTER EXPERTS



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But providers tend to work with many payers and maintaining accuracy is a challenge. Each payer may structure their data differently. And every quarter, they all request a fresh update to the information in their directory. These updates have become such a cumbersome task that many providers have turned to third parties for help. Provider directories require an on-going update of publicly available information. And the penalties for non-compliance are severe.

CMS can fine the payer up to \$25,000 per day per affected member when provider data is missing or inaccurate. It's a regulation that came out two years ago and CMS is starting to enforce it. If you have a million patients, that's a very large number.

Up to 40% of provider records contain errors or omissions. The Council on Affordable Quality Healthcare (CAQH) estimated that the commercial health care industry spends \$2.1 billion annually on provider directory management. And we could eliminate 75% of that cost through a single source of truth.

In a blockchain environment, we could create provider information once to produce a single source of truth. All payers could use this resource to improve accuracy and eliminate the cost of replicating data updates. Provider data on a blockchain would be available for a range of uses such as credentialing, sanctions monitoring, EFT/ERA enrollment and claims adjudication. Eliminating these costs via a blockchain network could cause a pretty big ripple in the health care ecosystem.

Q3 **What are some other realistic, near-term uses for blockchain?**

Medication reconciliation

Blockchain could bring together the data islands from numerous sources to reconcile medication errors and discrepancies. Today there is little or no sharing of relevant medication data other than data shared for payment.

In 2016, the Journal of Community Hospital Internal Medical Perspectives reported that:

- Errors in medication reconciliation occur at many care levels, including prescribing, pharmacy dispensation, hospitalization, and outpatient follow-up.
- Adverse drug events (ADEs) account for more than 3.5 million physician office visits and 1 million emergency department visits each year.
- It is believed that preventable medication errors impact more than 7 million patients and cost almost \$21 billion annually across all care settings.

Listen to a discussion about choosing your cohort.



Listen to the audio clip on provider directories.



- About 30% of hospitalized patients have at least one medication discrepancy on discharge.
- Medication errors and ADEs are an underreported burden that adversely affect patients, providers and the economy.

To resolve these issues, a permissioned blockchain network could become the “single source of truth” for health consumers and providers.

Pharmaceutical supply chain

Blockchain is also a natural fit for tracking pharmaceutical manufacturer supply chains. Pharmaceutical manufacturers and other stakeholders are typically unable to track product authenticity. To give you an idea of the scope of supply chain vulnerability, the World Health Organization estimated fake drug global sales at \$75 billion in 2010. That’s a 90% increase over five years.

Pharmaceutical manufacturers could use blockchain to securely document the many points where drugs transfer ownership on their way to patients. This would help prevent counterfeit and inferior materials from entering the manufacturing supply chain. We’d do this by scanning specially-tagged drugs and entering them into secure digital blocks whenever they change hands. Authorized parties could view this real-time record any time. That includes patients at the far end of the supply chain. Blockchain could be used for supply chain monitoring to track the quality of ingredients and the delivery of the drugs.

Durable medical equipment

We’ve also considered blockchain to increase efficiencies in durable medical equipment distribution. The supply chain pain for these players relates to:

- Regulatory compliance
- Product security
- Product damage or spoilage
- Costs and waste throughout the chain

Producers must control and report on the origin of every component and raw material. They must update information as new vendors are added or removed, which is time-consuming and inefficient. Blockchain with sensor-enabled components could reduce cost, risk of fraud and device hacking.

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Q4 What is the CIO's role in a blockchain implementation?

The first step is for CIOs to educate their leadership teams on the benefits of working with other organizations. The next step is to identify a use case that solves a real and mutual business problem. The third step is to join forces to tackle data and cost-reduction problems together without risking their competitive positions.

When CIOs strip away the hype about blockchain and understand its utility for solving data quality problems, they can begin to experiment. The experience of moving to a single source of truth will be instructive and its benefits will accrue to consumers, providers and payers. Read the final blog in this series to learn more about building a blockchain consortium.

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¹Enclarity, a LexisNexis company. A business case for fixing provider data issues. <http://docplayer.net/4271837-A-business-case-for-fixing-provider-data-issues.html>.

²CAQH. Issue brief: Administrative provider data. [Analysis completed by Booz & Co., now Strategy&, Inc.] December 2011.

³da Silva, BA, Krishnamurthy, M. The alarming reality of medication error: A patient case and review of Pennsylvania and national data. *J Community Hosp Intern Med Perspect*. June 28, 2016. ncbi.nlm.nih.gov/pmc/articles/PMC5016741/. Accessed May 7, 2017.

⁴Lo C. Blockchain in pharma: Opportunities in the supply chain. *Pharmaceutical technology*. October 31, 2017. pharmaceutical-technology.com/features/blockchain-pharma-opportunities-supply-chain/. Accessed May 7, 2018.