

With FHIR in Place is There Room for Blockchain in Healthcare?

By David Devine

Interoperability offers many benefits for consumers, providers and healthcare organizations. Yet despite many efforts to improve interoperability, healthcare has not found a solution. Most recently, [Health Level 7 \(HL7\) Fast Healthcare Interoperability Resources \(FHIR\)](#) is in place as the current state for consumer-centric interoperability. The question now becomes, is there room for blockchain with an entrenched FHIR system.

HL7 and FHIR's Role in Interoperability

FHIR provides data formats, elements and an application programming interface (API) to connect health information across different health systems, personal devices, pharmacies and other technologies. Ultimately, FHIR creates a common language where systems can connect and share data.

Many in the industry are seeing the benefits and FHIR is gaining steam as more government entities back it. The Office of the National Coordinator for Health Information Technology is investing solutions that [create interoperability](#). Big tech is also taking

note, with Microsoft, Amazon, Google, IBM, Oracle and Salesforce releasing a letter stating that they'll leverage FHIR in future health technology endeavors to "[unlock the potential of healthcare data, to deliver better outcomes at a lower cost.](#)" Apple is using FHIR to enable patients to aggregate their health records from various institutions into one centralized place in their Health app. This allows patients to bring their health information from one system to another if the health system supports Apple's [Health app](#). Another example, [Blue Button 2.0](#), is an API that enables all 53 million Medicare beneficiaries to connect claims data to apps, services and research programs. As a result, researchers, providers and beneficiaries can access the data from across various entities in a seamless fashion.

As every institution, provider, app developer and device manufacturer adopts FHIR, we will see:

- A seamless flow of data and information between healthcare organizations. Data is accessible when providers need it and consumers will no longer need to request that their health information get faxed or mailed to a new physician.
- Personal health information (PHI) plays a larger role in care decisions. By integrating it into medical records physicians can leverage real time data, PHI stored in devices over time as well as information in an EHR.
- A single language so that data from disparate sources connect seamlessly. This means

that unlike today where complex, large data sets are often challenging to aggregate, all datasets will have the same structure, making it easy to combine them.

While FHIR is a significant step forward from the siloed nature of healthcare today, it does present some challenges. It requires every entity working in the healthcare industry to agree to participation; otherwise today's interoperability challenges will remain. In addition, third party platforms, like Apple's Health app, will be required to store the data, which could mean that providers and consumers are forced to select vendors that they choose to use.

FHIR is a critical component of interoperability and creates interoperability between systems so that records can be exchanged and accessed easily between each other, but alone it doesn't truly solve all the challenges.

How FHIR Can Fuel Blockchain

As more app developers, health systems and others get on board with leveraging FHIR it will make it easier for health apps to integrate into health records. Blockchain could take interoperability to another level by creating an agnostic platform upon which health information can be easily connected.

When FHIR is accompanied by blockchain, you could see a more consumer-centric database. This would mean that:

- Consumers don't need to select a vendorspecific platform to house their information and healthcare organizations don't need to decide who they're going to partner with.
- Identities are verified to be accurate. Today, there are duplicate identities of the same individual within a health system. With blockchain, it's possible to create a single identifier for everyone, even if their information is under different names with different organizations or there are duplicate records in a system.

- Improved security of patient data. Unlike FHIR which depends on external encryption to secure data, blockchain is inherently secure because of the way the data is passed through the platform making security breaches of patient data less likely.
- Accuracy of health information is ensured. Records can't be manipulated but can be continually updated, ultimately providing the most comprehensive picture of an individual's health. This will increase data integrity and ensure that even though many people may be leveraging this information it can't be changed.

With blockchain, a consumer could consent to providing access to their medical data with a given provider. Then their "private key" which is their medical record number across all organizations ensures that the data attached to a given patient is only carried by that patient, thus removing the human error of connecting medical records to the correct individual.

What Healthcare Organizations Should Do Today

Healthcare organizations must look at their plans for future technology investments and ensure that the new technology uses FHIR, and for existing technology that efforts should be made to correct this lack of interoperability. Healthcare leaders should also follow the latest blockchain news from other industries to gather insights on this platform and recognize key learnings that could be applied to set up a blockchain in healthcare. At the same time, they should consider how to be proactive around the use of blockchain. A blockchain pilot by Illinois Blockchain Initiative and Hashed Health is looking to improve efficiency and credentialing. For health care organizations, there's also the opportunity to pilot or partner with another organization to explore how blockchain could be applied to create a more consumer-centric healthcare experience, lower cost of care and enable more data-driven decisions.

Through a collaborative effort, every healthcare organization will realize the benefits of interoperability. While it will take time and thoughtful decision making, the benefits of interoperability that leverages both FHIR and blockchain could transform the way healthcare is provided.

Key Takeaways

For healthcare organization to realize the benefits of blockchain and FHIR they must begin to do things differently. To do so, they must:

Think differently.

Look at interoperability as more than just systems connecting but as a way to create a holistic consumer-centric healthcare experience.

Plan differently.

As you look to the future, consider how interoperability will shift your organization's goals and business objectives.

Act differently.

Be proactive. Look for opportunities to use technology that leverages FHIR or participate in blockchain pilots.



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