Smart FHIR and LPR Solution

Driving Patient Access & Healthcare Transparency

A lack of interoperability preventing the free-flowing exchange of patient information across the healthcare system has been a systemic issue for years. But the arrival of a global pandemic, coupled with the release of the **Fast Health Interoperability Rules (FHIR)** by the Centers for Medicaid & Medicare Services (CMS), is finally forcing the Healthcare System to address and fix the challenges with interoperability.

The implementation of FHIR is expected to foster a deep integration of clinical, financial, administrative and other data across the healthcare ecosystem, thereby driving the creation of a **Longitudinal Patient Record (LPR)** and finally providing patients ownership of their health data. We believe such an interoperability will transform how the health system leverages data and will lead to an insight-driven care system. An increasingly interoperable world means the advent of artificial intelligence (AI) "avatars," advanced analytics and real time decision-making, resulting in a deeper understanding of a patient's clinical conditions, better treatment coordination and support for improved access to care while reducing cost of care.

What is FHIR Interoperability?

Fast Healthcare Interoperability Resources (FHIR) is a framework built from a set of modular, exchangeable components known as "resources" and application programming interfaces (APIs) for exchanging Electronic Health Records (EHR). The standard was created by the Health Level Seven International (HL7) healthcare standards organization. The FHIR framework is designed to facilitate exchange and provide a common interpretation of data regardless of its format and can be extended to any healthcare application built on mobile or cloud platforms.

Why is FHIR Interoperability Important Now?

Healthcare data has been increasingly digitized and democratized over the past few decades. Patients' digitized health data is captured and stored in a variety of systems using multiple formats resulting in information blockages across the healthcare field. Creating a barrier-free communication channel, therefore, requires that the health data residing in diverse platforms, both within and outside of health system, is uniformly understood by all in a secure, real-time manner. Additionally, as the focus on value-based care has deepened it is evident that claims data alone for analyzing outcomes is highly skewed towards payment patterns of a provider. As a result, payers are likely to miss meaningful insights about a patient as well as necessary intervention opportunities.

Source: https://www.hl7.org/fhir/overview.html

While Interoperability is a mechanism to drive collaboration across the healthcare system and provide patients access to their health data, it is also an important tool facilitating **measuring quality of care outcomes** and **driving member centricity** through **longitudinal patient records (LPR)**. Today's fragmented health system makes it difficult to achieve a holistic view of a patient's medical history. It is also well known that the data landscape of payers tends to be heterogeneous. Therefore, there is no easy way of generating data extracts for regulatory purposes, as well as for business insight on cost and quality of care. With the focus shifting to value-based care, **outcomes reporting** and **benchmarking against prevailing standards** has become very important. FHIR helps both the healthcare payers and regulators obtain aggregated clinical datasets across multiple providers that can be used for predictive modelling to **understand care gaps and medical management in real time**.

Thus, FHIR is a game changer, not only in restoring the rightful ownership of health data to the patient, but also in achieving a member-centric approach through personalized care journeys, risk assessments, treatment effectiveness and prescription drug monitoring. And with the recent COVID-19 global pandemic, has it is evident that healthcare data interoperability is an increasingly pressing concern for healthcare organizations.

What Does A FHIR Interoperability Implementation Mean To A Healthcare Payer?

An opportunity to partially resolve heterogeneity of the data landscape

Payers usually have multiple data stores that are often siloed and have no single source of truth for many of the data domains, including member and provider. FHIR eliminates redundancies across the data landscape and presents a unique mechanism of creating Common Information Models that are aligned with FHIR's rich data models

Improved timeliness and real time exchange of member data with more repeatable interfaces

The bulk of the data landscape continues to be batch oriented for a typical payer and current architectures do not allow for a responsive exchange of healthcare data. One of the big leaps of FHIR is in the improvement in retrieving information along with the granular depth supported by FHIR in real-time.

Better support to Digital Health initiatives

FHIR's advanced cloud-native data architecture supports future digital health use cases and enterprise AI platforms, driving value-based care analytics. Even minimal FHIR compliance across Patient Access tools and the Provider Directory results in an appropriate Provider and Member 360 platform along with semantic layers that support micro services or API integration.

Data challenges pertaining to driving compliance

Payers frequently have multiple legacy systems and multiple proprietary data sources. It remains a significant effort to map these sources to the FHIR models. Though FHIR is infinitely extensible and can easily handle areas such as specialty care (that cannot be handled through the base model) it also can be very complex to manage over time. Partnering with the right vendor to handle internal complexities of mapping data to FHIR templates is a very important decision that payers need to make.

Capgemini's Smart FHIR & LPR Solution Components

Capgemini's Smart FHIR & LPR solution helps in **accelerating the payer's journey towards implementing advanced health informatics** with a scalable architecture at its core.

We have developed data integration wrappers integrated with cloud-based data lakes to solve core healthcare business problems such as better understanding of cost and utilization, care gaps, medical management etc.

Our offering consists of:

- **Bi-directional brokers** that construct FHIR datasets and make them ingestion-ready for onward exchange with CMS, providers etc.
- **Adaptive, cloud-native modules** that can unpack encounter, medication, claims, care plan, risk, clinical notes and other clinical/operational FHIR JSON datasets.
- **Pre-built models** that generate "Tree of Life" consolidating member's health journeys and overall healthcare spend.
- **Micro-serviceable data modules** to use EHR data in a variety of contexts such as Telemedicine, Healthcare Information Exchange, Medical Management Applications and Value-Based Care data lakes.
- **Clinical 360 view** for holistic understanding of care delivery

Capgemini's Smart FHIR & LPR solution has the ability to accelerate FHIR interoperability implementation by 30% as opposed to platform-based approaches that may, over time, introduce additional heterogeneity in a siloed payer data landscape. Our framework coupled with our deep healthcare domain expertise uses FHIR to achieve insights and data platform innovation and as a lever to foster digital health. Capgemini's data-centric Smart FHIR

Source: https://www.hl7.org/fhir/overview.html

Value

- *Achieve long term goals of developing Trusted Exchange Network fostering payer to payer coordination.*
- *Multi Stakeholder effort to support value based care*

Accelerators

- *USCDI wrappers built in Python for core data elements*
- *Common Information Models to map proprietary Data stores*
- *FHIR JSON author and parsers*
- *Longitudinal Patient Record View*

Business Benefits

- ***30%*** *Accelerated FHIR Compliance.*
- ***10%*** *Improved timeliness if patient data*

& LPR solution enables health payers to ensure **patients' access to their health data** in real time and secure manner, enable clinicians to get a comprehensive picture of the patient health journey and achieve **regulatory compliance with the new CMS mandate**. Our Smart FHIR & LPR solution also facilitates rapid implementation of **LPR and drives innovation in assembling data lakes and AI applications on the fly**. The data domains that are brought together relate to a patient's condition, medication, care plan, procedure, observations, encounter history and demographics. **Our solution is capable of integrating Social Determinants of Health data, creating a holistic understanding** of a patient and changing the traditional care delivery paradigm.

Why Capgemini?

Our leading Healthcare Practice offers differentiated healthcare capabilities that enable our clients to leverage the opportunities offered by new healthcare market trends and stay ahead of the competitive curve.

Our Smart FHIR and LPR solution helps payers to be FHIR compliant and solve core healthcare industry problems around cost and utilization, care gaps, and medical management through our data integration wrappers with cloud-based data lakes. Our solution accelerates LPR implementation and assists advanced health informatics with a scalable architecture at its core.

Success Story

Leveraging FHIR to Drive Better Internal and External Interoperability, Compliance and Cost Avoidance

A healthcare client with a number of claims systems and different business copies of the data warehouse faced uphill challenges in generating affordability insights, rolling out their latest digital health applications and diversifying their portfolio into newer Medicare Advantage programs.

A new report or advanced analytics algorithms would typically require a data engineering development cycle of about 10-12 weeks. As a result, onboarding new AI use cases was slow. To address this issue, the business teams created their own sandboxes that would allow them to rapidly prototype business insights crucial to their top line improvement.

By leveraging FHIR and implementing data transformation and modernization strategies, Capgemini helped the client improve timeliness of data and insights, standardize the data integration landscape through FHIR-based common information models and improve efficiencies via reduced redundancies. It also led to a more comprehensive understanding of members' risk factors, thereby improving personalization of benefits and plans.

To get more information on our FHIR offering, contact us at healthcare@capgemini.com

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About Capgemini

Capgemini is a global leader in consulting, digital transformation, technology and engineering services. The Group is at the forefront of innovation to address the entire breadth of clients' opportunities in the evolving world of cloud, digital and platforms. Building on its strong 50-year+ heritage and deep industry-specific expertise, Capgemini enables organizations to realize their business ambitions through an array of services from strategy to operations. Capgemini is driven by the conviction that the business value of technology comes from and through people. Today, it is a multicultural company of 270,000 team members in almost 50 countries. With Altran, the Group reported 2019 combined revenues of €17billion.

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