HL7® FHIR

What Is HL7® FHIR®?

HL7® FHIR®[1] – **Fast Healthcare Interoperability Resources**
is a next-generation interoperability standard created by the standards development organization Health Level 7 (HL7®). FHIR is designed to enable health data, including clinical and administrative data, to be quickly and efficiently exchanged.

Why was FHIR created?

In 2012, a team of health information technology implementers lead by the inventor of FHIR, Grahame Grieve, asked the question, "What would health information exchange look like if it started now, using modern approaches?" This question factored in the rapidly growing amount of health data and the rise of the "app" economy on smartphones. The team created a draft standard that built on the simplicity of the main method of exchange at the time, HL7 v2 messages, combined with an application programming interface (API) and common World Wide Web technologies including JSON, XML, HTTP, and OAuth. These technologies power all kinds of internet-based data exchange and are used by e-commerce providers and social media companies such as Kayak, Mint, and Google.

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A core goal of FHIR was to create a standard that would lead to high adoption across disparate developer communities. Therefore, it is focused on being easy for software developers to use.

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Current health care systems can co-exist with and use FHIR. Its evolutionary development path from standards based on Messages, such as HL7 v2, and Documents, such as Clinical Document Architecture (CDA), enables continuity with existing provider workflows.

1. http://hl7.org/fhir

Core capabilities of FHIR

FHIR's API[2] is a RESTful, or REpresentational State Transfer, approach to data exchange. REST defines categories of data, or "Resources[3]," to exchange data. The philosophy behind FHIR is to create a set of Resources that, individually or in combination, satisfy most common use cases. The Patient Resource, for example, includes demographic data related to a patient, such as their name, address, and phone number. Resources also improves granular data retrieval, so that a request returns just the relevant data rather than a full record or document that itself must then be searched.

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Once they are modified for specific requirements using FHIR's built-in capabilities, combinations of Resources are brought together in an Implementation Guide to address a specific use case, such as a provider directory or patient-reported outcomes. This structure lends itself well to expansion beyond FHIR's core capabilities.

Like many other components in the standard, FHIR uses modern security standards, including for authentication and encryption. Similarly, among FHIR's privacy capabilities, FHIR can support labeling sensitive information so that only those who have the need and the right can see it.

Health care data is represented by many sets of vocabularies, terminologies, and codes which grow and change over time. As a result, it is important for the data exchanged to be equally understood by the sender and receiver, which is known as "semantic interoperability." FHIR manages the use of this data by including references to code definitions used for data verification and by allowing restrictions on the codes that can be used.

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2 See "The FHIR® API" Fact Sheet
3 See "Introduction to FHIR® Resources" Fact Sheet

Interested in learning more about FHIR?

See more of our Fact Sheet series at:
https://www.healthit.gov/topic/standards-technology/standards/fhir-fact-sheets.

ONC's FHIR Fact Sheets are a collaborative effort with HL7 to help educate and demystify FHIR for federal employees. These fact sheets summarize the key technical concepts that make up the foundation of FHIR, how it is developed in an open and public process, and why FHIR adoption has become the focus of the health IT standards world. Full details and developer documentation can be found at HL7's FHIR website.