# Introducing HL7 FHIR®


FHIR® – Fast Health Interoperable Resources (hl7.org/fhir) – is a next generation standards framework created by HL7. FHIR combines the best features of HL7's Version 2, Version 3 and CDA® product lines while leveraging the latest web standards and applying a tight focus on implementability.

FHIR solutions are built from a set of modular components called "Resources". These resources can easily be assembled into working systems that solve real world clinical and administrative problems at a fraction of the price of existing alternatives.

FHIR is suitable for use in a wide variety of contexts – social media on mobile phones, cloud communications, EHR-based data sharing, server communication in large institutional healthcare providers, and much more.

## Why FHIR is better

FHIR offers many improvements over existing standards:

- Strong focus on **implementation** – fast and easy to implement (multiple developers have had simple interfaces working in a single day)
- Multiple **implementation libraries**, many **examples** available to kick-start development
- Specification is **free for use** with no restrictions
- **Interoperability out-of-the-box** – base resources can be used as is, but can also be adapted for local requirements
- **Evolutionary development** from HL7 Version 2 and CDA – standards can co-exist and leverage each other
- Leverages **Web standards** – XML, JSON, HTTP, Atom, OAuth, etc.
- Supports **RESTful** architectures and also exchanges information using messages or documents seamlessly
- Specifications are **concise and can easily be understood**.
- **Human-readable wire format** for developers
- **Backed by solid ontologies** and rigorous formal mapping for correctness

## Flexibility

A central challenge for healthcare standards is how to handle variability caused by diverse healthcare processes. Over time, more fields and optionality are added to the specification, gradually adding cost and complexity to the resulting implementations. The alternative is relying on custom extensions, but these create many implementation problems too.

FHIR solves this challenge by defining a simple framework for extending and adapting the existing resources. All systems, no matter how they are developed, can easily read these extensions and extension definitions can be retrieved using the same framework as retrieving other resources.

In addition, each resource carries a human readable text representation using html as a fall back display option for clinical safety. This is particularly important for complex clinical information where many systems take a simple textual/document based approach.

## Example Resource: Patient

This simple example shows the important parts of a resource: a local extension, the human readable HTML presentation, and the standard defined data content.

```
<Patient xmlns="http://hl7.org/fhir">
  <extension>
    <url value="http://www.goodhealth.org/consent/trials"/>
    <valueCode value="renal"/>
  </extension>
  <text>
    <status value="generated"/>
    <div xmlns="http://www.w3.org/1999/xhtml">
      <p>Henry LEVIN the 7th, DOB 24-Sept 1932</p>
      <p>MRN: 123456</p>
    </div>
  </text>
  <active value="true"/>
  <identifier>
    <use value="usual"/>
    <label value="MRN"/>
    <system value="http://www.goodhealth.org/identifiers/mrn"/>
    <id value="123456"/>
  </identifier>
  <details>
    <name>
      <family value="Levin"/>
      <given value="Henry"/>
      <suffix value="The 7th"/>
    </name>
    <gender>
      <system value="http://www.hl7.org/fhir/v2/0001"/>
      <code value="M"/>
    </gender>
    <birthDate value="1932-09-24"/>
  </details>
  <provider>
    <type value="Organization"/>
    <url value="organization/@1"/>
    <display value="Good Health Clinic"/>
  </provider>
</Patient>
```

Extension with reference to its definition

Human Readable Summary

Standard Data Content:

- MRN
- Name
- Gender
- Date of Birth
- Provider

FHIR has resources for administrative concepts such as patient, provider, organization and device as well as a wide variety of clinical concepts covering problems, medications, diagnostics, care plans, financial concerns and more.

## The FHIR development process

FHIR is still undergoing development as an HL7 standard. By the end of 2013, FHIR should be available as a Draft Standard for Trial Use. After a period of trial use to vet the specification, HL7 will develop FHIR as a full normative specification, most likely through 2015.

Due to the many advantages FHIR offers, trial use is already beginning right now.

**http://www.hl7.org/fhir/.** Follow us on Twitter using **#FHIR**