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Fundamentals of FHIR in HEDIS® with Firely

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FHIR 101

Resources
_____

Profiles
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Terminology

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FHIR Resource

```
{
  "resourceType": "Patient",
  "id":"example",
  "meta":{
   "versionId":1"
  },
  "text":{
   "status":"generated",
   "div":<div xmlns="http://w
   .ww.w3.org/…>
  },
  "identifier":{
   {use":"official",
    system":urn:oid:1.2.36.
   146.595…."
    value":12345"
  }
}
```

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FHIR Resource

Definition:
A FHIR Resource is a building block of healthcare data in the FHIR standard. Think of it as a small, organized packet of information about a specific part of healthcare, like a patient, a medication, or a lab result.

Why it matters:
Resources make it easier to share and use healthcare data across systems, ensuring everyone (doctors, insurers, analysts) has consistent, reliable information.

Example:
A "Patient" Resource might include a person's name, birth date, and contact details. A "Condition" Resource might describe a diagnosis like diabetes.

Analogy:
Imagine a FHIR Resource as a labeled folder in a filing cabinet, holding specific details about one aspect of care.

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FHIR Profile

Definition:
A FHIR Profile is a customized version of a FHIR Resource tailored to meet specific needs or rules. It's like a template that defines exactly what data should be included and how it should be structured.

Why it matters:
Profiles ensure data is consistent and relevant for specific purposes, like quality reporting for HEDIS, by setting clear guidelines for what systems must share.

Example:
A Profile for HEDIS might require a "Medication" Resource to include the drug name, dosage, and start date to track adherence accurately.

Analogy:
Think of a Profile as a recipe card that tells you exactly which ingredients (data) to include and how to prepare them for a specific dish (use case).

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FHIR Terminology

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Definition:
FHIR Terminology is a standardized set of codes and terms used to describe healthcare information consistently. It's like a common language that ensures everyone understands the same thing when data is shared.

Why it matters:
Standard terms prevent confusion, so a condition like "hypertension" is coded the same way across systems, making analytics and reporting (like HEDIS) more accurate.

Example:
Using a code like "I10" from the ICD-10 standard to represent hypertension ensures all systems recognize it as the same condition.

Analogy:
Terminology is like a dictionary that everyone agrees to use, so words (codes) have the same meaning no matter who's reading the data.

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HEDIS & FHIR

	Traditional HEDIS Measurement	FHIR-based Measurement
Data Collection	One-off file extracts	API queries
Data Consistency	Custom code per year	Reusable CQL logic
Patient Measure Data	Flat files	Structured FHIR resources
Interoperability	Limited compatibility	Seamless data exchange
Scalability	Difficult	Easy

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What's different about working with FHIR?

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How does FHIR relate to HEDIS?

Standardized Data Sharing

Improved Reporting Efficiency

Enhanced Data Quality

Interoperability for Analytics

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How does FHIR relate to HEDIS?

Standardized Data Sharing
FHIR provides a consistent framework for sharing healthcare data, enabling accurate collection of HEDIS quality measures across different systems.

Improved Reporting Efficiency
FHIR streamlines the extraction and reporting of HEDIS data, reducing manual effort and errors for NCQA customers.

Enhanced Data Quality
By using FHIR Resources and Profiles, HEDIS can rely on structured, high-quality data to assess healthcare performance more reliably.

Interoperability for Analytics
FHIR supports seamless integration of clinical and administrative data, aiding BI analysts in generating actionable HEDIS insights.

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Working with Digital Measures

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HEDIS Concepts <> FHIR Terms

HEDIS Concept	FHIR Term	Explanation
Clinical quality data	**Observation, Condition, Procedure, Medication**	Tracks what happened during care—e.g., lab results, diagnoses, procedures, medications
Measurement logic	**CQL (Clinical Quality Language)**	Logic layer that defines when a patient qualifies for numerator/denominator inclusion
Data packaging	**Bundle, Measure, Library, MeasureReport**	How FHIR organizes data for submission, review, or analysis (and interoperability)

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Eight FHIR Resources You'll See in Every Measure

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Patient	❯	The member
Encounter	❯	Office visit
Observation	❯	Blood pressure reading
Procedure	❯	Colorectal cancer screening
Claim	❯	Claim
ExplanationOf Benefit	❯	EOB (linked to claim) 835
Coverage	❯	Health Insurance Coverage
MeasureReport	❯	The output report summarizing the numerator/denominator

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Anatomy of a Measure

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Measure

- Author Description
- **Library**
- Measure Report format, scoring
- Parameters

Library

- **CQL**
- Data Requirements
- Dependencies Libraries, ValueSets
- Parameters

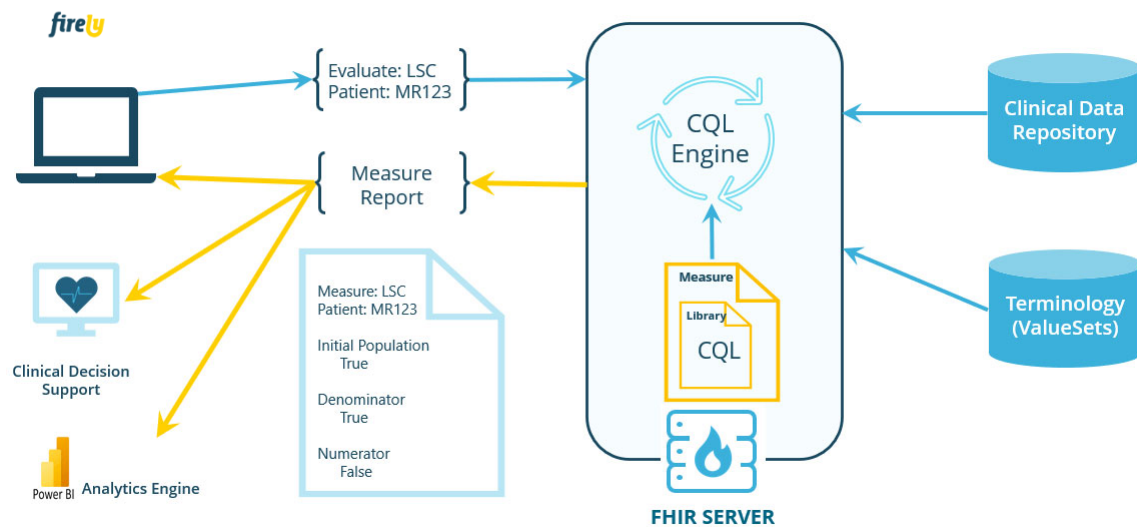**CQL – Clinical Quality Language**

```
define "Initial population":
    Patient."Age at"(end of "Measurement period", 'a')
        ~ "Initial population minimum age in years"
    and (
        not("Initial population must be continuously enrolled")
        or "Has continuous enrollment"
    )
    and "Has valid payer"

define "Denominator":
    "Initial population"
    and not("Exclusion")

define "Numerator":
    Elements."Has lead tests during"(
        "EOBs",
        "Claims",
        "Observations",
        Interval[Patient.birthDate, Patient.birthDate + 2 years])
```

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CQL Execution

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Evaluate: LSC
Patient: MR123

Measure
Report

Measure: LSC
Patient: MR123

Initial Population
True

Denominator
True

Numerator
False

Clinical Decision Support

Power BI Analytics Engine

CQL Engine

Measure
Library
CQL

FHIR SERVER

Clinical Data Repository

Terminology (ValueSets)

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Real World Insights

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What advice would you give a team starting their FHIR + HEDIS journey today?

Engage stakeholders early

Identify cross-functional team

Testing & feedback

Start small

Analyze

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What does a realistic dQM Proof-of-Concept look like?

Start with 1 – 2 measures

Assess data readiness and gaps

FHIR-enabling legacy systems

Testing for scalability

Where does the data go?

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What's happening in market adoption of dQMs?

Adoption trends

Barriers to adoption

Emerging opportunities

Example of FHIR in practice – Use Cases

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Thank you.

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