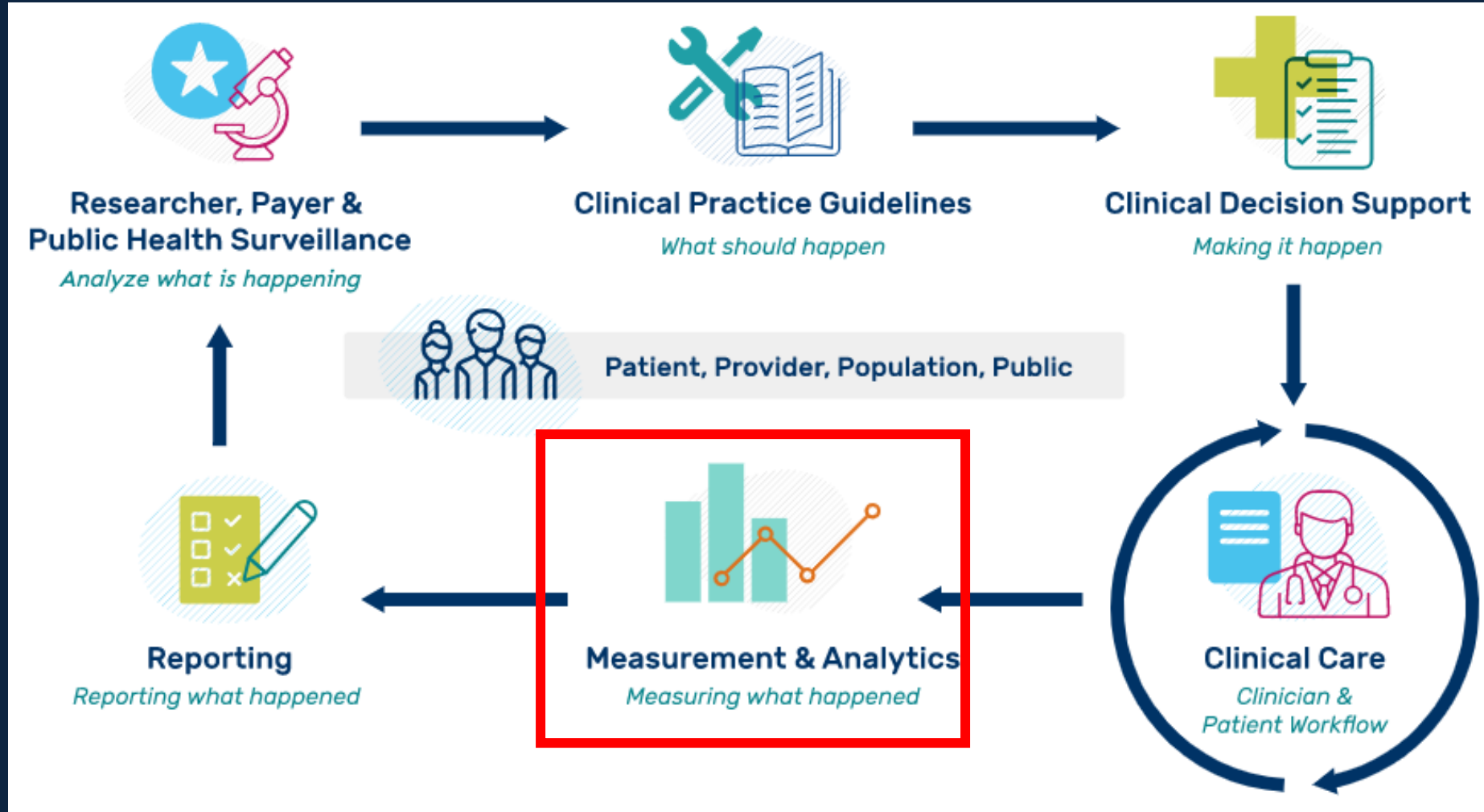# Quality Measures w/ HL7® FHIR®

Samuel Sayer

About Me

- Samuel Sayer
- Chief Engineer, Health Policy & Operation
- Former Data Exchange for Quality Measures (DEQM) Co-Chair
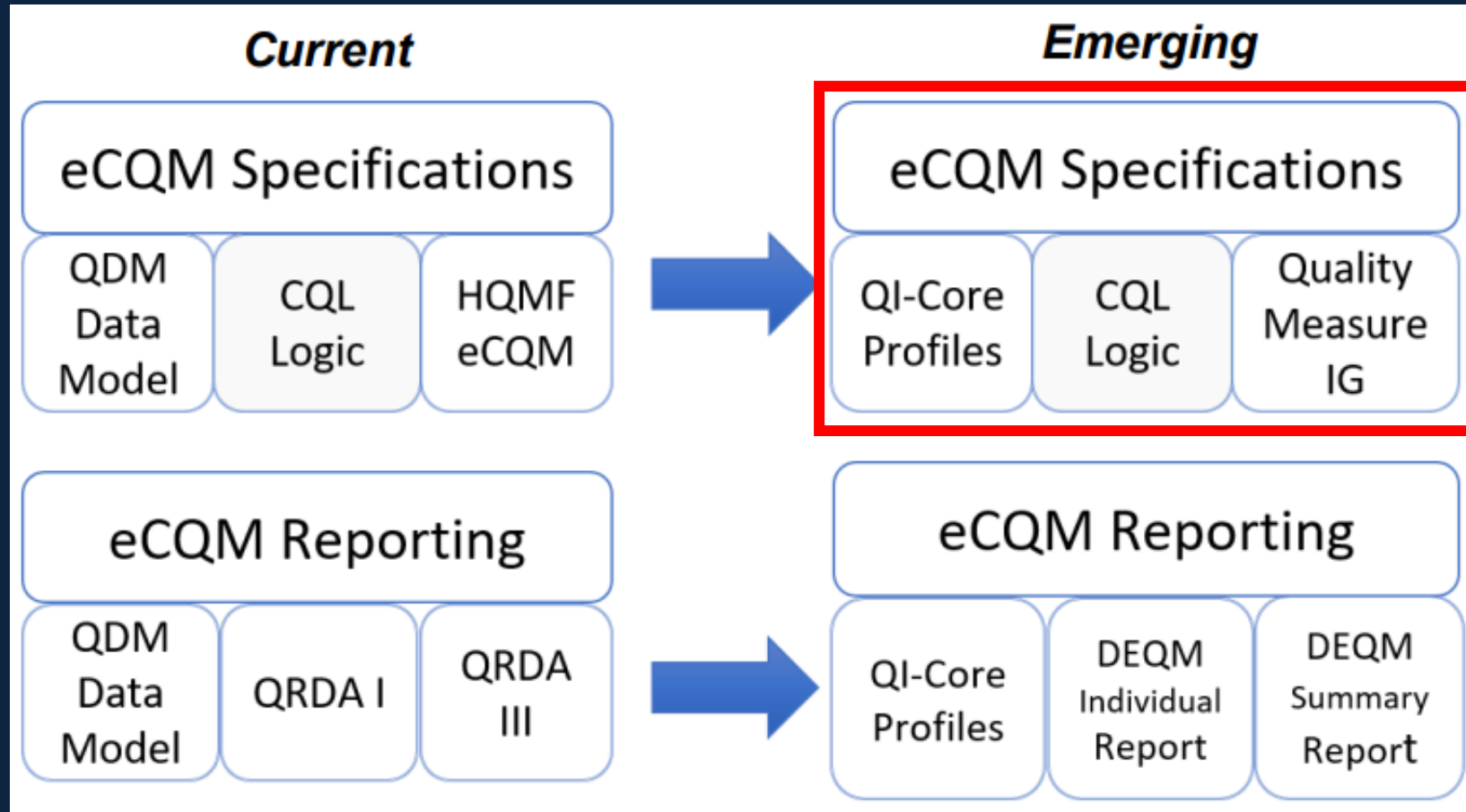- MITRE

MITRE

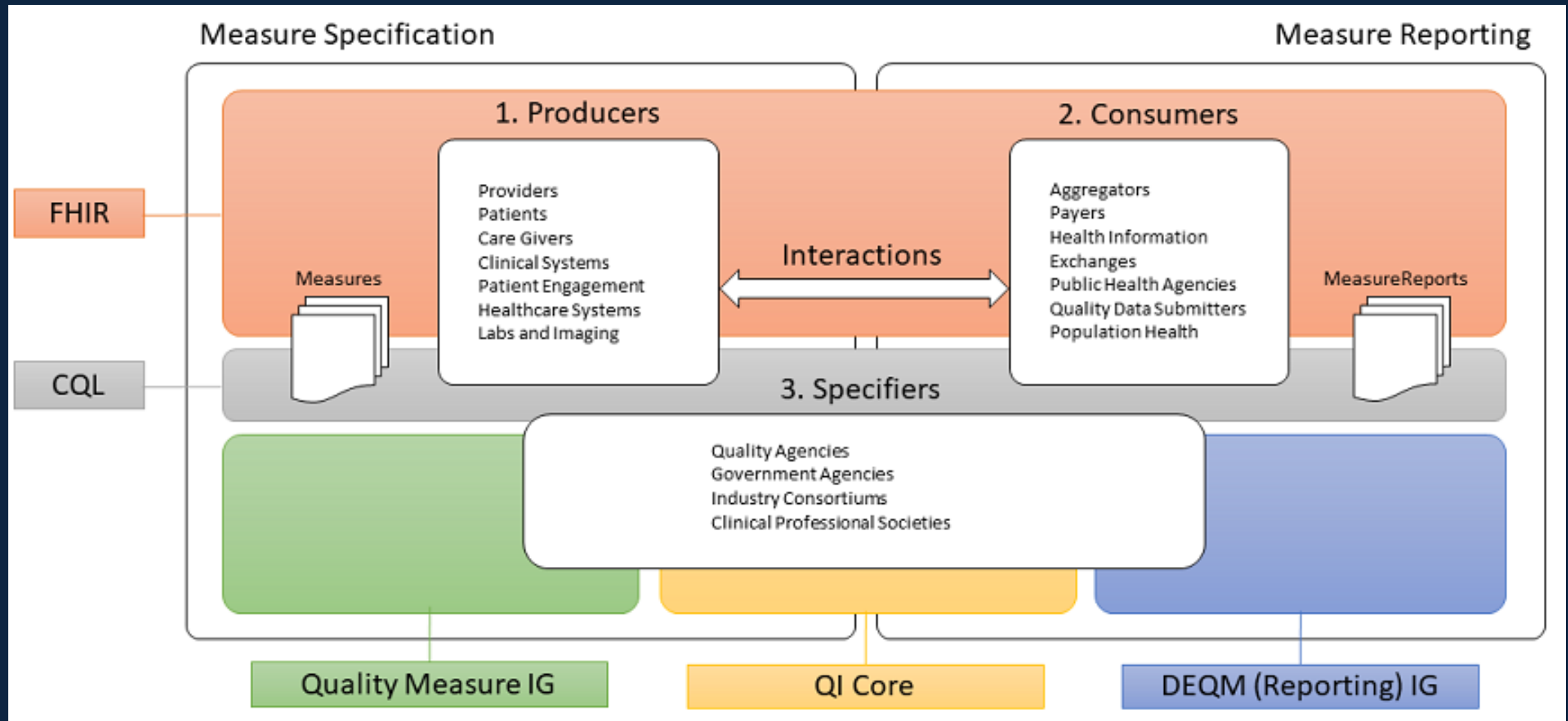# Learning Health System

Burden Reduction

- Reduces Burden:

  - Aligns eCQMs with industry clinical data exchange framework, reducing implementation burden

  - Enables automated data retrieval from EHR and submissions of quality data through use of standards-based APIs

- Simplifies Data Mapping:

  - Single mapping to FHIR vs. mapping to HQMF and QRDA

- Improves Alignment between eCQMs & Clinical Decision Support (CDS):

  - Both use a common FHIR data model (QI Core)

Clinical Systems — Common Standards for Data Capture, Retrieval, and Exchange — eCQM/CDS

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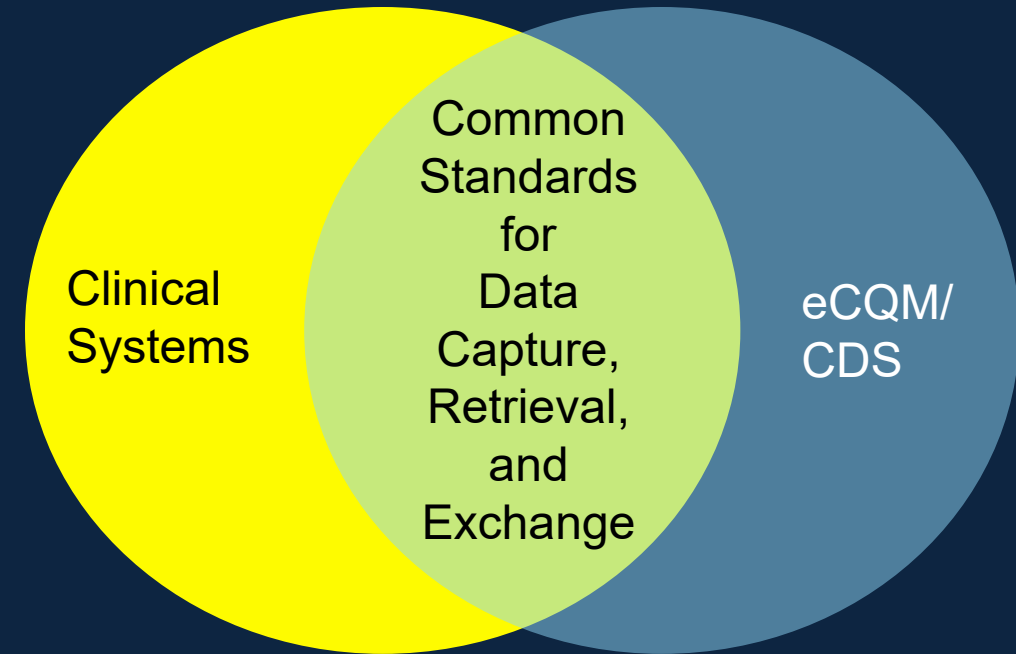
Standards Evolution

Future Standards Landscape

Example Measure – Colorectal Cancer Screening

```
define "Initial Population":
  AgeInYearsAt(date from start of "Measurement Period")in Interval[46, 75]
            and exists AdultOutpatientEncounters."Qualifying Encounters"

define "Denominator":
  "Initial Population"

define "Denominator Exclusions":
  Hospice."Has Hospice Services"
      or exists "Malignant Neoplasm"
      or exists "Total Colectomy Performed"
      or AIFrailLTCF."Is Age 66 or Older with Advanced Illness and Frailty"
      or AIFrailLTCF."Is Age 66 or Older Living Long Term in a Nursing Home"
      or PalliativeCare."Palliative Care in the Measurement Period"

define "Numerator":
   exists "Fecal Occult Blood Test Performed"
      or exists "Fecal Immunochemical Test DNA Performed"
      or exists "Flexible Sigmoidoscopy Performed"
      or exists "CT Colonography Performed"
      or exists "Colonoscopy Performed"
```

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Example Data Element

```
valueset "Colonoscopy": 'http://cts.nlm.nih.gov/fhir/ValueSet/2.16.840.1.113883.3.464.1003.108.12.1020'

define "Colonoscopy Performed":
  (Status."Completed Procedure"([Procedure: "Colonoscopy"])) Colonoscopy
          where QICoreCommon."ToInterval" ( Colonoscopy.performed ) ends during day of Interval[start of "Measurement Period" – 9 years,
  end of "Measurement Period"]
```

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Measure Structure
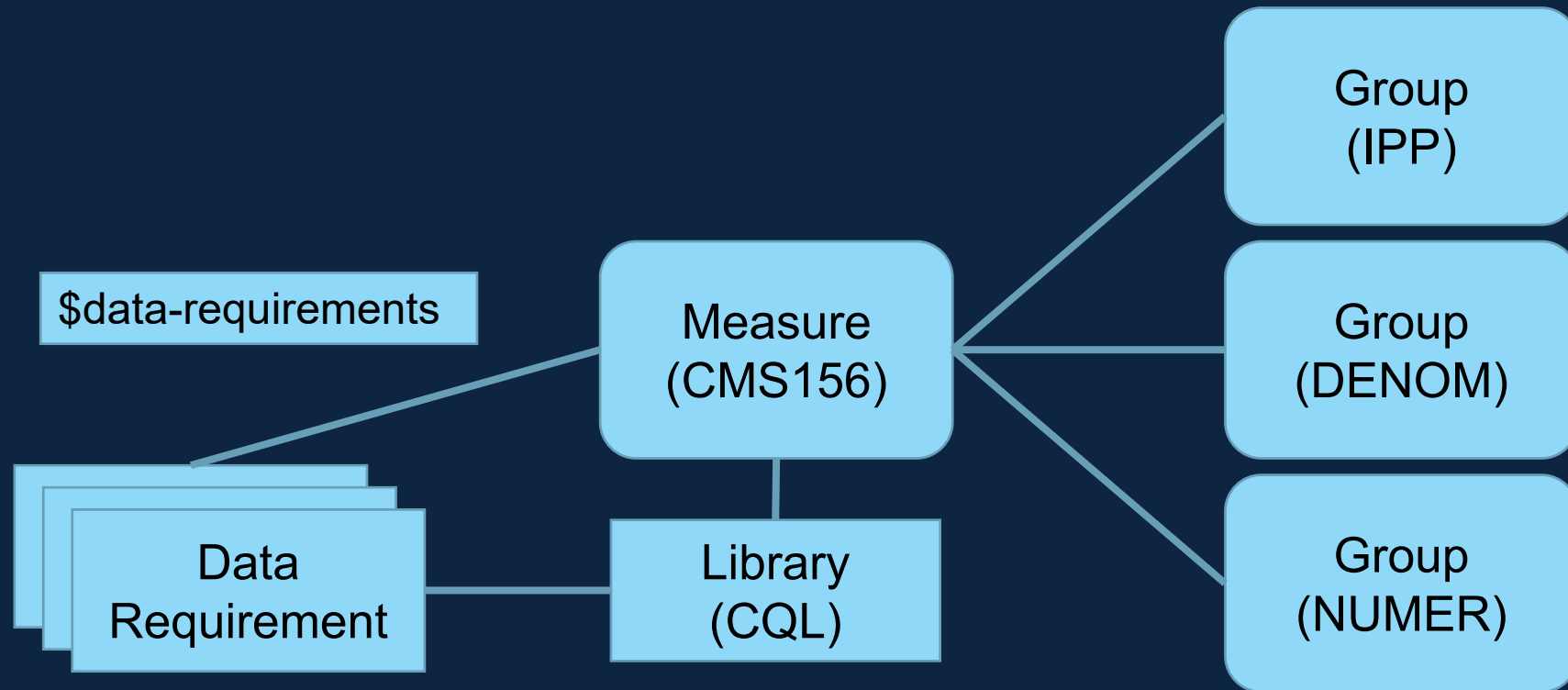
Data Requirements

- A DataRequirement type includes the attribute definitions a measure requires in order for a data element to apply

- The $data-requirement operation will return a a Library including of a list of DataRequirements for a Measure

Attribute	Cardinality	Allowed Types
type	1..1	Any FHIR Resource
codeFilter	0..*	Coding, valueSet
dateFilter	0..*	DateTime, Period, Duration
valueFilter (extension)	0..*	*

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Knowledge Repository
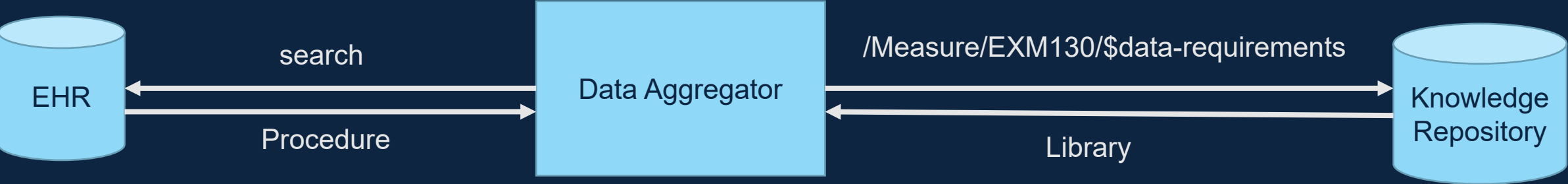
Search Params - /Procedure	
code:in	2.16.840.1.113883.3.464.1003.108.12.1020
performed.gte	1/1/11
performed.lte	12/31/21

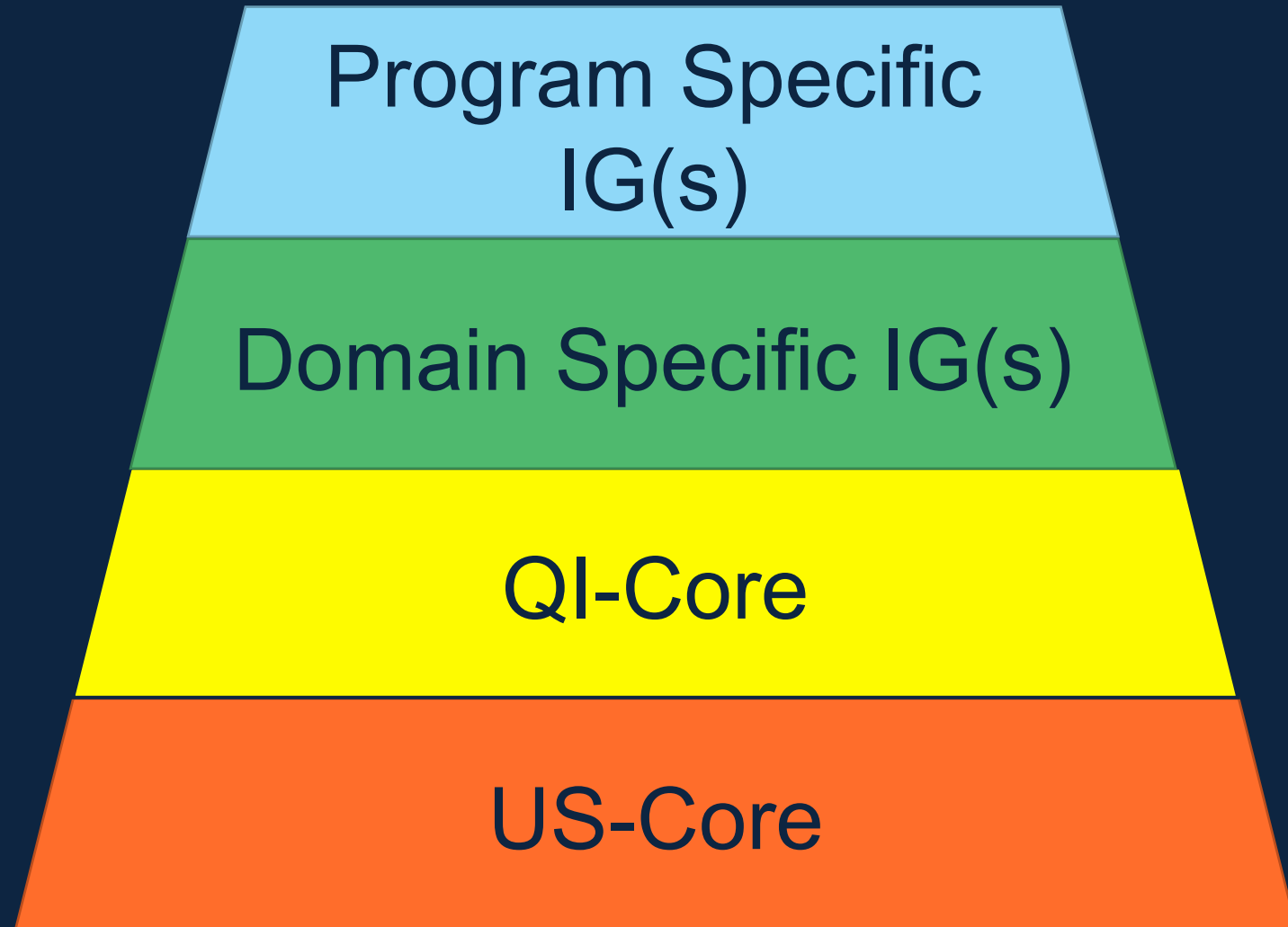| DataRequirement – EXM130	
Type	Procedure
codeFilter.path	code
codeFilter.valueSet	2.16.840.1.113883.3.464.1003.108.12.1020
dateFilter.path	performed
dateFilter.valuePeriod.start	1/1/11
dateFilter.valuePeriod.end	12/31/21

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Measure Calculation

Client → Server: /Measure/EXM130/$evaluation-measure

Server → Client: MeasureReport

Subject Report

Subject List Report

Population Report

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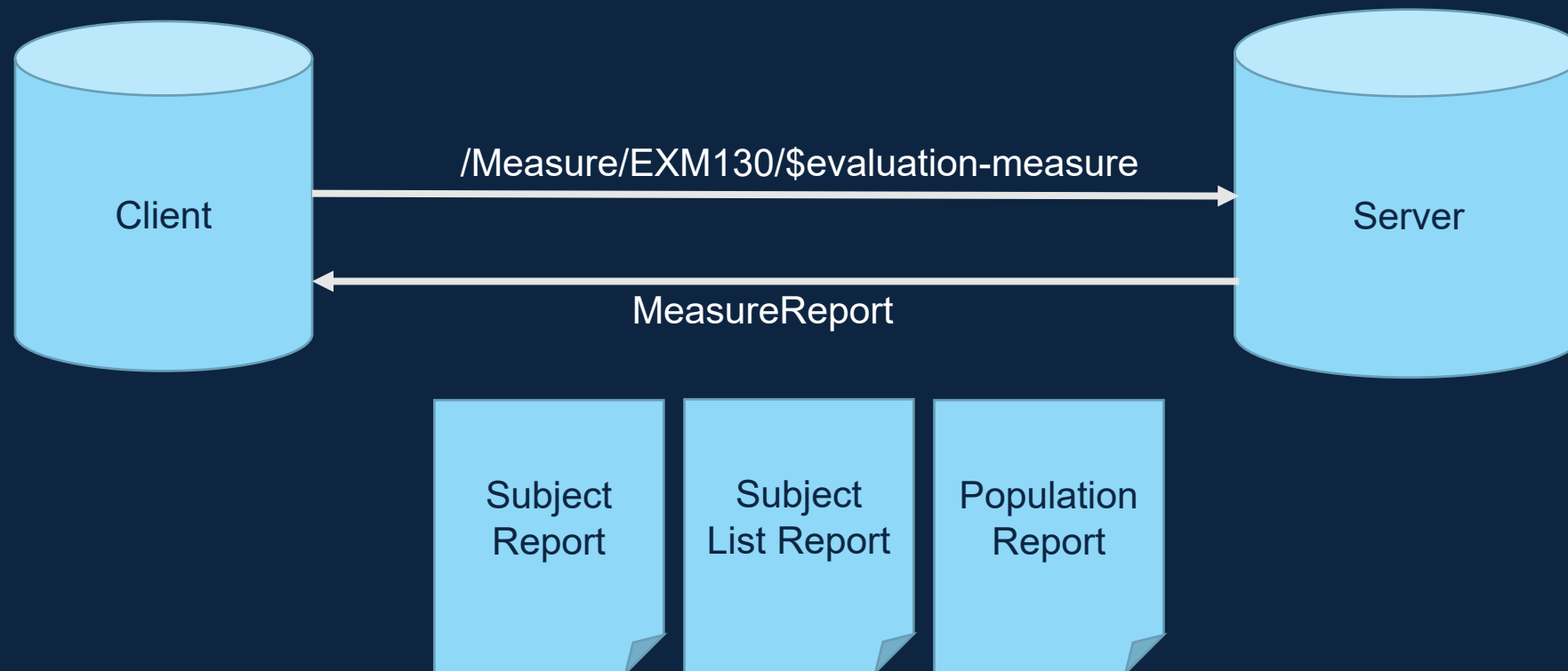
Future

- HL7
  - QI-Core STU6 ballot to follow finalization of US-Core STU6
    - Followed by updates to other quality IGs
- HIMSS
  - *The Next Generation of Quality Measurement and Reporting* – Wednesday 2:10-2:40pm
  - *Driving Value With Interoperability: Building a Digital Quality Ecosystem, Yale, NCQA and CMS* – Thursday 4:00-5:00pm

Program Specific IG(s)

Domain Specific IG(s)

QI-Core

US-Core

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