Clinical Quality Improvement

Current and Future Developments

Connecting Michigan for Health 2014

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Outline

- Overview of Quality Reporting Process

- Recent Developments in Quality Standards

- Future Work

- Questions

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Lantana Consulting Group (www.lantanagroup.com) provides services and software for healthcare providers, vendors, and regulators who develop and implement standards-based health information exchange.

Our Vision

To see health information available across the spectrum of care, supporting safe, effective, affordable healthcare that improves well-being, public health, quality of care, and research.

Our Expertise

Developing and implementing US and international healthcare data exchange standards, including HL7 Clinical Document Architecture (CDA), Consolidated CDA (C-CDA), HQMF (Healthcare Quality Measure Format) or "eMeasure", and Quality Reporting Document Architecture (QRDA) standards—all cited as requirements for Stage 2 Meaningful Use (MU2) of electronic health record (EHR) systems in the US.
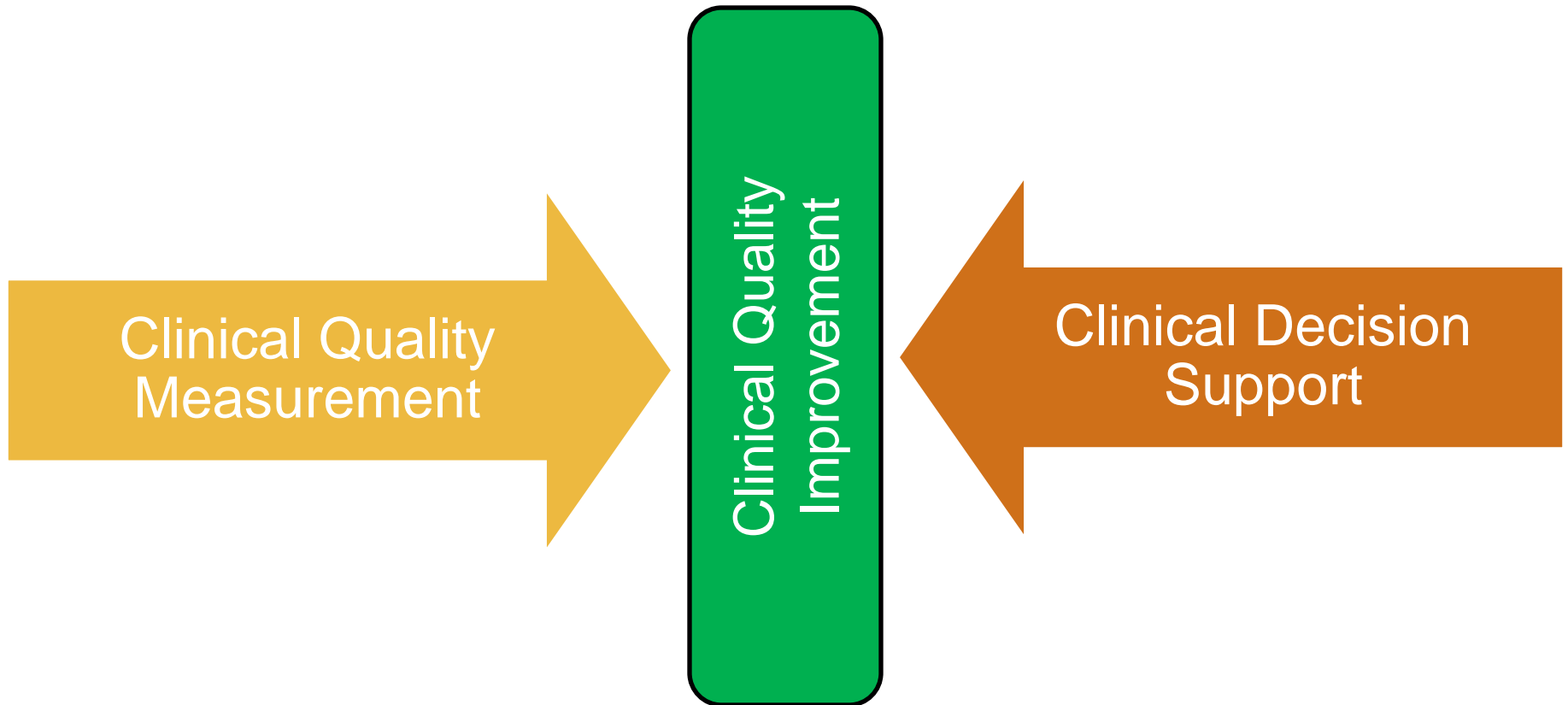
Quality Reporting Process
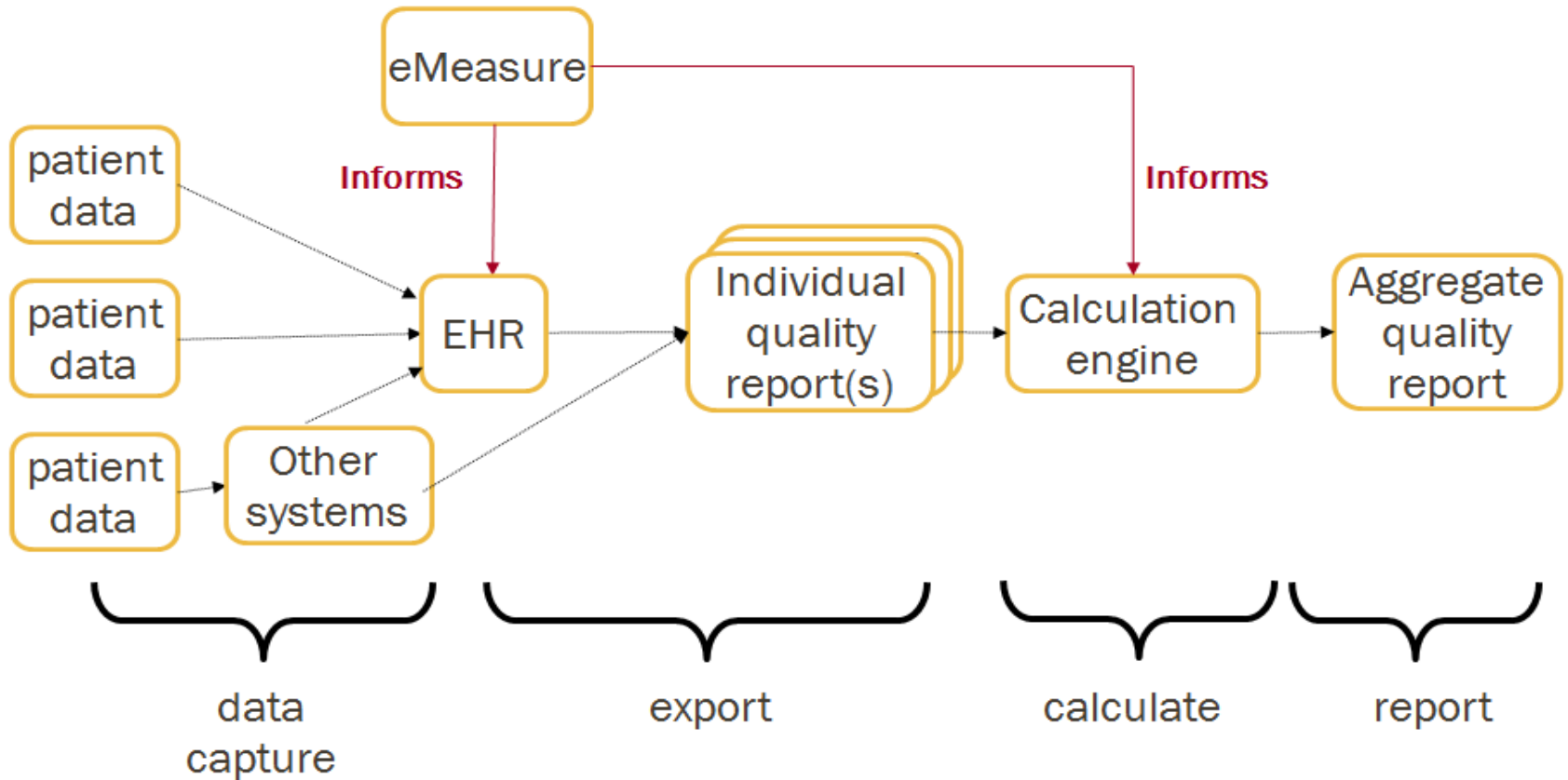
Quality Reporting Process - Standards
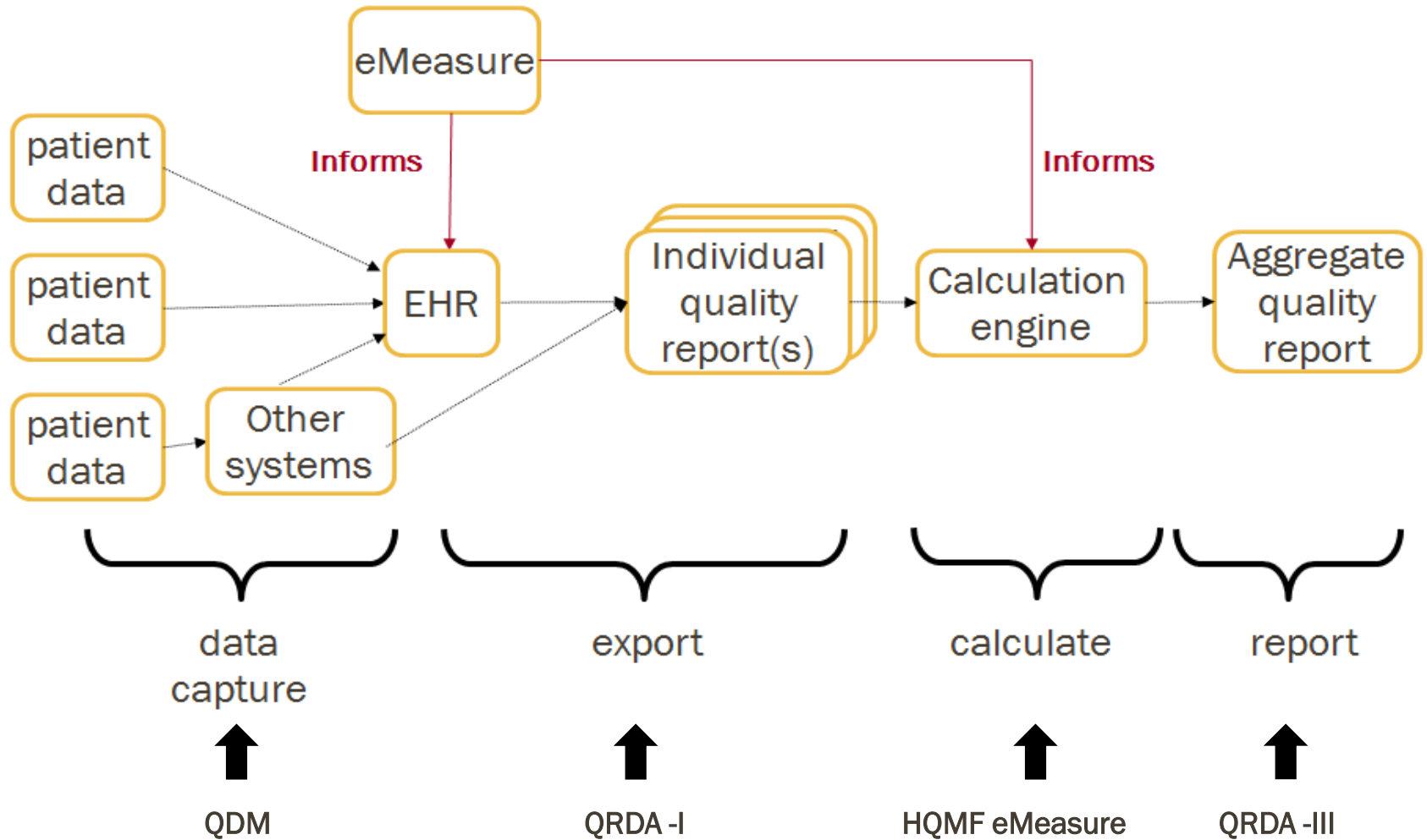
Clinical Quality Improvement

Clinical Quality Measurement

Clinical Decision Support

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Clinical Quality Improvement

Clinical Quality Measurement → Clinical Quality Improvement ← Clinical Decision Support

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Clinical Quality Improvement

- Clinical Decision Support: 'Live'- Analytics

- Clinical Quality Measurement: Post-Analytics

- Similar challenges, different angles

- Potential for data reuse and expression logic overlap

- Consistency in patient identification, quality measurement, decision interventions
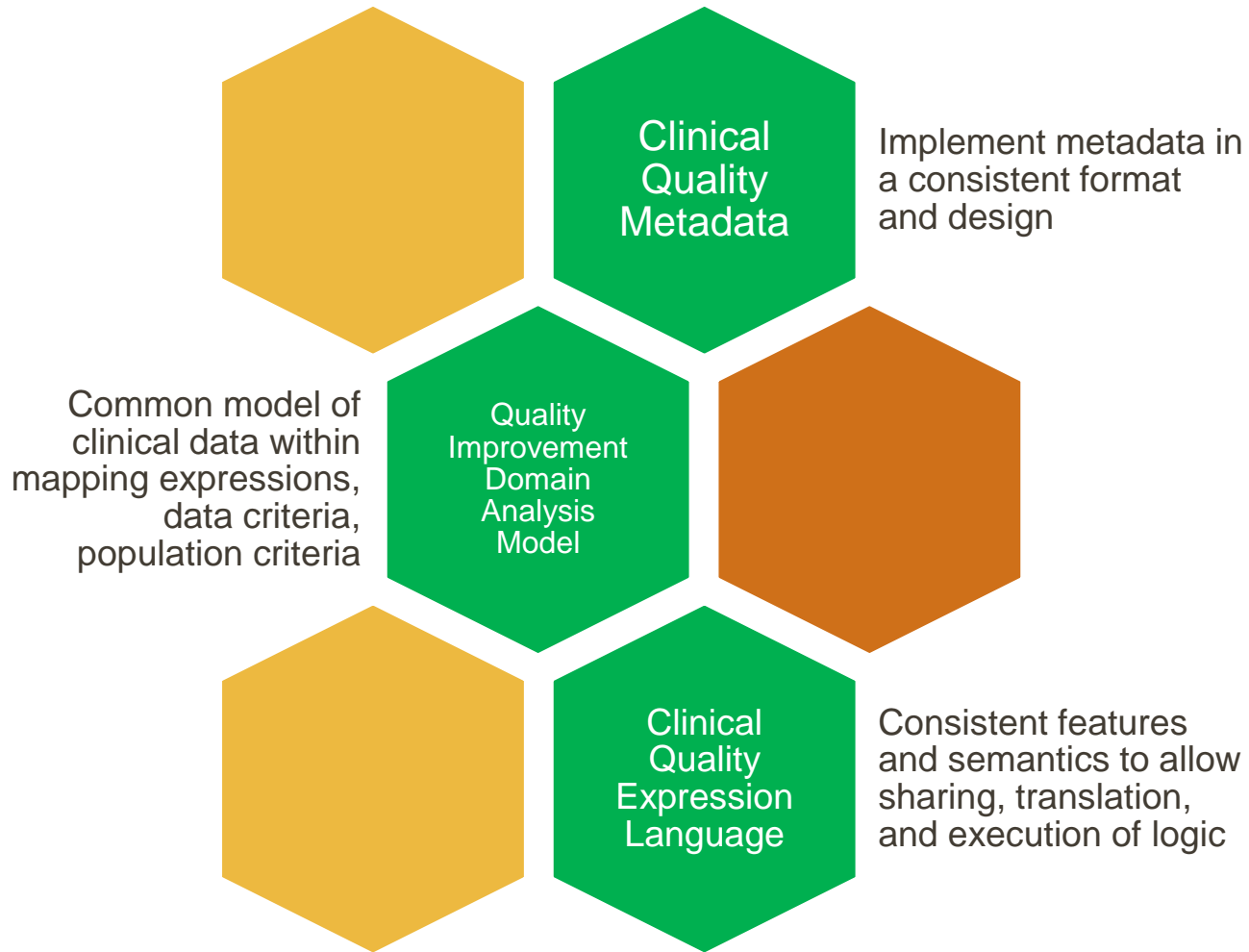
Goal: Shared Standards

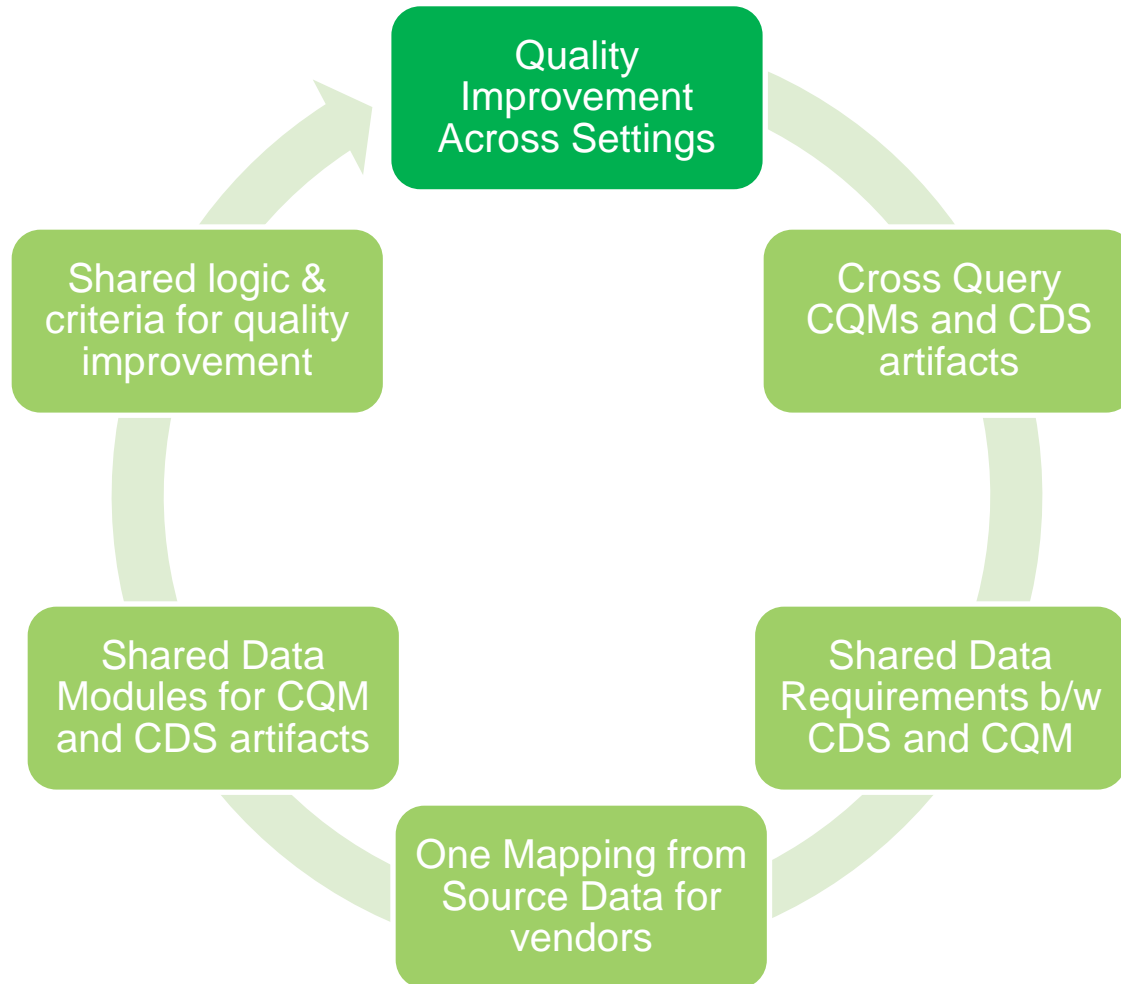Clinical Quality Measurement and Clinical Decision Support
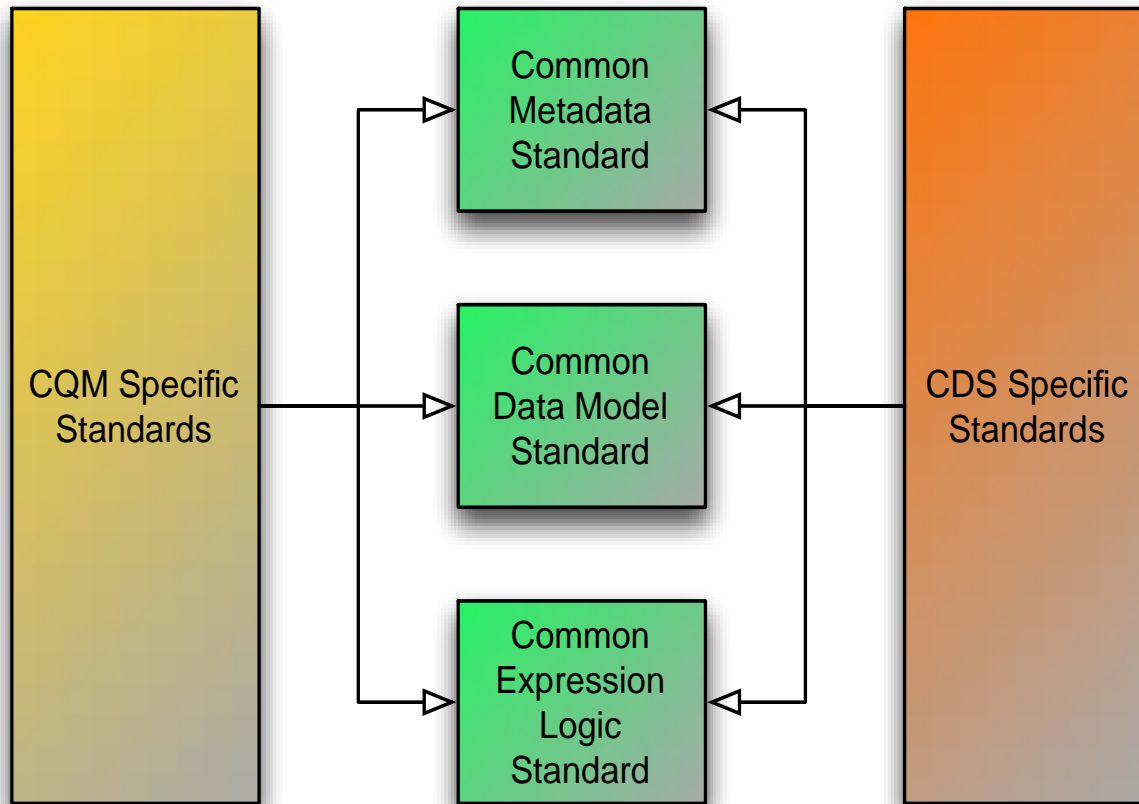
Recent Standards Development

- Clinical Quality Common Metadata

  - Conceptual Model in ballot reconciliation at HL7

- Clinical Quality Data Model

  - Domain Analysis Model in ballot reconciliation at HL7

- Clinical Quality Expression Language

  - Functional requirement in ballot reconciliation at HL7

- HQMF R2.1

- HeD (Health eDecisions CDS Standards)

Common Models for Quality Improvement

Clinical Quality Metadata

Implement metadata in a consistent format and design

Common model of clinical data within mapping expressions, data criteria, population criteria

Quality Improvement Domain Analysis Model

Clinical Quality Expression Language

Consistent features and semantics to allow sharing, translation, and execution of logic

Advantages of Harmonization

Quality Improvement Across Settings

Cross Query CQMs and CDS artifacts

Shared Data Requirements b/w CDS and CQM

One Mapping from Source Data for vendors

Shared Data Modules for CQM and CDS artifacts

Shared logic & criteria for quality improvement

Impacts of Harmonization

- Reduce burden on implementers of CQM and CDS

- Potential for greater reuse across both domains

- Consistent data models, logic criteria, patient identification

- Current standards will need rework

- eMeasures will need to be retooled to use new artifacts

Planned Work

- Develop update implementation guides for unified standards
  - E.g. Implementation guides for QRDA and HQMF

- Update Tooling and Implementation for unified standards
  - E.g. Measure Authoring Tool, Bonnie, popHealth

- Retool eMeasures to use unified standards and metadata

- Create Mappings from current data models and standards to common artifacts

- Synthesize on-ramp plan to make adoption easier

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Questions?

Thank You!

Kanwarpreet Sethi

Quality Reporting Standards and Specs

- Clinical Document Architecture (CDA)

  - Consolidated CDA

  - Quality Reporting Document Architecture (QRDA)
    - QRDA Category I (QRDA-I)
    - QRDA Category III (QRDA-III)

- Health Quality Measure Format (eMeasure)

- Quality Data Model (QDM)

Quality Data Model

- Serves as the common language for eMeasures

- Bridges the Query (HQMF) and the Response (QRDA-I)
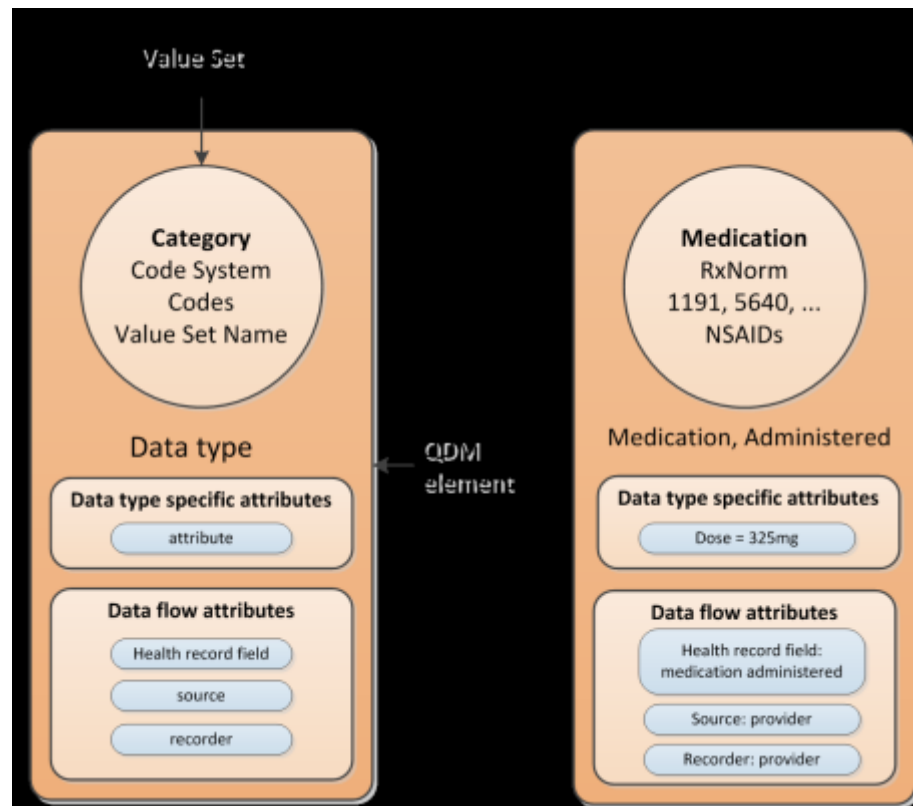
HQMF (eMeasure)

- HQMF: The first international standard for the formal representation of clinical quality measure **metadata**, **data elements**, and **logic**

```
<QualityMeasureDocument>

    HQMF Header

    HQMF Body
     <section>
       <title>Population criteria</title>
       <text>
       <entry>Initial Patient Popl</entry>
       <entry>Denominator</entry>
       <entry>Numerator</entry>
       …
     </section>
     <section>
       <title>Data criteria</title>
       <text>
       <entry>
       …
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       …
</QualityMeasureDocument>
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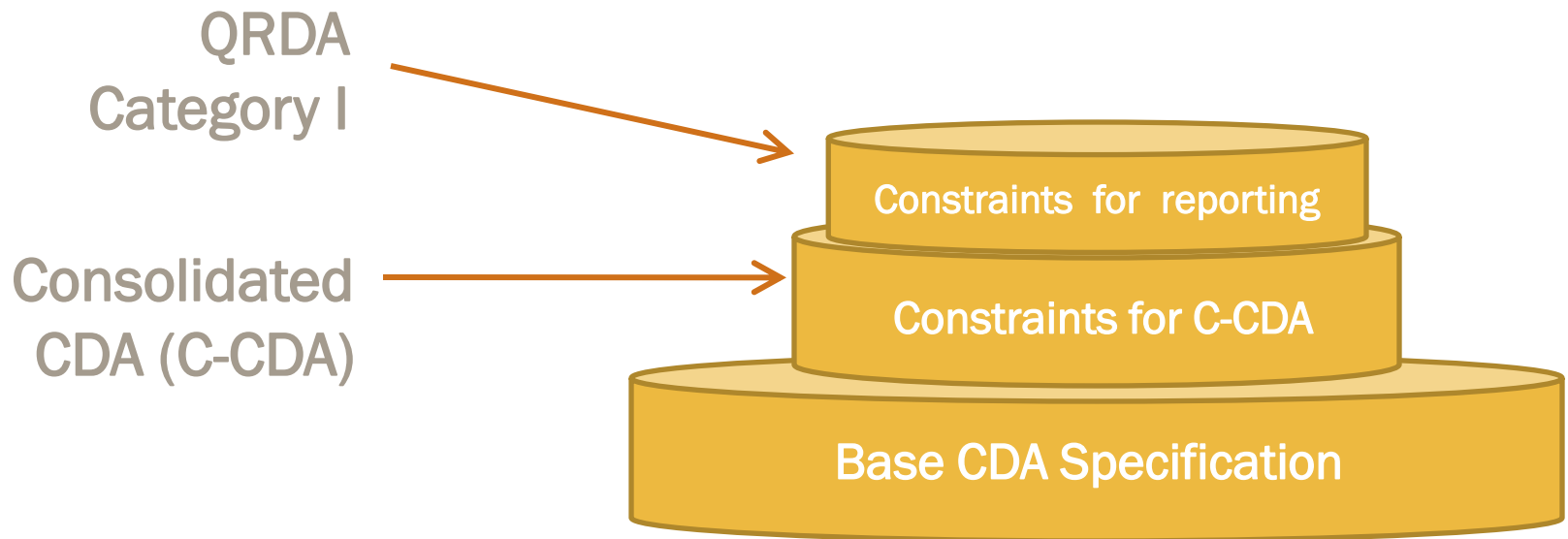
QRDA-I: A Kind of Templated CDA

- QRDA is a CDA-based implementation guide (IG) that contains those data elements needed for quality measurement and reporting.

QRDA Category I → Constraints for reporting

Consolidated CDA (C-CDA) → Constraints for C-CDA

Base CDA Specification

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QRDA Category III

- An aggregate quality report that contains calculated summary data for one or more measures for a specified population of patients within a particular health system over a specific period of time.

- Communicates data residing in health information systems that are stripped of all patient identifiers, protecting patients and healthcare providers from the risks of inadvertent leakage of private information.

Clinical Quality Common Metadata

- Serve as common metadata between CDS and CQM artifacts

- Built by analyzing metadata in existing specifications

- Implement metadata in a consistent manner and format

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Clinical Quality Data Model

- A common data model across CQM and CDS artifacts

- Serve as a common model of clinical data within mapping expressions, logical criteria, population criteria, etc.

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Clinical Quality Expression Language

- Common expression language across CQM and CDS artifacts

- Semantic overlap between expression logic requirements

- Define a consistent set of features and semantics

- Allows sharing, translation, and potentially execution, of expression logic

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HQMF R2.1

- Updated to "modularize" HQMF R2.0

- Allows use of alternate data model

- Includes "hooks" to allow HQMF to reference an alternate expression language

- Includes metadata for composite measures

- Primarily affects "consumers" of HQMF standard, not Measure Authors. For example: tools like Bonnie and Measure Authoring Tool export

HQMF Version Comparison

	HQMF R1 (Feb 2010)	HQMF R2 (Dec 2014)	HQMF R2.1 (Planned)
Structured metadata	✔	✔	✔
Machine processable logic		✔	✔
Additional measure types (cohort, enhanced ratio)		✔	✔
Additional measure constructs (stratifiers, named logic subtrees, population and numerator exclusions, …)		✔	✔
Additional metadata (risk adjustment, episode of care, …)		✔	✔
Modular (use alternate expression language and data model)			✔
Composite measure metadata			✔

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