

Quality Data Model

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Agenda

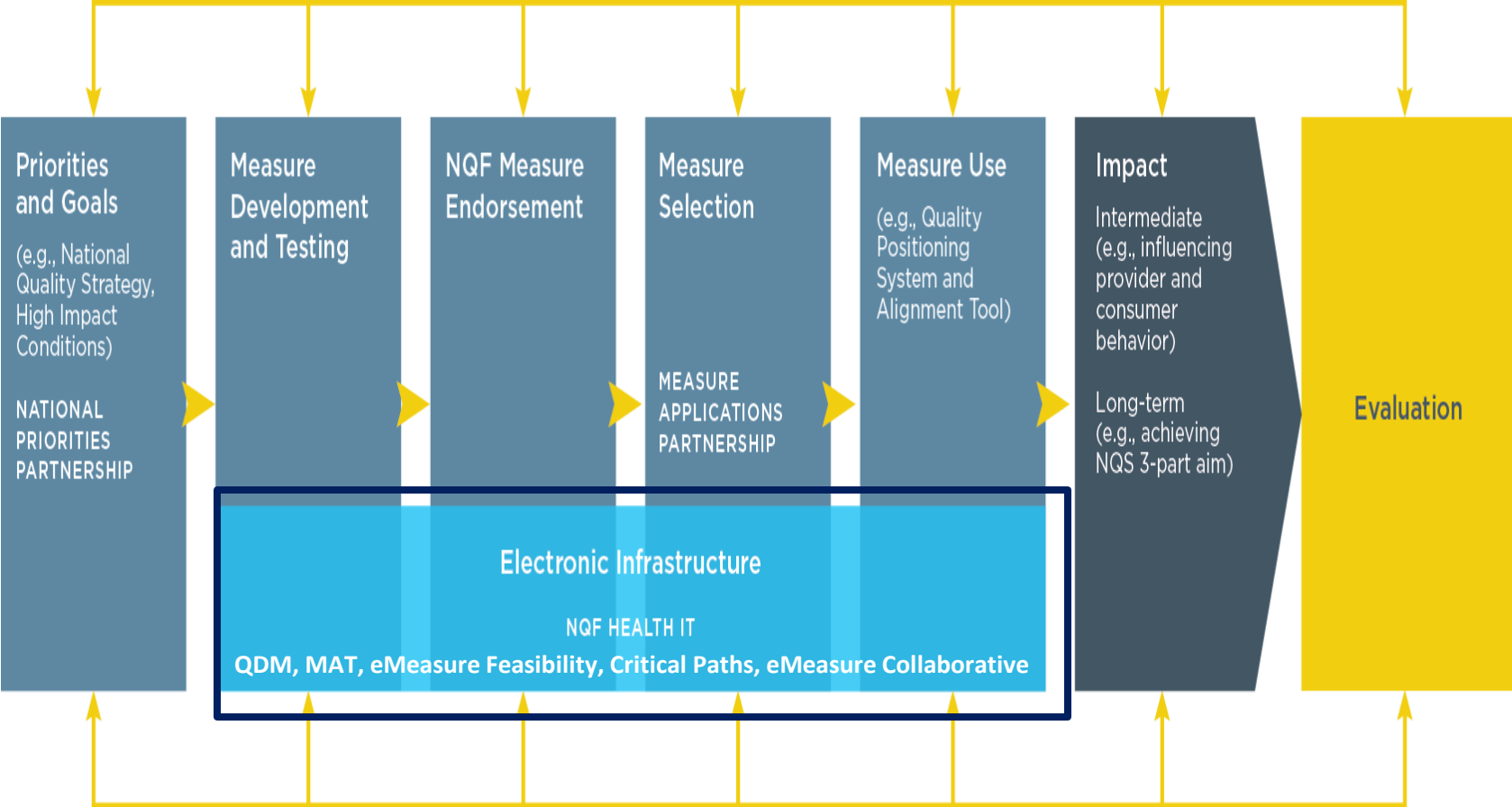
12:00 pm	Welcome and Introductions
12:05 pm	The Quality Data Model (QDM): A Brief Introduction and Role in Quality Measurement
12:15 pm	What's New with the QDM
12:30 pm	Potential Future Enhancements
12:50 pm	QDM and the Measure Authoring Tool
1:00 pm	QDM Utility Both Within and Outside of Quality Measurement
1:15 pm	Questions and Discussion

QDM: A Brief Introduction and Role in Quality Measurement



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The Performance Measurement Enterprise



Quality Data Model (QDM): Overview

QDM: What is It?

- A structure to represent quality measures precisely and accurately in a standardized format that can be used across electronic patient care systems

Role in Quality Measurement

- Provides a standard way to describe concepts clearly and consistently for use across all quality measures
- Creates a common language across all healthcare stakeholders so quality measurement data can be consistently represented, captured, and shared across EHRs and other electronic patient care systems
- Backbone for the Measure Authoring Tool

QDM: Basic Structure

Category

Diagnostic Study, Laboratory Test, Medication

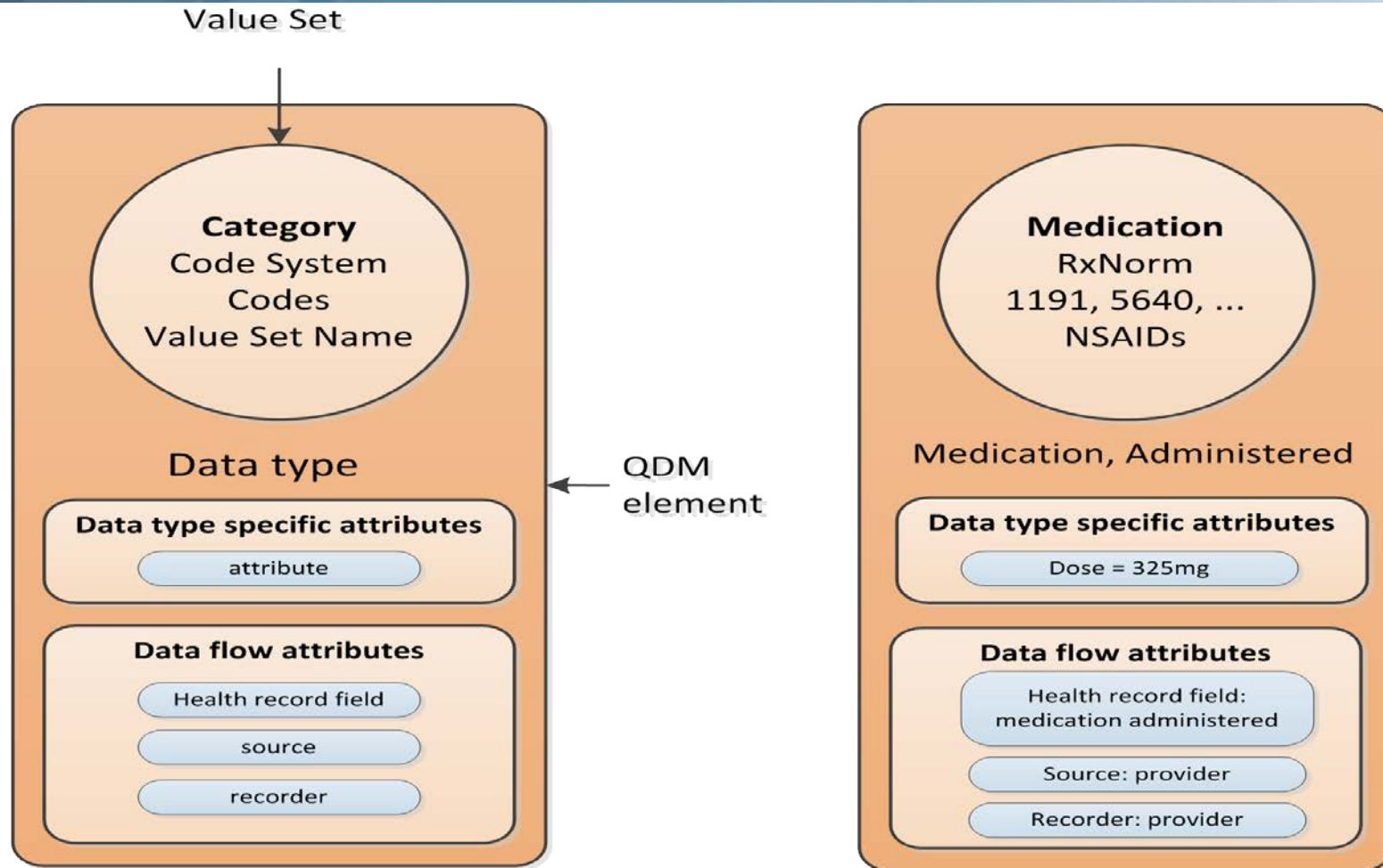
Datatype

Diagnostic Study, performed
Laboratory Test, order
Medication, administered

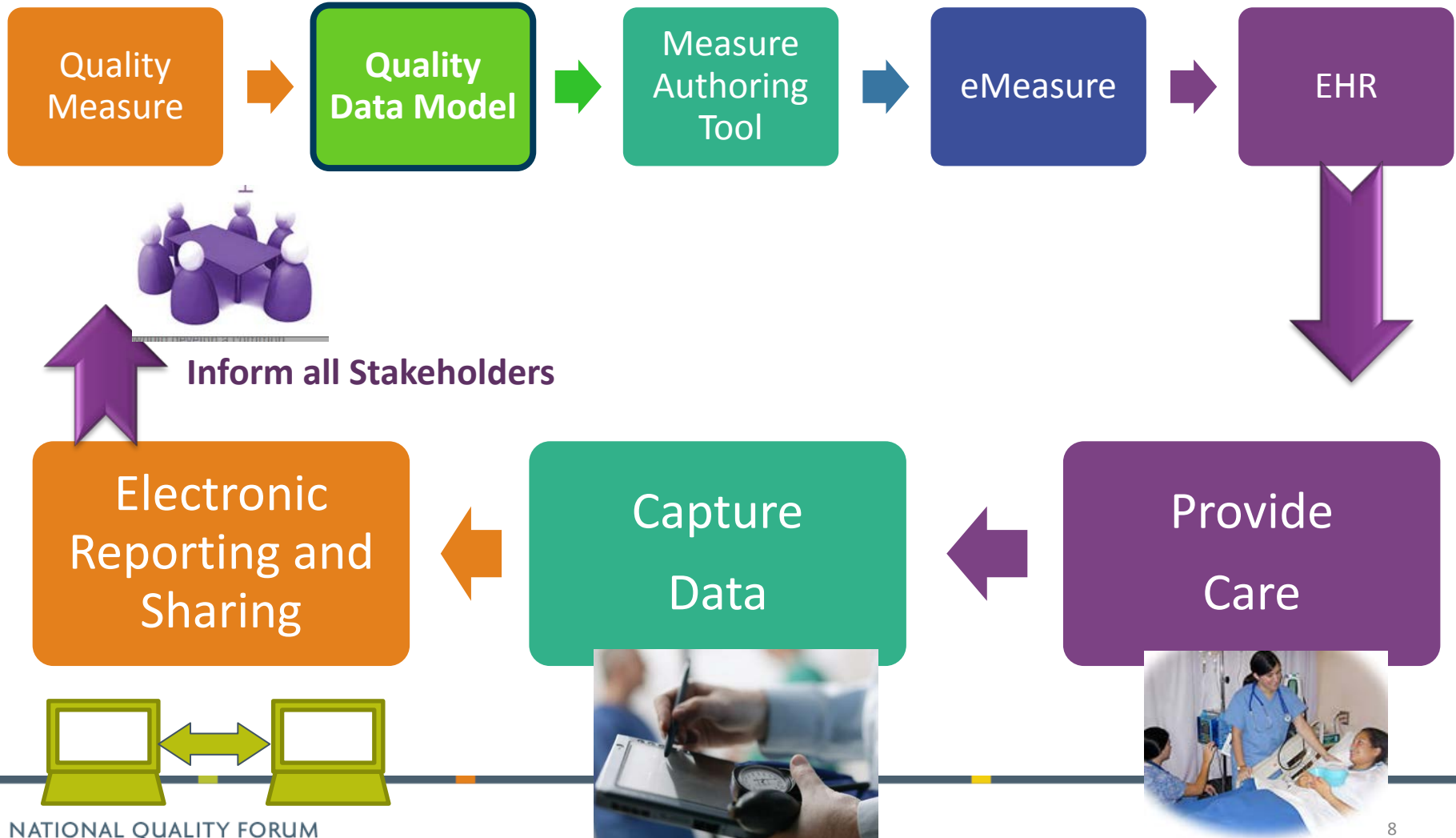
Attributes

Diagnostic Study, performed (method)
Laboratory test, order (reason)
Medication, administered (dose)

Example



eMeasure Lifecycle



Sample Measure

Percentage of patients aged 18 years and older with a diagnosis of CAD who were prescribed a lipid-lowering therapy*

Initial Patient Population	Patients aged 18 years and older before the start of the measurement period. Patients that have a documented diagnosis of coronary artery disease before or simultaneously to encounter date Patients who have at least 2 outpatient or nurse facility encounters during the measurement period
Denominator	Patients aged 18 years and older with a diagnosis of coronary artery disease
Numerator	Patients who were prescribed lipid-lowering therapy
Exclusions	Patients who have documentation of a medical, system or patient reason for not prescribed lipid lowering therapy

*Note: this eMeasure is not real; it is intended for the sole purpose of showing an example of an eMeasure

What data elements do we need?

Patients who...	What <i>kind</i> of data are we dealing with?	What <i>about</i> the data?	How do we <i>define</i> this data?
...Are diagnosed with Coronary Artery Disease	Diagnosis	Active	ICD-9 , ICD-10, SNOMED-CT
...Were prescribed Lipid-lowering Therapy	Medication	Administered Order Dispensed Active	RxNorm
...Have had at least two encounters during the measurement period	Encounters		CPT
...Are at least 18 years old or older	Patient Characteristic		LOINC

Quality Data Model

Human Readable - Header

eMeasure Title	Demo - Coronary Artery Disease (CAD): Drug Therapy for Lowering LDL-Cholesterol (NQF 0074)		
eMeasure Identifier (Measure Authoring Tool)		eMeasure Version number	0
NQF Number	None	GUID	63A24CBA-F9E7-4A52-93BE-E987B7B4E422
Measurement Period	September 17, 2011 through September 17, 2012		
Measure Steward	American Medical Association - Physician Consortium for Performan		
Measure Developer	National Quality Forum		
Endorsed By	National Quality Forum		
Description	Percentage of patients aged 18 years and older with a diagnosis of CAD who were prescribed a lipid-lowering therapy (based on current ACC/AHA guidelines)		
Copyright			
Measure Scoring	Proportion		
Measure Type	Process		
Stratification	none		
Risk Adjustment	None		
Rate Aggregation			
Rationale	Studies have demonstrated that active treatment with lipid-lowering therapy is associated with stabilization and regression of coronary atherosclerotic plaques and decreased incidence of clinical events. Recent clinical trials have further documented that LDL-lowering agents can decrease the risk of adverse ischemic events in patients with established CAD.		
Clinical Recommendation Statement	The LDL-C treatment goal is <100 mg/dl. Persons with established coronary heart disease (CHD) who have a baseline LDL-C 130 mg/dl should be started on a cholesterol-lowering drug simultaneously with therapeutic lifestyle changes and control of nonlipid risk factors (National Cholesterol Education Program [NCEP]).		
Improvement Notation	Higher score indicates better quality		
Reference	National Heart, Lung, and Blood Institute. National Cholesterol Education Program (NCEP). Third report of the NCEP on detection, evaluation, and treatment of high blood cholesterol in adults (Adult Treatment Panel III). NIH Publicat No. 01-3305.2001.		
Definition	<p>Initial Patient Population(s):</p> <ul style="list-style-type: none"> -Patient Age: Patients aged 18 years and older at the beginning of the measurement period. -Diagnosis Active: Patient has a documented diagnosis of coronary artery disease. -Encounter: At least 2 visits with the physician, physician's assistant, or nurse practitioner during the measurement period. <p>Denominator(s): All patients aged 18 years and older with a diagnosis of coronary artery disease.</p> <p>Exception(s):</p> <ul style="list-style-type: none"> -Documentation of medical reason(s) for not prescribing lipid-lowering therapy (eg, clinical contraindication, drug allergy, drug interaction, drug intolerance, other medical reason(s)). -Documentation of patient reason(s) for not prescribing lipid-lowering therapy (eg, patient declined). -Documentation of system reason(s) for not prescribing lipid-lowering therapy. <p>Numerator(s): Patients who were prescribed lipid-lowering therapy.</p> <p>Exclusion(s): None</p>		
Guidance			
Transmission Format	None		
Initial Patient Population	None		
Denominator	None		
Denominator Exclusions	None		
Numerator	None		
Numerator Exclusions	None		

Initial Patient Population =

AND: "Patient Characteristic: birth date" >= 18 year(s) starts before start of "Measurement Period"

AND: Count >= 2 of:

OR: "Encounter: Nursing Facility Encounter"

OR: "Encounter: Outpatient Encounter"

AND:

OR: "Procedure, Performed: Cardiac Surgery" starts before or during

OR: "Encounter: Nursing Facility Encounter"

OR: "Encounter: Outpatient Encounter"

OR: "Diagnosis, Active: CAD includes MI"

Denominator =

AND: "Initial Patient Population"

Denominator Exclusions =

None

Numerator =

AND:

OR: "Medication, Active: Lipid Lowering Therapy"

OR: "Medication, Order: Lipid Lowering Therapy"
during "Measurement Period"

Denominator Exceptions =

AND:

OR: "Medication, Order not done: Medical Reason HL7" for "Lipid Lowering Therapy RxNorm Value Set"

OR: "Medication, Order not done: System Reason HL7" for "Lipid Lowering Therapy RxNorm Value Set"

Data criteria (QDM Data Elements)

"Diagnosis, Active: CAD includes MI" using "CAD includes MI Grouping Value Set (2.16.840.1.113883.3.560.4.13.25)"

"Encounter: Nursing Facility Encounter" using "Nursing Facility Encounter CPT Value Set (2.16.840.1.113883.3.560.4.13.26)"

"Encounter: Outpatient Encounter" using "Outpatient Encounter CPT Value Set (2.16.840.1.113883.3.560.4.13.27)"

"Medication, Active: Lipid Lowering Therapy" using "Lipid Lowering Therapy RxNorm Value Set (2.16.840.1.113883.3.560.4.13.29)"

"Medication, Order: Lipid Lowering Therapy" using "Lipid Lowering Therapy RxNorm Value Set (2.16.840.1.113883.3.560.4.13.29)"

"Medication, Order not done: Medical Reason HL7" using "Medical Reason HL7 HL7 Value Set (2.16.840.1.113883.3.560.4.13.30)"

"Medication, Order not done: System Reason HL7" using "System Reason HL7 HL7 Value Set (2.16.840.1.113883.3.560.4.13.46)"

"Patient Characteristic: birth date" using "birth date LOINC Value Set (2.16.840.1.113883.3.560.100.4)"

"Procedure, Performed: Cardiac Surgery" using "Cardiac Surgery SNOMED-CT Value Set (2.16.840.1.113883.3.560.4.13.31)"

Supplemental Data Elements

None

What's New with the QDM?



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QDM 2012 Accomplishments

QDM Development

- QDM June 2012 Update published for public comment
- Formation of QDM User Group with developers and contractors from the 2014 CQM development cycle
- QDM December 2012 version

Supporting QDM Use

- Measure developer and contractor support for QDM usage in developing the 2014 clinical quality measures (CQMs) for Meaningful Use Stage 2
- QDM Webinars (May and December)

What's New with the QDM: December 2012

Lessons Learned from 2014 Clinical Quality Measure Development

- 2014 CQM's (for Meaningful Use Stage 2) were the first quality measures to be developed exclusively using the QDM (via the Measure Authoring Tool (MAT))
 - 29 Eligible Hospital measures
 - 64 Eligible Provider measures
- Identified opportunities for improvement in the QDM

What's New with the QDM

- Aligned the structure of the QDM with the version in the MAT:
 - *QDM June 2012 Update* had introduced the concept of category and state pairs to replace the datatype structure
 - *QDM December 2012 version* maintains the datatype structure
- This change is strategic to allow a common starting point for future QDM development

Potential Future Enhancements



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Examples of Potential Future Enhancements

- Diagnosis datatypes
- *Medication, discharge* attribute additions
- Formalized order for operator calculation
- Definitions for timing elements

Diagnosis Datatypes

- Full expression of content within the Eligible Hospital Measures requires support for expression of discharge diagnosis and principal diagnosis
- Work continues on operational definitions of these terms as well as recommendations on how these concepts should be added to the QDM to ensure that HQMF and QRDA* representation of the concepts will be appropriate.

**HQMF (health quality measures format) and QRDA (quality reporting document architecture) are HL7 standards that define the structure of eMeasures and the reports generated from the measures by hospitals and providers*

Medication, discharge attributes

- QDM enhancement required to support expression of discharge medications within the Eligible Hospital measures had difficulty expressing the concept of discharge medications
- A new datatype of the Medication category was added: *Medication, discharge*.
- The attributes for the *Medication, active* datatype were added to this datatype. Attributes like *indication* and *instructions to patient* have been identified as potential additions to this datatype

Formalized order for operation calculation

- The QDM needs a set way of "processing" the logical operators
- Similar to the way we use PEMDAS* for mathematical operators, the QDM needs a similar criteria for processing operators like 'FIRST' or 'AVERAGE'
- HL7 standards will be consulted as a recommendation is developed

*PEMDAS = Parenthesis, Exponents, Multiply, Divide, Add, Subtract

Definitions for timing elements

- The definition of certain timing elements within measures and the QDM (ex. days, months and calculations of the terms) was not interpreted in a standard way
- A proposal to use ISO definitions has been brought forth in other forums and is currently under consideration as a recommendation

QDM User Group



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QDM User Group

- Group formed during the 2014 CQM development and QA
- Consists of stakeholders from:
 - Measure development (and contractors)
 - EHR vendors
 - Measure implementers
- ***Mission is simple:*** Use the experience of those involved in the development and implementation of 2014 CQM's to help develop the QDM further

QDM User Group

- User group working methods:
 - Smaller groups research a particular area for improvement in depth
 - Then make recommendations to the larger group
- Interested in getting involved?
 - Contact qdm@qualityforum.org

QDM and the Measure Authoring Tool



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QDM and the Measure Authoring Tool

- QDM 2.1.1.1 (October 2012) version currently implemented in MAT
- NQF will work with CMS as the MAT transitions to them in January 2013
- NQF and CMS will keep all stakeholders updated on future QDM enhancements

Meaningful Use Stage 3: Potential Measurement Areas

Data Concepts

- Care Team / Team Member
- Roles / Responsibilities
- Key owner for the care plan
- Primary contact / Additional contacts
- Practice identifier
- Precautions
- Shared agreement
- Watchful waiting
- Advanced directives
- Decision Modifiers
- Patient Instructions
- Patient Reported Outcomes

Potential MU3 eMeasures

- Measure assessing the use of shared decision making materials for patients with specific conditions
- Measure assess provider decision quality
- Measure assessing the presence of a completed comprehensive care plan
- Composite measure assessing closing the “referral loop”
- Measure of patient and family experience across a care transition

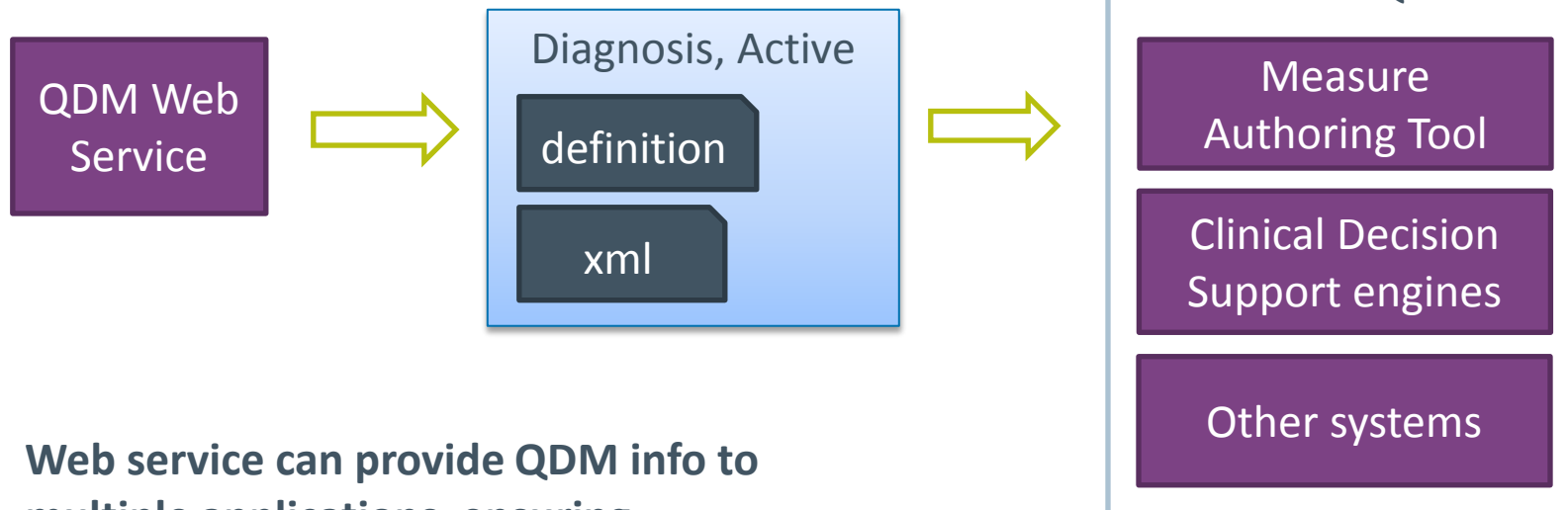
QDM Utility Both Within and
Outside of Quality
Measurement



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Enabling QDM Use in Other Systems

Problem: Other systems each need to program the QDM and HQMF templates



Web service can provide QDM info to multiple applications, ensuring consistent implementation and reduce duplicative work

Enabling QDM Use in Other Systems

Problem: Other systems each need to program the QDM and HQMF templates

Applications that may use the ODM

Allows for Future Innovation to Develop Better Methods for eMeasurement

Other systems

Web service can provide QDM info to multiple applications, ensuring consistent implementation and reduce duplicative work

QDM: Looking Forward to 2013

- QDM front end browser development
- Enhance the QDM to support emerging areas related to eMeasures and Meaningful Use
- Continue to validate enhancements with QDM Users and Stakeholders
- Collaborate with CMS to update the version of the QDM in the MAT

Thank you!

Questions?

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