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Measure Developer Workshop

NQF Measure Maintenance Team

July 19, 2022

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Welcome

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Agenda

- Welcome and Introductions
- Consensus Development Process (CDP) – Application of Measure Evaluation Criteria
- Measure Submission and 508 Compliance
- Break
- Centers for Medicare & Medicaid Services Digital Quality Measurement Strategic Roadmap
- Best Practices for Developing and Testing Risk Adjustment Models

Consensus Development Process (CDP) – Application of Measure Evaluation Criteria

Poonam Bal, MHSA, NQF

Katie Goodwin, MS , NQF

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The Consensus Development Process

- Multiple opportunities to submit new measures each year
  - Intent to Submit (Jan 5 and August 1)
    - Full Specifications
    - Measure Testing
    - Feasibility Scorecard (eCQMs)
  - Full Submission Deadline (early April, early November)
    - Remaining criteria: Evidence, Feasibility, Usability and Use

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The Consensus Development Process (CDP)

- Scientific Methods Panel (SMP)
- Standing Committees
  - One committee for each of 14 topic areas
    - E.g. surgery, cardiovascular, admissions and readmissions
  - Multi-stakeholder input including:
    - Providers
    - Health plans and purchasers
    - Consumers
    - Patients
    - Quality measurement experts
- Consensus Standards Approval Committee (CSAC)

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Measure Developer Resources

- Resources on the Submitting Standards page
  - Measure Evaluation Criteria include evaluation algorithms for evidence, reliability and validity
  - Measure Developer Guidebook Explains the NQF process and expectations for developers
  - What Good Looks Like - Measure Submission Examples
- Measure Information Management System
- Measure Developer Webinars
- NQF staff will provide Technical Assistance during the submission process – just ask!
  - Staff will provide feedback on a draft submission before the submission deadline

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NQF Measure Evaluation Criteria for Endorsement

NQF endorses measures for accountability applications (public reporting, payment programs, accreditation, etc.) as well as quality improvement

- Standardized evaluation criteria
- Criteria have evolved over time in response to stakeholder feedback
- The quality measurement enterprise is constantly growing and evolving—greater experience, lessons learned, expanding demands for measures—the criteria evolve to reflect the ongoing needs of stakeholders

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Major Endorsement Criteria

- **Importance to measure and report**: Goal is to measure those aspects with greatest potential of driving improvements; if not important, the other criteria are less meaningful (**must-pass**)
- **Reliability and Validity-scientific acceptability of measure properties**: Goal is to make valid conclusions about quality; if not reliable and valid, there is risk of improper interpretation (**must-pass**)
- **Feasibility**: Goal is to, ideally, cause as little burden as possible; if not feasible, consider alternative approaches
- **Usability and Use** (use is a **must-pass** for maintenance measures): Goal is to use for decisions related to accountability and improvement; if not useful, probably do not care if feasible
- **Comparison to related or competing measures**

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Criterion #1: Importance to Measure and Report

Extent to which the specific measure focus is evidence-based and important to making significant gains in healthcare quality where there is variation in or overall less-than-optimal performance.

- 1a. Evidence: the measure focus is evidence-based
- 1b. Opportunity for Improvement: demonstration of quality problems and opportunity for improvement, i.e., data demonstrating considerable variation, or overall less-than-optimal performance, in the quality of care across providers; and/or disparities in care across population groups

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Understanding the Measure

- Is this a new or maintenance measure?
- What is the measure type (outcome, process, composite, patient-reported, etc.)?
- Who is being held accountable (level of analysis)? **Measure Specifications (sp.017)**
- What is the measure trying to capture (measure description)? **Measure Specifications (sp.02)**
- Are the steps between healthcare structures and processes (e.g., interventions, or services) and the desired patient's health outcome(s) clear (logic model)? **Importance to Measure and Report: Evidence (1a.01)**

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Evidence- Outcome Measures

Importance to Measure and Report: Maintenance of Endorsement (1ma.01)
Importance to Measure and Report: Evidence-Outcome (1a.01 - 1a.03)

- Based on provided empirical evidence, is there at least one healthcare structure, process, intervention, or service the accountable entity can follow or provide to achieve the desired outcome?
- Did the target population value the measured outcome and find it meaningful?
- If a maintenance measure:
  - Was new evidence provided? If yes, was the update significant enough to require additional discussion and/or vote by the Standing Committee?
  - What did the Standing Committee previously say about the measure? Were any of the previous concerns resolved?

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Evidence- All Other Measure Types

Importance to Measure and Report: Maintenance of Endorsement (1ma.01)
Importance to Measure and Report: Evidence (1a.02 - 1a.16)

- Was a systemic review done?
  - If yes:
    - What kind of systemic review?
    - Was enough information provided to understand the evidence and how it relates to the measure (i.e. was specific recommendations/guidelines, QCC and grading provided)?
  - If no, were other forms of empirical evidence provided that demonstrate the need for the measure?
- Is the evidence directly applicable to the process of care being measured?
- Would an exception to the evidence criteria be appropriate?

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Evidence- All Other Measure Types (Cont.)

- If a patient-reported measure, did the target patient population value the measured outcome and find it meaningful?
- If a maintenance measure:
  - Was new evidence provided? If yes, was the update significant enough to require additional discussion and/or vote by the Standing Committee?
  - What did the Standing Committee previously say about the measure? Were any of the previous concerns resolved?

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Opportunity for Improvement

Importance to Measure and Report: Gap in Care/Disparities (1b.01 - 1b.05)

- Is there a gap in care that warrants a national performance measure?
  - Was enough information provided to understand the gap in care at the designated level of analysis (i.e. Description of the data source (including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities), mean, std dev, min, max, interquartile range, and scores by decile)?
- Are there certain populations (based on their age, gender, race, etc.) that are more likely to not receive the care they should?
  - Does this gap in care warrant a national performance measure?

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Criterion #2: Reliability and Validity – Scientific Acceptability of Measure Properties

Extent to which the measure, *as specified*, produces consistent (reliable) and credible (valid) results about the quality of health care delivery

- 2a. Reliability (**must-pass**)
  - 2a1. Precise specifications including exclusions
  - 2a2. Reliability testing—patient or encounter-level (data elements) or accountable entity-level (measure score)
- 2b. Validity (**must-pass**)
  - 2b1. Validity testing—patient or encounter-level (data elements) or accountable entity-level (measure score)
  - 2b2. Justification of exclusions—relates to evidence
  - 2b3. Risk adjustment—typically for outcome/cost/resource use
  - 2b4. Identification of differences in performance
  - 2b5. Comparability of data sources/methods
  - 2b6. Missing data

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Specifications

Specifications: Maintenance Update (spma.01 - spma.02)
Measure Specifications (sp.01 - sp.32)

- Are the specifications clear enough that all users will calculate the measure in the same way?
- Are the specifications consistent with the evidence?

- If maintenance measure:
  - Were any changes made to the specifications? If yes, how do they impact the measure?

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Reliability Testing

Scientific Acceptability: Reliability – Testing (2a.01 - 2a.12)

- At what level was testing conducted **(accountable entity-level [measure score]** and/or **patient or encounter-level [data elements])**?
- Was the method described and appropriate for assessing the proportion of variability due to real differences among measured entities and/or the reliability of ALL critical data elements?
- Was the dataset consistent with the measure specifications for the target population and healthcare entities being measured?
  - Was testing conducted at the data source and level of analysis indicated for this measure?
- When was the data collected?
- Were the measured entities and patient population fully described?

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Reliability Testing (Cont.)

- What were the results and was an interpretation of the results provided?
- Do the results indicate that the measure can consistently pull the desired information?
- If accountable-entity level and/or patient/encounter level **reliability** testing was NOT conducted or if the methods used were NOT appropriate, was **patient-level empirical validity** testing conducted? **(Scientific Acceptability: Validity – Testing (2b.01 - 2b.04))**
- If a maintenance measure: **(Scientific Acceptability: Maintenance 2ma.01)**
  - Was new reliability testing provided? If yes, was the update significant enough to require additional discussion and/or vote by the Standing Committee?
  - What did the Standing Committee previously say about the measure? Were any of the previous concerns resolved?

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Validity Testing

Scientific Acceptability: Maintenance (2ma.02 - 2ma.04)
Scientific Acceptability: Reliability – Testing (2a.01 - 2a.09)
Scientific Acceptability: Validity – Testing (2b.01 - 2b.04)

- Same considerations as reliability but with a focus on accuracy instead of consistency.
- If face validity is used, was it accomplished through a systematic and transparent process, by identified experts, and explicitly addresses whether performance scores resulting from the measure as specified can be used to distinguish good from poor quality?
  - Was the degree of consensus and any areas of disagreement provided/discussed?
- If a maintenance measure:
  - Was empirical validity testing provided? If no, was a rationale provided?
  - Was new validity testing provided? If yes, was the update significant enough to require additional discussion and/or vote by the Standing Committee?
  - What did the Standing Committee previously say about the measure? Were any of the previous concerns resolved?

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Threats to Validity

Scientific Acceptability: Validity - Threats to Validity (Statistically Significant Differences, Multiple Data Sources, Missing Data)

- Meaningful Differences **(2b.05 - 2b.07)**
  - Can the measure meaningfully differentiate performance across measured entities?
- Comparability of data sources/methods **(2b.11 - 2b.14)**
  - Was more than one set of specifications used for this measure?
  - If yes, was it demonstrated that the different data sources/specifications can be used to produce comparable performance scores for the same entities?
- Missing data **(2b.08 - 2b.10)**
  - What is the overall frequency of missing data?
  - What impact is missing data having on the performance score?
  - Can anything be done to minimize missing data or biases associated with missing data?

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Threats to Validity

Scientific Acceptability: Validity - Other Threats to Validity (Exclusions, Risk Adjustment)

- Exclusions **(2b.15 - 2b.18)**
  - Does the measure use exclusions?
  - If yes, how was it determined that these exclusions were appropriate?
    - What were the results and was an interpretation provided?
    - Do the results indicate that patients were appropriately excluded?
- Risk Adjustment **(2b.19 - 2b.32)**
  - Were risk factors addressed?
    - If no and it is an outcome or resource use measure, was a rationale provided?
    - If yes, how was the conceptual model developed?
      - What were the results and was an interpretation of the results provided?
      - Were any risk factors included? Was the risk adjustment approach justified?

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Criterion #3: Feasibility

Extent to which the required data are readily available, retrievable without undue burden, and can be implemented for performance measurement.

- 3a: Clinical data generated during care process
- 3b: Electronic sources
- 3c: Data collection strategy can be implemented

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Feasibility

Feasibility (3.01 - 3.07)

- How are the data elements needed for the measure generated?
- To what extent are the specified data elements available electronically?
- If ALL needed data elements are not from electronic sources, is there a credible, near-term path to electronic capture or a rationale for using data elements not from electronic sources provided?
- Have there been any efforts to develop an eCQM version of the measure?
- Were any implementation issues identified through testing and/or use of the measure?
- Are there any fees, licensing, or other requirements to use any aspect of the measure?

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Criterion #4: Use and Usability

Extent to which potential audiences (e.g., consumers, purchasers, providers, policymakers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

- **Use (4a)** (**Must-pass for maintenance measures**)

  4a1: Accountability and Transparency: Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement.

  4a2: Feedback by those being measured or others: Those being measured have been given results and assistance in interpreting results; those being measured and others have been given opportunity for feedback; the feedback has been considered by developers.

- **Usability (4b)**

  4b1: Improvement: Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated.

  4b2: Benefits outweigh the harms: The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).

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Use

Use (4a.01 - 4a.10)

- Is the measure in use?
  - If yes, in what programs?
    - If maintenance measure, is it used in at least one accountability application within three years after initial endorsement and publicly reported within six years after initial endorsement?
      - If no, was a rationale provided for why and a valid plan for implementing the measure provided?
  - If no and a new measure, was a valid plan for implementing the measure provided?
- Were those being measured provided performance results or data and assistance with interpreting the measure results and data?
- Were those being measured and other users given an opportunity to provide feedback on the measure performance or implementation?
  - Was this feedback considered? If so, how?

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Usability

Usability (4b.01 - 4b.03)

- Was any progress on improvement observed?
  - If no improvement was demonstrated, was an explanation provided?
- Were there any unexpected findings (positive or negative) during implementation of this measure, including unintended impacts on patients?
  - If any unintended consequences, how were they handled?

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Criterion #5: Related or Competing Measures

If a measure meets the four criteria ***and*** there are endorsed/new related measures (same measure focus ***or*** same target population) or competing measures (both the same measure focus ***and*** same target population), the measures are compared to address harmonization and/or selection of the best measure.

- 5a. The measure specifications are harmonized with related measures **OR** the differences in specifications are justified.
- 5b. The measure is superior to competing measures (e.g., is a more valid or efficient way to measure) **OR** multiple measures are justified.

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Related or Competing Measures

Related and Competing (5.01 - 5.06)

- Were any related or competing measures identified?
- What steps have been taken to harmonize the measures to the extent possible?
- If the measures or aspects of the measures were not harmonized, was a rationale provided for the differences?

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Tips for Successful Submissions

- Know the criteria and how your measure meets that criteria
- As much as possible, complete submissions so they can be easily understood by general, non-technical audiences
- Tell a story
- Be sure you can respond to technical questions about data and testing, or have a representative on call
- Consider writing more than “not applicable”
- Provide rationales/explanations
- Start the submission process early
- Have multiple reviewers/someone outside of your team review before submitting
- Take advantage of technical assistance
- Choose a knowledgeable representative(s) to speak about your measure - the representative must be familiar with the measure submission information

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Questions and Comments

Measure Submission and Section 508 Compliance

David Peabody, NQF
Hannah Bui, MPH, NQF

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What you should know about 508 compliance

- Section 508 is the **law** requiring that all digital media distributed by the federal government and its contractors, via the internet or email for example, is accessible to disabled users.
- We make a positive difference in the lives of disabled users by giving them access to our materials and resources.
- Luckily, the processes needed to make a document 508 compliant are not complicated.
- This presentation will include a check-list of the tasks we are asking you to perform.

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Proper use of color

- Don't use color as the sole means to emphasize a point, offer a choice/selection, or show information differences because some users have a color vision disability – especially red and green for our color-blind users.
- Be certain there is enough contrast between objects and their background color
- Use dark text colors on light backgrounds or vice versa and the color contrast ratio between the text and background should not be less than 4.5:1 regardless of the text size

Insufficient Contrast, Not 508 Compliant

Correct Contrast, 508 Compliant

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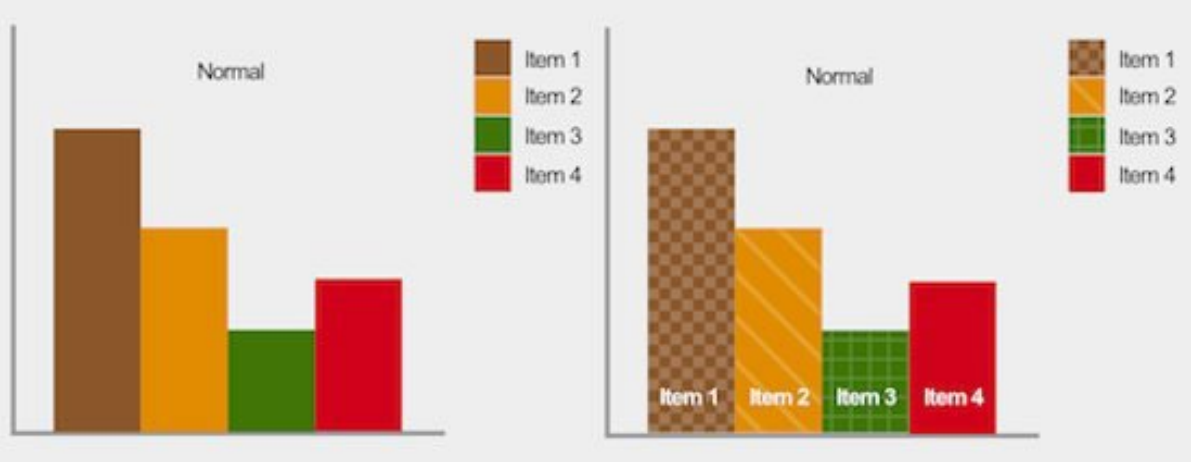
Proper use of color (continued)

- Be sure figures do not rely on color as the only method of determining what the data represents
- Use patterns or additional text labels for clarity



Not 508 compliant

508 compliant

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Proper use of color (continued-1)

- Be sure to include text labels when using color dependent choices or information

Project	Status
Project A	
Project B	
Project C	

Not 508 compliant

Project	Status
Project A	On Time
Project B	At Risk
Project C	Late

508 compliant

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Use of Color in MIMS

- The text editor in MIMS does not have the option to use color.
- The ability to paste color from an external document is enabled. However, to comply with section 508 requirements, we do not allow the use of color in measure submissions.
- If your text contains the use of color upon pasting into the MIMS text editor, we advise you to remove the color by making it all black.

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Alternate Text (alt-text)

- All images, grouped images, and non-text elements conveying information must have alternative text ("alt text") descriptions.
- Alt text allows people with disabilities equal access to the information conveyed by the image, grouped image, or other non-text elements. Non-text elements include, (but are not limited to):
  - Charts
  - Diagrams
  - Graphs
  - Logos
  - Screenshots
- Alt text is not necessary for images not conveying information, such as images that are purely decorative or redundant with the text.

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Alt-text (continued)

- Write the description in simple, precise, and succinct language.
- Imagine describing the information you are trying to convey to someone with their eyes closed.
- You can refer to the body of the document if it provides more details.
- Alt-text should be used for images and tables.
  - **Ex**. Image demonstrating the statistical anomaly, described in the previous paragraph, of why bread will nearly always fall buttered-side down.
  - **Ex**. A table comparing the debate surrounding the cliché of apples to oranges among scholars, botanist, politicians, and late-night TV hosts between the years 2000-2021. The table concludes scholars prefer apples on their desks, botanist are still debating the issue, politicians will agree with either side, and late-night TV hosts overuse the cliché.

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How to Add Alt-Text in MS Word

- Images/figures
  - Right-click on the image.
  - Select **Edit Alt-Text** from the drop-down menu.
  - An Alt-Text pane will appear on the right side of the screen.
  - In the **Description** field, type a brief but complete description of the image and the key information it is conveying
- Tables
  - Click anywhere within the table and choose **Table Properties** from the fly-out menu.
  - Go to the **Alt-text** tab in the Table Properties window.
  - Enter the alt-text in the **Description** box.
  - Hit **OK**

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How to Add Alt-Text to Figures and Tables in MIMS

- NQF staff will screenshare

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Rules for Tables

- A table should always be an actual table, not an image or screenshot of a table.
- Use the MIMS table tool or MS Word internal table design table style.
- Tables cannot contain merged cells. Repeat column or row headers to avoid merged cells.
- Empty table cells should have a symbol like * with this note at the bottom outside the table: *** Cell intentionally left empty**
- Using **n/a** is discouraged because it can be misleading when relating to the cell's contents when compared to the rest of the table.

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Table Properties for MS Word Tables

- Choose **Row** from the **Table Properties** menu
- We never allow rows to break across pages, so that option should ***not*** be selected
- We do need header rows to repeat at the top of each new page when a table appears on more than one page, so that option should be selected while the table's header (top) row is highlighted

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Table Properties in MIMS

- Table properties listed in the previous slide for MS Word tables will be automatically applied to tables that are input in MIMS using the built-in table tool.
- If you have copy and pasted your table in, there is no guarantee that the table properties will apply. We encourage you to use the built-in table tool.

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Developer's 508 Text Checklist

- Is all my text black, not using any other color?
- Am I reserving underlined text for hyperlinks only, creating emphasis using *italic*, **bold**, and ***bold-italic*** text instead of using underlining?
- Am I avoiding multiple hard and soft returns?
- Are all my hyperlinks working, linked to their correct destination, and using the hyperlink style to set them off from regular text?
- Do all my bulleted or numbered lists use the built-in bulleting or numbering feature?

The full Checklist for Developer 508 Guidelines is on the NQF Submitting Standards page.

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Developer's 508 Table Checklist

- Are my tables actual tables and not images or screenshots of a table?
- Am I using the MIMS table creation tool or a attaching a Word Table Design Style table?
- Am I repeating the column and row headers in individual cells to avoid merged table cells?
- Do my empty table cells contain a symbol like * with the note: **Cells intentionally left empty*, at the bottom outside of my table?
- Did I write a brief description of what the table conveys using the MIMS Table Caption or Word Table Alt-text option?
- Does my attached Word table have Allow row to break across pages turned *off* for all rows and Repeat as header row at the top of each page turned *on* for the first row?

The full Checklist for Developer 508 Guidelines is on the NQF Submitting Standards page.

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Developer's 508 Alt-Text Checklist

- Do my images, Figures, Graphs, Charts, Pictures, and tables include clear concise alt-text descriptions of what they represent?

The full Checklist for Developer 508 Guidelines is on the NQF Submitting Standards page.

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Any Questions?

Break

CMS Digital Quality Measurement Strategic Roadmap

Joel Andress, PhD, EHR Lead Technical Advisor,
Centers for Medicare & Medicaid Services (CMS)

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CMS Disclaimer

This presentation is current at the time of publication or upload onto the web. Medicare policy changes frequently so links to the source documents have been provided within the document for your reference. This presentation was prepared as a service to the public and is not intended to grant rights or impose obligations. This presentation may contain references or links to statutes, regulations, or other policy materials. The information provided is only intended to be a general summary. It is not intended to take the place of either the written law or regulations. We encourage readers to review the specific statutes, regulations, and other interpretive materials for a full and accurate statement of their contents.

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

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CMS Quality Measurement Evolution

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CMS is participating in advancement of interoperability across the agency and the enterprise

Strategy and Policy	Collaboration	Standards and Technical Components	Action
Application Program Interface (API) Strategy	CMS Burden Reduction Executive Steering Committee	Assessment Data Element Library	Blue Button 2.0
Interoperability and Patient Access Final Rule (CMS-9115-F)	Interoperability and Standards Collaborative	eCQM Data Element Repository	Beneficiary Claims Data API
Interoperability and Prior Authorization Proposed Rule (CMS-9123-P)	Federal Health IT Coordinating Council	United States Core Data for Interoperability (USCDI)	Data at the Point of Care
CMS Digital Quality Measurement Strategic Roadmap	Standards Development and Advisory Organizations	USCDI Plus Quality Measurement (QM)	Documentation Requirements Look-up Service
	Healthcare Providers, Plans, Beneficiaries, Vendors and Other Stakeholders		Electronic Prior Authorization
			Post-Acute Care Interoperability Project (PACIO)
			Digital Quality Measurement: systems, tools, and measures

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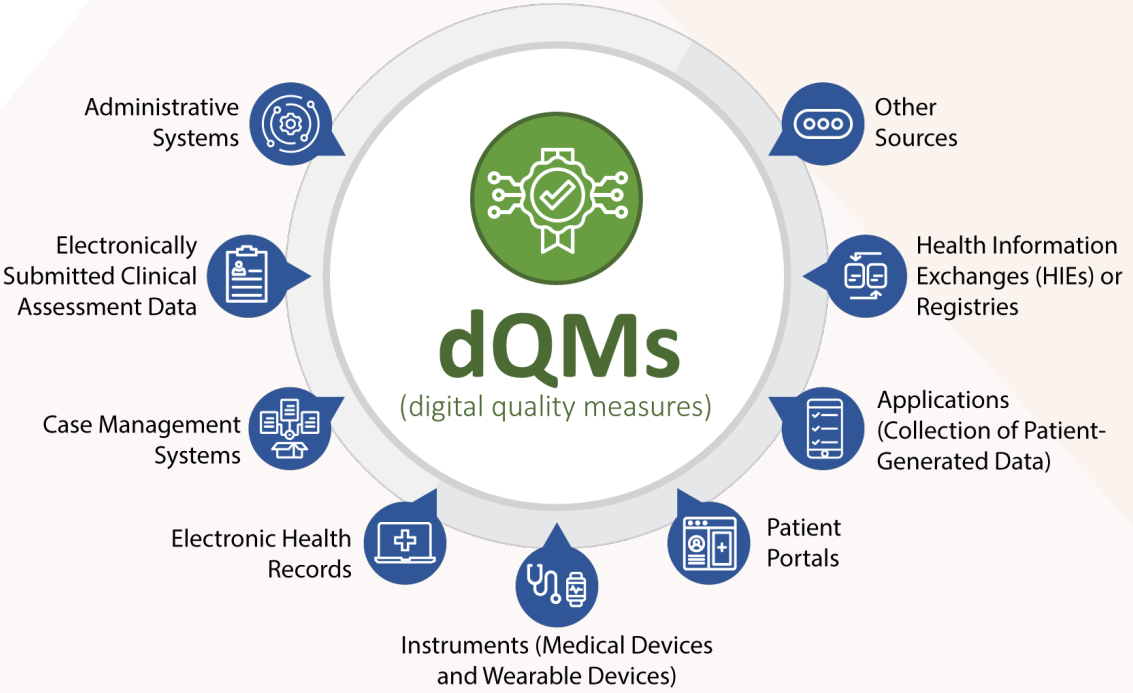
Digital quality measures (dQMs) defined

- dQMs are quality measures, organized as self-contained measure specifications and code packages, that use one or more sources of health information that are captured and can be transmitted electronically via interoperable systems
- Potential data sources for dQMs include EHR data, patient-generated health data, and registry data, among others
- dQMs will leverage advances in technology (e.g., FHIR APIs) to access and electronically transmit interoperable data for dQMs



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CMS has set the ambitious and critical goal of transitioning to digital quality measurement

CMS has set a new course for quality measurement aimed at contributing to a learning health system (LHS) to optimize patient safety, outcomes, and experience

Enable a future in which **care quality is only measured electronically**, using standardized, interoperable data

Reduce the burden of electronic health record (EHR) data transfer by leveraging **Fast Healthcare Interoperability Resources (FHIR®) application programming interface (API) technology that is already required for interoperability**

Provide usable, timely data from multiple sources to support delivery of high quality of care and quality improvement

Produce reliable and valid measurement results common across multiple programs and payers

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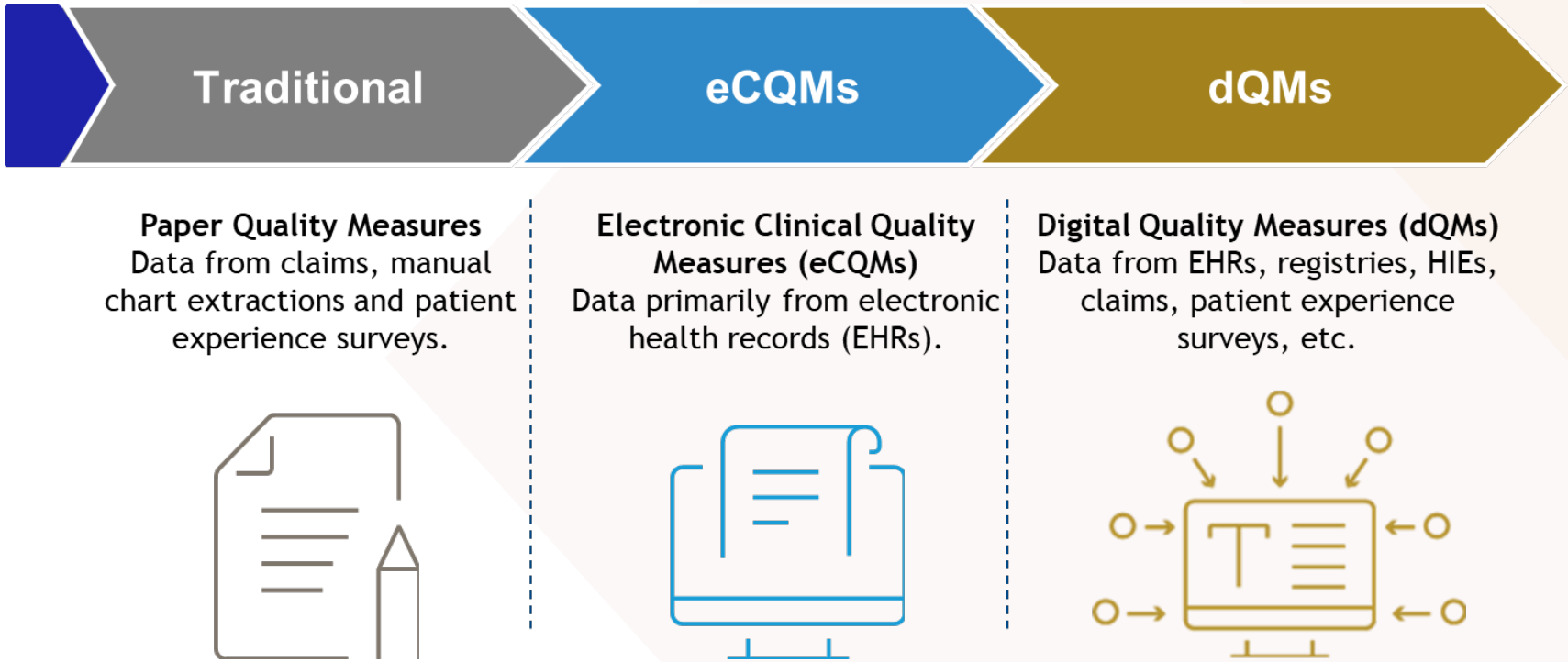
Evolution of quality measures: the journey from paper to digital



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The Digital Quality Measurement Strategic Roadmap aligns with the goals of CMS's National Healthcare Quality Strategy

National Healthcare Quality Strategy Goals

1. Embed quality across the care journey, must also extend quality across payer types
2. Advance health equity
3. Promote safety to prevent harm and death
4. Foster engagement with stakeholders with focus on person and family-centered care
5. Strengthen resiliency in the healthcare system
6. Embrace the digital age
7. Incentivize scientific innovation and technology
8. Increase alignment to promote seamless and coordinated care

https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/CMS-Quality-Strategy

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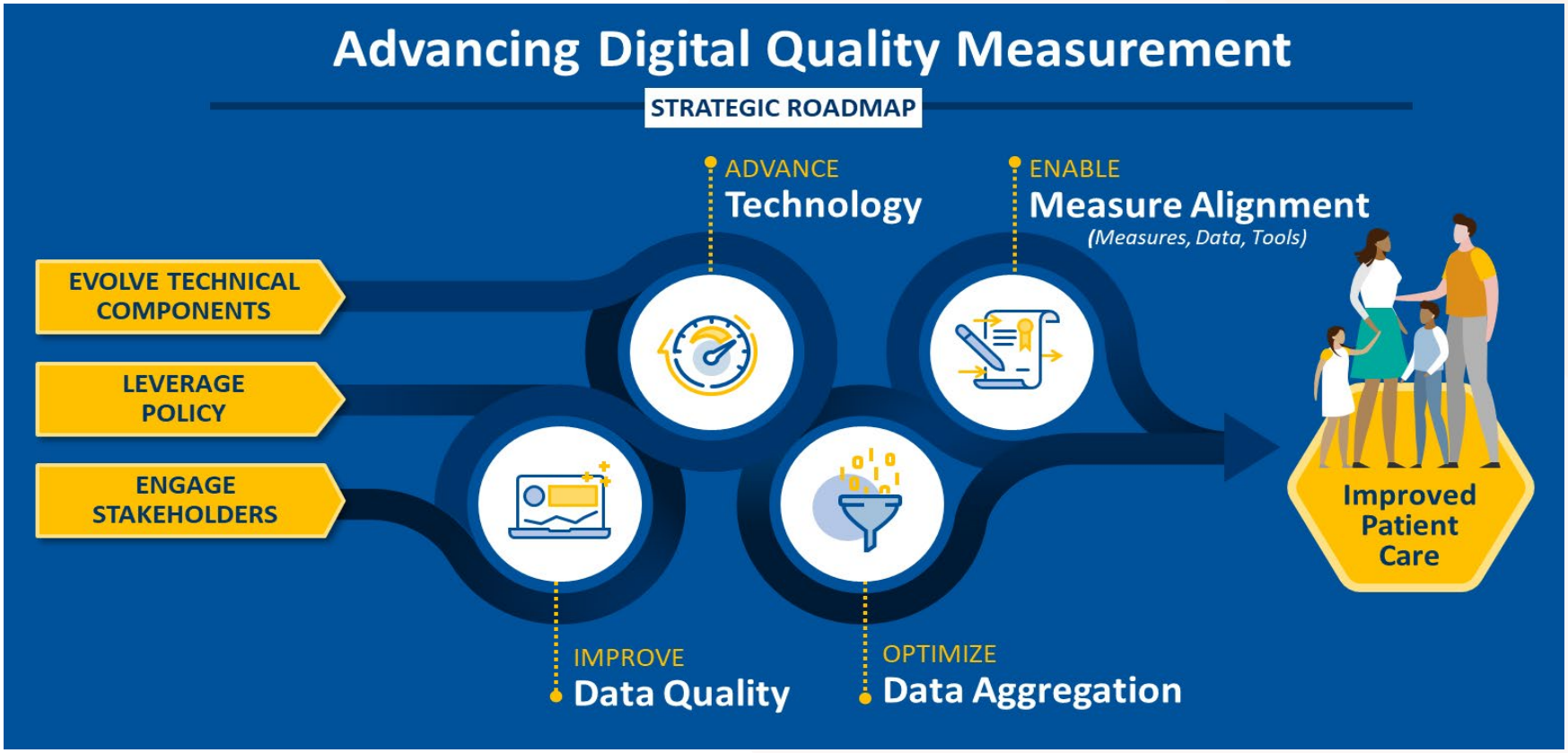
CMS developed a Strategic Roadmap for advancing digital quality measurement centered around four key domains



CMS Digital Quality Measurement Strategic Roadmap available at:
https://ecqi.healthit.gov/sites/default/files/CMSdQMStrategicRoadmap_032822.pdf

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Importance of Data Standardization

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On Digital Quality Measurement, CMS's Center for Clinical Standards and Quality is actively advancing systems, tools, and measures

Action
Blue Button 2.0
Beneficiary Claims Data API
Data at the Point of Care
Documentation Requirements Look-up Service
Electronic Prior Authorization
Post-Acute Care Interoperability Project (PACIO)
Digital Quality Measurement: systems, tools, and measures

Activities

- Engaging with stakeholders on the dQM Strategic Roadmap rollout and planned modernization activities
- Working with ONC to identify data elements for quality measurement to inform the USCDI and USCDI+ Quality Measurement (QM) datasets
- Built and refining tools for specifying and testing eCQMs in FHIR®
- Building a FHIR server infrastructure for quality data receipt and storage
- Converting eCQM specifications from Quality Data Model (QDM) to FHIR
- Coordinating standards definition through HL7® PACIO Project to advance PAC assessment data interoperability

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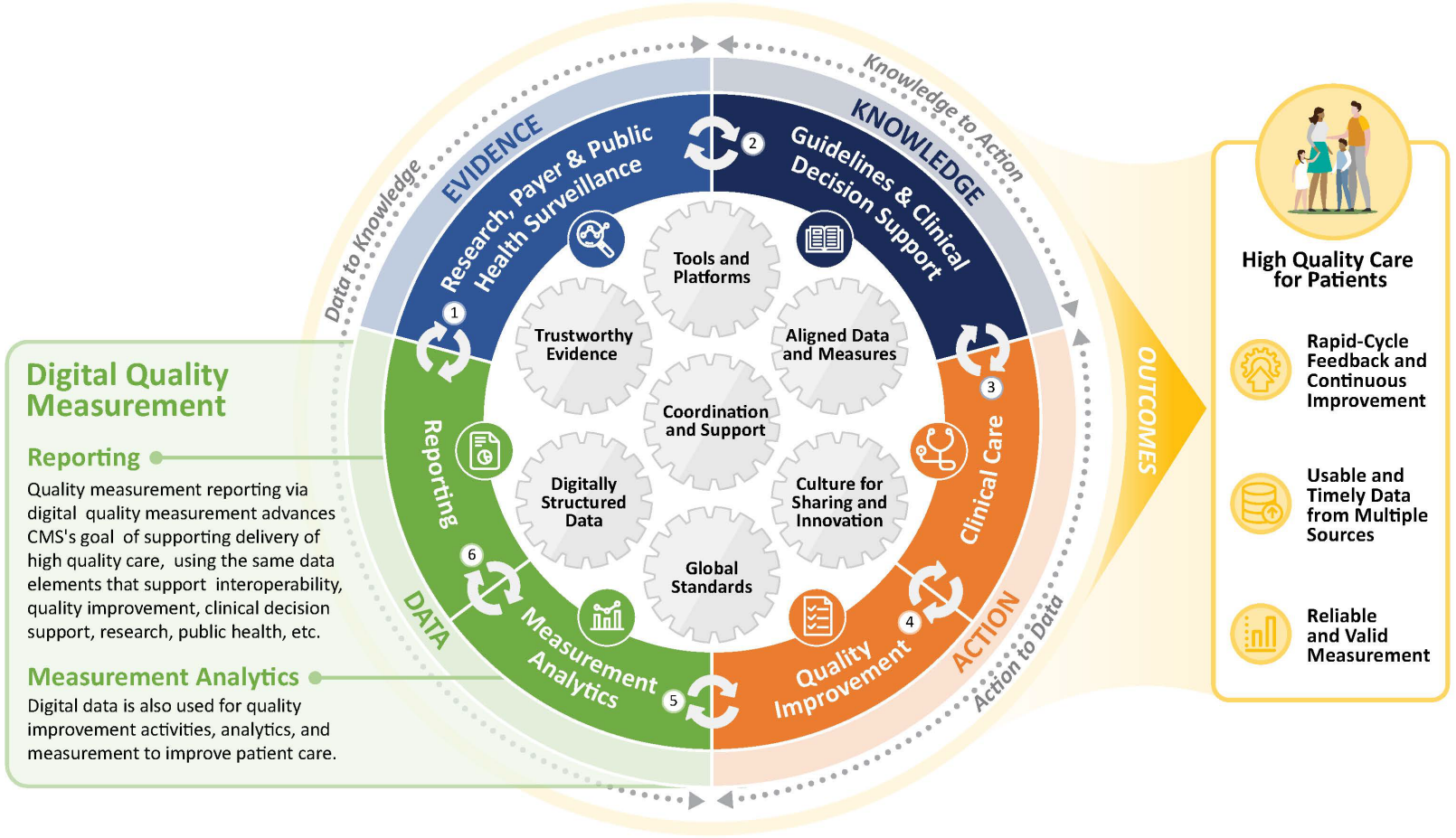
A learning health system uses data to drive health care



Sponsoring HL7 Workgroups: ☐ Clinical Decision Support (CDS) ☐ Clinical Quality Information (CQI) ☐ Public Health (PH)

Adapted from HL7 Clinical Quality Information (CQI) Workgroup by Maria Michaels, Centers for Disease Control and Prevention

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Why data standardization?

- CMS is contributing to the establishment of a functional learning health system, with standardized data as the foundation
  - Learning health systems generate knowledge from data captured during routine care
- Data standardization
  - Transforms data into a common format
  - Ensures data quality
  - Allows for data flow
  - Supports program alignment
- Standardized data could be used for multiple use cases, such as
  - Patient health data access
  - Quality measurement
  - Big data analytics
  - Research

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Structured, standardized data can lead to reduced collection and reporting burden

CURRENT STATE

- **Providers' struggle to implement current eCQMs**
  - Limitations and slow adoption of current standards
  - Lack of provider data mapping and quality assurance (QA) of required data
  - Required changes to clinical workflows

FUTURE STATE

- **dQM implementation is seamless and automated**
  - Focus on **standardized data** – FHIR, United States Core Data for Interoperability (USCDI), and supplemental standards (i.e., USCDI+) that enable automated extraction of data
  - Standardized and automated data collection facilitates **valid and reliable data mapping** and streamlined auditing processes
  - Eliminate workflow changes required only for measurement and focus on measures that also **align with quality improvement priorities**

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Why the FHIR standard?

- Reduces burden
  - Align CMS eCQM reporting with industry clinical data exchange framework and clinical decision support (CDS)
  - Data exposed in a consistent format enables automated data retrieval from EHRs and submission of quality data through use of standards-based APIs
  - Enable the provision of near real-time feedback on quality measurement results to providers
- Simplifies data mapping
  - Single mapping to FHIR vs. mapping to Health Quality Measure Format (HQMF) and Quality Reporting Data Architecture (QRDA)
- Promotes interoperability
  - Aligns data exchange requirements for quality measurement and reporting with interoperability standards used in other healthcare exchange methods
  - Flexibility of the standard allows access to and exchange of information; suitable for use in a variety of contexts
  - FHIR is also being embraced by the commercial community and big tech

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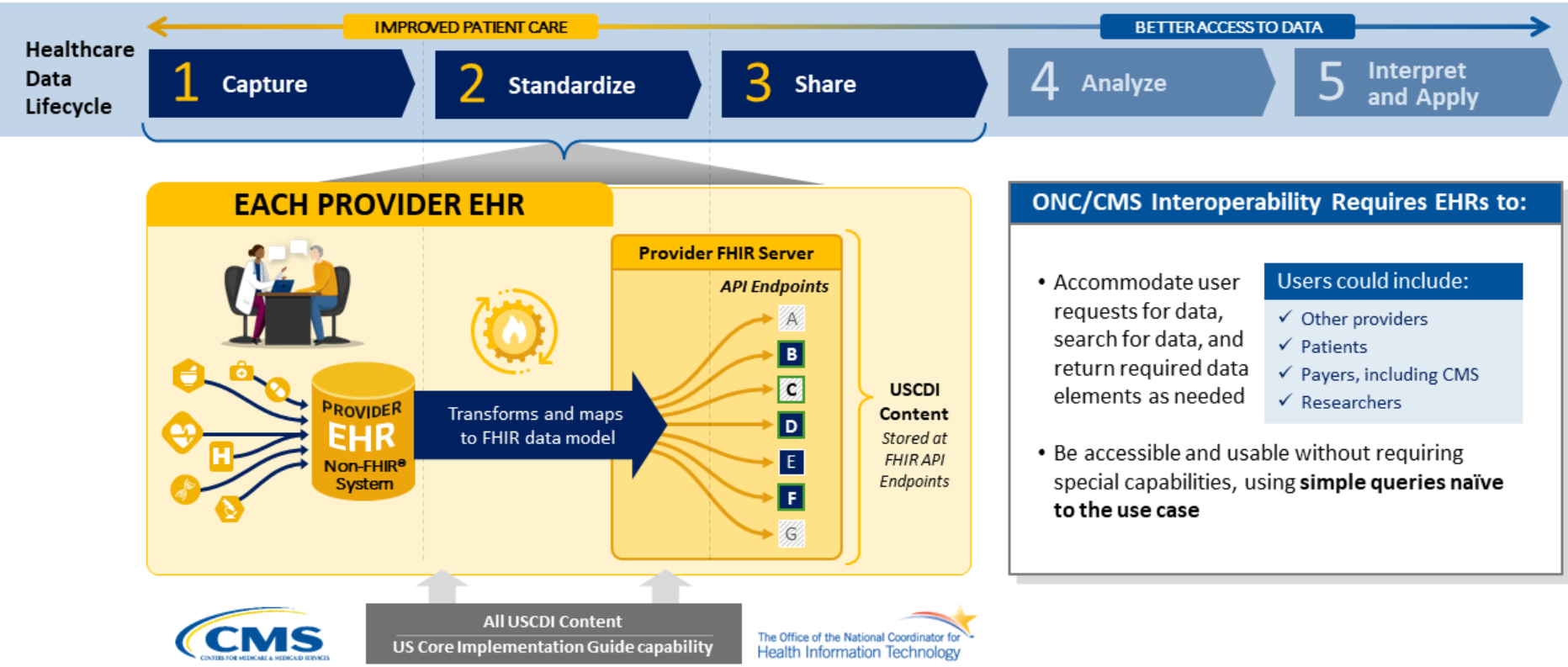
Many providers already have to implement FHIR APIs that perform transformation functions for data interoperability



ONC/CMS Interoperability Requires EHRs to:

- Accommodate user requests for data, search for data, and return required data elements as needed

Users could include:

- ✓ Other providers
- ✓ Patients
- ✓ Payers, including CMS
- ✓ Researchers

- Be accessible and usable without requiring special capabilities, using **simple queries naïve to the use case**

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Current CMS Activities to Advance Data Standardization

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CMS is actively engaging in activities to advance data standardization and collaborating across the industry

1. Authoring eCQMs in FHIR, as an initial step in the digital quality measurement transformation

2. Collaborating with ONC to support advancing data for digital quality measurement and other uses cases through data standardization
   - **Engaging in the USCDI process**, Developed by ONC to identify a standardized set of health data classes and constituent data elements
   - **Engaging with ONC on the USCDI+ initiative**, to advance standardization of additional data elements for quality measurement

3. Harmonizing across federal agencies to ensure CMS data element needs and standards for quality measurement align with other use cases (i.e., public health, quality improvement, clinical decision support)

4. Engaging with Health Level Seven (HL7®) and other standards setting body processes to continue to advance FHIR resources

5. Engaging stakeholders throughout the dQM transition

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1. Authoring eCQMs in FHIR, as an initial step in the digital quality measurement transformation

- eCQMs are one subset of dQMs
- CMS is converting current QDM-eCQMs to FHIR-eCQMs
- The implementation of future FHIR eCQM reporting will serve as a model for future dQM reporting
  - Will show utility and feasibility of standard-based reporting
  - Advancing data standardization and FHIR standards are critical for CMS eCQM reporting
- The transition work requires CMS to set up systems and tooling that would first be used for FHIR eCQMs, then could be used for future dQMs
  - We are considering the development of a unified CMS FHIR receiving system that would allow for a singular point of data receipt to be used for quality reporting requirements, and leverage opportunities related to digital data

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2. Engaging in the ONC USCDI processes

- ONC's USCDI:
  - Comprises a core set of data needed to support patient care and facilitate patient access using health IT
  - Establishes a consistent baseline of harmonized data elements that can be broadly reused across use cases, including those outside of patient care and patient access
  - Expands incrementally over time via a transparent, established, and collaborative process, weighing both anticipated benefits and industry-wide impacts
- Example priority Data Classes identified by CMS to date, for quality measurement and patient care
  - Encounter information
  - Medication
  - Laboratory
  - Vital signs
  - Health insurance information
  - Observations, including questionnaires
  - Facility level data (identifiers)
  - Medical device or equipment
  - Orders

https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi

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2. Gathering requirements for USCDI+ QM

- USCDI+ provides a pathway to develop nationally-recognized data sets that advance program goals via interoperability, while remaining harmonized across programs/use cases

- USCDI+ requirements-gathering activities supports identifying a comprehensive data set of elements for quality measurement, building on the USCDI
  - USCDI+ QM would be the data set of elements for quality measurement
  - The data elements would be used initially for eCQM reporting using FHIR and in the future, for additional dQMs

- To support USCDI+ discovery process, CMS launched an exercise to compile data elements in FHIR standards
  - Has created an inventory of data elements used for CMS eCQMs
  - Invited federal partners with quality measures to join in and identify commonly used data elements

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3. Harmonizing and aligning across federal agencies

- Goals for aligning data elements across federal agency quality measurement programs currently underway
  - Began with list of CMS quality measurement needs and priority data elements
  - Obtain input from federal partners to identify additional data needs that may not fit within the USCDI
  - Achieve consensus on prioritization of data needs, which can serve as a signal to ONC

- CMS is also closely collaborating with the Centers for Disease Control and Prevention (CDC) to align the public health and quality measurement use cases, where possible, including data elements, implementation guides, and tooling/reporting architectures

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4. Engaging with HL7 processes to continue to advance FHIR resources

- To advance implementation of standardized data, collaboration with consensus standards-setting bodies such as HL7 is critical

- We are considering how best to leverage existing implementation guides that are routinely updated and maintained by HL7 to define data standards and exchange mechanisms for FHIR dQMs in a fashion that supports the learning health system and alignment across use cases

- We are also considering what, if any, additional CMS-specific implementation guides may be necessary to support future digital quality measurement, such as guidance on aggregation mechanisms for reporting

https://www.govinfo.gov/content/pkg/FR-2022-05-10/pdf/2022-08268.pdf

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5. Engaging with stakeholders on digital quality measurement transition plans

- **CMS released a Request for Information related to advancing digital quality measurement through the use of FHIR in the Fiscal Year (FY) 2023 IPPS Proposed Rule; content included:**
  - Refined Potential Future Definition of Digital Quality Measures (dQMs)
    - Requested feedback on the potential refined definition of digital quality measures
  - Data Standardization Activities
    - Outlined data standardization strategies and potential venues for advancing data standardization
    - Requested feedback on the specific implementation guides being considered and other data and reporting components where standardization should be considered
  - Approaches to Achieve FHIR eCQM reporting
    - Outlined activities CMS is undertaking or considering to achieve FHIR eCQM reporting
    - Requested feedback on additional venues to engage with implementors, data flow opportunities, and any other critical considerations during the transition

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5. Engaging with stakeholders on digital quality measurement transition plans (continued)

- **CMS launched a Digital Quality Measures webpage on the eCQI Resource Center to engage stakeholders**
  - **Goal**: Provide a location for stakeholders to access information and materials related to CMS's plans and activities to move toward full digital quality measurement
  - **Current Content:**
    - dQM Strategic Roadmap Overview
    - CMS dQM Strategic Roadmap Report and Executive Slide Deck
    - Discussion of dQMs and learning health systems
    - Links to related initiatives

https://ecqi.healthit.gov/dqm

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Looking Ahead

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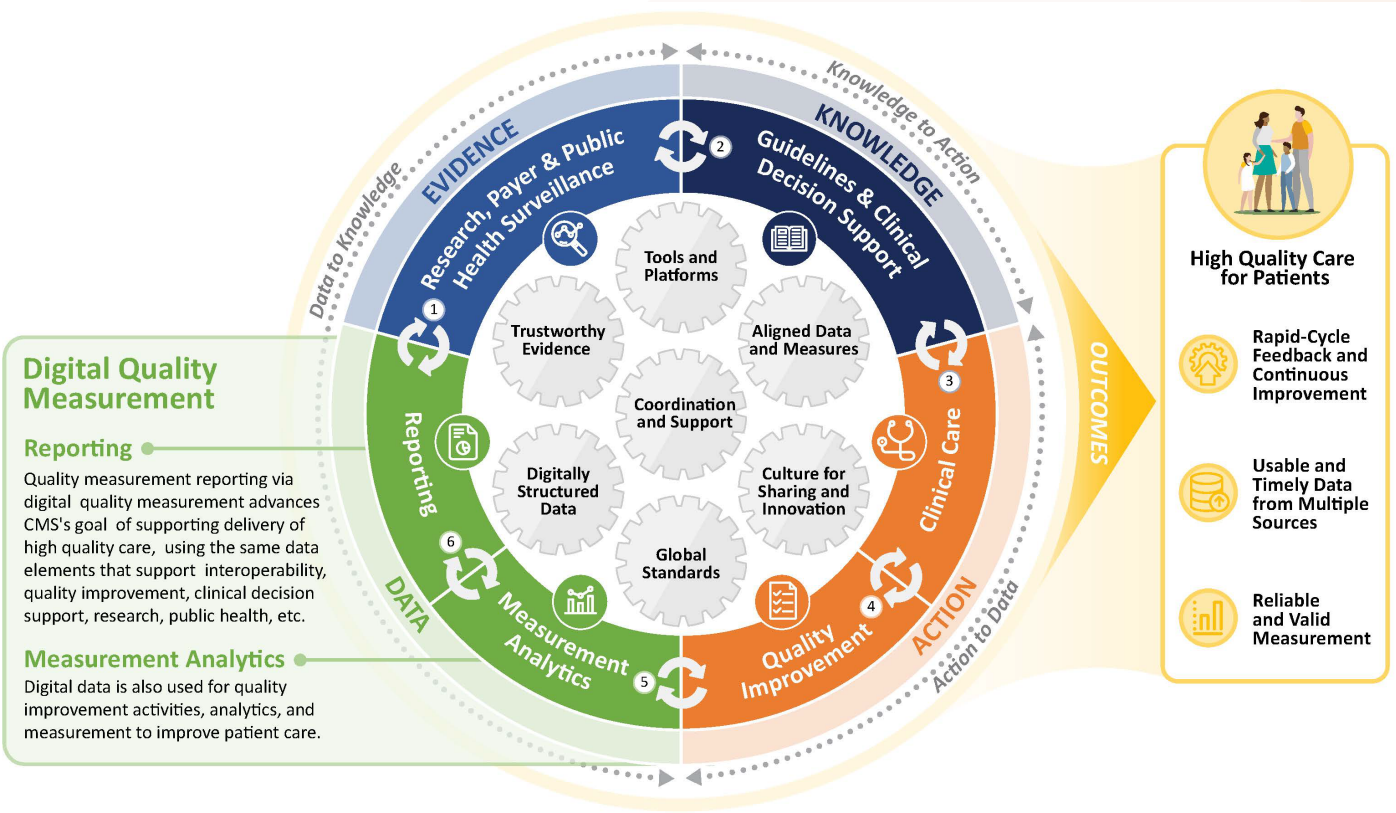
Standardized data used for quality measurement as part of a learning health system is critical for high quality care for patients



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Standardized data is the foundation for alignment across measures, data sets and tools

CURRENT STATE

- Program-, payer-, and setting-specific
- Strides toward interoperability
- Providers must support many measures
- Measures create burden for the provider
- Data are fragmented across capture systems, thereby limiting the feasibility of measures that capture the full patient course

FUTURE STATE

- Common dQM portfolio across payers and agencies
  - Aligned measures
  - Consistent data
- Data resources, standards, measures, and tools are shared across the healthcare ecosystem
- Reporting across payers is low burden
- Health system learning is coordinated and shared, and promotes rapid-cycle feedback

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CMS's active engagement with a broad set of stakeholders is critical for success

- Engagement is critical for the success of forming, operationalizing, and maintaining the dQM Strategic Roadmap to facilitate dQM transition activities
- Harmonization and alignment of priorities for digital data are necessary and incremental

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Key Takeaways

Lessons

- True alignment of quality measures cannot be fully successful until we ensure the underlying data are consistent
- Much of the data needed for quality measurement exist in EHRs, so advancing USCDI and USCDI+ QM will aid in progressing dQM reporting
- Driving consensus on and prioritizing interoperability of digital data is necessary
- The standardized data could and should benefit other use cases beyond quality measurement

Challenges

- Providers in different care settings vary in their readiness to collect data, standardize it in FHIR, and make it available for exchange through FHIR APIs
- A complete data set of elements for federal quality measurement is one piece of the puzzle
  - Alignment of measure concepts and specifications is another priority
  - Alignment must also consider state and private sector needs

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How to get or stay engaged

- Become familiar with CMS's Digital Quality Measurement webpage on the eCQI Resource Center
- Look out for opportunities to provide feedback on FHIR-based measure specifications prior to implementation, such as during measure development/conversion activities
- Provide continued feedback on RFIs and any future proposals through CMS's rulemaking processes
- Participate in ONC's USCDI processes and provide feedback on high priority data elements for inclusion
- Participate in HL7 and CMS/HL7 Connectathon testing
- Look out for opportunities for collaboration via systems testing of FHIR-based eCQM reporting to ensure successful systems development

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Questions?

Joel Andress joel.andress@cms.hhs.gov

https://ecqi.healthit.gov/dqm

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

Best Practices for Developing and Testing Risk Adjustment Models

Updates from Option Period

Matthew Pickering, PharmD, NQF

This project is funded by the Centers for Medicare and Medicaid Services under contract HHSM-500-2017-00060I – 75FCMC20F0001 - Best Practices for Developing and Testing Risk Adjustment Models.

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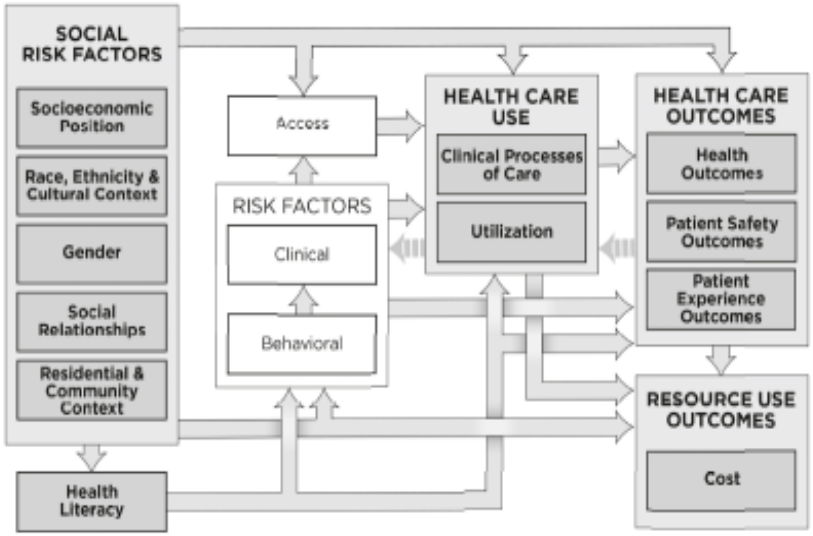
The importance and challenges of adjusting for social and functional risk factors

Figure 1. Health Care Access Conceptual Model



National Academies of Sciences, Engineering and Medicine 2016 report

- Fair and meaningful quality and resource measures are the foundation for value-based care.
- Quality measurement can be a lever for advancing health equity and improving healthcare disparities.
- Social and functional risk factors can directly affect outcomes and/or indirectly do so through behavioral or clinical factors.
- However, ***when and how*** to adjust for social and functional factors for fair comparisons and for promoting health equity remains inconsistent with limited consensus.

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Base Period Accomplishments

- Convened a multistakeholder technical expert panel (TEP) to provide expertise and guidance towards major project components.
- Conducted an environmental scan of data sources used for risk adjustment, functional or social risk factors available for testing, and approaches to conceptual and statistical methods for risk adjustment. The environmental scan informed aspects of the Technical Guidance.
- Developed Technical Guidance for measure developers that includes emerging best practices on when and how to adjust for functional and social risk factors in measure development.

This project is funded by the Centers for Medicare and Medicaid Services under contract HHSM-500-2017-00060I – 75FCMC20F0001 - Best Practices for Developing and Testing Risk Adjustment Models.

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Technical Guidance Overview

- **Introduction**
  - Background and Purpose
  - Core Principles
- **Technical Guidance**
  - Conceptualizing the Model
  - Identifying and Selecting Potential Data Sources and Variables
  - Empirically Testing Risk Factors
  - Empirically Testing the Adequacy of the Risk Model
  - Considerations for Determining the Final Risk Adjustment Model
- **Conclusion**
  - A Path Forward
- **Appendices**

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Base Period Technical Guidance:

Standards for social and/or functional risk adjustment

- Conceptualizing the Model
- Identifying and Selecting Potential Data Sources and Variables
- Empirically Testing Risk Factors
- Empirically Testing the Adequacy of the Risk Model
- Considerations for Determining the Final Risk Adjustment Model

NQF Minimum Standards for Social and/or Functional Risk Adjustment

1. A conceptual model is required and should illustrate the pathway between the social and/or functional status-related risk factors, patient clinical factors, quality of care, and the measured healthcare outcome.
2. Developers should consider age, gender, race/ethnicity, urbanicity/rurality, Medicare and Medicaid dual-eligibility, indices of social vulnerability (such as the Area Deprivation Index, AHRQ SES Index score for the analysis) and markers of functional risk (such as frailty, ADLs, IADLs) in the conceptual model.
3. If social and/or functional status risk factors are not available, but included in the conceptual model, the developer should describe the potential bias that may exist and the direction and magnitude of that bias as a result of not including the risk factor(s) in the model. The developer should also provide a justification of why the measure still has validity even in this circumstance.
4. Document and fully disclose data sources, including the dates of data collection, any data cleaning and manipulation, and the data's assumed quality (Table 1). Developers can cite other research to show data quality of those variables. Developers should also provide a description of the populations covered within that dataset.
5. Developers should provide descriptive statistics on how the risk variables identified from the conceptual model are distributed across the measured entities.
6. Calibration should be conducted not just with the overall population, but also with the subpopulations. All risk models should be tested and vetted to examine to what extent do they under or over-predict in a substantial way for important subgroups with social or functional risk. If a risk factor is not included in the model, the developer should, at a minimum, provide evidence that its removal does not create a misprediction for that group or subgroup. Developers should be transparent about their approach and their interpretation of the results.
7. Risk stratification should be conducted in conjunction with risk adjustment to ensure that the risk-adjusted measure to identify healthcare disparities.

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Option Period Activities

Completed:

- Conducted six (6) focus groups to be inclusive of individuals from medically underserved communities, as noted in the White House Executive Order, and of individuals who disagree with the Technical Guidance recommendations
- Presented and received feedback at two CMS-convened meetings
- Aggregated stakeholder feedback to inform updates to the Base Period Technical Guidance
- Reconvened TEP from the Base Period to provide input to the updates, which are based on the stakeholder feedback

Ongoing:

- Update the Technical Guidance based on findings from focus groups, CMS-funded meetings, and TEP input
- Garner public comments on the updated Technical Guidance (August 23 – September 14)
- Finalize the Option Period Technical Guidance

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The Option Period Technical Guidance attempts to advance consensus and further delineate best practices for social and functional risk adjustment within quality measurement on several key fronts:

- Developing a conceptual model that illustrates the pathways between the social and/or functional risk factors, patient clinical factors, healthcare processes, and the measured outcome. The rationale for risk adjustment variables must derive from the specific relationships illustrated by the conceptual model.
- Advancing health equity while ensuring a transparent, consistent, and fair approach to measurement.
- Using a stratification approach, as well as being risk-adjusted, so that the measure will be available and can be used if desired in a format that does not obscure disparities.
- When and how to consider race within risk adjustment of quality measurement.
- Identifying appropriate data sources for social and functional risk adjustment.
- Conducting empirical analyses of risk variables identified from the conceptual model.
- Testing the adequacy of the risk model.
- Considering the potential unintended consequences of risk adjustment.

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Next Steps

Public Comment for Technical Guidance

August 23 – September 14

Web Meeting #4 (October 24, 2022)

Discuss and adjudicate public comments received on Technical Guidance

Finalize Technical Guidance updates

Updated Technical Guidance Published

December 21, 2022

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A Path Forward

While this project gathers input through an environmental scan and from a multi-stakeholder TEP, focus groups, and the public, specific changes to the NQF CDP requires several important steps prior to implementation of this guidance, including:

- Translate the five-step process outlined in the Technical Guidance and the associated risk adjustment standards into standard NQF measure information specifications collected for candidate measures considered for measure endorsement;
- Update to the NQF measure endorsement criteria to reflect the risk adjustment standards outlined in the Technical Guidance;
- Coordinate with CMS on potential updates to the CMS Quality Measures Blueprint, and other measure developers to ensure the alignment of measure development guidelines and endorsement standards;
- Provide education to and gain feedback from stakeholders, specifically measure developers, on proposed updates to the NQF measure information specification submission documentation, and updates to the NQF measure endorsement criteria.

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Questions

Closing Remarks

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Upcoming Events and Reminders

- Fall 2022 Intent to Submit Deadline is Monday, August 1
- Contact measuremaintenance@qualityforum.org for general inquiries or questions related to the Consensus Development Process (CDP), measure evaluation criteria, or technical assistance
- Check your MIMS Dashboard regularly and verify the correct measure developer/steward contacts are listed
  - Developers have the capability to update user contact information and NQF uses the contacts listed in the Dashboard to send updates and reminders about deadlines related to your measure
- Measure Developer Webinar
  - Monday, August 15 from 1:00 – 2:00 pm ET
- Visit the NQF Calendar for details!

THANK YOU.

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