NATIONAL QUALITY FORUM
Driving measurable health improvements together

Improving Diagnostic Quality and Safety/Reducing Diagnostic Error: Measurement Considerations

Committee Web Meeting 7

June 30, 2020

Agenda

- Welcome, Review of Meeting Objectives, and Introductions

- Overview of Draft Report

- Discuss Broad-scope, Comprehensive Recommendations

- Opportunity for Comment on Draft Report

- Opportunity for Public Comment

- Next Steps

Welcome and Introductions

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Committee Roster

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Nonvoting Committee Representatives

- Andrea Benin, MD

- David Hunt, MD

- Marsha Smith, MD, MPH, FAAP

Overview of Draft Report

Draft Report Outline

- **Executive summary**
- **Background and project objectives**
- **Environmental scan findings**
  - The 2017 Diagnostic Quality and Safety Measurement Framework
  - Prioritized measure concepts
  - Measure inventory
- **Use Cases: comprehensive resolution of diagnostic errors**
  - Selection process
  - Approach
  - Use Cases 1-4
- **Broad-scope, comprehensive recommendations**
- **Conclusion**
- **Appendices (e.g., Committee roster, measure inventory and concepts, public comments)**

Background and Project Objectives

- The 2017 Diagnostic Quality and Safety Measurement Framework was developed in follow-up to a 2015 report of the National Academies of Sciences, Engineering, and Medicine (NASEM), Improving Diagnosis in Health Care

- In 2019, NQF, with funding from the Department of Health and Human Services (HHS), convened a multistakeholder expert Committee to build on the work of the 2017 Diagnostic Quality and Safety Committee

- This Committee reviewed the Diagnostic Process and Outcomes domain of the measurement framework to identify any needed updates, identify high-priority measures, current measures, and areas for future measure development

- The Committee developed practical guidance for the application of the Diagnostic Processes and Outcomes domain, including specific Use Cases to demonstrate how the framework can be operationalized in practice and detailed recommendations for the reduction of diagnostic error

Environmental Scan Findings

Framework Domains

- Based on a review of new literature published since the work of the former Committee concluded, the measurement framework did not require updates nor modifications to the subdomains
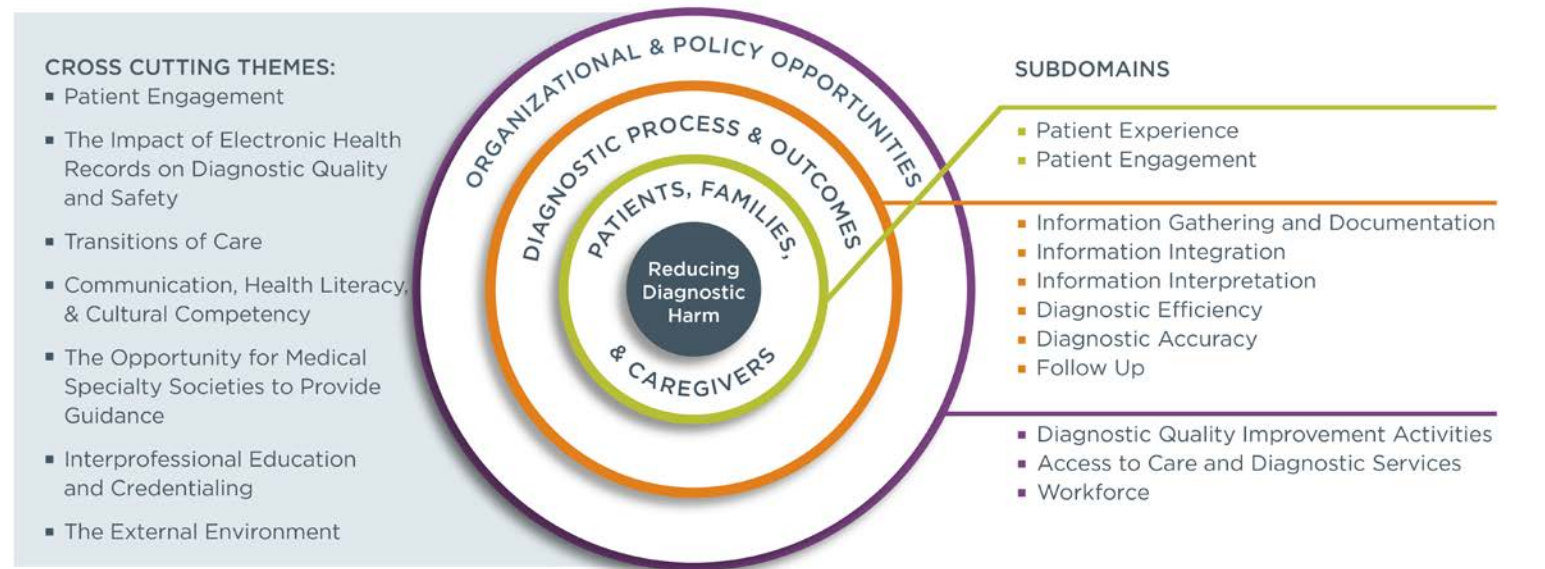

Figure 1. 2017 Diagnostic Quality and Safety Measurement Framework

Diagnostic Process and Outcomes Subdomains

- The Diagnostic Process and Outcomes domain addresses the actions and processes that are carried out by healthcare providers and/or teams to develop, refine, and confirm a diagnosis, or to explain the patient's health problem

- The Diagnostic Process and Outcomes subdomains include:
  - **Information Gathering and Documentation**: Collection and documentation of diagnostic-related information
  - **Information Integration**: Use of consultants, hand-offs, and care transitions between providers (e.g., provider-provider, provider-system communication)
  - **Information Interpretation:** Use of decision support and best practices, cognitive processing, and machine computation
  - **Diagnostic Efficiency:** Timeliness, efficiency, and appropriate use of diagnostic resources and tests
  - **Diagnostic Accuracy:** Diagnostic errors, delay in diagnoses, and missed diagnoses
  - **Follow-Up:** Appropriate and timely follow-up of labs, radiology, consultation notes, and other diagnostic findings

Cross-Cutting Themes

- The cross-cutting themes identified during the development of the 2017 Diagnostic Quality and Safety Measurement Framework were intended to be a part of future discussions of applications of the Measurement Framework

- The Environment Scan identified one new cross-cutting theme and reaffirmed the existing themes, which include:
  - Patient Engagement
  - Impact of Electronic Health Records (EHR) on Diagnostic Quality and Safety
  - Transitions of Care
  - The Opportunity for Medical Specialty Societies to Provide Guidance
  - Interprofessional Education and Credentialing
  - External Environment
  - **NEW**: Importance of Advancing Science in Diagnostic Error

Prioritized Measure Concepts

- Overview of the purpose and limitations of measure concepts

- The Environmental Scan identified 17 new measure concepts within the Diagnostic Process and Outcomes domain

- The Environmental Scan confirmed that the high-priority areas for future measurement development identified by the 2016-2017 Committee remain critical to measuring and reducing diagnostic errors

- High-priority area themes include:
  - Timeliness of diagnosis
  - Timeliness of test result follow-up
  - Communication and hand-offs
  - Patient-reported diagnostic errors
  - Patient experience of diagnostic care

- The Environmental Scan did not yield any additional high-priority areas for future measure development

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Measure Inventory

- The Environmental Scan identified 19 new measures specifically related to the Diagnostic Process and Outcomes subdomain
  - Measures included were limited to those in development, testing, and in use
- The full list of measures will be included in an appendix of the Report

Use Cases

Use Case Selection Process

- Use Case topic areas are built on the findings of the Environmental Scan that identified measurement gaps related to diagnostic error

- NQF outlined key topic areas to be discussed over the course of the Committee meetings

- The Committee identified and prioritized four key examples of diagnostic errors with viable solutions to inform the content of the Use Cases

- Use Cases were developed as an opportunity to identify comprehensive resolutions to specific types of errors

- Use Cases were refined by the Committee over a series of web meetings

Use Cases

- **Use Case 1: Cognitive Error – Missed Subtleties**
  - Subtle clinical presentations of dangerous conditions when the disease "signal" is to low

- **Use Case 2: System Error – Communication Failure**
  - Failure to "close the loop" on communication diagnostic test results for important conditions

- **Use Case 3: Cognitive Error – Information Overload**
  - Information overload in complex, critically ill patients when the disease "signal" is too high

- **Use Case 4: Cognitive Error – Dismissed Patient**
  - Prolonged diagnostic odyssey for chronic symptoms when the disease "signal" is almost nonexistent

Use Case Approach

- The Use Case approach is intended to support various stakeholders in applying the Diagnostic Process and Outcomes domain of the 2017 Measurement Framework and Use Cases will include:

  - **Background information:**
    - » A narrative describing the clinical context, detailed information on causal factors and diagnostic challenges, and the relationship to the subdomains of the 2017 Measurement Framework

  - **Use Case table:**
    - » A table highlighting the causal factors and diagnostic challenges, with the primary solutions and process steps for implementing each solution

  - **Case exemplars:**
    - » Three narrative case exemplars depicting the error in practice, highlighting case-specific challenges, and detailing how the stakeholders within the case exemplar might operationalize the solutions

  - **Impact on patient safety:**
    - » A narrative describing the impact the solutions have on overall patient safety

  - **Measurement considerations:**
    - » A table highlighting measurement approaches, measure concepts, and the rationale for how the measure concepts help reduce diagnostic errors and drive improvements

Example Case Exemplar: Overview of Case

OVERVIEW OF CASE

A 65-year old woman with no prior medical history presents to an outpatient clinic with fever of 101 degrees Fahrenheit (F), diffuse muscle aches, and shortness of breath during influenza season. The clinician saw three patients earlier the same day who tested positive for influenza B. The patient reports that she did not get the influenza vaccine this year. An electrocardiogram (EKG) is performed that shows sinus tachycardia to 125 beats per minute (bpm) but is otherwise normal. Her initial blood pressure is 105/70. A chest x-ray is performed which is normal. No laboratory work is sent, except for an influenza swab that is negative for influenza A and B. The patient is given acetaminophen and her breathing somewhat symptomatically improves with an albuterol/ipratropium nebulizer, but the patient still feels very weak. Her fever reduces to 99 degrees F, but the tachycardia (fast heart rate) does not improve. The last set of vital signs demonstrates a heart rate of 122 bpm and a blood pressure that has decreased to 95/60. The patient is discharged with a diagnosis of presumed culture negative influenza. She receives a prescription for oseltamivir to treat influenza and an albuterol metered-dose inhaler, and the clinician recommends acetaminophen for the fever. Later that evening, the patient continues to feel even weaker and calls an ambulance. The ultimate diagnosis is gram-positive sepsis, and the patient has an intensive care unit (ICU) stay and prolonged hospitalization.

Example Case Exemplar: Case-Specific Challenges

CASE-SPECIFIC CHALLENGES

In this case, there were several subtle findings that went undetected during the initial clinic visit, including the persistent tachycardia, falling blood pressure, continued weakness, and negative test for influenza. In combination together, these could have pointed to the correct diagnosis of sepsis and led to earlier initiation of antibiotics. A lack of expertise by the clinician, as well as cognitive bias—in particular, availability bias—may have contributed to the error and the missed subtleties in this case. Given the findings of tachycardia and falling blood pressure, laboratory testing should have been ordered and the patient should have been referred immediately to the ED. Furthermore, the "red herring" in this case was that it was influenza season and that the three prior patients seen by the clinician had tested positive for influenza, resulting in the faulty assumption by the clinician that this patient's influenza test was a false negative. The clinician's availability bias, demonstrated by favoring the diagnosis of influenza because of ease of recall due to the recent cases, led to premature closure of the diagnosis where the clinician closed off other diagnostic possibilities and did not explore additional options.

Example Case Exemplar: Case-Specific Solutions

CASE-SPECIFIC SOLUTIONS

Specific solutions that would have helped prevent this error include:

- **Leverage the EHR to support recognition of subtle findings (*from potential solution #3*):** With administrative support, clinical leaders can work with IT staff to implement data visualization and trending in the EHR. The trending could be used to support recognition of subtle but persistent and concerning vital sign abnormalities, including persistent tachycardia, and alert the clinicians. The alerts could be created by a multidisciplinary team of physicians and nurses (to ensure the alert is based on clinical guidelines) and IT staff (to ensure the EHR is capable of deploying the alert as intended). After the alerts are created, leaders from the multidisciplinary team should educate frontline staff on using them

- **2-3 additional solutions**

Use Case 1: Cognitive Error—Missed Subtleties

Subtle clinical presentation of dangerous conditions when the disease "signal" is too low

Use Case 1: Causal Factors

Clinician Factors:

- Clinician knowledge and experience
- Cognitive bias (e.g., availability bias, anchoring bias, base rate neglect, confirmation bias, conjunction rule)

Systems Factors:

- Busy and chaotic work environments
- Staffing shortages
- Limited resources to support access to specialists, protocols, tests, and other resources that support accurate diagnosis

Condition/Disease Factors:

- "Red herrings" and other cognitive distractions
- The subtlety of the patient's presentation
- The rarity of the patient's diagnosis

Use Case 1: Potential Solutions

Enhance clinician expertise through education and training

Employ a team approach and emphasize the value in diverse opinions and clinical teams

Leverage technology to help understand the full clinical picture before making a diagnosis

Use Case 1: Impact on Patient Safety

- Increasing medical knowledge, experience, and clinical reasoning techniques via training and consultation access has been shown to increase a clinician's awareness of potential subtle findings, questions to ask, and diagnoses to explore

- Decision support tools, checklists, and computer-aided detection systems for medical diagnosis have successfully suggested difficult or obscure diagnoses often missed by clinicians

- Web-based reminder systems for interns and residents have also significantly improved diagnostic workups and reduced diagnostic omission errors

- Increasing clinician knowledge and awareness of medical errors and cognitive biases encourages reflective practice (i.e., "active metacognitive review") which has been shown to have positive effects in addressing premature closure and hindsight bias

Use Case 1: Measurement Considerations *(1 of 2)*

Measurement Approach	Measure Concepts	Rationale
Ensure protocols are created and detect deviations from protocols	• Rate of protocol use for cases that fall under a particular clinical syndrome (e.g., chart review of chest pain cases that used the History, ECG, Age, Risk factors, and Troponin [HEART] score)	• Protocols guide the clinician with specific steps and may reduce the risk of missing subtle signs or not considering uncommon diagnoses • Protocols are an important in delineating the safest, most efficient approach/address pitfalls • Conducting chart,image,video review will identify cases where protocols were not adhered to
Use of clinical decision support	• Rate of clinical decision support use for cases in which clinical decision support tools are available once clinicians complete the necessary documentation fields in the EHR	• Using clinical decision support for high-risk / commonly missed diagnoses may help support accurate, timely diagnosis • Building clinical decision support into the EHR may facilitate the deployment of protocols
Link outcome measures with measures of utilization	• Utilization of consultation, CT imaging, MRI imaging, cardiac imaging, and/or hospital admission or observation units • Match/mismatch between process measures and specific diagnosis	• Promulgating measures of misdiagnosis may lead to an increase in consultations/testing for benign conditions • Balancing measures will ensure clinical teams use diagnostic resources appropriately/ follow protocols

Use Case 1: Measurement Considerations *(2 of 2)*

Measurement Approach	Measure Concepts	Rationale
Measure short-term outcomes of acute care visits	• Rate of accurate diagnosis of commonly misdiagnosed acute care conditions using the Symptom-Disease Pair Analysis of Diagnostic Error (SPADE) method. Possible measure concepts using symptom-disease pairings include: • Diagnoses of stroke linked to prior visits for vertigo, dizziness, or weakness • Diagnoses of sepsis linked to prior visits for fever or influenza • Diagnoses of acute myocardial infarction linked to prior visits for chest pain or shortness of breath	• Linking visits that are potentially related will allow for further review using the SPADE framework and methodology to understand if prior visits were a missed opportunity to diagnose a later, more serious condition, and to use big data to understand the potential harms from misdiagnosis • Measuring the rates of accurate diagnosis of commonly misdiagnosed conditions will also contribute to understanding the impact of disparities
Ask for patient feedback	• Patient-reported understanding of diagnosis and/or diagnostic uncertainty after discharge	• Engaging the patient to understand medical history, visits over time, and potential misdiagnoses may help overcome fragmented systems and records across settings

Use Case 2: System Error – Communication Failure

Failure to "close the loop" on communication diagnostic test results for important conditions

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Use Case 2: Causal Factors

Clinician Factors:

- Failure to acknowledge test results
- Incomplete handoffs
- Diffusion of responsibility across clinicians
- Lack of teamwork and coordination across teams
- Failure to explain to the patient diagnostic tests performed/needed, and the process for obtaining results
- Failure to recognize important information shared by patient

Systems Factors:

- Busy and chaotic work environments
- Lack of closed-loop communication processes
- Multiple care settings and providers involved in the patient's care
- Complex EHR systems
- Lack of defined protocols for collecting patient contact information and follow-up process

Condition/ Disease Factors:

- The health literacy level of the individual
- The number of diagnostic tests required
- The complexity of the condition

Use Case 2: Potential Solutions

Ensure clear roles and responsibilities exist for follow-up activities

Engage patients as active partners in information communication and follow-up

Leverage technology, data, and EHRs to promote closed-loop communication and information sharing

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Use Case 2: Impact on Patient Safety

- Effective communication and collaboration across healthcare teams reduce the potential for diagnostic errors and adverse events, resulting in increased patient safety and improved quality

- Research has increasingly shown a correlation between increased patient and family engagement and fewer adverse events, thus demonstrating how improving communication and engagement with patients can result in higher quality of care

- Healthcare organizations and clinicians may leverage health information technology to support coordination and closed-loop communication, as solutions aimed at improving message transmission may commonly include technological interventions

- Interventions aimed at improving the reception of information and follow-up actions have shown positive effects in preventing misdiagnosis and initiating timely treatment

Use Case 2: Measurement Considerations *(1 of 2)*

Measurement Approach	Measure Concepts	Rationale
Measure the use of e-trigger tools	• Proportion of diagnoses where an e-trigger tool is used	• Using e-trigger tools, although still at a research stage, may be a valuable way to identify errors across settings, and machine learning may eventually become a useful tool to surveil for diagnostic errors in real-time
Measure the use of language interpreter services in patient's preferred language	• Rate of use of interpreter services when English is not a patient's preferred language	• Ensuring that patients communicate in their preferred language is important to ensure understanding, and measuring the use of interpreters may help improve communication
Audit charts for high-risk findings to ensure follow-up and verbal handoffs occur	• Proportion of high-risk finding charts with recommended follow-up completed and with verbal handoffs between clinicians	• Auditing charts could be used as a measure of system performance to ensure that high-risk findings are communicated and followed up on appropriately

Use Case 2: Measurement Considerations *(2 of 2)*

Measurement Approach	Measure Concepts	Rationale
Measure interoperability of health information technology	• Percentage of systems that support closed-loop communication and safety nets for test results	• Understanding current interoperability of health information and information sharing across settings may help reduce communication issues and support EHR vendors in developing future interoperability
Assess rates of delayed diagnoses	• Possible measure concepts to assess delayed diagnoses include: Rates of delay in acting upon critical action lab values, time/number of visits from first symptoms to diagnosis of cancers, number of missed opportunities in diagnosis antecedent to cancer diagnoses, frequency of late-stage/emergency cancer presentations	• Measuring communication delays and diagnostic delays makes it possible to then further assess the extent to which communication failures are responsible, as well as to understand the extent to which solutions prevent diagnostic delay and/or adverse event outcomes (e.g., late stage cancer presentations)
Ask about communication quality on patient surveys	• Patient-reported understanding of diagnosis and/or diagnostic uncertainty after discharge	• Gathering information from the patient may be the most optimal way to measure quality related to communication in instances where only the patient is aware of a miscommunication across clinicians and settings

Use Case 3: Cognitive Error—Information Overload

Information overload in complex or critically ill patients when the disease "signal" is too high

Use Case 3: Causal Factors

Clinician Factors:

- Cognitive load
- Decreased ability to handle high cognitive load due to limited clinical experience or older clinician age
- Physical fatigue (e.g., overnight shifts, lack of sleep)
- Mental fatigue (e.g., long shifts with many complex patients)
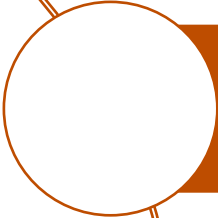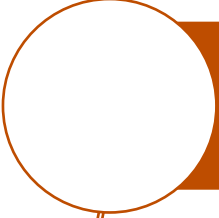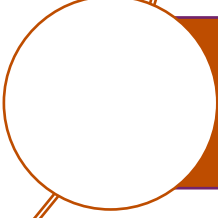- Distractions
- Alarm fatigue

Systems Factors:

- Poor organization of information and lack of data presentation within the EHR
- Process complexity
- Interruptions (e.g., busy environments with constant interruptions of new information and requests)
- Multiple care settings and providers involved in the patient's care
- Information complexity
- Ambiguous information

Condition/Disease Factors:

- Clinical complexity (e.g., findings are masked by the patient's complex clinical state)
- Individual patient factors that limit an individual's ability to be engaged in the diagnostic process (e.g., severity of illness)

Use Case 3: Potential Solutions

Leverage technology as a tool to manage complex information

Support clinicians in managing large and/or complex patient loads

Provide patients opportunities to help manage information

Use Case 3: Impact on Patient Safety

- Support systems that manage cognitive load and the amount of information a clinician processes to provide opportunities to improve patient safety

- Technology can be an especially powerful tool for assisting clinicians with processing complex information

- Dashboards and other electronic tools can assist in managing this complex information

- Checklists assist clinicians in processing complex clinical information, and have shown to improve patient safety by increasing adherence to various quality indicators

- Patient, family, and caregiver engagement in managing their health data can assist in alleviating the information overload on a clinician by patients, families, and caregivers taking a more active role in their healthcare decisions

- Engaged patients have decreased delays in care and report more positive healthcare experiences, working with their providers to make decisions and set healthcare goals

Use Case 3: Measurement Considerations *(1 of 2)*

Measurement Approach	Measure Concepts	Rationale
Assess the usability of EHR platforms by users	• Clinician-reported assessments of usability • Presence of data visualization methods that meet quality standards within the HER	• Measuring the usability of EHRs, such as the presence of data visualization methods and other tools to identify EHRs that are more successful in managing information and those with opportunities to improve usability, in particular to display and management of complex information
Measure clinician productivity as a proxy for cognitive load	• Number of patients seen per hour by a clinician	• Gathering information on the number of patients seen by a single clinician in a given time frame and also during times of peak demand may serve as a proxy for understanding the burden, clinical load, and/or cognitive load on particular clinicians • Analyzing information on clinical load and diagnostic errors may help inform if certain thresholds should be in place to help manage cognitive load
Measure the time to identify important clinical events	• Time to detection of important clinical events (e.g., sepsis)	• Understanding the time it takes to detect important clinical events will help identify opportunities where diagnostic odysseys are occurring, as well as provide data for root-cause analysis and follow-up to pinpoint remediable key causes of delays

Use Case 3: Measurement Considerations *(2 of 2)*

Measurement Approach	Measure Concepts	Rationale
Assess participation in a learning system that supports data sharing	• Rate of participation in a health information exchange • Participation in a learning system with other healthcare organizations	• Participation in a health information exchange supports the use of data to improve accessibility of information and reduce diagnostic errors
Assess patients' perceptions of if they are part of the diagnostic team	• Patient-reported perceptions of patient input into the diagnostic process	• Gathering information directly from the patient may be a useful way to measure if a patient feels that his/her opinions are heard and he/she is part of the diagnostic team
Measure relational coordination	• Coordination of Care Index (COCI)	• Measures of relational coordination, which focus on coordination and communication of teams, could serve as a proxy for if information and tasks are being successfully addressed by the team

Use Case 4: Cognitive Error – Dismissed Patient

Prolonged diagnostic odyssey for chronic symptoms when the disease "signal" is almost nonexistent

Use Case 4: Causal Factors

Clinician Factors:

- Lack of PCP who synthesizes information from multiple sources
- Tendency to undervalue patients' knowledge and contributions
- Cognitive biases, including implicit bias, confirmation basis, overconfidence, and affective bias
- Failure to explain to the patient diagnostic tests previously performed and diagnoses that have been ruled out

Systems Factors:

- Lack of interoperability across EHRs
- Over-emphasis and over adherence to protocols
- Multiple care settings and providers involved in the patient's care

Condition/Disease Factors:

- Rarity of the condition
- Condition may not be diagnosable with commonly used tests
- Non-specific nature of symptoms or slow progression of disease
- Appearance of a constellation of unrelated symptoms that are mistakenly perceived to be part of one condition or disease
- Patient fear of knowing the diagnosis
- Patient-level characteristics that may increase disparities in care and impact access to care

Use Case 4: Potential Solutions

Enhance opportunities for patient engagement through education and training

Empower patients to raise concerns and share their perspectives

Identify opportunities for technology and data to recognize potential diagnostic odysseys

Use Case 4: Impact on Patient Safety

- Shared decision making, or the process of communication in which clinicians and patients work together to make optimal healthcare decisions that align with what matters most to patients, is critical to the diagnostic process

- Partnering with patients to improve this two-way communication and information sharing has resulted in increased patient satisfaction, increased diagnostic accuracy, and improved quality of care

- Technology also can serve as a tool to recognize diagnostic odysseys and improve diagnostic processes

- The sharing of information can decrease diagnostic errors through improved workflows and decreased cost associated with the ability to access previous laboratory results and imaging reports faster, and not having to do unnecessary repeat testing

Use Case 4: Measurement Considerations *(1 of 2)*

Measurement Approach	Measure Concepts	Rationale
Assess when team-based approaches are initiated	• Presence of a protocol for escalation of the diagnostic approach for patients with continued undiagnosed symptoms	• Using team-based approaches to diagnosis will help reduce the likelihood of a single clinician's biases closing off potential diagnostic pathways and/or dismissing the patient's concerns and perspectives
Measure the structures in place to support accurate and timely diagnosis	• Presence of systems in place for clinicians to provide feedback on IT issues related to diagnostic error • Presence of systems that support referral of homeless patients to care	• Measuring the presence of structures and processes that support accurate and timely diagnosis will help organizations and clinicians understand if they have mechanisms in place to support reductions of errors, and will identify where improvement opportunities exist
Measure the time to diagnosis for rare conditions	• Days from original patient chief complaint until final, accurate diagnosis	• Measuring the time to diagnosis for rare conditions will help increase understanding of the delays that patients experience and help identify improvements over time • Understanding the diagnostic delays that occur and how they impact treatment delays may help identify specific opportunities for improvement and efficiency in the diagnostic process

Use Case 4: Measurement Considerations *(2 of 2)*

Measurement Approach	Measure Concepts	Rationale
Measure the total cost of the diagnostic odyssey	• Total cost of the diagnostic odyssey	• Measuring the total cost of a diagnostic odyssey experienced by the patient will help increase understanding of the impacts of delayed diagnoses and diagnostic errors
Measure the volume and impact on diagnostic testing	• Number of consultations and/or second opinions	• Using a balancing measure will help understand how new protocols and processes for escalation of care for patients with undiagnosed symptoms are impacting the volume of consultations, second opinions, and/or diagnostic testing
Assess patient experience with diagnostic odysseys	• Patient-reported satisfaction with the diagnostic process	• Gathering information directly from the patient may help understand the patient-level impacts of diagnostic odysseys and how these experiences share their perception of the healthcare system

Discuss Broad-scope, Comprehensive Recommendations

Recommendations *(1 of 2)*

- The Committee identified a series of broad-scope, comprehensive, actionable recommendations to:
  - Apply the Diagnostic Process and Outcomes domain of the Framework across various systems, settings, and populations
  - Measure and reduce diagnostic error
  - Measure and improve patient safety

- Each recommendation seeks to drive progress across specific subdomains of the original Diagnostic Process and Outcomes domain of the framework

- Recommendations are organized into three categories:
  - Training
  - Teamwork
  - Technology

Recommendations *(2 of 2)*

Training

- Educate clinicians to actively listen to patients, and engage patients to provide feedback and share information
- Deploy clinician education and training for specific diagnostic errors
- Integrate information on technology and its impact on care delivery into training and education programs

Teamwork

- Expand the clinical team to support a culture of teamwork
- Increase and improve information sharing and collaboration within and across teams and organizations

Technology

- Develop and deploy clinical protocols and pathways to standardize care
- Use technology as a tool to identify and reduce error
- Use measurement as an opportunity to identify, remediate, and prevent diagnostic errors

Educate Clinicians to Actively Listen to Patients, and Engage Patients to Provide Feedback and Share Information

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Efficiency, Diagnostic Accuracy, and Follow-up

- Healthcare administrators and organizations can:
  - Create policies and procedures that support successful patient engagement (e.g., visual aids, toolkits)
  - Have interpreter services available for multiple languages, supporting patients effectively providing feedback and sharing information

- Clinicians can:
  - Learn best practices for active listening to create more effective patient-clinician interactions
  - Engage patients at ongoing, repeated intervals
  - Be sensitive to their patients' health literacy levels and cultural preferences

- Measure developers can:
  - Focus measure development on patient-reported measures, such as patient-reported understanding of diagnosis and/or diagnostic uncertainty after discharge, patient-reported perceptions of patient input into the diagnostic process, and patient-reported satisfaction with the diagnostic process

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Deploy Clinician Education and Training for Specific Diagnostic Errors

- Drives improvement in the subdomains of Diagnostic Efficiency, Diagnostic Accuracy, and Information Interpretation

- Professional and credentialing organizations can:
  - Build on existing curriculums to include training on specific types of diagnostic errors and how to overcome and prevent them
  - Include information on clinician biases
  - Educate clinicians on other patient or population factors (e.g., social determinants of health) that impact patient safety and access to care

Integrate Information on Technology and Its Impact on Care Delivery into Training and Education Programs

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Accuracy, and Follow-up

- Administrators of education programs can:
  - Partner with clinical informatics leaders, data scientists, and EHR vendors to identify key information on the benefits and limitations of technology in the diagnostic progress
  - Educate clinicians about how technology workflows impact quality, safety, and potential diagnostic errors, and share how technology can be part of the solution

- Clinicians can:
  - Learn about the role technology has on patient safety and diagnostic errors early on in their career
  - Understand how technology and data can support clinicians in settings where specialists are not readily available

- Measure developers can:
  - Focus measure development efforts on assessing the rate of understanding and/or use of protocols, clinical decision support tools, and other electronic tools that support accurate and timely diagnosis

Expand the Clinical Team to Support a Culture of Teamwork

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Accuracy, and Follow-up

- Healthcare administrators can:
  - Support clinicians bringing diverse disciplines into the diagnostic process by identifying opportunities for physicians to partner with nurses, allied health professionals, mental health professionals, specialists, laboratory technicians, and others
  - Create opportunities to reduce cognitive load on a single clinician, enable individuals to practice at the top of their license, and seek out clinicians with specific clinical expertise

- Measure developers can:
  - Focus measurement efforts on the use of specialists, second opinions, and teamwork during the diagnostic process

Increase and Improve Information Sharing and Collaboration Within and Across Teams and Organizations

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Efficiency, Diagnostic Accuracy and Follow-up

- Healthcare organizations can:
  - Promote diverse teams with clear roles and responsibilities to support information sharing across providers, departments, and organizations
  - Align the goals of clinicians, clinical informatics departments, and EHR vendors

- Payers can:
  - Partner with healthcare delivery organizations and clinicians to share claims data and other information

- Policymakers can:
  - Support a culture of information sharing by enhancing access to health information exchanges and offering incentives for their use

- Measure developers can:
  - Identify opportunities related to measuring the percentage of systems that support closed-loop communication for test results, relational coordination, and rates of participation in health information exchanges

Develop and Deploy Clinical Protocols and Pathways to Standardize Care

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Efficiency, Diagnostic Accuracy, and Follow-up

- Healthcare administrations and clinicians can:
  - Develop protocols for conditions that are particularly prone to diagnostic error, including conditions where there is a known rate of error

- Medical specialty societies can
  - Establish guidelines and tools to assist clinicians and organizations in identifying conditions prone to errors

- EHR vendors can:
  - Facilitate the integration of protocols into the clinical workflow

- Measure developers can:
  - Focus efforts on assessing the presence, utilization, and adherence to protocols

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Use Technology as a Tool to Identify and Reduce Error

- Drives improvement in the subdomains of Information Gathering and Documentation, Information Integration, Information Interpretation, Diagnostic Accuracy, and Follow-up

- Healthcare organizations and clinicians can:
  - Leverage technology (e.g., AI, data, and EHRs) to gather and analyze information, and take necessary follow-up actions
  - Use e-triggers and other technology methods to support performance improvement

- EHR vendors cans:
  - Share information on how technology can target overcoming biases through forcing strategies and electronic protocols
  - Collaborate with payers and health systems to understand technology needs and enable technology to be a measurement tool

- Measure developers can:
  - Assess the effectiveness of tools by measuring the time to detection of important clinical events and rate of accurate diagnosis for commonly misdiagnosed conditions
  - Partner with medical specialty society to understand frequently misdiagnosed conditions

Use Measurement as an Opportunity to Identify, Remediate, and Prevent Diagnostic Errors

- Drives improvement in the subdomains of Diagnostic Efficiency and Diagnostic Accuracy

- Healthcare organizations can:
  - Partner with clinicians to understand how to elicit information on delayed diagnoses and harm based on medical records and electronic data

- Researchers and measure developers can:
  - Focus efforts on measuring the total cost, time, and/or other impacts of diagnostic odysseys and diagnostic errors

Discuss Recommendations

- These are intended to provide comprehensive, broad-scope, actionable, specific recommendations for:
  - Applying the Diagnostic Process and Outcomes domain of the Framework across various systems, settings, and populations
  - Measuring and reducing diagnostic error
  - Measuring and improving patient safety

Discussion Questions:

- Are any modifications needed for the current recommendations?
- Are there any additional comprehensive, actionable recommendations for applying the Framework that should be included?

Open Discussion: Draft Final Report

Draft Final Report

Discussion Questions:

- Are there are any questions or comments regarding the current structure of the Draft Report?
- Are there any additional suggestions for how we can incorporate our Committee discussions into the report?

Opportunity for Public Comment

Questions

Next Steps

Next Steps for Reducing Diagnostic Error

Event/Item	Date
Public Comment: Draft final report available for public comment	July 14, 2020- August 14, 2020
Web Meeting 8: Final review of report, public comments	September 14, 2020
Final Report	October 7, 2020

Project Contact Information

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- Project page: http://www.qualityforum.org/Reducing_Diagnostic_Error.aspx

- SharePoint: http://share.qualityforum.org/Projects

THANK YOU.

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