Chief Complaint-Based Quality of Emergency Care

Committee Web Meeting #2

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Welcome and Introductions

National Quality Forum Project Staff

- Ashlie Wilbon, Senior Director

- Jean-Luc Tilly, Senior Project Manager

- Ameera Chaudhry, Project Analyst

- Jesse Pines, Consultant

Standing Committee

- Margaret Samuels-Kalow, MD, MPhil, MSHP (Co-Chair)
- Arjun Venkatesh, MD, MBA, MHS (Co-Chair)
- Nishant "Shaun" Anand, MD, FACEP
- Jennifer Bacani McKenney, MD, FAAFP
- Stephen Cantrill, MD, FACEP
- Emily Carrier, MD, MSc
- Patrick Dolan, MD
- Richard Griffey, MD, MPH, FACEP
- Helen Haskell, MA
- Steven Horng, MD, MMSc, FACEP
- John Keats, MD, CPE, CPPS, FACOG, FAAPL
- Naghma Khan, MD
- Kevin Klauer, DO, EJD, FACEP
- Joseph Kunisch, PhD, RN-BC Informatics, CPHQ

- Jamie Lehner, MBA, CAPM
- Michelle Lin, MD, MPH, MS
- James McClay, MD, MS, FACEP
- Abhishek Mehrotra, MD, MBA, FACEP
- Gregg Miller, MD, FACEP
- Sofie Morgan, MD, MBA
- David Morrill
- David Newman-Toker, MD, PhD
- David Thompson, MD, FACEP
- Anita Vashi, MD, MPH, MHS
- Andrew Zinkel, MD, MBA

Purpose and Goals for Today

- Consensus on terminology and definitions

- Understand landscape of chief complaint standardization and nomenclature as foundation for in-person meeting discussion and Committee recommendations

- Begin thinking about chief complaint-based measure development considerations

- Discuss preparation for the in-person meeting and Committee inputs needed

Agenda

- Scope and approach

- Purpose and goals

- Summary of discussions and inputs to date

- Environmental scan update

- Overview of chief complaint standardization and nomenclature landscape

- Public comment

- Next steps

Scope & Approach

With the goal of advancing measurement science for chief complaint-based measures:

- What are the chief complaint data elements needed for quality measurement?
    - *Consensus on terminology and definitions*
    - *Identify data elements and which should be standardized (i.e., how should they be collected)*

- How should those data elements be standardized?
    - *Scan and catalogue existing approaches for standardization*
    - *Explore strengths and weaknesses of existing nomenclature/ontologies and approaches for standardizing chief complaints*
    - *Understand the barriers to implementing a standard nomenclature*
    - *Provide considerations for selecting an approach for standardizing chief complaints*

Scope & Approach

With the goal of advancing measurement science for chief complaint-based measures:

- How should those standardized data elements be used in chief complaint measures?
  - *Guidance and considerations for approaching measure development*

- What is the pathway to more widespread development and implementation of chief complaint-based measures?
  - *Develop a measurement framework*
  - *Identify current chief complaint measurement gaps*
  - *Prioritize measure concepts for development*
  - *Recommendations for future work, research*

Summary of Inputs and Discussions to Date

Working Definitions

- Chief complaint
  - *A concise statement describing the symptom, problem, condition, diagnosis, or other factor that is the reason for the encounter, usually stated in the patient's words [CPT codebook]*
- Presenting Problem
  - *A provider's clinical interpretation of the patient's symptoms [Horng, et al.]*
- Reason for visit
  - *The patient's motivation for seeking medical care and his perspective on the problem or reason for visit [NCHS]*
- Clinical syndrome
  - *A constellation of symptoms, combined with risk factors and demographic characteristics of a patient (e.g., age and gender) [Handbook of Biosurveillance]*
  - *The combination of presenting problems with patient demographics, other risk factors, and other clinical data (e.g., vital signs)*
- Outcome of visit
  - *Patient-reported*
  - *Return visits*
  - *30-day post-visit outcomes*

Translating Definitions to Practice

Data Elements	Capture and Use	ACS Example
Chief Complaint/reason for visit	Collect in free text field in patient's own words	Patient's words: "My chest hurts and I'm having trouble breathing"
Presenting Problem	Capture in a standardized field in EMR using standard code set (e.g., mapped to ICD or SNOMED)	Nurse documents: • Chest pain • Shortness of breath
Clinical syndrome (e.g., presenting problem + presenting problem + age + gender + physical exam/vital signs, etc.)	Combine presenting problems with other data element as the basis for measure population (i.e., denominator) for quality measurement	Clinical syndrome: Suspected ACS Denominator: Chest pain+ shortness of breath + age> 50 + male OR Denominator 2: Age>50+ male + troponin labs ordered + EKG

Environmental Scan Updates

Environmental Scan for Measures & Concepts

Focused on ~40 chief complaint terms:

- Stomach/abdominal pain, cramps and spasms
- Chest pain and related symptoms (palpitations)
- Fever
- Cough/cold/flu symptoms
- Headache, pain in head
- Back symptoms/low back pain
- Shortness of breath
- Pain, generalized
- Vomiting/nausea/diarrhea
- Throat symptoms/sore throat
- Seizure
- Syncope/collapse/loss of consciousness

- Ataxia/difficulty walking
- Vaginal bleeding
- Altered mental status
- Suicidal ideation
- Eye symptoms
- Head trauma
- Ear pain
- Dizziness/vertigo
- Substance use/overdose/abuse
- Pregnancy symptoms
- Generalized weakness
- Weakness/numbness/fatigue
- Neck pain

Environmental Scan

- Measure scan: Summary of results to date
  - *46 measures, 13 measure concepts*

Chief Complaint	Number of Measures	Number of Concepts
Chest Pain	15	11
Head Injury/Trauma	6	
Low Back Pain	4	
Abdominal Pain	3	1
Back Pain	2	1
Altered Mental Status	2	
Substance Use	2	
Chest Pain/Shortness Of Breath	2	
Syncope	2	
Vaginal Bleeding	2	
Headache	1	
Multiple (Anemia, Dehydration, Diarrhea, Emesis, Fever, Nausea, Neutropenia, Pain, Pneumonia, Or Sepsis)	1	
Neck Pain	1	
Seizure	1	
Sore Throat	1	

Environmental Scan

- Measures and Concepts by Domain

Measurement Domain	Number of Measures and Concepts
Care Coordination	4
Evaluation and Work-Up	38
Patient-Reported Outcomes	2
Diagnostic Accuracy	4
Patient Outcomes	3
Shared Decision Making	3
Treatment Appropriateness	8

Key Informant Interviews

- 6 of 9 interviews with various experts completed
  - *Jay Schuur, ED physician, Partners/ACEP/CEDR affiliate*
  - *Teri Reynolds, ED physician, UCSF/WHO*
  - *Debbie Travers, Nurse Informaticist, UNC*
- Remaining interviews to be completed before in-person meeting in January
  - *CMS representatives*
  - *EMR vendors (Cerner and EPIC)*
  - *TBD*
- Informational interviews with Committee members
  - *Steve Horng, Informaticist, Beth Israel*
  - *Joseph Kunich, EHR Implementation, Memorial Hermann Health System*
  - *James McClay, EHR Implementation, University of Nebraska*
  - *David Thompson*

Environmental Scan

Classification systems and ontologies

- 27 total
  - Most (17) developed for use in public health biosurveillance
  - Most are open source, a couple commercial products identified

- Many use statistical techniques or NLP to match chief complaint text to chief complaint list, syndromes or codes (e.g., ICD, SNOMED, UMLS).

- Includes various existing chief complaint lists
  - Range from 58 to 1000+ terms with varying levels of specificity; some lists have up 25,000+ synonyms

Overview of Chief Complaint Standardization

Current Landscape of Chief Complaint Standardization

- There is no standard nomenclature for capturing chief complaints

- Customized EMRs with variations in chief complaint or reason for visit lists

- Both commercial and open source systems available

- Multiple technologies and approaches for standardizing CC data
  - *Natural language processing (NLP)*
  - *[Contextual] Autocomplete*
  - *Mapping concepts to existing code sets (SNOMED, ICD, UMLS)*
  - *Mapping CC to syndromes or systems*
  - *Combinations of the above*

Challenges and barriers to adoption and implementation of a standard nomenclature

- Lack of incentive for widespread adoption
- Chief complaint and reason for visit data is generally only used by providers for a short period of time and is specific to the ED
- Provider burden to complete additional fields
- Variation in institutional (and provider) practice and (customized) system use
- Building consensus on a standard nomenclature (and maintenance once implemented)
- Varying needs and tolerance for specificity of CC elements based on use case (i.e., triage, quality measurement, research, surveillance)

Committee Considerations

- Feasibility of adoption of a national standard nomenclature/ontology
  - *What are the desirable characteristics of a standard nomenclature?*

- What approaches or pathways could be used to develop chief complaint-based measures?
  - *Consider use case, specificity needed, other approaches to identifying denominator population*

- Consider the impact of variation in practice/capture of chief complaint data on demonstrating reliability and validity of a measure. How might data element reliability be demonstrated for a CC-based measure?

Public Comment

Next Steps

Project Timeline

Activity	Date/Time
Orientation Web Meeting	*October 17, 2018, 12-2pm ET*
Web Meeting #2	*November 28, 2018, 12-2pm ET*
In-Person Meeting	**January 28-29, 2019**
Web Meeting #3	February 20, 2019, 12-2pm ET
30-Day Comment Period	March 29-April 29, 2019
Web Meeting #4	May 22, 2019, 12-2pm ET
Final Report	June 24, 2019

In-Person Meeting Preview

- Develop measurement framework

- Prioritize measurement gaps

- Recommendations for a standardizing chief complaint data

- Guidance for chief complaint-based measurement

- Recommendations to advance the science, development, and implementation of chief complaint-based measures

In-Person Meeting Preparation

- In-person meeting, January 28-29, Washington, DC

  - *Instructions for booking travel and hotel will be sent from the NQF meetings department within 4-6 weeks prior to the meeting.*

  - *Meeting materials will be sent approximately 1 week prior to meeting*

- Committee Homework

  - *Submit ideas for chief complaint measure concepts via SurveyMonkey by **COB, Friday, January 11**: https://www.surveymonkey.com/r/QYCTM6T*

    - » Domain
    - » Population
    - » Chief complaint(s)
    - » Concept
    - » Knowledge of supporting evidence

Questions?

Project Contact Info

- Email: ChiefComplaint@qualityforum.org

- NQF phone: 202-783-1300

- Project webpage:
  http://www.qualityforum.org/Chief_Complaint-Based_Quality_for_Emergency_Care.aspx

- SharePoint:
  http://share.qualityforum.org/Projects/ChiefComplaint-BasedQualityEmergencyCare/SitePages/Home.aspx

Thank you.

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