Automating the Inpatient Chronic Heart Failure Quality Measures

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Overview

• Promote transparency and increase eventual adoption of our informatics tools
• Describe research about automation inpatient chronic heart failure (CHF) quality measures
• Demonstrate major components and related natural language processing (NLP) and informatics tools
• Request participation in our stakeholder engagement
Automated Data Acquisition for Heart Failure (ADAHF)

Diagram of Overall Classification and Sub-classifications

Classification Process for ADAHF
Did the Inpatient Treatment (as Documented) Meet the
Performance/Quality Measure?

Patient with principal
diagnosis of CHF and no
exclusions? Yes No

Is Ejection Fraction present? Yes No

Is the value of the EF less than
40%? Yes No

Is the patient on an ACEI or ARB
medication? Yes No

Is there a reason patient not
on these medications? Yes No

Patient’s documented
treatment meets the
quality measure

Patient’s documented
treatment meets the
quality measure

Patient’s documented
treatment meets the
quality measure

Patient’s documented
treatment fails the quality
measure
Demonstrations on Privacy Officer Approved, De-identified Documents

- Annotation
- Adjudication of differences
- Natural Language Processing Tools
  - Congestive Heart Failure Information Extraction Framework (CHIEF) Ejection Fraction Module
- Resulting Table (early representation)
Stakeholder Engagement

Theoretic Framework and Model

• The Promoting Action on Research on Implementation in Health Services (PARIHS) framework\(^1\)\(^-\)\(^2\)
  - Evidence
  - Context
  - Facilitation

• Socio-Technical Model (STM)\(^3\)
  Eight Dimensions of which we are using four:
  - hardware and software
  - clinical content
  - workflow and communication
  - internal organizational features

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\(^1\) Stetler, 2011 http://www.implementationscience.com/content/6/1/99
\(^2\) Kitson, 2008 http://www.implementationscience.com/content/3/1/1
\(^3\) Sittig and Singh, A new sociotechnical model for studying health information technology in complex adaptive healthcare systems, *Qual Saf Health Care* 2010;19
Research Questions Related to Stakeholder Engagement

• What is the context of implementation at the national, VISN and local level in terms of
  – hardware and software
  – clinical content
  – workflow and communication
  – internal organizational features

• What facilitation is needed to overcome barriers identified at the national, VISN and local level?

• How can we use the output of the system not only for performance measurement but also for clinical decision support?

• What are clinical extensions of the tool?
Thank you! Questions or Comments?

- **If you would like to participate in our stake engagement process please contact me at Jennifer.garvin@va.gov**
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