Make Quality Reporting Successful and Efficient

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Zahid Butt MD, FACG

DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.
Learning Objectives

• Identify common data elements, and develop a clinical workflow and order sets designed to capture data elements to meet outside reporting requirements by grouping eCQMs into families of care processes or disease states

• Describe how to use clinical decision support to improve clinical care while enhancing performance and competitive stance in a value-based payment environment

• Outline how to design and implement CDS tools to drive evidence-based practice with data capture for reporting built-in, eliminating the need for unnecessary workflows to capture additional eCQM data
Conflict of Interest

Itara Barnes

Sr. Associate, HCLS D&A, KPMG LLP
Has no real or apparent conflicts of interest to report.
The current situation

A highly complex environment and an extremely challenging timeline

United Health Care

Value-based payments have nearly tripled in the last 3 years to $32 billion and are expected to increase 20 percent to $43 billion in 2015 and hit $65 billion by the end of 2018.

Aetna

Plans to move 50% of their contracts to value-based models by 2018

Humana

Intends to have 75% of its individual Medicare Advantage members covered under ACOs by end of 2017

HHS

Moving 30% of traditional fee-for-service to alternative payment models by 2016. 90% of payments will reflect value based care and other alternative payment models by 2018

The New Payer-Provider Environment

Success under new payment models requires efficient coordination to meet the varying requirements included in each value-based payment program and to develop a long-term strategy for balancing the value equation and maximizing revenue. Implementation of value-oriented measures requires business and clinical modeling beyond current regulatory requirements to build a sustainable infrastructure, avoid duplicative requirements and operational inefficiencies, and to support initiatives promoting optimal care outcomes at lower costs.

Shifting reimbursement models from Medicare and other payers, including the movement to value based and alternative payment models, presents new challenges provider organizations required to manage a growing number of value based payment models and quality reporting programs presents significant challenges for provider organizations, impacting patient care and the organizations bottom line.
Participation in multiple value-based and hybrid payment programs requires organizations to track and report on a large portfolio of quality and cost measures addressing disparate, overlapping, and related clinical care and resource use goals. New clinical information strategies for data capture and analytics are required to build an infrastructure to provide and track efficient delivery of evidence based and patient centered care to improve clinical outcomes while reducing cost.

Consolidation of data capture and reporting requirements.

Need: Definition an integrated value-based measurement model consolidating end user data capture requirements to creating an aligned quality data infrastructure supporting evidence based care delivery and point of care documentation, health information exchange and care coordination, and quality measurement with coordinated clinical decision support.
Strategic approach to value-oriented measurement, performance improvement and reporting

**Approach**

- Development of a Quality Measure and Reporting Inventory to aid in program administration.
- Mapping of Measure and Quality Reporting Specifications to Define a Consolidated Value-Oriented Measure Model.
- Build Assessment and Innovative Design Approaches for Quality Data Capture, Term Binding and Coordinated Clinical Decision Support.

**Deployment of a single, integrated value-based care delivery model**

That measures performance against quality and cost metrics within the framework of each program’s unique value calculation.

- Outlining the organizational strategy for measurement and reporting promotes the delivery of a more effective and efficient, coordinated approach for satisfying quality measure reporting and value-based program requirements.
- Specifications and quality data elements included in these groups can be mapped to create a unified data set and quality data inventory for reuse in clinical decision support, internal registries, and patient outreach.
- Provides clear boundaries and a roadmap for your EHR build team and vendor to modify and evolve EHR build to meet end user needs, clinical workflow requirements, and local quality improvement initiatives while maintaining compliance with electronic quality measure specifications, Meaningful Use and billing requirements. This approach enhances the EHR system’s ability to code and reuse data for quality measurement, care coordination, and health information exchange.
- Grouping quality measures across all settings/sites of care and specialty programs reveals overlapping and complimentary quality measures and presents a patient-oriented view of measurement allowing the organization to align measure implementation and quality initiatives based on common care processes, conditions, and disease states—‘Measure Families’, and approach improvement efforts with a view of the value equation.
Building a Successful Program

- Invest in your eCQM program.
- Build a strong team.
- Implement an effective knowledge management strategy.
- Build a flexible and agile program using electronic quality measure building blocks.
- Establish a dynamic Implementation and Management Cycle.
Dynamic eCQM Implementation and Management Cycle

- Identification of candidate eCQMs for development or modification
- eCQM modeling and stakeholder engagement
- Design and Deployment Planning
- Build, Validate, and Deploy
- Governance and Continuous Improvement
Identification of eCQMs for Development or Modification

Program Requirements and Updates

Participation in multiple value-based and hybrid payment programs requires organizations to track and report on a large portfolio of quality and cost measures addressing clinical care and resource use goals.

- Track Measures Reported
- Evaluate Program Updates to identify changes in:
  - Measures to be reported
  - Methods for data capture and submission
  - Changes in measure specifications
### Quality Measurement and Reporting Inventory

<table>
<thead>
<tr>
<th>Measure Title</th>
<th>All Required</th>
<th>FQHC-QI-Compliant</th>
<th>FQHC Direct</th>
<th>Claim</th>
<th>FQHC-Indirect</th>
<th>Patient Survey</th>
<th>FQHC-IMN</th>
<th>Medicaid Reduction Program</th>
<th>AC-IA/IA</th>
<th>OOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cause, risk-standardized SRA following heart failure.</td>
<td></td>
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<tr>
<td>Cause, risk-standardized SRA following acute or (AMI) hospitalization.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause, risk-standardized SRA following pneumonia.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause, risk-standardized SRA following Chronic kidney Disease (CKD)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause, risk-standardized SRA following acute rehabilitation.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cause, unplanned, risk-standardized SRA following lung cancer (CNS) Surgery</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day received within 30</td>
<td>X</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Additional Notes
- GPRO Narrative Specifications
- Internally Specified eCQM
- Joint Commission Core Measure Specifications
- eCQM HQMF
- MU Structured Data Requirements
Outline quality measures to be reported for programs across all settings/sites of care and specialty programs for the organization

- Identify complimentary and overlapping quality measures addressed in various programs
- Identify common populations and disease states/care processes of focus across measures
Building Measure Families

**Ambulatory Care**
- PQRS
- Value Based Physician Modifier
- Meaningful Use
- NCQA Patient Centered Medical Home
- Medicare Shared Savings Program
- Private Payer Quality Contracting and ACO programs

**Inpatient**
- Inpatient Quality Reporting
- Value Based Payment Program
- Readmissions Reduction Program
- Inpatient Psychiatric (HBIPS) Reporting
- Outpatient Quality Reporting
- Meaningful Use

**LTPAC**
- SNF Value Based Purchasing Program
- Inpatient Rehabilitation Facility Quality Reporting
- Nursing Home Compare
- LTCH Quality Reporting
- Home Health Quality Reporting
- Site Neutral Payment

**Preventable Admission Indicators**

**Perinatal Care**

**Behavioral Health Indicators**

**Cardiovascular [Chronic Condition] Indicators**
Quality measures are grouped by families based on common care processes, conditions, and disease states and specifications/quality data elements for ‘like’ measures are mapped.

### Building Measure Families

**Prevention of Cardiovascular Disease**
- Risk Factor Assessment and Modification

**Medical Management of Cardiovascular Disease**
- Coronary Artery Disease
- Ischemic Vascular Disease
- Congestive Heart Failure

**Cardiac Events**
- Myocardial Infarction
- Angina
- Stroke
- Cardiac Interventional Procedures/Surgery [angioplasty, stent bypass surgery, pacemakers, defibrillators, and left ventricular assist devices (LVAD)]

### Outcomes, Utilization, Cost of Care, Processes of Care
- Morbidity and Mortality
- Functional Status
- Health Related Quality of Life
- Patient Experience of Care
- Care Coordination/Transitions
- Readmissions
- Total Cost of Care
- Per Capita Cost
Building Measure Families

Quality measures are grouped by families based on common care processes, conditions, and disease states and specifications/quality data elements for ‘like’ measures are mapped.
Create a quality data element inventory for each measure family by identifying unique data elements and workflow requirements based on measure specifications.

Define an alignment strategy and build and implementation rules for quality data across care settings based on:

- quality measure specifications, the EHR system’s ability to code and reuse data for quality measurement,
- data requirements for Meaningful Use objectives and organizational documentation standards, and
- patient oriented and shared data from the cross continuum shared health record and data incorporated through health information exchange.

For duplicative or overlapping clinical concepts, map data element attributes and value sets to define a single data element that satisfies requirements for use in all applicable measures.
Influenza Vaccination

**What are we measuring?**
- Did the patient get the vaccination?
- Did the provider screen at the visit?

**External Reporting Requirements?**
- PQRS/VBPM/MU
  - Ambulatory eCQM and GPRO Web
  - Joint Commission and IQR
  - Inpatient abstraction based measure

**Internal Quality Initiatives?**
- Ambulatory, provider focused screening
- Patient Centered Medical Home population management
- Inpatient, provider focused screening

<table>
<thead>
<tr>
<th>Num logic (full)</th>
<th>IP</th>
<th>AMB</th>
</tr>
</thead>
</table>
| Patients who received the influenza vaccine during this inpatient hospitalization | AND: | OR:
| Patients who have an ICD-9-CM Principal Procedure Code or Other Procedure Codes from Table 12.9 for Prophylactic Vaccination against Influenza during this inpatient hospitalization | OR: "Procedure, Performed: Influenza Vaccination" | OR: "Medication, Administered: Influenza Vaccine"
| Patients who received the influenza vaccine during the current year’s flu season but prior to the current hospitalization | OR: "Communication: From Patient to Provider: Previous Receipt of Influenza Vaccine" <= 153 day(s) starts before start of "Measurement Period" | OR: "Procedure, Performed: Influenza Vaccination"
| Patients who were offered and declined the influenza vaccine | OR: "Medication, Administered: Influenza Vaccine" | OR: "Communication: From Patient to Provider: Previous Receipt of Influenza Vaccine" <= 89 day(s) starts after start of "Measurement Period"
| Patients who have an allergy/sensitivity to the influenza vaccine, anaphylactic latex allergy or anaphylactic allergy to eggs, or for whom the vaccine is not likely to be effective because of bone marrow transplant within the past 6 months, or history of Guillian-Barre Syndrome within 6 weeks after a previous influenza vaccination | | OR: "Communication: From Patient to Provider: Influenza Vaccination Declined"

Denominator exceptions
- NA
Ambulatory and Inpatient Influenza Vaccination Quality Measures

<table>
<thead>
<tr>
<th>IP</th>
<th>AMB</th>
<th>Value Set/ Term Binding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Patients who received the influenza vaccine during this inpatient hospitalization</td>
<td>&quot;Procedure, Performed: Influenza Vaccination&quot;</td>
<td>2.16.840.1.113883.3.526.3.402 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who have an ICD-9-CM Principal Procedure Code or Other Procedure Codes from Table 12.9 for Prophylactic Vaccination against Influenza during this inpatient hospitalization</td>
<td>&quot;Medication, Administered: Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1254 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who received the influenza vaccine during the current year’s flu season but prior to the current hospitalization</td>
<td>&quot;Communication: From Patient to Provider: Previous Receipt of Influenza Vaccine&quot;</td>
<td>2.16.840.1.113883.3.526.3.1185 (Version: 20140701)</td>
</tr>
<tr>
<td>• Patients who were offered and declined the influenza vaccine</td>
<td>&quot;Communication: From Patient to Provider: Influenza Vaccination Declined&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td></td>
<td>&quot;Procedure, Performed not done: Patient Reason&quot; for &quot;Influenza Vaccination&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td></td>
<td>&quot;Medication, Administered not done: Patient Reason&quot; for &quot;Influenza Vaccine&quot;</td>
<td>Influenza vaccination declined (situation) (SNOMED Code: 315640000) (OID: 2.16.840.1.113883.6.96)</td>
</tr>
<tr>
<td>• anaphylactic allergy to eggs,</td>
<td>&quot;Diagnosis, Active: Allergy to Eggs&quot;</td>
<td></td>
</tr>
<tr>
<td>• for whom the vaccine is not likely to be effective because of bone marrow transplant within the past 6 months,</td>
<td>Medication, Administered not done: Medical Reason</td>
<td>Based on documentation of bone marrow transplant and timing element of within the last 6 months (of the encounter)</td>
</tr>
</tbody>
</table>
How will the quality data elements be captured and used to support the measure?

- Relevant documentation supporting the measure can be found throughout the record.
  - CPOE (vaccination order)
  - Administration of vaccine (Immunization History)
  - Previous Receipt of Vaccine (Immunization History)
  - Allergy to the influenza vaccine (Allergy List)
  - Bone marrow transplant within the past 6 months (Medical History)
  - History of Guillian-Barre Syndrome (Medical History)
  - Vaccine out of stock or patient decline at visit (Structured data that can be used for patient lists, communication, and follow up)

- Must meet measurement (actions) AND reporting (structure) requirements
Development of a Model to Support Cross-Setting Documentation of Influenza Vaccination Related Data for Multiple Reporting Programs

EHR data capture templates and clinical decision support should be based on common definitions with terminology bindings to support all desired use cases. The design and build should be appropriate for the care setting and reinforce standard documentation requirements and structured lists.

How will the quality data elements be used? What are the standards and terminology requirements for each use case?
• Relevant documentation found throughout the record.
• Must meet measurement (actions) AND reporting (structure) requirements
Implementation Is Not Just A Build Event

Build, Validation, and Optimization

eCQM Implementation Teams are formed for each measure family to finalize and confirm design for **data capture, CDS tools** and **reporting** needs, and to develop an **implementation strategy** based on:

- An understanding of the measure’s clinical recommendation statement and targeted quality action
- A review of the build assessment supplied by the regulatory analysts and clear understanding of data capture requirements and flexibilities
- The culture of individual care settings, specialties, and services and anticipated problems that threaten the adoption and consistent use of new EHR workflows and data capture requirements

Teams should continually work together to confirm that the build functions properly for correct inputs, and to determine adequacy of implementation and utilization of supporting data capture.

- Identify deficiencies as related to data capture or true quality gaps
- Determine root cause for failures related to
- Innovate and optimize.
Dynamic eCQM Implementation and Management Cycle

- Identification of candidate eCQMs for development or modification
- eCQM modeling and stakeholder engagement
- Design and Deployment Planning
- Build, Validate, and Deploy
- Governance and Continuous Improvement

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Conflict of Interest

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Has no real or apparent conflicts of interest to report.
CDS & CQM Linkage & Use Case

• Clinical Decision Support
  – Prospective
  – One Patient
  – Process of Care
  – Quality Improvement

• Electronic Quality Measures
  – Retrospective
  – Populations
  – Process & Outcomes
  – Quality Reporting
Clinical Decision Support (CDS) Intervention for Stage 2 and Stage 3

Definition

“CDS encompasses a variety of workflow optimized information tools which can be presented to providers, clinical and support staff, patients, and other caregivers at relevant points of time.”

Meaningful Use Objective Measure

Implement and Use Five CDS interventions related to the Electronic Clinical Quality Measures (eCQM) selected for reporting.
Key CDS Interventions

• Condition-specific order sets
• Computerized alerts and reminders for providers and patients
• Clinical guidelines electronic access
• Focused patient data reports and summaries
• Documentation templates
• Diagnostic support
• Contextually relevant reference information
Driving Quality & Performance Measurement – NQF Consensus Report

Figure 2: The four functional categories of the NQF CDS Taxonomy

The CDS Taxonomy consists of four functional categories:
1. The trigger initiates a CDS rule.
2. The input data are represented by the components of the QDS data types.
3. Interventions include the possible actions the information system can take to deliver information.
4. The action steps are actions a receiver of the information can perform.

In a given cycle of a CDS rule, any input data, intervention, or action step may initiate a new trigger and launch a new CDS rule.
Driving Quality & Performance Measurement – NQF Consensus Report

Figure 1: Relationship of clinical decision support, quality measures, and the QDS Model
NQF 437 (Stroke 4): eCQM Definition

- **Initial Population**
  - Non-Elective Inpatients with Ischemic or Hemorrhagic Stroke (principal dx)
  - > 18 years of age
  - Length of stay < 120 days
  - Discharged during reporting period

- **Denominator**
  - Non-Elective Inpatients with Ischemic Stroke (principal dx)
  - ED Encounter and one of the following:
    1. Onset of stroke symptoms ≤120 min. before ED arrival
    2. Last known baseline ≤120 min. before ED arrival

- **Denominator Exclusions**
  - None

- **Numerator**
  - tPA administration <= 180 min. after start of stroke symptoms or last known baseline

- **Denominator Exceptions**
  - NIH Stroke Scale result = 0 --Removed result >22 for 2016
  - Comfort Measures --New for 2016
  - t-PA Administration < 2 days before ED Visit
  - Patient Refusal/Medical Reason
  - Laboratory Test, Result
  - Systolic / Diastolic Blood Pressure
CDS & eCQM Standards

The Challenge

- Current eCQM and CDS standards
  - were not developed together
  - use different approaches to patient data
  - use different approaches to expression logic

<table>
<thead>
<tr>
<th>References to Patient Data</th>
<th>Expression Logic</th>
<th>Exchangeable Artifacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDS</td>
<td>Virtual Medical Record (VMR)</td>
<td>CDS Knowledge Artifact (HeD)</td>
</tr>
<tr>
<td>eCQM</td>
<td>Quality Data Model (QDM)</td>
<td>QRDA I &amp; III, HQMF</td>
</tr>
</tbody>
</table>

- **EHR vendors and homegrown systems must**
  - Map their data to two different data model standards
  - Implement computation of two different logic standards
  - Interpret and implement text “guidance”

- **eCQM and CDS rule authors cannot**
  - Share or reuse logic between measures and rules
  - Ensure consistency between matching measures and rules
  - Adequately express all of their requirements

CQF Wiki: cqframework.info
3. Standards Harmonization

Unify CQM and CDS stovepipes to produce a single integrated CQI data model and expression language

- eCQM and CDS standards alignment
- eClinical Quality Improvement (eCQI) expression language
- eCQI data model with mapping from QDM
- HQMF and QRDA standards updates as required
- Common metadata standard
Standards improvement and harmonization:
Clinical Quality Measurement and Clinical Decision Support

CQM Specific Standards
- HQMF
- QRDA Category-1
- QRDA Category-3
- QDM

Common Metadata Standard

Common Data Model Standard (QUICK)*

Common Expression Logic Standard (CQL)**

CDS Specific Standards
- HeD
- vMR

* Quality Improvement and Clinical Knowledge
** Clinical Quality Language

CQF Wiki: cqframework.info
# CQF Pilots

<table>
<thead>
<tr>
<th>Pilots</th>
<th>Point of Contact</th>
<th>Liaison SME</th>
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<tbody>
<tr>
<td>Breast Cancer Decision Support and Clinical Quality Measurement (CQM)</td>
<td>Chad Armstrong</td>
<td>Claude Nanjo</td>
</tr>
<tr>
<td>Cardiology Appropriateness of Use</td>
<td>Rachel Davis</td>
<td>Chris Moesel</td>
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<tr>
<td>Chlamydia Screening</td>
<td>Johanna Goderre-Jones</td>
<td>Bryn Rhodes</td>
</tr>
<tr>
<td>Immunization Decision Support Services (DSS)</td>
<td>Daryl Chertcuff</td>
<td>Claude Nanjo</td>
</tr>
<tr>
<td>Phenotype Execution and Modeling Architecture</td>
<td>Will Thompson</td>
<td>Bryn Rhodes/Chris Moesel</td>
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<tr>
<td>Portable CDS Knowledge Artifacts</td>
<td>Julie Scherer</td>
<td>Claude Nanjo</td>
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<tr>
<td>Radiology Appropriateness of Use</td>
<td>Tom Conti</td>
<td>Bryn Rhodes</td>
</tr>
<tr>
<td>Others in Planning (e.g., Opioid Management)</td>
<td>TBD</td>
<td>TBD</td>
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</table>

CQF Wiki: cqframework.info
CQF Pilots

Survey Results

100% percentage of pilots that met their goal(s)

10+ artifacts and tools created as part of the pilots

2700+ hours spent by pilot teams in 4 months of pilot work

MORE EXPERTS

MORE TIME

resources that could have made pilots more successful

YES!

ALL pilots felt they received the support they needed

8.4 average rating for overall CQF pilot experience

The project team has provided us with valuable guidance on the current state of the CQF standards, and how they will evolve moving forward. This is the kind of support we were looking for in joining as a pilot project.

...having one-on-one sessions with our pilot advisor Bryn really helped solidify/speed up our pilot design and progress...

We see great opportunity and need for continued development of the standards...

Information is based on 5 survey responses received to date

CQF Wiki: cqframework.info
The Current State vs the Future Vision

Current State
- CQMs and CDS are separate
- Each vendor develops their own CDS artifacts
- CQMs are focused on retrospective data
- CDS is an afterthought

Future Vision
- CDS drives care activities
- Performance is consistently improved through CDS
- CQM data capture is automatic
- CQMs are available with paired optional CDS artifacts
Evaluate Impact of EHR on Clinical Quality Performance

- Yes: 77%
- Plan to in the Future: 13%
- No, With No Plans to Do So: 6%
- Don't Know: 4%

N = 52

Source: 2016 HIMSS Value of Health IT Survey
## Areas Where EHR Has a Positive Impact: Treatment/Clinical

<table>
<thead>
<tr>
<th>Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to Patient Information</td>
<td>83%</td>
</tr>
<tr>
<td>Use of Clinical Alerts</td>
<td>75%</td>
</tr>
<tr>
<td>Continuity of Care/Care Coordination</td>
<td>69%</td>
</tr>
<tr>
<td>Eliminate Duplicate Testing</td>
<td>60%</td>
</tr>
<tr>
<td>Medical Errors/Patient Safety</td>
<td>58%</td>
</tr>
<tr>
<td>Accuracy of Clinical Documentation</td>
<td>56%</td>
</tr>
<tr>
<td>Hospital Re-Admissions</td>
<td>50%</td>
</tr>
<tr>
<td>Hospital Acquired Infections</td>
<td>48%</td>
</tr>
<tr>
<td>Efficiency in Prescribing</td>
<td>48%</td>
</tr>
<tr>
<td>Management of Chronic Conditions</td>
<td>44%</td>
</tr>
<tr>
<td>Length of Inpatient Stay</td>
<td>44%</td>
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<tr>
<td>Reduction of Never Events</td>
<td>33%</td>
</tr>
<tr>
<td>None of the Above</td>
<td>8%</td>
</tr>
</tbody>
</table>

*Source: 2016 HIMSS Value of Health IT Survey*
Thank you & Questions ??

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