The AHRQ Quality Indicators

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Overview

1. The QIs and QI Modules
2. NQF-Approved Measures
3. Public Reporting
4. Validation Efforts
5. QI Tools
Quality Indicators & HCUP

- HCUP: Partnership among States, industry, and AHRQ
- Uniform database for cross-State studies; includes clinical, demographic, and resource use information
- Represents all inpatient discharge data from participating States—represents approximately 90 percent of all discharges
Background on the QIs

- Developed through contract with UCSF-Stanford Evidence-based Practice Center
- Use existing hospital discharge data, based on readily available data elements
- Incorporate a range of severity adjustment methods, including APR-DRGs and comorbidity groupings
- Current modules: Prevention, Inpatient, Patient Safety, Pediatric and Neonatal
Example Indicator Evaluation

LITERATURE REVIEW

INITIAL EMPIRICAL ANALYSES AND DEFINITION

USER DATA

PANEL EVALUATION

FURTHER EMPIRICAL ANALYSES

FURTHER REVIEW?

REFINED DEF.

FINAL DEFINITION
Current QI Modules

Inpatient QIs
- Mortality
- Utilization
- Volume

Pediatric QIs

Prevention QIs (Area Level)
- Avoidable Hospitalizations/Other Avoidable Conditions

Patient Safety QIs
- Complications
- Unexpected Death

Neonatal QIs
The original QI module (released 2001)

- Focus on quality of care for ambulatory care-sensitive conditions
List of PQIs

- Diabetes, short-term complications
- Perforated Appendix
- Diabetes, long-term complications
- Chronic Obstructive Pulmonary Disease
- Hypertension
- Congestive Heart Failure
- Low Birth Weight
- Dehydration
- Bacterial Pneumonia
- Urinary Infections
- Angina without Procedure
- Uncontrolled Diabetes
- Adult Asthma
- Lower Extremity Amputations among Patients with Diabetes
Inpatient Quality Indicators

- Second set of QIs (released 2002)
- Focus on quality of care inside hospitals
- Includes measures of inpatient mortality, utilization, and volume
<table>
<thead>
<tr>
<th>Mortality Rates for Medical Conditions:</th>
<th>Mortality Rates for Surgical Procedures:</th>
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<tbody>
<tr>
<td>Acute Myocardial Infarction</td>
<td>Esophageal Resection</td>
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<tr>
<td>AMI, without transfer cases</td>
<td>Pancreatic Resection</td>
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<tr>
<td>Congestive Heart Failure</td>
<td>Abdominal Aortic Aneurysm Repair</td>
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<td>Stroke</td>
<td>Coronary Artery Bypass Graft</td>
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<td>Gastrointestinal Hemorrhage</td>
<td>Percutaneous Transluminal Coronary Angioplasty (PTCA)</td>
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<td>Hip Fracture</td>
<td>Carotid Endarterectomy</td>
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<td>Pneumonia</td>
<td>Craniotomy</td>
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<td>Hip Replacement</td>
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List of IQIs (cont’d.)

Hospital-Level Procedure Utilization Rates:
- Cesarean Section Delivery
- Primary Cesarean Delivery
- Vaginal Birth After Cesarean (VBAC), uncomplicated
- VBAC, all
- Laparoscopic cholecystectomy
- Incidental Appendectomy in the elderly
- Bi-lateral cardiac catheterization

Area-Level Utilization Rates:
- Coronary Artery Bypass Graft
- PTCA
- Hysterectomy
- Laminectomy or spinal fusion
List of IQIs (cont’d.)

Volume of Procedures:

- Esophageal Resection
- Pancreatic Resection
- Abdominal Aortic Aneurysm Repair
- Coronary Artery Bypass Graft
- PTCA
- Carotid endarterectomy
Patient Safety Indicators

- Third set of QIs (released 2003)
- Focus on potential adverse events occurring during hospitalization
List of PSIs

**Hospital-Level:**
- Complications of anesthesia
- Death in Low Mortality DRGs
- Decubitus Ulcer
- Failure to Rescue
- Foreign Body Left in During Procedure
- Iatrogenic Pneumothorax
- Selected Infections Due to Medical Care
- Postoperative Hip Fracture
- Postoperative Hemorrhage or Hematoma
- Postoperative Physiologic or Metabolic Derangements
- Postoperative Respiratory Failure

- Postoperative Pulmonary Embolism or Deep Vein Thrombosis
- Postoperative Sepsis
- Postoperative Would Dehiscence in Abdominopelvic Surgical Patients
- Accidental Puncture or Laceration
- Transfusion Reaction
- Birth Trauma – Injury to Neonate
- Obstetric Trauma – Vaginal Delivery with Instrument
- Obstetric Trauma – Vaginal Delivery Without Instrument
- Obstetric Trauma – Cesarean Delivery
List of PSIs (cont’d.)

Area-Level:
- Foreign Body Left in During Procedure
- Iatrogenic Pneumothorax
- Selected Infections Due to Medical Care
- Postoperative Would Dehiscence in Abdominopelvic Surgical Patients
- Accidental Puncture and Laceration
- Transfusion Reaction
- Postoperative Hemorrhage or Hematoma
Pediatric Quality Indicators

- Fourth set of QIs (released 2006)
- Measures similar to other modules, but focus on pediatric population
List of PDIs

Hospital-Level:
- Accidental Puncture or Laceration
- Decubitus Ulcer
- Foreign Body Left in During Procedure
- Iatrogenic Pneumothorax in Neonates at Risk
- Iatrogenic Pneumothorax in Non-Neonates
- Pediatric Heart Surgery Mortality
- Pediatric Heart Surgery Volume

- Postoperative Hemorrhage or Hematoma
- Postoperative Respiratory Failure
- Postoperative Sepsis
- Postoperative Would Dehiscence
- Selected Infections Due to Medical Care
- Transfusion Reaction
List of PDIs (cont’d.)

Area-Level:

- Asthma Admission Rate
- Diabetes Short-Term Complications Rate
- Gastroenteritis Admission Rate
- Perforated Appendix Admission Rate
- Urinary Tract Infection Admission Rate
Advantages

Public Access

- All development documentation and details on each indicator available on Web site www.qualityindicators.ahrq.gov
- Software available to download at no cost
- Standardized indicator definitions
- Can be used with any administrative data: HCUP, MEDPAR, * State data sets, payer data, hospital internal data
- Hospitals can replicate data

*Medicare Provider Analysis and Review
Advantages (cont’d)

Scope

- Over 100 individual measures
- Each measure can be stratified by other variables including patient race, age, sex, provider, geographic region
- Include priority populations and areas: Child health, women’s health (pregnancy and childbirth), diabetes, hypertension, ischemic heart disease, stroke, asthma, patient safety, preventive care
- Focus on acute care but do cross over to community and outpatient care delivery settings
Advantages (cont’d)

- Harmonization of measures
- Indicator maintenance, updates
- Tools and technical assistance
- National benchmarks
  - National Healthcare Quality Report
  - National Healthcare Disparities Report
  - HCUPnet
Current Limitations & Challenges

- Outcomes data less actionable than processes
- Lack clinical detail
- Risk adjustment challenges
- Accuracy hinges on accuracy of documentation and coding
- Data potentially subject to gaming
- Time lag
Overview

1. The QIs and QI Modules
2. NQF-Approved Measures
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National Quality Forum Endorsement

- Suitable for comparative reporting and quality improvement
- Evaluated for importance, scientific acceptability, usability, and feasibility
- An effort to harmonize and standardize measures among developers
- AHRQ Quality Indicators
  - 14 Prevention Quality Indicators (PQIs)
  - 12 Inpatient Quality Indicators (IQIs)
  - 8 Patient Safety Indicators (PSIs)
  - 9 Pediatric Quality Indicators (PDIs)
# National Quality Forum Endorsement

<table>
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<td>Postoperative Wound Dehiscence</td>
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<td>Iatrogenic Pneumothorax</td>
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<td>Pediatric Heart Surgery Mortality</td>
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*NQI* - Neonate Quality Indicator

*Endorsement pending*
Composite Measures

- **Inpatient Quality Indicators**
  - Mortality for Selected Procedures
  - Mortality for Selected Conditions

- **Patient Safety Indicators**
  - Overall Safety

- **Pediatric Quality Indicators**
  - Overall Safety

- **Volume-Outcome**
  - Resection, AAA repair, pediatric heart
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General Uses of the AHRQ QIs

- **Hospital Quality Improvement – Internal and External**
  - Individual hospitals and health care systems
  - Hospital association member-only reports

- **National, State, and Regional Reporting**
  - National Healthcare Quality/Disparities Reports
  - Commonwealth Fund’s Health Performance Initiative

- **Pay-for-Performance by Hospital**
  - CMS/Premier Demo
  - Anthem of Virginia

- **Hospital Profiling**
  - Blue Cross/Blue Shield of Illinois

- **Comparative Public Reporting**
12 States Use QIs for Public Hospital Reporting
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Validation Studies

- AHRQ sponsored
  - Phase I
    - Simple Review
    - In-depth Review
    - Supplemental Review
  - Phase II
    - Currently Recruiting
Validation Pilot, Phase I

Pilot Objectives:

- Gather evidence on the scientific acceptability of the PSIs
  - Medical record reviews, data analysis, clinical panels, evidence reviews
- Consolidate the evidence base
- Improve guidance on the interpretation and use of the data
- Evaluate potential refinements to the specifications
Conclusions

- The five evaluated PSIs have variable PPVs, which should be considered in selecting indicators for public reporting and pay-for-performance.
- Pilot-tested a mechanism for supporting ongoing validation work, which can be applied to estimate sensitivity in Phase II.
Validation Pilot, Phase II

- Pending OMB review
- Estimate sensitivity (false negatives) in addition to PPV (false positives)
- 16 organizations have indicated an interest in participating in Phase II
- Encourage hospitals in HCUP partner States to participate
Other Validation Studies

- University HealthSystem Consortium – Patient Safety Indicators
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Windows Quality Indicators Software (WinQI)

- Allows users to run AHRQ QI analysis with data they provide
- Current users: federal govt., state govt., hospital associations, individual hospitals, researchers
- Software enables calculation of QI rates as well as generation of reports
The PHC mapping tool is a QI software application designed to help organizations to:

- better understand geographical patterns of potentially preventable hospital admission rates for selected health problems.
- allocate resources more effectively by calculating potential cost savings if admission rates are reduced.
Main Functions of the PHC Mapping Tool

- **Creation of maps** that show the rates of hospital admission for selected health problems on a county-by-county basis.

- **Calculation of potential cost savings** that may occur if the number of hospital admissions for selected health problems in each county is reduced.

- **Ability to place additional information about local populations onto maps** to indicate the number of persons who are at greatest risk for those health problems in each county.
Data Quintiles. Green is the lowest 20%, or lowest rates. Red is the highest 20%, or highest rates.
Excel Spreadsheet Produced by PHC, with Cost Savings Estimate

County Risk–Adjusted Rate is significantly higher than state.
Population data broken into three groups. Stick figures superimposed on map to represent relative population size.
For More Information...

Quality Indicators:

- Web site: http://qualityindicators.ahrq.gov/
  - QI documentation and software are available
- E-mail: support@qualityindicators.ahrq.gov
- Support Phone: (888) 512-6090 (voicemail)
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Questions?
Thank You!