Patient Safety and Quality of Medical Care:
An overview of the effectiveness of Checklists, Outcome Reporting and System Based Conference initiatives

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Donabedian Elements of Quality of Health Care

1. Structure Measures
   - Evaluate patient resources afforded by a hospital
2. Process Measures
   - Assess compliance with recommendations
3. Outcome Measures
   - Quantify morbidity, mortality, LOS, costs,...

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Morbidity & Mortality Conferences

- E.A. Codman (1869 – 1940)
- After graduating from Harvard Medical School, Codman joined the surgical staff of Massachusetts General.
- He instituted the first M&M conference, however in 1914 the hospital refused his plan for evaluating surgeon competence, and he lost his staff privileges there.
- Eventually established his own hospital (which he called the "End Result Hospital") to pursue the performance measurement and improvement objectives he believed in so fervently.

- 1983
  - ACGME mandated M&M’s as part of surgery educational programs
- M&M conferences well established in clinical environments.

Morbidity & Mortality Conferences

- Traditional Goals -
  - "The M&M conference,... provides an opportunity to admit personal failures, expose faulty reasoning and promote transparency among colleagues."

  - "Involves a critique of the clinical decisions made by individual physicians that led to an adverse event"

  - Acad Med

Quality and Safety Communication Modalities

- "Morbidity & Mortality"/System Based Conferences
- Checklists
- Public Reporting
  - Mandatory
  - Voluntary
Morbidity & Mortality Conferences

- “Blame is the enemy of safety”

- Dwells on unsuccessful outcomes

Recent changes
- Health care reform efforts:
  • Reducing patient harm
  • Improving value
- ACGME competencies
  • Patient safety
  • Quality improvement
  • Interpersonal collaboration
  • Health systems training

Tradition M&M Systems Based M&M

System Based Morbidity & Mortality Conferences

Goals -
Promotes a “just culture” in which a multidisciplinary set of healthcare team members engage in a nonjudgmental review of adverse outcomes and work towards a systematic process means of change.

System Based Morbidity & Mortality Conferences

Northwestern Memorial Hospital (899 bed academic medical center in Chicago)

- Patient Safety Morbidity and Mortality Conference
  - System based thinking approach
  - Interdisciplinary group setting
  - Retrospective root cause analysis

- No objective quality improvement data reported


System Based Morbidity & Mortality Conferences

Johns Hopkins Department of Pediatrics

- Morbidity and Mortality Interdisciplinary Conference goals:
  1. Identify events resulting in adverse patient outcomes
  2. Develop a forum to address causes for medical errors
  3. Modify behavior and judgments by learning from past adverse events
  4. Address educational and systematic flaws that led to adverse outcomes
  5. Identify a group to engineer needed changes and quality improvement

**System Based Morbidity & Mortality Conferences**

No objective quality improvement data reported.

**Patient Multidisciplinary "Rounds"**

**Berkshire Medical Center**

- Multidisciplinary Meetings

**Results:**

Table 1: Multidisciplinary Morbidity & Mortality Conferences

<table>
<thead>
<tr>
<th>Patients</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBOA: In-hospital %</td>
<td>38.4</td>
<td>30.6</td>
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<td>30.9</td>
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**Summary: Conferences**

- Reports have been largely observational without adequate methodology to firmly determine objective outcomes.

- More studies required to determine with any finality the efficacy of these conferences on reaching our ultimate goal of improved healthcare quality and patient safety.
Checklists

- Immediate impact
  - In the UK, a nationwide checklist program was implemented by the NHS within weeks after WHO publication
  - Almost 6000 hospitals worldwide using or have interest

Follow up findings:
- The effect of mandatory checklist implementation is unclear
  - Studies of implementation have been observational
  - Limited to a small number of centers
  - Have not evaluated patient outcomes
Checklists: Follow-up Findings

- Mortality

Summary: Checklists

- Largely observational, small reports failing to evaluate patient outcomes.
- When evaluating those studies with stronger methodology, perhaps some improvement in a limited subset of complications (SSI) and minimal improvement in mortality.
- More studies required to determine with any finality the efficacy of these checklists on reaching our ultimate goal of improved healthcare quality and patient safety.

Public Reporting: Mandatory and Voluntary

Mandatory Reporting

- Public reporting was first initiated at the state level
  - In 1989, New York (NY) State
    - Risk-adjusted mortality rates for (CABG) surgery reported by hospital and surgeon.
    - Other states have followed.
- National public reporting began in the early 2000s.
  - Medicare Modernization Act of 2003 tied public reporting to payment (reimbursement)
    - Hospital Quality Alliance (HQA) data allowed American public to access quality data on a centralized website (Hospital Compare).

State Mandatory Reporting

- First outcome studies were from the state-level CABG reporting programs.
  - Initial results suggested that public reporting in NY led to decreases in CABG mortality over time.
    - De-selection of surgeons with high mortality rates
    - Improvements in processes of care in response to reporting
  - Subsequent work showed comparable decreases in states without public reporting (Shahian et al., Ann Thorac Surg, 2011)
    - Improvements might not have been the result of public reporting alone.
First evaluations of the Hospital Compare
- Overall performance on process measures improved significantly over the first 2 years of public reporting

More recent studies of Hospital Compare are less convincing
- Improvements in mortality secondary to underlying hospital quality not public reporting

2006 study of 962 hospitals
- 180 hospitals in the top quintile of mortality rates for AMI, fewer than one-third (31%) were in the top quintile of the composite process score.
  - Composite process score: Significant relationship between the intervention being applied and quality care being achieved

2006 study of 962 hospitals
- 30-day mortality rates for AMI, HF, and pneumonia improved following introduction of Hospital Compare
  - Improvement for AMI and pneumonia followed the same trends in mortality prior to the program
    - Public reporting did not lead to a more rapid improvement in mortality rates

Veterans Administration
- In 1994, VA was launched to collect and report clinical variables and outcomes across all VA hospitals

American College of Surgeons
- The American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP)
  - Largest measure and reporting of surgical outcomes

NSQIP
- Prospectively or concurrently collects clinical data
- Peer-controlled database as it was designed by and is regulated by surgeons
- Generates risk-adjusted assessments of outcomes
- Results are fed back to the hospitals and surgeons
- Provides benchmarks by giving comparison 30-day outcomes from the other participating sites
- Routine and spot audits to check data integrity
Voluntary Reporting

VA review of over 400,000 patients:

- 1991-1997
  - 30-day mortality fell 9%
  - Morbidity fell 30%
  - Surgical pneumonia savings of $9.3 billion annually

Voluntary Reporting


- Systematic review of studies relevant to NSQIP:
  - Inclusion criteria
    - English-language
    - Before and after analysis of either NSQIP Individual Site reports and/or implementation of a quality improvement program
  - Outcomes
    - 30-day morbidity
    - 30 day mortality

Voluntary Reporting

Results:

- Mortality: only 1 hospital reported on 30 day mortality
  - Did not implement a quality improvement (QI) program
  - No change after joining NSQIP

- Morbidities
  - Overall 30 day morbidity (2 studies: 1 no QIP, 1 with QIP)
    - No significant difference after joining NSQIP
  -SSI
    - Implementation of QI programs significantly decreased rates
  - Thromboembolic complications
    - Implementation of QI programs significantly decreased rates

Summary:

- NSQIP is effective in reducing surgical morbidity.
- Improvement in surgical quality appears to be more marked at centers that implemented a formal quality improvement program directed at the reduction of specific morbidities.

Voluntary Reporting


Summary

- More methodological sound studies are needed
- What we know (and don’t know) to date:
  - May improve quality and patient safety metrics:
    - System based conferences
    - Checklists
    - Voluntary reporting
  - Limited proof of improved quality and patient safety metrics:
    - Mandatory reporting

Thank You!!!!