Quality Improvement & Pediatric Epilepsy

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The Joint Commission Codman Award

• In 1905, Ernest Codman, MD – surgeon from Massachusetts General Hospital - "end result idea"

• End result idea - doctors should follow up with patients to evaluate results of their treatment and that the outcomes are transparent to public
What is Quality?

Institute of Medicine’s Current Definition of Quality:

*The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge*
How is Quality Measured?

Clinical and Operational Quality

IOM Six Dimensions of Quality

- Effective
- Efficient
- Equitable
- Timely
- Patient-Centered
- Safe

Business Operations - Finance

Health Care Equity

Access

专业主义

患者安全

Impact of National Quality Measures to Physicians

• Maintenance of certification for physicians – American Board of Pediatrics
  • Board certification

• Pay-for-performance
  • Revenue

• Transparency in quality and outcomes
  • Patient volume
Pediatrics

• Less than 50% of children receive recommended primary care services in U.S. (Rita Mangione-Smith, N Eng J Med, 2007)

• 62% of children in PICU had at least one adverse event across 15 U.S. PICUs – 10% events were life threatening or permanent and 45% were preventable (Agrawal et al., Ped Crit Care Med, 2010)

• Health care was 17.6% of GDP in 2009 and projected to increase 6.1% per year over 10 years
How Do We Cross the Quality Chasm?

Lack of evidence based care (Mangione-Smith R., NEJM 2007)
- High cost of care
- Patient safety
- Limited transparency
- Quality measures are administrative & process based

Evidence based practice
- Quality & outcomes based reimbursement models
- EHR enabled longitudinal data
- Parental & patient empowerment
- Quality measures are clinical outcomes based

Quality Measures
- Accountability
- Improvement

Reporting
- P4P
- MOC

Improvement
- Process Improvement
- Quality Improvement

Translating Quality Research for Improvement
Quality is integral to the day to day practice of every pediatrician
Quality at the AAP: 4 Elements

Every Child

Gets the Right Care

Every time

Setting the standard for Quality

Improving Quality

Measuring and Reporting Quality

Advocating for Quality Payment for Members
## AAP Resources for MOC

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Models for Clinical and Operational quality
Quality Assurance

Before

Worse | Better

After

Worse | Better

Quality Improvement

Before

Worse | Better

After

Worse | Better
The PDSA Cycle

Act
- What changes are to be made?
- Next cycle?

Plan
- Objective
- Questions and predictions (why)
- Plan to carry out the cycle (who, what, where, when)
  Plan for data collection

Study
- Complete the analysis of the data
- Compare data to predictions
  - Summarize what was learned

Do
- Carry out the plan
- Document problems and unexpected observations
- Begin analysis of the data

LEAN

“The 787 global production system embodies the most complete implementation of lean principles that have proven invaluable on our existing product lines.”

Walt Skowronski, President – Boeing

The Red River Army Depot is a leader in supporting the warfighter. Its mission is to return torn-up, battle-damaged tactical vehicles that come in from Kuwait, Iraq and Afghanistan to full mission-capable condition.

With the continuous improvement tools of Lean Six Sigma, Humvee output has increased from half a vehicle a day (a single 10-hour shift) to 32 a day, said Mike Lockard, chief of the Office of Enterprise Excellence at Red River. He expects the depot will produce 5,000 Humvees during fiscal 2007. Lead time on the HEMTT (heavy expanded mobility tactical truck) has dropped from 130 days to 30 days.

Management Sciences

- The proactive application of Operations Research to improve hospital and clinic design – flow, revenue, and safety
  - Successfully used in defense and non health care service sector
  - Increasingly used in the European health care setting

- Applying mathematical models to optimize decision making in organizational systems
Did the QI Intervention Work?

Levels of Measurement and Analysis

- Story Telling
  - Before and After Measurement

- Analyzing Variations in Practice
  - Run Charts and Control Charts

- Did Improvement Occur because of Chance
  - P Values

- Identifying New Hidden Trends for Innovation
  - Decision Analytic Methodology
Science of Quality Measure Development

• Structure - Physical equipment and facilities (e.g., CPOE)

• Process - Processes of care (e.g., Percent of asthma patients receiving B-agonist within 30 minutes of ED arrival)

• Outcome - The final product, result (e.g., Mortality, Patient Reported Outcomes)

Pediatric Quality Measures

• **Children’s Health Insurance Program Reauthorization Act (CHIPRA Public Law 111-3)**

  • U.S. Congress passed CHIPRA in 2009 to measure and improve health care quality and outcomes for children in U.S. – includes children in Medicaid and CHIP (40 million children)

  • Agency for Healthcare Research and Quality (AHRQ) and Centers for Medicare and Medicaid Services (CMS) – identification of initial set of core measures to assess quality and establish the Pediatric Quality Measurement Program (PQMP) to improve initial core set and develop new measures

Translational Quality Research

AHRQ

Actionable Policies

CMS
Attributes of Quality Measures

- **Reliability**
  - Signal to Noise Ratio

- **Validity**
  - SME and EWG

- **Feasibility**
  - DET and Field Testing

- **Understandability**
  - Clinical and Policy Relevance
Epilepsy and Quality
Quality Innovation

Coordinating Center for Children and Youth with Epilepsy in the United States

- Quality
- Project ECHO
- Medical Home
- Subspecialists
Epilepsy Quality Measures

Approved by American Academy of Neurology and Physician Consortium for Performance Improvement

1. Seizure Type and Current Seizure Frequency
2. Documentation of etiology of epilepsy or epilepsy syndrome
3. EEG results reviewed, requested, or tests ordered.
4. MRCI/CT scan reviewed, requested, or scan ordered
5. Querying and counseling about antiepileptic drug side effects

From [http://www.neurology.org/content/76/1/94.full](http://www.neurology.org/content/76/1/94.full) last accessed 5.21.14
Epilepsy Quality Measures

5. Surgical therapy referral consideration for intractable epilepsy
6. Counseling about epilepsy specific safety issues
7. Counseling for women of childbearing potential with epilepsy
8. Counseling for women of childbearing potential with epilepsy

From http://www.neurology.org/content/76/1/94.full last accessed 5.21.14
Incorporating Quality Measures into Practice
Implementing Epilepsy Quality Measures into a Pediatric Epilepsy Program
Morita, D., Olivea, J. and Glauser, T.

**Objective:** Incorporate the 8 Epilepsy Quality Measures into 70% of all epilepsy clinic visits

**Design/Methods:**
- Quality Improvement Science methodology
- Small tests of change were implemented Plan Do Study Act (PDSA) cycles

**Results** (12 weeks and 660 patient visits)
- 0% included all of the 8
  - forgetfulness
  - lack of time/resources
  - Not standard of care.
- A template for the 8 measures created in electronic medical

From [http://www.neurology.org/cgi/content/meeting_abstract/78/1_MeetingAbstracts/P01.065](http://www.neurology.org/cgi/content/meeting_abstract/78/1_MeetingAbstracts/P01.065). Last accessed 5.21.14
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• End of the first week, 20% of the 92 patients clinic visits included all of the 8.

Conclusions
• October 2011, AAN Epilepsy Quality Measures are being successfully implemented
• Added electronic monitoring as a goal by April 2012
• April 2012, we expect > 70% of records will include all 8 AAN EQMs.
• The ultimate outcome/impact will be assessed by
  • # of patients with epilepsy are referred for evaluation

From http://www.neurology.org/cgi/content/meeting_abstract/78/1_MeetingAbstracts/P01.065. Last accessed 5.21.14
Quality - Bridging the Care Continuum

Knowledge Management - Practice

Primary Care Pediatricians

Pediatric Subspecialists and Surgical Specialists

Medical Home

Project ECHO

QuIN

Subspecialty Pediatrics