Using Data Collaboratives to Improve Anesthesiology Care and Impact

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Overview

- Anesthesiology in 2015
- Learning from surgeons
- Using data to define optimal care
- Using data to improve care delivery
- Variation assessment
- Building networks of collaboration
What people (surgeons) think we do
What we actually do
The big picture

- Anesthesiologist controls
  - stress response, inflammation, immune response, angiogenesis
  - hemodynamics, pulmonary dynamics, pain response
- Expected impact on
  - Myocardial infarction, acute kidney injury, prolonged ventilation, stroke
- Unexpected impact on
  - Cancer progression, surgical site infection, venous thromboembolism
- Proven in
  - Small case series, animal models, admin data
The current state

- No large, well designed RCT to guide basic anesthesia decisions
  - Anesthesia technique (GA vs neuraxial vs regional)
  - Does regional anesthesia improve morbidity
  - What is our blood pressure target
  - Do vasopressors increase surgical site infections
  - Which monitors are adequate and necessary
- Wide variation in care across providers and facilities
- “Random” clinical decisions (RCDs) rampant
Wide variation in specific areas

1. Anesthesia technique
   - Primary technique (general, regional, neuraxial, sedation)
   - Secondary technique (pain control, monitoring)
2. Hemodynamic management
3. Intraoperative ventilation strategies
4. Neuromuscular blockade (paralysis)
5. Fluid balance
6. Depth of anesthesia
The blunt truth about anesthesiology

• We are 15 years behind the surgeons
  – In assessing variation across providers and hospitals
  – In using metrics to define “good” versus “bad” care
  – In establishing the value of anesthesia care

• We are perceived as necessary “overhead”
  – Anesthesia = black box
  – Most ACO models do not reward anesthesia care
  – Same perceived “value” as pathology, radiology
  – How do you affect “PMPM” – per member, per month $$

• Large amounts of diverse, high quality data used with good science will help
SAN JOSE, CA – In what appears to be a medical first, surgeons at Methodist Northwest Hospital have found that using voice-activated Operating Room tables instead of anesthesiologists or CRNAs is working remarkably well.

Hospital administrator, Dr. C. Jonathan Egging, confirmed his surgeons are generally very positive about the new tables. “Most of our surgeons were understandably skeptical after they saw that all jumped on board the first year alone.”

Dr. Carol Phelps, an orthopedic surgeon, said, “We aren’t being slowed down by the propofol dispensing machine extubates patients immediately now that we don’t need anesthetists in the room.”
What are Collaborative Quality Initiatives?

- **Structure of Collaborative Quality Initiatives (CQIs):**
  - developed and administered by Michigan physician and hospital partners
  - funded by BCBS of Michigan

- **Support continuous quality improvement and the development of best practices**

- **Leverage multicenter data registries**

- **Why? Reduce avoidable adverse events, provide incentives and track performance**
Value Partnerships Principles

• Health care is local: natural communities of caregivers taking responsibility for creating systems serving community need

• Build community first; don’t rush to payment solutions

• Harness intrinsic motivation of providers by ceding control:
  – Purpose, autonomy and mastery must drive system development and performance, not short term gain

• Incentives, or payment reform, separate from community, and explicit purpose, will not succeed

From: Tom Leyden, BCBSM Value Partnerships Director
<table>
<thead>
<tr>
<th>Organization</th>
<th>Date</th>
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<tbody>
<tr>
<td>Michigan Cardiovascular Consortium - Percutaneous Coronary Intervention</td>
<td>July 1997</td>
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<tr>
<td>BMC2 - PCI</td>
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<tr>
<td>Michigan Society of Thoracic and Cardiovascular Surgeons (MSTCVS) Quality</td>
<td>Sept 2005</td>
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<tr>
<td>Michigan Breast Oncology Quality Initiative (MiBOQI)</td>
<td>Apr 2006</td>
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<tr>
<td>Michigan Bariatric Surgery Consortium (MBSC)</td>
<td>Oct 2005</td>
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<td>Michigan Surgical Quality Collaborative (MSQC)</td>
<td>Nov 2005</td>
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<tr>
<td>Michigan Cardiovascular Consortium - Peripheral Vascular Intervention</td>
<td>Oct 2006</td>
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<tr>
<td>BMC2 - PVI</td>
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<tr>
<td>Hospital Medicine Safety (HMS) Consortium</td>
<td>Oct 2010</td>
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<tr>
<td>Michigan Trauma Quality Improvement Project (MTQIP)</td>
<td>Jan 2011</td>
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<tr>
<td>Peri-Operative Outcomes Initiative (POI)</td>
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</tr>
<tr>
<td>Michigan Arthroplasty Registry Collaborative for Quality Improvement (MARCQI)</td>
<td>Feb 2012</td>
</tr>
<tr>
<td>Michigan Radiation Oncology Quality Consortium (MROQC)</td>
<td>Feb 2012</td>
</tr>
</tbody>
</table>
MSQC

- Michigan Surgical Quality Collaborative
- Blue Cross Blue Shield of Michigan Collaborative Quality Initiative
  - Funds data collection + collaborative costs
  - No BCBSM access to data
  - The focus is on the “C” in MSQC
- Historically, ACS-NSQIP + regional data elements
  - Challenges with national rules → split in 2012
- 16 hospitals in 2005 → 72 in 2015
- ~ 1000 – 1500 cases per hospital, per year
The BCBSM/BCN CQI model has proven remarkably effective in raising the bar on clinical quality across a broad range of clinical conditions throughout Michigan.

**Data Collection**
Timely feedback of robust, trusted, consortium-owned performance data to hospitals and providers

**Collaborative Learning**
Collaborative, data-driven learning fostered in a non-competitive environment (meetings are typically held in person on a quarterly basis)

**Improvement Implementation**
Systematic development, implementation, and testing of hospital-specific and Michigan-wide quality improvement interventions
A real example – SSI after colectomy
MSQC abx variation

- cefoxitin (n=602),
- cefazolin and metronidazole (n=554),
- ertapenem (n=506),
- ampicillin/sulbactam (n=215), and
- cefotetan (n=206)
- ciprofloxacin and metronidazole (n=121)
- cefazolin (n=193)

- More than 100 combinations including bowel prep abx
INDIVIDUALITY

Always remember that you are unique. Just like everybody else.
The answer

• Not the other 120 combinations
Timely, risk adjusted feedback

### MSQC

#### Michigan Surgical Quality Collaborative

**Outcomes > Complications Drill-down**

<table>
<thead>
<tr>
<th>Provider</th>
<th>Selected</th>
<th>Benchmark</th>
<th>P-Value</th>
</tr>
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<tr>
<td>Any complication</td>
<td>7.2%</td>
<td>8.9%</td>
<td>0.03</td>
</tr>
<tr>
<td>Grade I</td>
<td>4.6%</td>
<td>6.0%</td>
<td>0.02</td>
</tr>
<tr>
<td>Grade II</td>
<td>1.9%</td>
<td>2.0%</td>
<td>0.58</td>
</tr>
<tr>
<td>Grade III</td>
<td>0.7%</td>
<td>0.9%</td>
<td>0.19</td>
</tr>
<tr>
<td>Acute Renal Problems</td>
<td>1.2%</td>
<td>1.4%</td>
<td>0.14</td>
</tr>
<tr>
<td>Cardiac Arrest /CPR</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.51</td>
</tr>
<tr>
<td>Cardiac Arrhythmias</td>
<td>1.7%</td>
<td>1.6%</td>
<td>0.74</td>
</tr>
<tr>
<td>Deep Incisional SSI</td>
<td>1.1%</td>
<td>1.3%</td>
<td>0.23</td>
</tr>
<tr>
<td>DVT req. SSI</td>
<td>3.4%</td>
<td>3.5%</td>
<td>0.89</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.74</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>4.1%</td>
<td>4.0%</td>
<td>0.52</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>0.7%</td>
<td>0.6%</td>
<td>0.51</td>
</tr>
<tr>
<td>Sepsis</td>
<td>5.1%</td>
<td>4.9%</td>
<td>0.42</td>
</tr>
<tr>
<td>Stroke/CVA</td>
<td>0.4%</td>
<td>0.5%</td>
<td>0.09</td>
</tr>
<tr>
<td>Superficial Incisional SSI</td>
<td>3.2%</td>
<td>3.1%</td>
<td>0.77</td>
</tr>
<tr>
<td>Transfusions w/ 72</td>
<td>2.6%</td>
<td>3.1%</td>
<td>0.02</td>
</tr>
</tbody>
</table>

**Graphs**

- Line graphs showing trends over the years from 2007 to 2012 for selected complication rates.
How A Regional Collaborative Of Hospitals And Physicians In Michigan Cut Costs And Improved The Quality Of Care

ABSTRACT There is evidence that collaborations between hospitals and physicians in particular regions of the country have led to improvements in the quality of care. Even so, there have not been many of these collaborations. We review one, the Michigan regional collaborative improvement program, which was paid for by a large private insurer, has yielded improvements for a range of clinical conditions, and has reduced costs in several important areas. In general and vascular surgery alone, complications from surgery dropped almost 2.5 percent among participating Michigan hospitals—a change that translates into 2,500 fewer Michigan patients with surgical complications each year. Estimated annual savings from this one collaborative are approximately $20 million, far exceeding the cost of administering the program. Regional collaborative improvement programs should become increasingly attractive to hospitals and physicians, as well as to national policy makers, as they seek to improve health care quality and reduce costs.
There something about Michigan...
Blue Cross Blue Shield of Michigan’s health care quality efforts with hospitals save $597 million statewide over five-year period

Collaborative model improves quality and patient outcomes, lowers complications

August 19, 2014

DETROIT — Over a five-year period, five programs sponsored by Blue Cross Blue Shield of Michigan and Blue Care Network to improve the quality of certain medical and surgical procedures performed in Michigan hospitals, have produced $597 million in health care cost savings, and have lowered complication and mortality rates for thousands of patients.
Establish the science, define “good practice” using real-world data.
The data is the beginning, not the end
Maybe Hawthorne was wrong?

Association of Hospital Participation in a Quality Reporting Program With Surgical Outcomes and Expenditures for Medicare Beneficiaries

Nicholas H. Osborne, MD, MS; Lauren H. Nicholas, PhD; Andrew M. Ryan, PhD; Jyothi R. Thumma, MPH; Justin B. Dimick, MD, MPH

Original Investigation | February 3, 2015

Association of Hospital Participation in a Surgical Outcomes Monitoring Program With Inpatient Complications and Mortality

David A. Etzioni, MD, MSHS\textsuperscript{1,2}; Nabil Wasif, MD, MPH\textsuperscript{1,2}; Amylou C. Dueck, PhD\textsuperscript{2}; Robert R. Cima, MD\textsuperscript{2,3}; Samuel F. Hohmann, PhD\textsuperscript{4,5}; James M. Naessens, ScD\textsuperscript{2}; Amit K. Mathur, MD, MS\textsuperscript{1,2}; Elizabeth B. Habermann, PhD, MPH\textsuperscript{2}

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Maybe Hawthorne was wrong?

<table>
<thead>
<tr>
<th>Readmissions</th>
<th>ACS NSQIP Hospitals</th>
<th>Matched Control Hospitals</th>
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<tbody>
<tr>
<td>No.</td>
<td>7617</td>
<td>10 250</td>
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<tr>
<td></td>
<td>10 228</td>
<td>10 188</td>
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<tr>
<td></td>
<td>9879</td>
<td>9720</td>
</tr>
<tr>
<td>% (95% CI)</td>
<td>12.5 (12.5-12.6)</td>
<td>12.7 (12.7-12.8)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Serious Complications</th>
<th>ACS NSQIP Hospitals</th>
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<tr>
<td>No.</td>
<td>6555</td>
<td>79 651</td>
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<tr>
<td></td>
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<td>70 816</td>
<td>68 473</td>
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<td></td>
<td>11 321</td>
<td>14 880</td>
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<td>14 460</td>
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<td>14 311</td>
<td>13 735</td>
</tr>
<tr>
<td>% (95% CI)</td>
<td>11.0 (11.0-11.3)</td>
<td>11.3 (11.1-11.5)</td>
</tr>
</tbody>
</table>

13 025 17 374 17 202 16 770 16 478 15 903

11.7 (11.6-11.7) 11.9 (11.9-11.9) 12.1 (12.1-12.2) 12.2 (12.2-12.2) 12.7 (12.6-12.7) 12.9 (12.9-13.0)
Anesthesia data elements since 2013

- Anesthesiologist # (scrambled) Anesthetist # (scrambled)
- Nerve Block (y/n)          Epidural Use (y/n)
- VTE Prophylaxis            Vasopressors?
- Intraoperative Glucoses    # of Measurements
- Intraoperative Insulin     Intraoperative Warming
- Intraop Temperature (lowest) Fluid Volume/Balance
- Postoperative Temperature

- 60,000 cases already collected, being analyzed
The problem

- Few anesthesiologists or CRNAs came to meetings
- Next phase of surgical quality improvement requires anesthesia engagement in pre, intra, and postoperative care
BCBSM’s next step
Anesthesiology Performance Improvement and Reporting Exchange

www.aspirecqi.org
Some publicity too...

Press Release

Blue Cross Blue Shield Of Michigan Launches Statewide Quality Initiative To Improve Anesthesiology Processes, Reduce Complications And Improve Outcomes

October 1, 2014

DETROIT – Blue Cross Blue Shield of Michigan and Blue Care Network have launched a collaboration among hospitals across the state to improve anesthesiology practices, reduce anesthesiology-related complications and improve patient outcomes. The University of Michigan Health System will serve as the coordinating center for this new anesthesia-focused Collaborative Quality Initiative (CQI).

This is the 15th hospital-based effort in the Michigan Blues' CQI program, a collection of initiatives using data and collaboration to improve common and costly areas of medical and surgical care. Anesthesiologists, with their surgeon partners, will analyze variation in anesthesiology processes and techniques and develop best practices to prevent and reduce complications.

Participants will review a wide range of data to analyze and develop best practices, following the already successful CQI model. Areas of focus will include:
What is BCBSM funding?

- Coordinating center (University of Michigan)
  - Physician leadership
  - Technical infrastructure
  - Software development
  - Quarterly conference meeting costs

- Each hospital (9 in year 1)
  - Technical infrastructure
  - Nursing data validation and submission

- Total year 1 costs: $1.4M
The goals in year 1

• Provide feedback regarding variant practice patterns
  – Ventilator management
  – Monitoring of neuromuscular blockade
  – Glucose control
• By provider and organization
• Decrease unexplained variation

• In the near future
  – Evaluate association between intraoperative management, and long term outcomes
  – Optimal anesthesia technique
Welcome to MPOG

Thank you for visiting our MPOG site. We hope you will join us.

www.mpogresearch.org
What is MPOG

- Automated process to extract data from each EHR (and other systems) into standardized structures
- Map content to MPOG concepts (linked to RxNorm, SNOMED, ICD where possible)
- Transmit “valid” de-identified cases to central repository every month. No consent, no opt-out, IRB approved

- Need to link with registry, results, and death data
- Socialized access and contribution
  - Price = 10,000 cases, not dollars
Chart review – Classic

- GIGO
  - Garbage In $\rightarrow$ Garbage Out

- Impossible to do research on this
"Chart review" – Modern

• "DIDO" – Data In, Decisions Out

- Allows us to ask questions never asked before
What we have achieved, the #s

- 2,800,000 cases extracted, mapped, de-identified, and available for research and performance improvement
  - Medications / Infusions / Fluids / Outputs
  - Intraop notes
  - Patient Header
  - Staff in / out
  - Outcome record

- 17 institutions, 14 states, 2 countries, 6 EHR vendors
  - 6.0 BILLION vital signs for these patients…this is BIG data
Bad data is worse than no data

- Data quality is a major issue
  - Variant EHR documentation practices by vendor and site
  - Investigators must evaluate data quality
- Use modern tools to assess and improve data quality
  - Data visualization
  - Manual data review
  - Statistical analysis
- Be aware of data limitations
- Establish diverse data
Data diagnostics

MPOG Data Diagnostics

Module: Patients
Institution: University of Michigan Health System

Diagnostic Tests
- No Extremely Old Patients
- No Unknown Date of Birth
- No MRN as Patient ID
- No Suspicious Patient Names

Charts

Percentage of Cases in which the Patient has a Known Gender

This chart shows the percentage of cases that have a gender recorded for the patient. Gender is often used in research, so a high percentage is preferable.

Blinded Record Index Data Fill Rates

This information is used for death matching purposes. To improve death matching, have a high percentage of this information available.
Case Validation Utility

MPOG Case Validation Utility - Case Selection

Use the following options to pick a case to review

- Pick case by MRN and Date
  - Patient MRN
  - Date of Operation: 1/1/0001

- Pick case by case ID
  - MPOG Case ID: 00000000-0000-0000-0000-000000000000

- Pick random unreviewed case
  - Reviewed: 3 / 20
  - Service Type: Any Service

- Pick already reviewed case
  - Reviewed Cases

Overall Progress (minimum 20 cases per 6 months)

<table>
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<tr>
<th>Date Range</th>
<th>Reviewed:</th>
<th>Total:</th>
</tr>
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<tr>
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<td></td>
</tr>
<tr>
<td>7/1/2005 - 12/31/2005</td>
<td>0 / 20</td>
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</tr>
<tr>
<td>1/1/2006 - 6/30/2006</td>
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<tr>
<td>7/1/2006 - 12/31/2006</td>
<td>0 / 20</td>
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<tr>
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<td>1 / 20</td>
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</tr>
<tr>
<td>7/1/2013 - 12/31/2013</td>
<td>0 / 20</td>
<td></td>
</tr>
</tbody>
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Current Members

- University of Michigan
- Oregon Health and Science
- University of Colorado
- University of Vermont
- University of Virginia
- University of Florida

Columbia University
University of Washington
University of Tennessee
University of Utah
Washington University, St. Louis
University of Oklahoma

New contributing members, welcome

- Weill-Cornell Medical Center
- AMC – Amsterdam, Netherlands
- Yale University
- Stanford Medical Center

UMC – Utrecht, Netherlands
Cleveland Clinic
Massachusetts General Hospital
In process members

• Configuration in process
  – University of Wisconsin  UCSF
  – University of Pennsylvania  Beaumont health system
  – Oakwood health system  Trinity health system
  – Ochsner Health System  NYU-Langone

• Regulatory and planning in process
  – Medical College of Wisconsin  Northwestern Memorial
  – Nationwide Children’s  Sloan Kettering
  – Wake Forest
How are MPOG and ASPIRE related?

- MPOG = academic centers around the world focused on research first
- ASPIRE = centers around the world focused on quality improvement first
- Common foundation
  - Anesthesiology data - Data quality obsession
  - EHR-driven data extracts - Built-in Analytics
- Differences
  - QI reporting and data sharing is an opt-in for MPOG sites
  - IRB requirements, etc
How are MPOG and ASPIRE related?
Our research projects

• Published / in press at journals
  – Prediction of Difficult Airway
  – Lung protective ventilation practice trends

• Manuscript in preparation / analysis
  – Infusion Pump Limits AKI
  – Rescue of Failed Laryngoscopy CIED management
  – Transfusion trends
  – Antihypertensive therapy and BP variability

• Data extraction underway
  – Blood utilization patterns Ventilation of thoracic patients
  – Pediatric vital signs
Our research projects

• Awaiting revision of proposal
  – Epidemiology and cost of medication errors
  – Formal versus bedside OSA diagnosis
  – Beta blockade and anemia

• Holding pattern
  – Stroke and beta blockade
  – Intraoperative management and the risk of SSI
  – Intraoperative BP and thoracic surgery outcomes
  – Do anesthesiologists matter
  – Provider impact on variation in PONV treatment
  – National trends in pediatric obesity
ASPIRE QI Committee members

- Beaumont Health System
- Oakwood Healthcare System
- St. Joseph Mercy, Ann Arbor, Michigan
- Mercy Muskegon
- University of Michigan
- Holland Hospital
- Marquette General Hospital
- Academic Medical Center (AMC), Amsterdam
- Columbia University
- Massachusetts General Hospital
- Oregon Health Science University
- NYU Langone University
- Tufts Medical Center
- University Medical Center of Utrecht, Netherlands
- University of California, San Francisco
- University of Colorado
- University of Florida Medical Center
- University of Michigan
- University of Oklahoma
- University of Pennsylvania
- University of Tennessee, Knoxville
- University of Utah
- University of Vermont – Fletcher Allen Healthcare
- University of Virginia Health System
- University of Washington
- University of Wisconsin
- Vanderbilt University
- Washington University, St. Louis
- Weill-Cornell Medical College - New York Presbyterian
- Yale University
Priority Score by QI Measure Category (ASPIRE respondents)
Year 1 measures

- INF 01 – antibiotics within 60 minutes of incision (or 120 minutes for vancomycin and fluoroquinolones) unless exception documented

- NMB 01 – for patients given non-depolarizing neuromuscular blockers, train of four documented after last dose of NMB and before extubation.

- NMB 02 – neostigmine given before extubation for patients given non-depolarizing neuromuscular blockers within 4 hours

- GLU 01 – for patients with intraoperative glucose > 200, insulin administered or glucose recheck performed within 90 mins of glucose result

- GLU 02 – for patients with intraoperative glucose < 60, dextrose containing solution or glucose recheck performed within 90 minutes of glucose result

- RESP 01 – for patients who receive positive pressure ventilation, limit amount of time of ventilation at > 10 ml/kg to less than 20 minutes
Year 2 measures

• Enable 2015 QCDR participation
• Across 3 NQS domains
• More aggressive standards of care
  – Tighter glucose control (180)
  – PONV prophylaxis
  – Medication overdose (flumazenil, naloxone)
  – Handoffs of care
  – AKI, MI by laboratory value
  – Transfusion management
• Risk adjustment using administrative + clinical + lab data
Hospital feedback

Chairperson Dashboard

Overview  |  Neuromuscular Monitoring  |  Glucose Management  |  SCIP  |  Physiologic

---

**Neuromuscular Monitoring**

- Train of Four checked: Your Institution's Performance (Past 12 months)
  - **88.62%**
  - Target 90.00%

- Vecuronium administered: Your institution's Performance (Past 12 months)
  - **95.87%**
  - Target 90.00%

**Glucose Management**

- High Glucose Treated: Your Institution's Performance (Past 12 months)
  - **96.24%**
  - Target 90.00%

- Low Glucose, Treated: Your Institution's Performance (Past 12 months)
  - **77.01%**
  - Target 90.00%

**SCIP**

- Antibiotics Given: Your Institution's Performance (Past 12 months)
  - **96.75%**
  - Target 100.00%

**Physiologic**

- Tidal Volume: Your Institution's Performance (Past 12 months)
  - **100.00%**
  - Target 90.00%
Hospital benchmarking

NMB-01: Train of Four checked

Train of Four checked: Your Institution’s Performance (Past 12 months)

88.62% Target 90.00%

Inclusions: All patients that have received either by bolus or infusion a non-depolarizing neuromuscular blocker (NMB) AND were extubated post-operatively or in the PACU

Exclusions: Cardiac cases and liver transplant cases

Compliant: Documentation of either a Train of Four count (1, 2, 3, or 4) or TOF ratio provided by acceleromyography AFTER last dose or stopping of infusion of neuromuscular blocker.

Responsible provider: The provider signed in at time of extubation.

Refer to the one pager for more details.
NMB-02: Neostigmine administered

Neostigmine administered: Your Institution's Performance (Past 12 months)

☑️ 95.87%  Target 90.00%

**Inclusions:** All patients that have received either by bolus or infusion a non-depolarizing neuromuscular blocker (NMB) AND were extubated post-operatively or in the PACU

**Exclusions:** Cardiac cases and liver transplant cases

**Compliant:** Documentation of neostigmine BEFORE extubation or greater than 4 hours between last dose of non-depolarizing medication and extubation.

**Responsible provider:** The provider signed in at time of extubation.

*Refer to the one pager for more details.*
Filters

Population
- Primary Anesthesia Attending = 7
- High Glucose = Yes
- Patient Age >= 18

Filters
- Is Emergent
- ASClassText <=
- Year >= 2011
- Attending Stat... =
- CPT Codes =

Graph showing data for years 2013 Q2 to 2014 Q1.
Gaining steam across the country...
How are AQI and MPOG related?

- Both founded in 2008
- AQI = QI initial charter, now moving into research
  - ASA funded
  - Serves a broad range of anesthesiologists (from paper to latest EHR)
- MPOG = research initial charter, now moving into QI
  - BCBS & self-funded
  - Serves a narrow range of providers (EHR driven)
- Shouldn’t have to choose between them
  - MPOG forwards a subset of data to AQI
What you should do differently

• Participate in surgical quality collaboratives
• Measure yourself, or be measured by others
• Identify new forms of value
• Prepare to learn from your colleagues & share data