Perioperative Management of the Pediatric Surgical Patient

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DISCLOSURE INFORMATION

I have no financial relationships or interests to disclose.

OBJECTIVES

• Evidence and quality-based practice within the context of clinical quality indicators and influences of legislation

• Safe, evidence-based perioperative management for specific surgical procedures with consideration for quality and value

• Future of pediatric perioperative management within the context of quality and safety
CROSSING THE QUALITY CHASM: A NEW HEALTH SYSTEM FOR THE 21ST CENTURY

Faced with such rapid changes, the nation’s health care delivery system has fallen far short in its ability to translate knowledge into practice and to apply new technology safely and appropriately.

6 AIMS FOR IMPROVEMENT

Safe
Effective
Patient-Centered
Timely
Efficient
Equitable

A health care system that achieves major gains in these six areas would be far better at meeting patient needs.

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ)

Patient safety indicators (PSIs)

Inpatient quality indicators

Pediatric quality indicators (PDIs)

OBJECTIVES
1) Apply algorithms to an aggregate children’s hospital’s discharge abstract database, 2) Establish rates for each of the pediatric quality indicators events in the children’s hospitals, 3) use direct chart review to investigate accuracy of the PQI, 4) Calculate number of complications present on admission, 5) evaluate preventability and calculate positive predictive value for each of the indicators

METHODS. AHRQ pediatric quality indicator algorithms were applied to 76 children’s hospital’s discharge abstract data (1794675 discharges) from 2003 to 2005

RESULTS. Across 3 years of data, the rates ranged from a low of 0.01/1000 discharges to a high of 35/1000 with a median value of 1.85/1000 for the 11 pediatric quality indicators. Median value for indicators on admission was 16.9%.

CONCLUSIONS. A subset of pediatric quality indicators are reasonable screening tools to help hospitals prioritize chart review and subsequent improvement projects.

Children have unique characteristics that require pediatric-specific patient safety and quality indicators.

“Perhaps the most important finding of this study relates to issues of preventability of events…”

Pediatric Quality Indicators
www.qualityindicators.ahrq.gov/pdi_overview.htm

PDI1: Accidental Puncture/Laceration
PDI2: Decubitus Ulcer
PDI3: Foreign Body Left in During Procedure
PDI4: Iatrogenic Pneumothorax in Neonates
PDI5: Iatrogenic Pneumothorax in Non-Neonates
PDI8: Postoperative Hemorrhage or Hematoma
PDI9: Postoperative Respiratory Failure
PDI10: Postoperative Sepsis
PDI11: Postoperative Wound Dehiscence
PDI12: Selected Infections Caused by Medical Care
PDI13: Transfusion Reaction

Defined as health outcomes achieved per dollar spent.
The framework for performance improvement in healthcare.
Always defined around the patient.
Accountability is shared among providers.
Equals quality (adherence to evidence-based guidelines)/cost.

Shared Decision Making to Improve Care and Reduce Costs

1000 visits/3500 decisions resulted in < 10% shared decision-making

20% of patients who participated in shared decision-making chose less invasive surgical options and more conservative treatments

Implementing shared decision-making in 11 procedures will save 9 billion $ over 10 years

Providing decision aids to patients reduced surgery rates and costs, up to 38% reduction and 12 to 21% savings over 6 months


Surgical Home Model

Proposed by the American Society of Anesthesiologists and other stakeholders as an innovative, patient-centered, surgical continuity of care model that incorporates shared decision-making.

A coordinated, multidisciplinary team led by an anesthesiologist is responsible for the care of the patients from the preoperative period through the post-discharge phase.


Preoperative Assessment

**Respiratory**
- URI vs. LRI
- Asthma
- Prematurity
- Broncho-pulmonary Dysplasia
- Obstructive Sleep Apnea

**Cardiovascular**
- Intra-cardiac Shunts
- Murmurs
- Sub-acute Bacterial Endocarditis Prophylaxis

**Neuromuscular Diseases**
- Congenital Adrenal Insufficiency
- Sickle Cell Anemia
- Latex Allergies
- Obesity
- Pregnancy
- Fasting Guidelines

**Informed Consent**

A legal doctrine that provides a patient with the right to know the potential risks, benefits, and alternatives of a proposed procedure.

“...no right is held more sacred, or is more carefully guarded, by the common law, than the right of every individual to the possession and control of his own person.”

Union Pacific Ry. Co. v. Botsford (141 US 250, 1891)
**Surgical Site Infections (SSIs)**

Most *common* hospital-acquired infection in surgical patients.

Most *preventable* hospital-acquired infection in surgical patients.

The “Bundle” includes: preoperative removal of hair, rational antibiotic prophylaxis, avoidance of perioperative hypothermia, management of perioperative blood glucose, and effective skin preparation.

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**AORN “Guideline for preoperative skin antisepsis”**

Patients should bathe or shower before surgery with either soap or antiseptic solution.

Hair at the surgical site should be left in place unless the hair will interfere with the procedure.

Safe effective preoperative antiseptics should be selected for the individual patient.

Skin antisepsics should be applied according to the manufacturer’s instructions for use.

Unopened skin antisepsics must be stored in the original single-use container.


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**Antibiotic Prophylaxis**

Commonplace due to Surgical Care Improvement Project (SCIP) mandate.

The “cornerstone” of the guidelines focuses on not only the *provision of prophylactic antibiotics* but also the administration of the *appropriate* prophylactic antibiotic *within 1 hour* before elective surgical incisions and *cessation of the antibiotic within 24 hours* of surgery.

Evidence that adherence to these guidelines is associated with lower rates of SSI in general, laparoscopic, and colorectal surgeries.


Intraoperative Considerations

- Check list
- Vascular access
- Anesthesia
- Patient position, preparation, draping, monitoring

TIME OUT
- Sterility RULES
- Operating room culture
- Transport

Postoperative Management

- Anesthetic problems: Early
  - Emergence phenomenon
  - Respiratory distress
  - Nausea, vomiting
- Anesthetic problems: Late
  - Succinylcholine-Induced Myalgia
  - Hepatic dysfunction
- Pain management
- Observation and Documentation
- Communication "Hand offs"

Pyloric Stenosis

Preoperative Assessment
- Radiographic and Laboratory Studies
- History and Clinical Exam

Preoperative Management
- Variable practice among surgeons; what does the evidence tell us?
- Surgical timing

Intraoperative Considerations
- Laparoscopic vs. various open approaches

Postoperative Management
- Fluids, Feedings, Pain Management, Discharge, Followup
Nissen Fundoplication

Preoperative Assessment
  Work up
  Shared Decision-Making

Preoperative Management
  Align with evidence-based guidelines
  SCIP protocol

Intraoperative Considerations
  Laparoscopic vs. open

Postoperative Management
  Fluids, Feedings, Pain Management, Discharge, Follow up

Future Trends

American College of Surgeons-National Surgical Quality Improvement Program vs. Agency for Healthcare Research and Quality Pediatric Quality Indicators.

Value-based purchasing versus Fee-for-service: What does this mean for perioperative management of the pediatric surgical patient?

Perioperative Nursing remains responsible for developing, implementing, and evaluating safe practice in the perioperative environment.

Pediatric Surgeons work collaboratively to facilitate the delivery of safe, effective, and efficient surgery.

Questions?