Implementing Perioperative IT?
Don’t Forget Key Components
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Conflict of Interest

Christine A. Doyle, MD

- Advisory Board: Surgical Information Systems
- President and Partner: Coast Anesthesia Medical Group
- Speaker of the House, California Society of Anesthesiologists
- Past Chair, Committee on Electronic Media and Information Technology, American Society of Anesthesiologists
Learning Objectives

• Outline the specific steps to take prior to design and implementation of technology to best manage change and improve workflow processes

• Describe the barriers to successful implementation of a perioperative system and the strategies to overcome these challenges

• Identify the benefits of including an anesthesiology information management system as a foundation for an integrated perioperative system

• Discuss the importance of ongoing process improvement supported by data analytics
Agenda

- Workflow & Planning
- Barriers to Implementation
- Benefits Specific to AIMS
- Process Improvement
Multiple Values for Perioperative HIT

REALIZING THE VALUE OF HEALTH IT

Health IT creates *five kinds of value* of benefit to patients, healthcare providers and communities.

- S: SATISFACTION
- T: TREATMENT/CLINICAL
- E: ELECTRONIC SECURE DATA
- P: PATIENT ENGAGEMENT AND POPULATION MANAGEMENT
- S: SAVINGS

http://www.himss.org/ValueSuite
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About Coast Anesthesia and O’Connor Hospital

- 358 bed community hospital, in Silicon Valley, part of Verity Healthcare
- 11 Operating Rooms, 2 Endo Suites, 2 Cath Lab Suites, 1 IR Suite
- 10,816 acute discharges
- 6,075 surgical cases
WORKFLOW & PLANNING
Why is the OR different?

- Complexity of workflow
- Speed of the work
- Unpredictability
- Multiple stakeholder groups
Profit Center or Cost Center?

• Really, it’s the **Contribution Margin**
• More emphasis on:
  – Cost control
  – Patient throughput
  – Outcomes
Managing Demand

**Policies**

- Elective Scheduling
- Add-on and Emergency Scheduling
- Late (evening) cases
- Doctors Desired Time and Pre-Dependency Cases
- When to open an additional room(s)

**Benchmarks**

- First case start
- Turnover times
- Room and Block Time Utilization
- Late starts (and why)
Engaging Physicians

- The work day starts at 7 am
- There is no defined lunch period
- The work day ends sometime
- The case load is unpredictable
Requirements

• It’s not as simple as asking them what they want.
• It’s not as simple as doing the same thing as everywhere else in the hospital
• What they say they want may be limited by their own understanding of the complexity of their work.
Workflow diagram
Surgical Milestones

- Milestones must be determined before you can use them
- Milestones may change depending on the context of the case
- Milestones may change as you implement different modules
Milestones

- Patient arrived
- In Preop
- Ready for Holding
- In OR
- Start Surgery
- Out of OR/In PACU
- Ready for Discharge

Payment Models

• Traditionally, Volume-based billing and payment
• Shift to Value-Based Purchasing (VBP)
• Shift towards Episode of Care (bundled) payments

• All require extensive analytics and reporting mechanisms

BARRIERS TO IMPLEMENTATION
How long does it take?

- If it takes longer to document than it takes to do the work, you have a problem.
- If it takes longer to document than the interval between subsequent tasks, you have a problem.
  - “We found it was better when we added a second nurse in the room to deal with the charting”
Not Paying Attention
Go / NO GO!

- Hard deadlines generally cause an increase in implementation failures
- Testing must be thorough and varied
  - Both structured tests and random tests should be used
  - Make sure to include all reports
- Do NOT advertise a Go Live date until you have actually made the Go decision.
- Have a plan for a KILL (Go Dead) process
BENEFITS SPECIFIC to ANESTHESIA INFORMATION MANAGEMENT SYSTEMS (AIMS)
Unique documentation

- Airway Management
- Malignant Hyperthermia
- Medication responsiveness
Vigilance

• “state of readiness to detect and respond to certain specified small changes occurring at random intervals in the environment”
  
  Mackworth NH. Some factors affecting vigilance. Advancement of Science 1957; 53:389-393

• “… task which requires the detection of changes in a stimulus during long monitoring periods when the subject has little or no prior knowledge of the sequence of the changes”
  
  – NOT repetitive work

Participation in Registry, Reporting and Benchmarking
Evolving Federal Reporting

• Meaningful Use (MU)
  – Exclusion is based on the PLACE OF SERVICE
  – Most anesthesiologists are not automatically excluded
  – Most reporting items do not apply to anesthesiologists
• Physician Quality Reporting System (PQRS)
  – Voluntary (for now)
  – Limited measures available for anesthesiologists but improving
• Merit-Based Incentive Payment System (MIPS)
  – Combining MU and PQRS
NACOR Outcomes

- NACOR records 48 different quality indicators.
- Most of them have an incidence ranging from 1/1000 to 1/100,000

1. Case Delay (11.608%)
2. Hemodynamic instability (6.503%)
3. Inadequate pain control (3.364%)
4. Nausea/Vomiting (3.019%)
5. Extended PACU Stay (1.58%)

Two of the top 5 are ADMINISTRATIVE

Anesthesia in the US 2015, Anesthesia Quality Institute
Co-Morbidities

- Pre-existing disease affects postop outcomes
- Adequate documentation best obtained via *Anesthesia H&P*
- Submission through Registry also allows benchmarking
Population Health
PROCESS IMPROVEMENT and ADDED VALUE
Maintenance of Certification

• Maintenance of Certification (MOC) is required by ABMS of all specialty boards

• ABA requires Case Evaluation
  – Clinical outcomes and patient feedback
  – Compared with evidence
  – Implement improvement plan
  – Evaluate effectiveness of plan

• ABS requires participation in an Outcomes Registry or QA Program
  – Data review every 6 months
  – ACS Case-Log system, NSQIP, SCIP, NTDB, others
Ortho and Blocks - 1

- Surgeons say that they don’t want Regional Blocks used for their total joints “because the patients can’t walk and do PT”
- RN and PT staff report patients are “weak in the legs.” There have been several near falls and 2 falls in the last quarter.
- Anesthesiologist is at the bedside for one instance – patient is clearly orthostatic, did not receive the ordered transfusion, and did not have a block.

- SO now what?
Ortho and Blocks - 2

- Chart Review over 3 month period – 77 patients
- Variety of anesthetic techniques
- Uniform postop narcotic and NSAID orders
- 47 patients with blocks, 17 required transfusion, 27 had documented hypotension or dizziness

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Ortho and Blocks - 3

• Changes Made:
  – PT does initial assessment in PACU if there is a delay in getting the floor bed
  – Blood Bank has changed the process to get transfusions ready faster
  – PT ensures that a set of orthostatic vitals are done before they get the patient out of bed
  – Surgeons started using Tranexamic Acid

• Impact:
  – Fall rate decreased over 50% (2 in 2015, 0.7%)
  – Transfusion rate decreased by 50%
  – LOS decreased by 1 day
TJC Survey!

• During anesthesia build, the structure of items in the H&P object was defined.
• Some items are required, some are optional.
• Surgeon’s H&P missing -- no problem, the anesthesia H&P is more thorough than the surgeon’s would have been anyways!
  • end result: *no citation*
Remote Monitoring

- Physicians able to monitor patients in real-time
- Physicians able to identify clinical changes - before nursing staff recognize the change
- Decreased time to decision and to incision
- End result: improved fetal and maternal outcomes
PreAnesthesia Questionnaire

- Staff calls patient as soon as case scheduled
- Anesthesia Preop questionnaire, with weighted scoring for history
  - Determines which (if any) labs and studies are required
  - Determines which patient needs to come in for an appointment

- Decreased testing by over 30%
- Decreased need for appointments to <10% (from >90%)
- Decreased DOS cancellations to <2%
Premium Pay - 1

- Administration sets a hospital-wide goal to reduce Premium Pay to 5% or less.
- Staff are sent home early or cancelled on short notice “to save money.” Per diem staff have essentially vanished, taking jobs elsewhere.
- Department management thinks this is all related to the unpredictability of surgical volume.

- How do we resolve this?
Premium Pay - 2

- Time Card data imported into Analytics, paired with the OR personnel data and case data.
- Two major findings:
  - Disproportionate amount of overtime amongst one staff type
  - Inadequate staffing in the afternoon
Premium Pay - 3

- Changes Made:
  - Two new shifts created (9a-5p, 9a-7p)
  - New staff hired to address these new shifts
  - Better utilization of per diem staff

- Impact:
  - $563,000 savings in premium pay
Electronic Bill Submission

• Direct submission from the Anesthesia Record to the Billing Service
• Decreased average time for receipt from 15 days to 4 days
• Days in Accounts Receivable (DAR) went from 52 days to 41 days
Summary

**S**
- Physician Satisfaction by facilitating MOC information gathering
- Patient Satisfaction with telephone interactions

**T**
- Orthopedics patients with decreased falls, transfusions and LOS

**E**
- TJC Survey
- Remote monitoring

**P**
- PreAnesthesia Questionnaire decreases testing and appointments

**S**
- Revised staffing grid with decreased Premium Pay
- Shortened time to bill submission and Days in AR
Questions

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