



Hope
and
Healing



Reducing the Risk of SSIs: NSQIP as a pathway to Improving Patient Outcomes

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Overview

- Introduction
- What is NSQIP
- How we use NSQIP
- Examples of NSQIP driving process improvement

Introductions

- I work at Mayo Health System La Crosse where I have the NSQIP surgical champion since 2013
- General Surgeon
- I oversee our NSQIP program for all surgical departments except podiatry and ophthalmology
- NSQIP Team: Surgical Case Reviewers, Quality Performance Analyst, Process Improvement, OR and Inpatient nursing leadership, Surgical Champion (as needed anesthesia and pharmacy) Administrative Leader and Medical Director

NSQIP

- National Surgical Quality Improvement Project
- American College of Surgeon (ACS) data uses standard definitions
- Reliable Data bank risk stratified by ACS
- Lots of variables collected
- Exceptional follow-up
- Benchmarked nation and the world
- Continuously collected data
- Reports received every 3 months

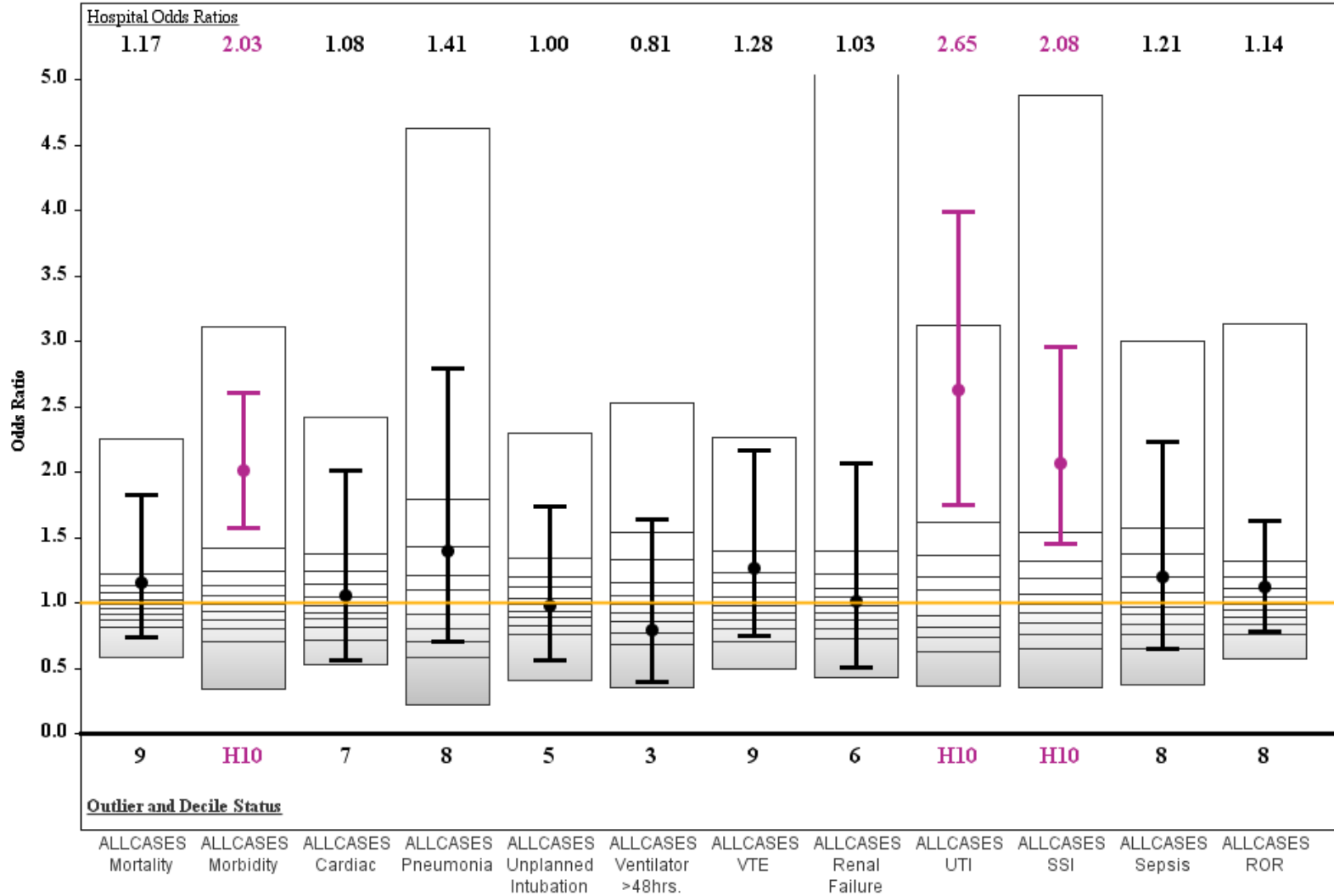
Downsides of NSQIP

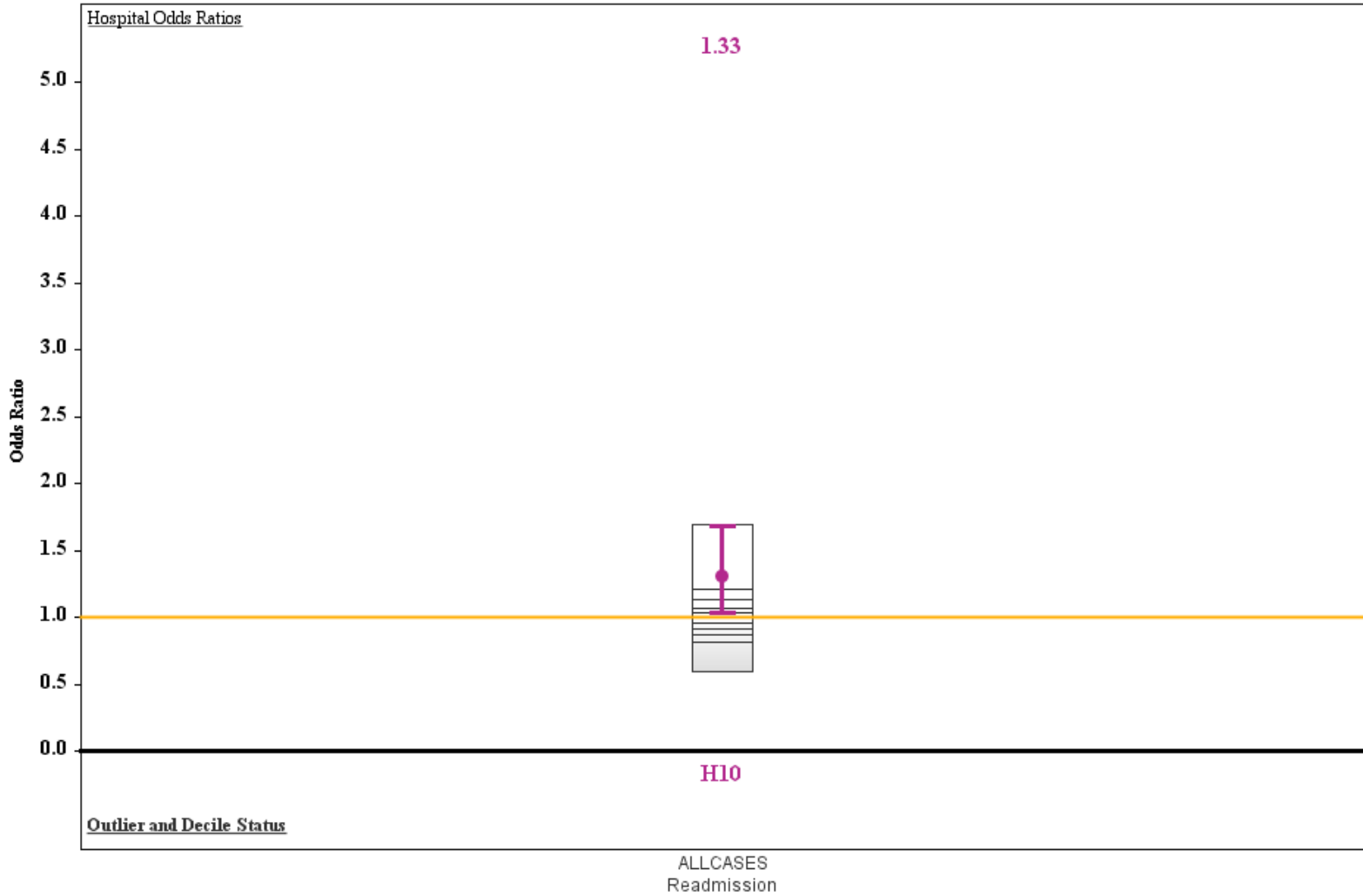
- 1 in 5 cases
- Limited by collected variables
- Data is not the improvement i.e. somebody has to look at data and do something with it.
- Lag period (our most recent data July 2017—end covers previous year ending Dec 2016)
- Each quarterly report drops previous 3 months, i.e. may take a while for change to be reflected in reports. Alternative monitoring may be needed

All Cases

10/01/13 - 09/30/14

Site: 2235





Using NSQIP

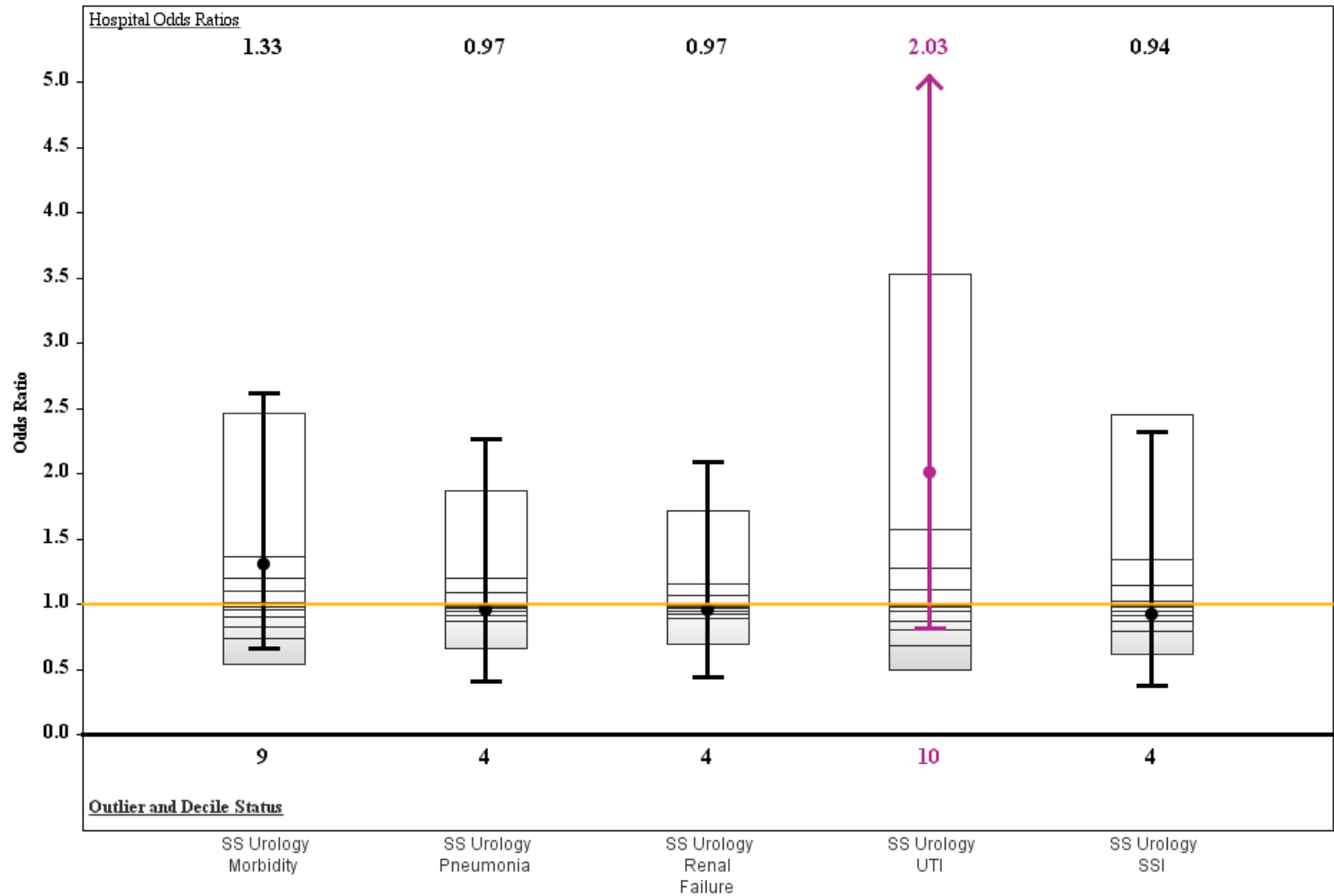
- Introduce to the practice with formal presentation and regular SAR updates. (we chose not to notify surgeons of each event)
- Never argue about the data—may constructively discuss what to do with the data
- Surgeons want to be better---simply seeing the data and reviewing particular situations is facilitating change (documentation to post op follow up to process improvement)

Introduction to Urology Department

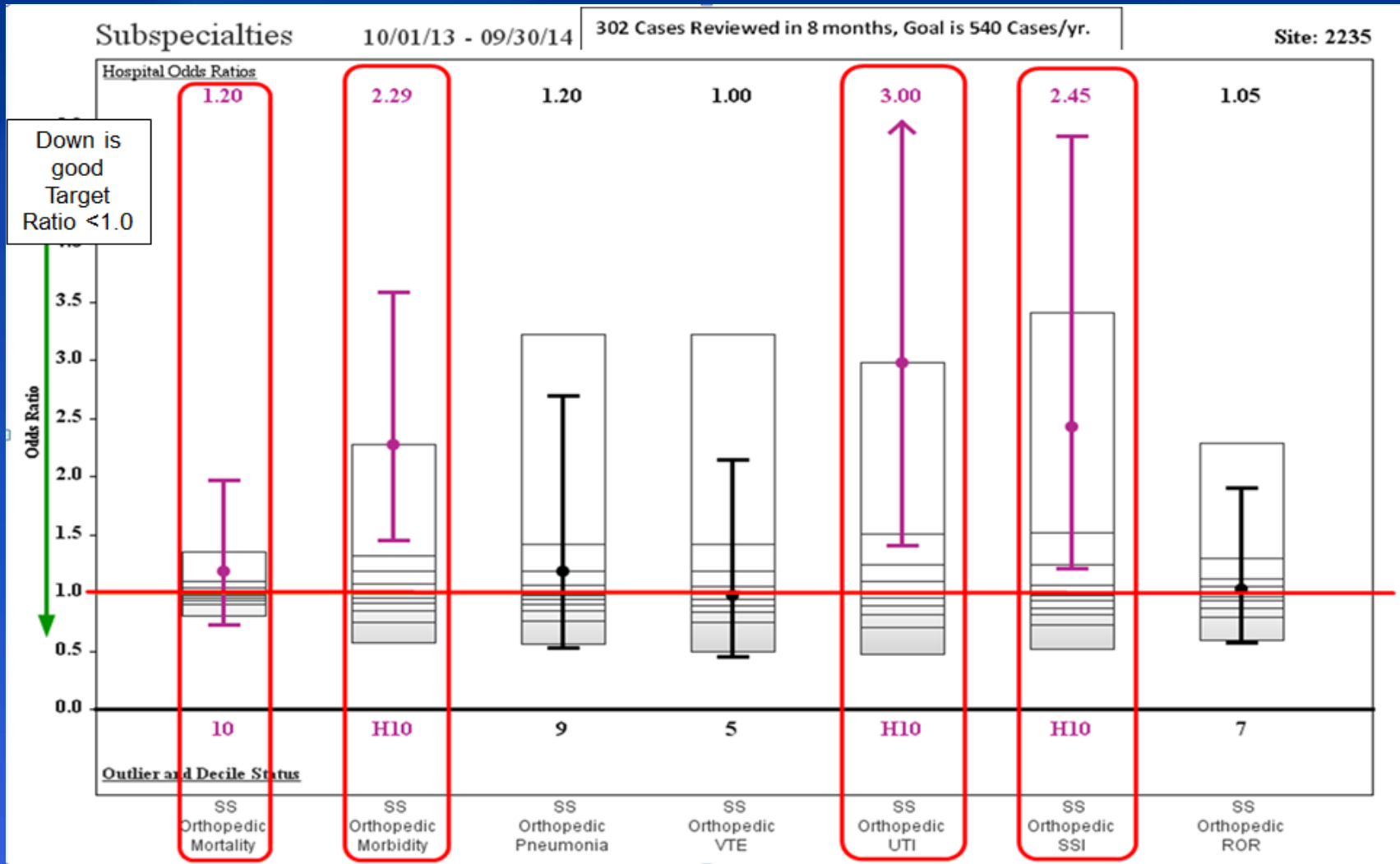
Subspecialties

07/01/13 - 06/30/14

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NSQIP SAR Results Orthopedic Cases 4.4%



Now What??

- Department presentations “forced” me to understand the data. Problems became easier to identify
- Orthopedic surgeons said “ WE HAVE TO FIX THIS”-----WELL OK THEN
- Timely overlap with CAUTI initiative
- Power of data
- Importance of process improvement expert

Orthopedic UTIs-Importance of Process Improvement Expertise

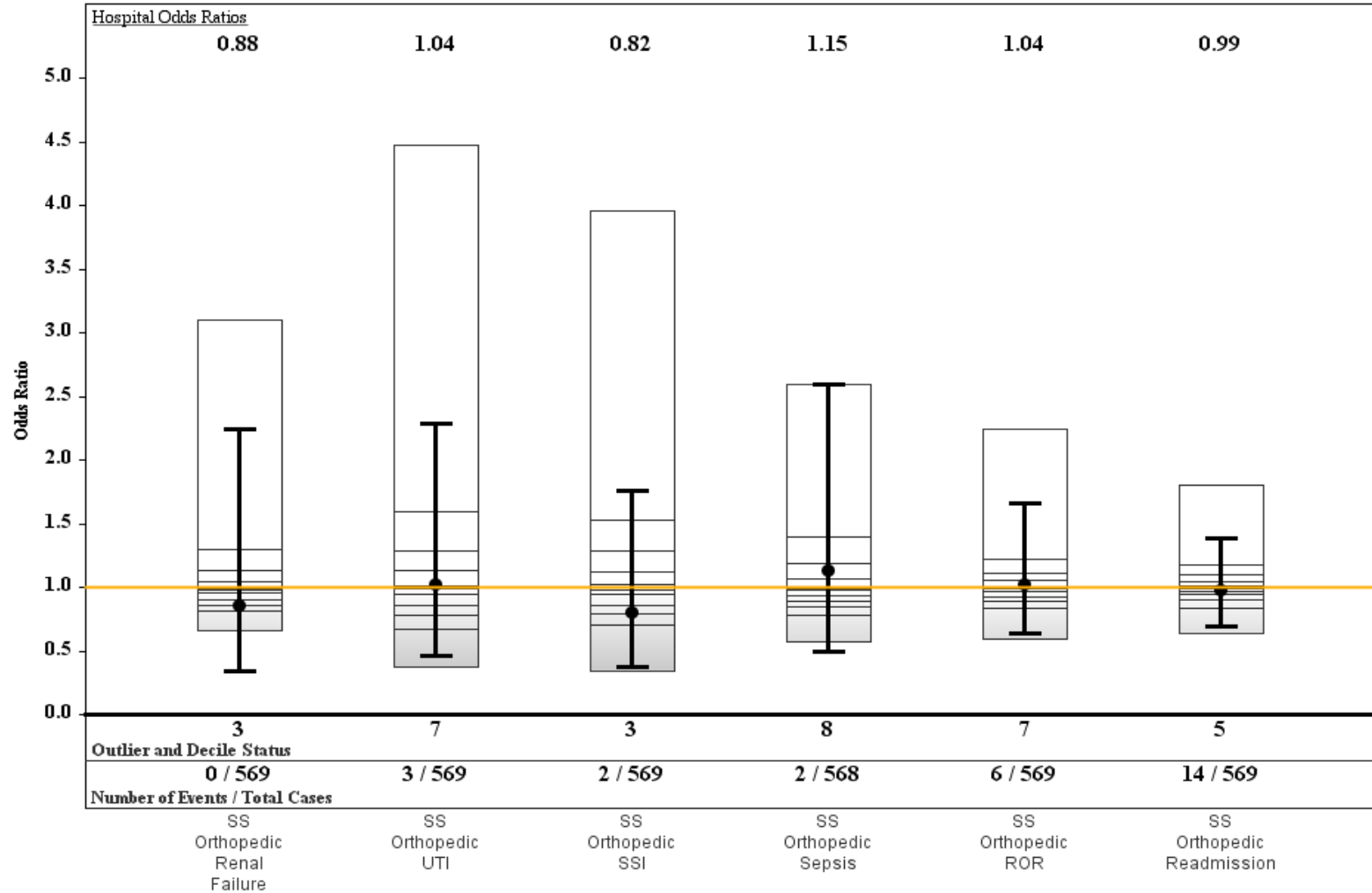
- Data Story: All Cases → UTI → Ortho → TKA
- Problem: UTI's are occurring in orthopedic patients undergoing total knee arthroplasty surgery. 22% of all UTIs in the time frame
- Countermeasures:
 - OR staff standard work: 2 person foley catheter insertion process
 - Ortho modified order sets to remove foley catheter insertion requirement for TKA pts
 - Initiated urinary retention protocol---hospital

0.5% Orthopedic UTI rate

Subspecialties

01/01/16 - 12/31/16

Site: 2235

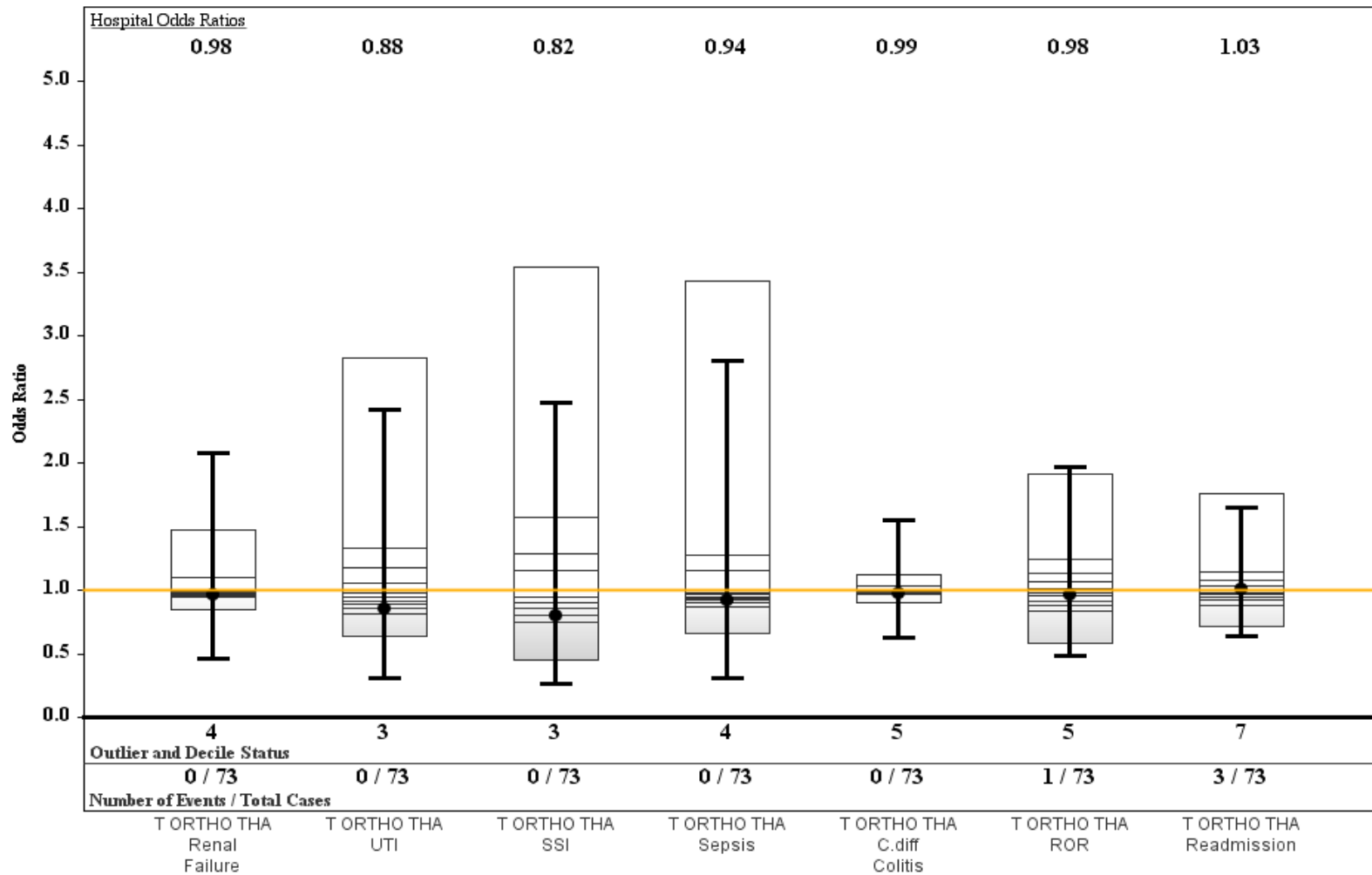


Orthopedic THA

Targeted - Orthopedic

01/01/16 - 12/31/16

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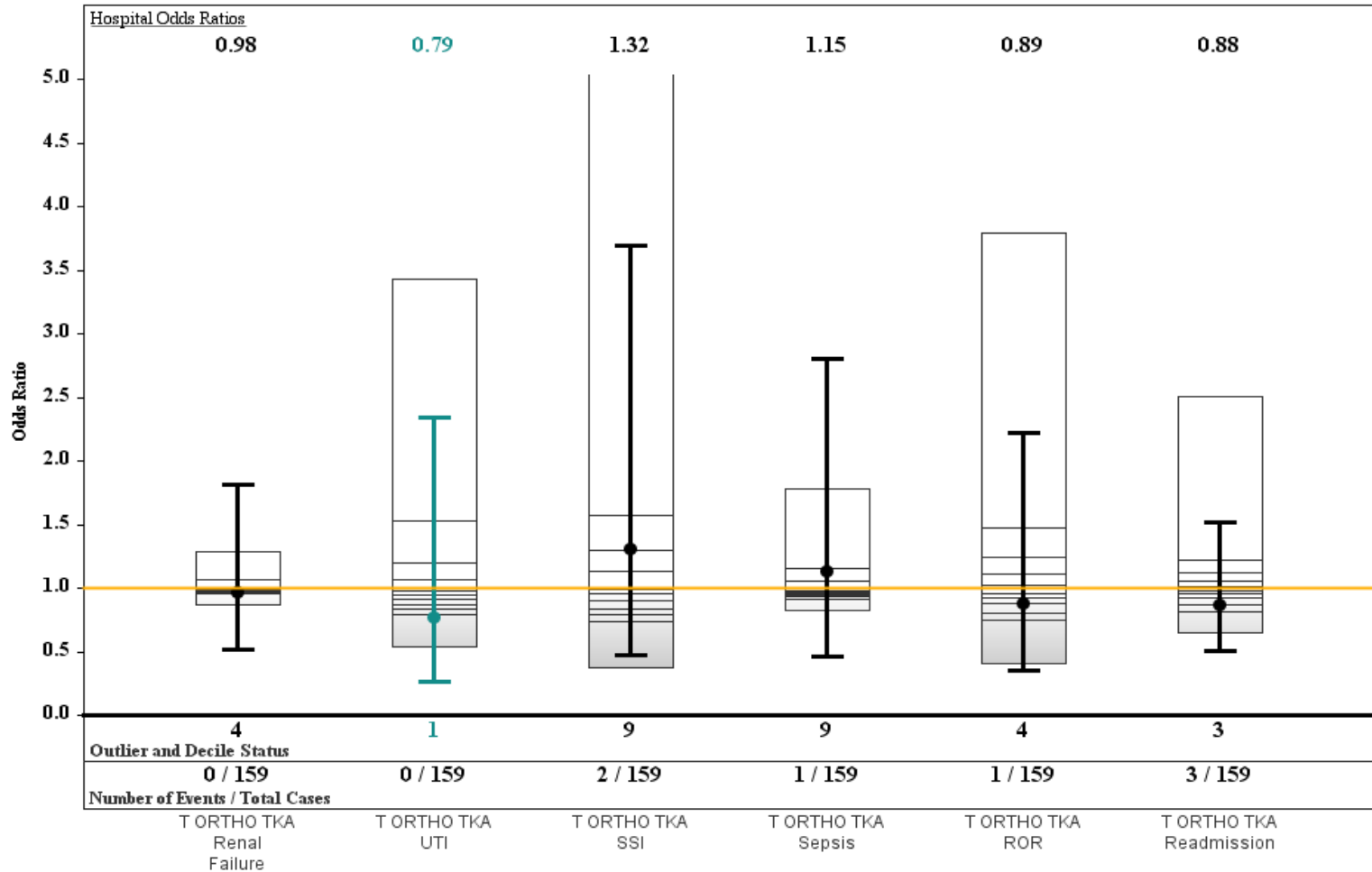
Orthopedic TKA

0 % TKA UTI rate

Targeted - Orthopedic

07/01/15 - 06/30/16

Site: 2235



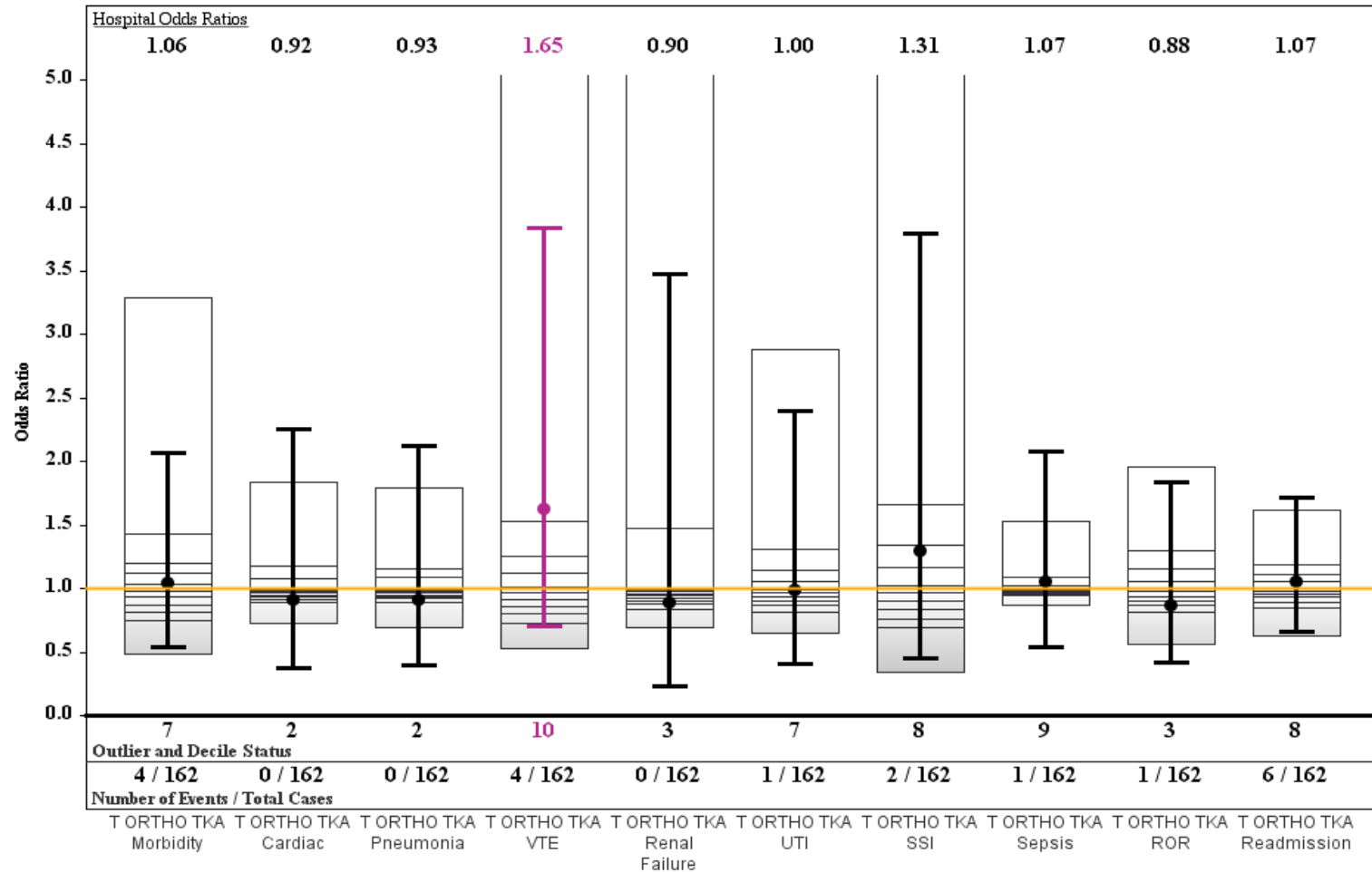
Orthopedic TKA

1.2 % TKA UTI Rate

Targeted - Orthopedic

01/01/16 - 12/31/16

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Keys to Success/Added benefits

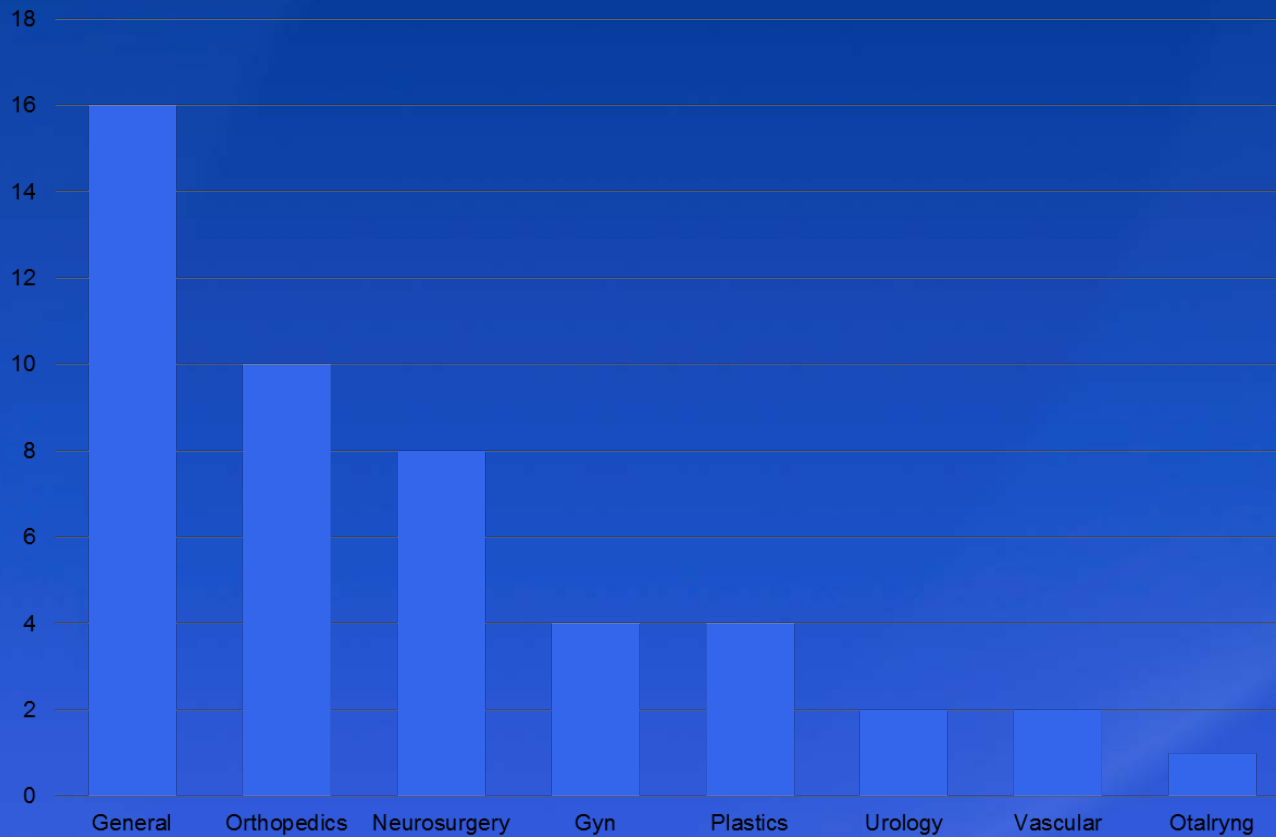
- Focus Statements
- Process Improvement
- Surgeon have to “buy in” ideally they “own it”
- Standing weekly meeting
- EMR directed physician orders simplified implementation.

- Carry over to other surgeries and other departments general surgery decrease foley rate
- Real financial Implications (\$3000/UTI) and CAUTI rate is nonexistent.

Move on to Colorectal SSIs

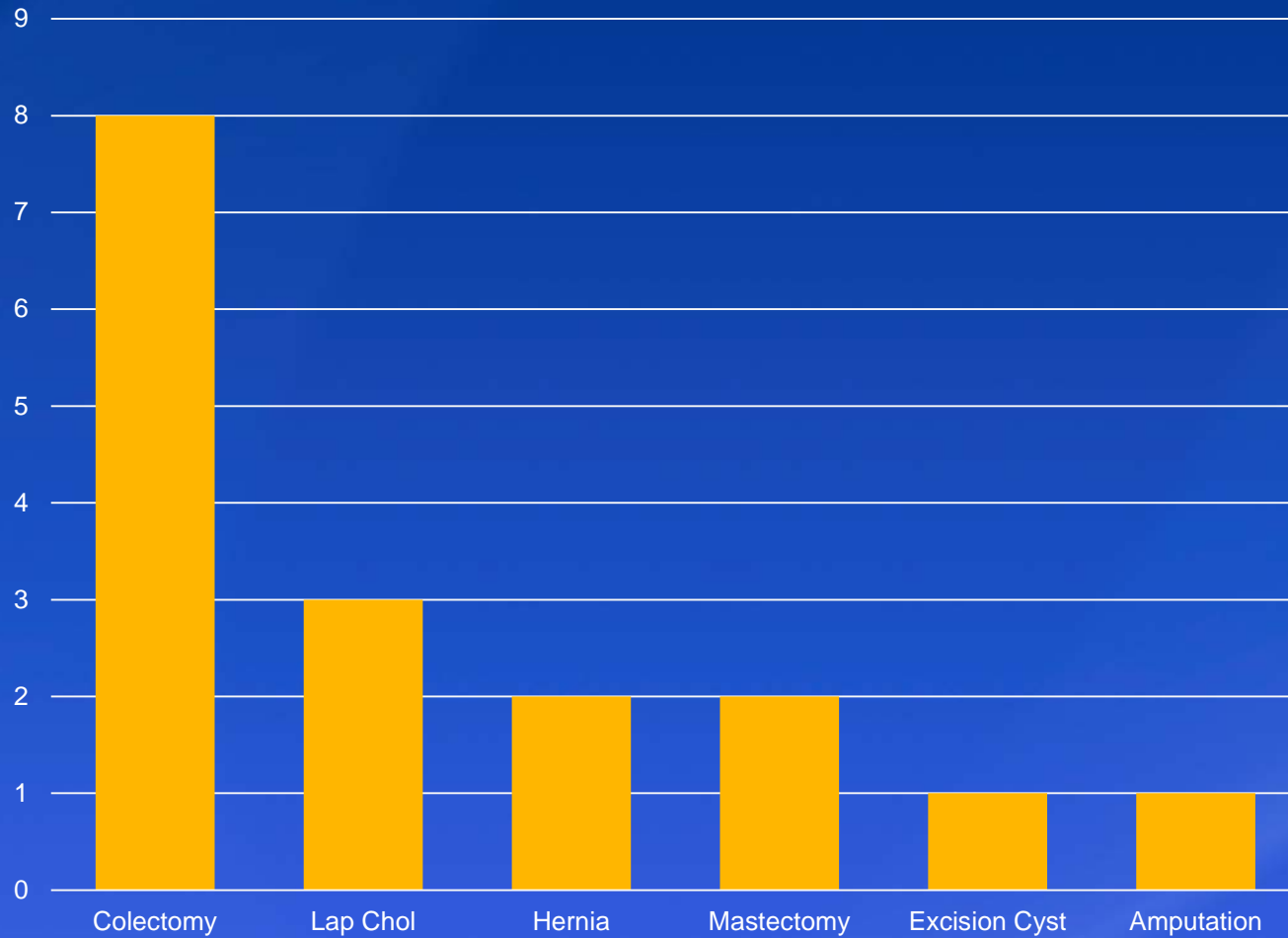
SSI by Surgery Specialty

16 of 47 (36%)



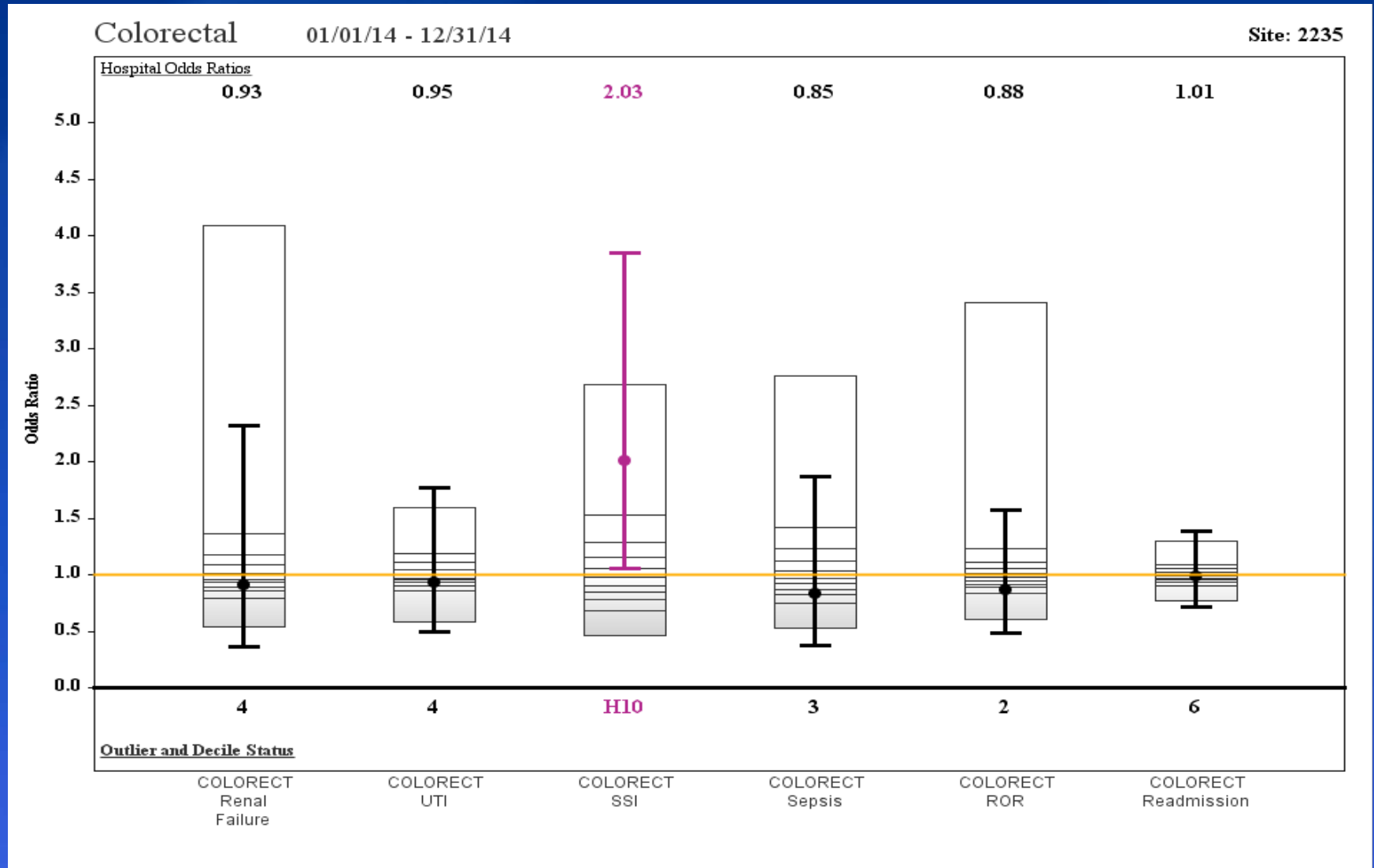
General Surg by Op Procedure

8 of 16

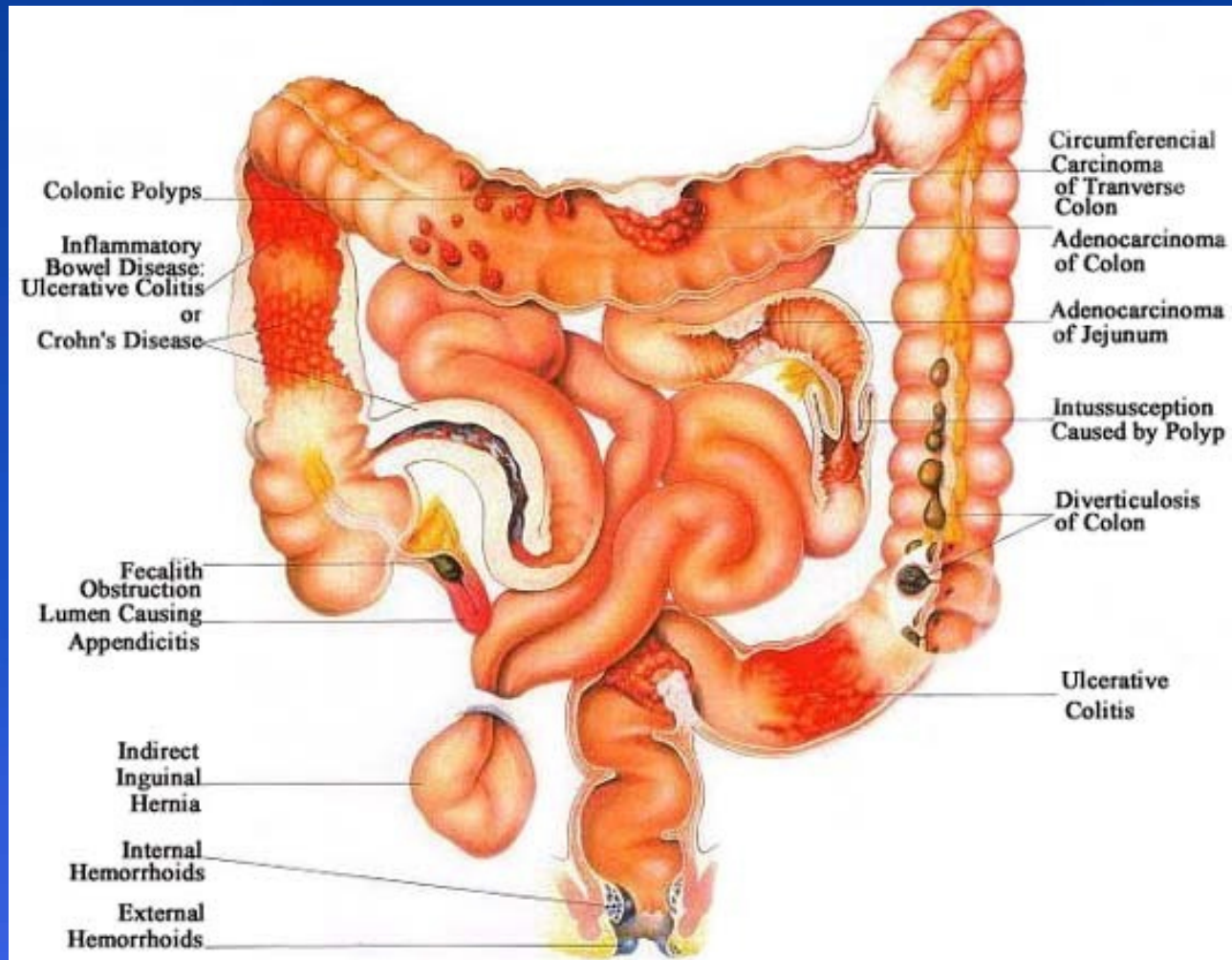


Initial Colorectal SSI rates

Almost 14 %



Drill down statement: SSI's are occurring in patients undergoing colorectal surgery with an increased BMI



Colorectal SSI

- Focus statement guides the process
- Process improvement expert has been invaluable for us
- Pharmacy expertise and participation crucial

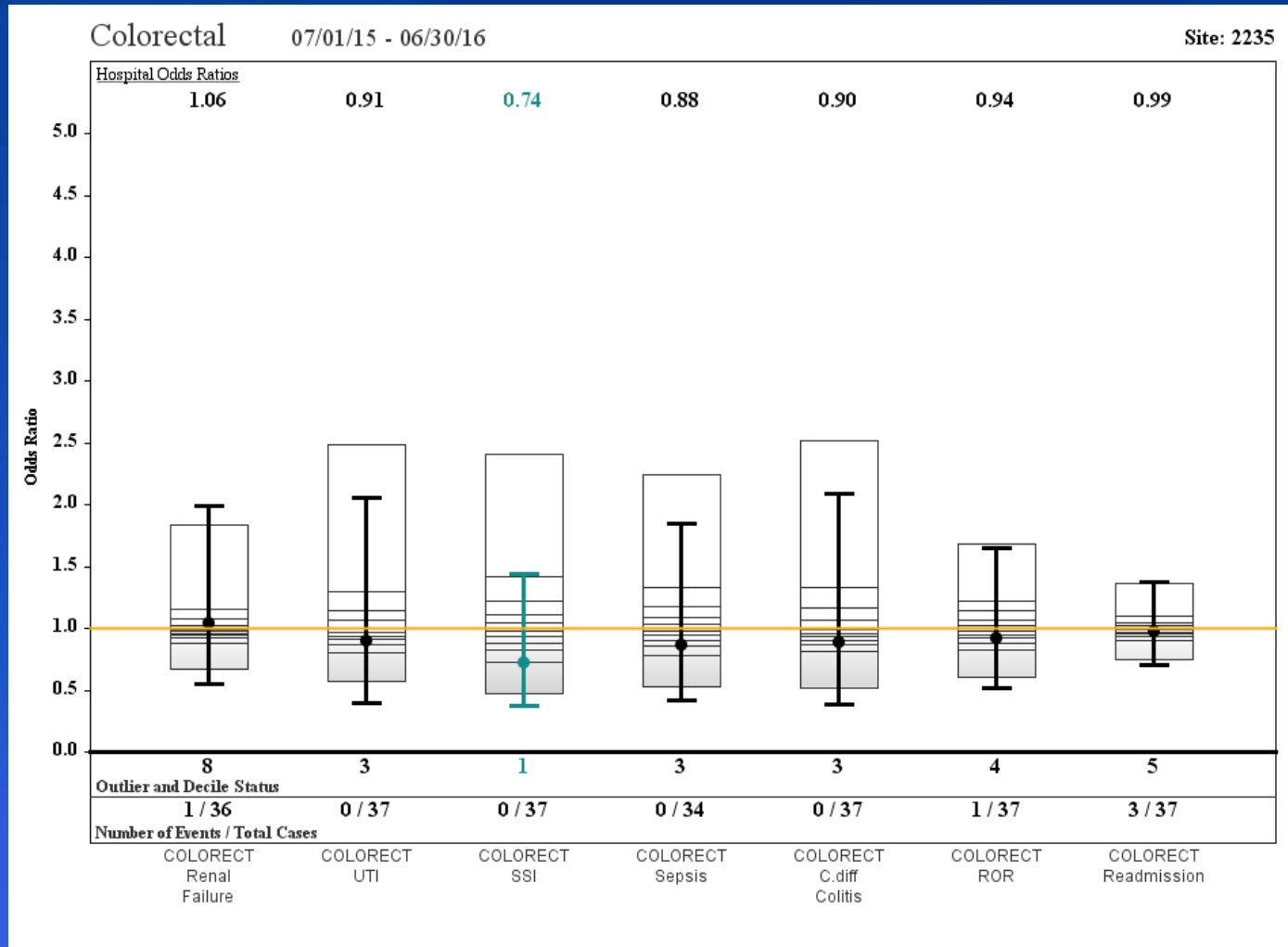
- 5 whys
- Implement changes
- “Winning” combination is multifactorial
- Solutions different for each institutions

Implemented Changes

1-2 year process

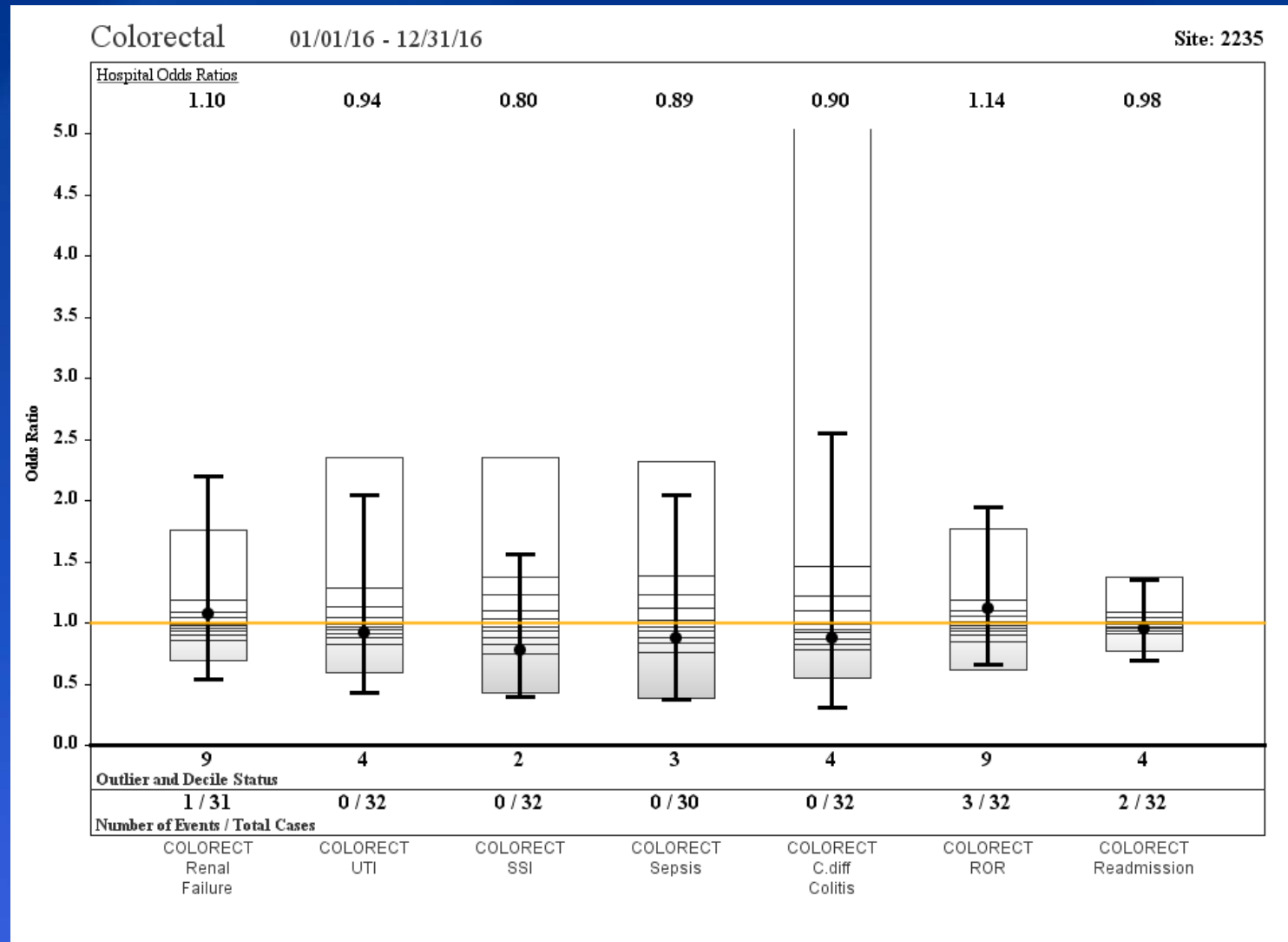
- Pre-op Chlorhexidine gluconate was initially changed from packets to bottles and now to a foam
- Bowel prep with oral antibiotics
- Correct antibiotics, timing and dosing and re-dosing
- Chlorhexidine gluconate prep
- Patient temperature/OR room temperature
- Closing tray
- Wound closure
- Wound care

We did it: From one of the worst to one of the best



Current colorectal data NSQIP

Not so fast.....



IPAC data June 2016-May 2017

4.6% SSI rate

- 2016
 - - 10/3/16 – Intraabdominal
 - - 11/23/16 – Superficial Incisional Primary

- 2017
 - - 1/9/17 – Superficial Incisional Primary
 - - 2/4/17 – Superficial Incisional Primary
 - - 2/9/17 – Superficial Incisional Primary

Colorectal outcomes

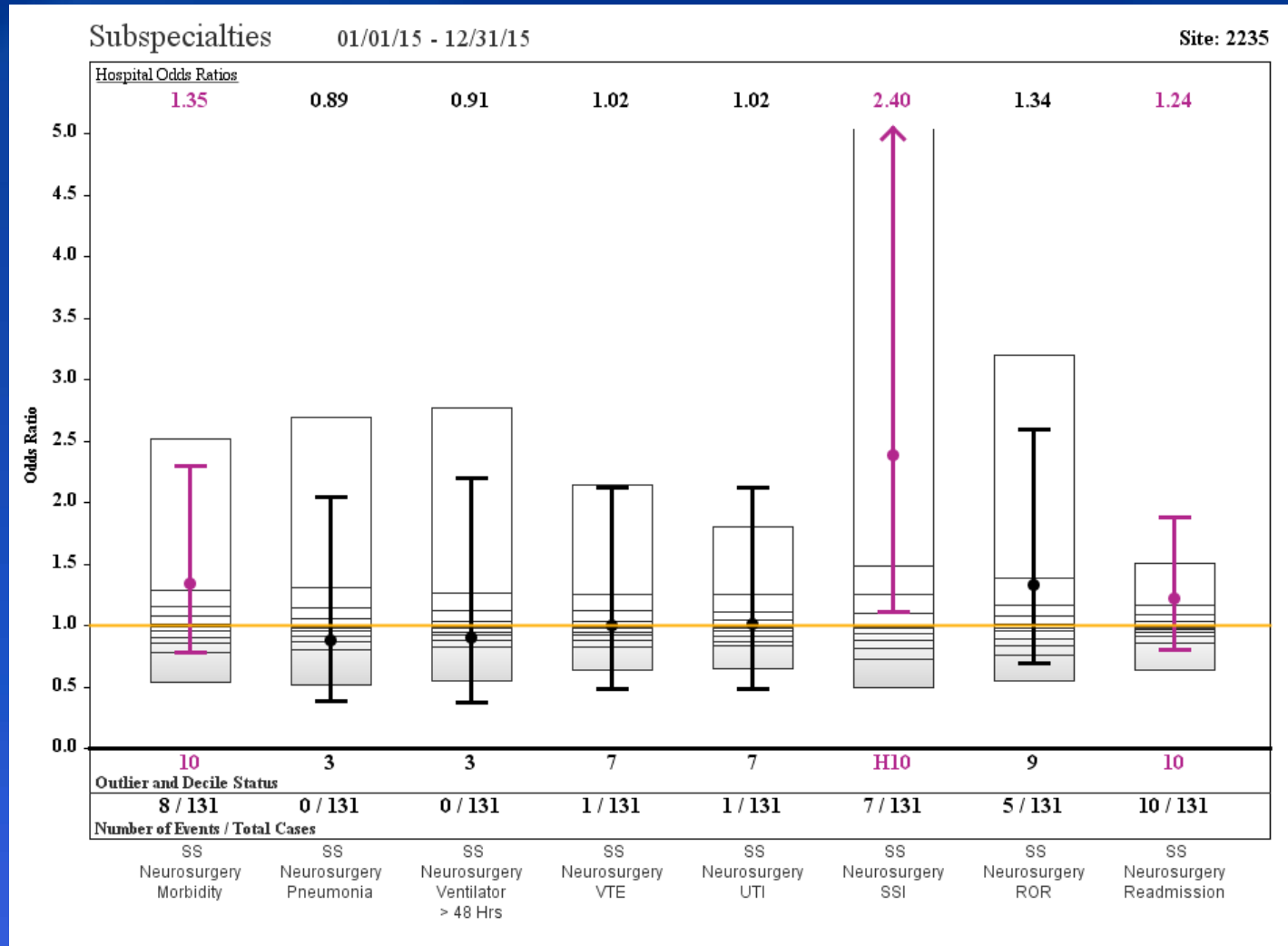
- Patient improvement (SSI rate <5%)
- Financial savings (\$2000-\$14,000 per SSI)
- Impacts entire surgical practice
- Confidence builder: We can make a difference
- Trust that you have a voice that can be safely shared and work can get done: I can make a difference
- Voice of the Mayo Health System
- Continued monitoring is crucial

Putting it all together Neurosurgical SSI

- Our team was ready
- Start to finish months not years
- Built on what we learned from prior experience
- Dramatic results/improvements

Scope of problem

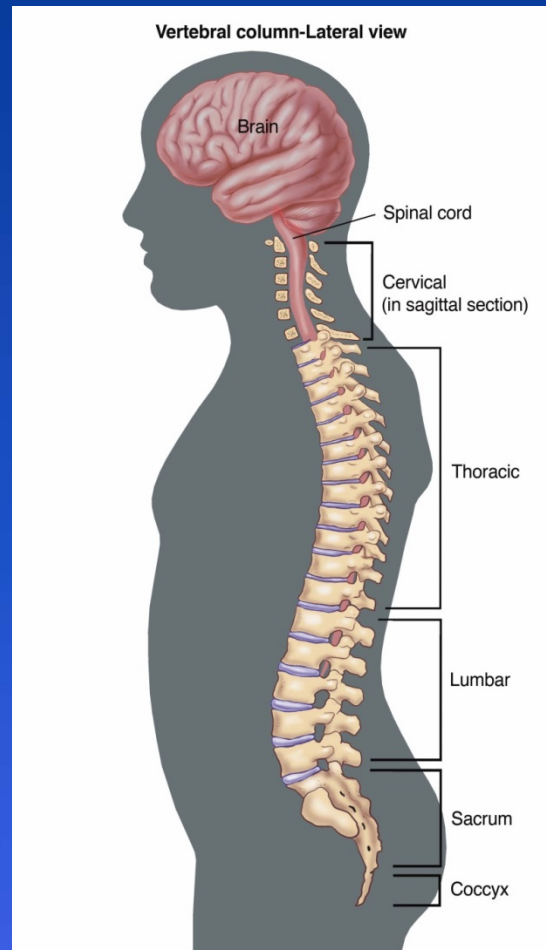
5.3 % SSI rate



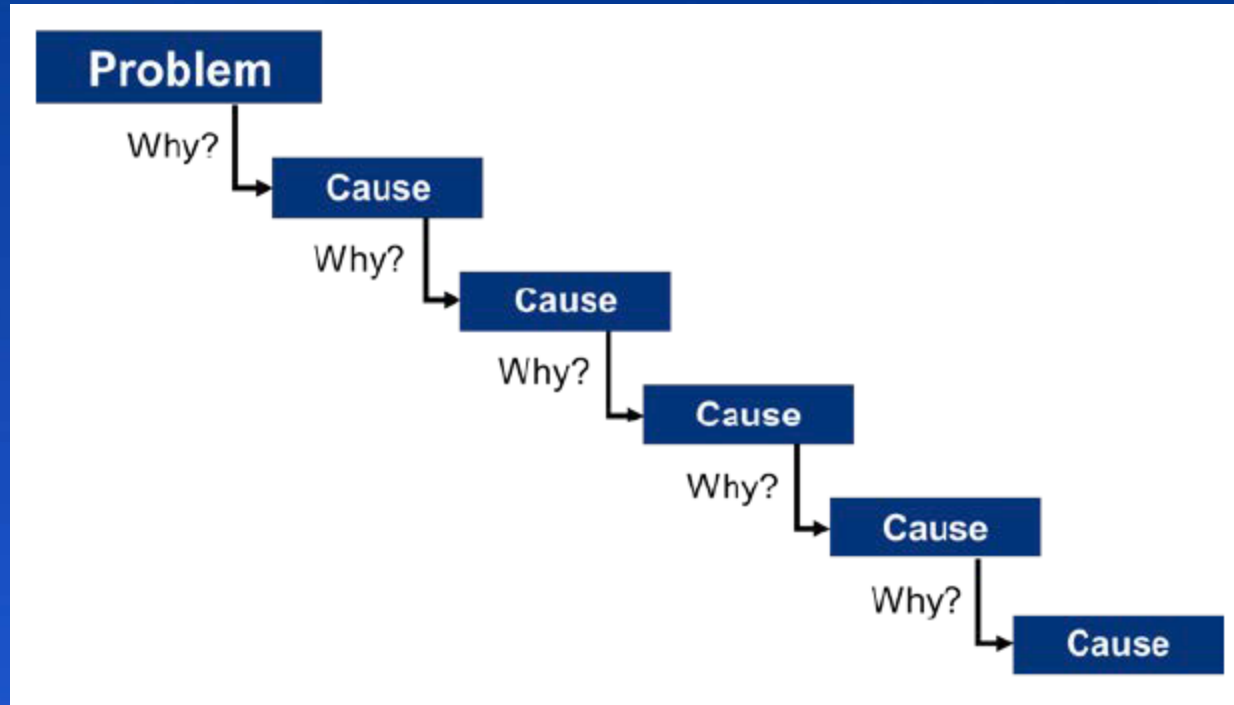
Overview of the Process

- Neurosurgical update
- Join forces with IPAC
- Giant kickoff-safe environment
- Review data and Focus statement WHY but not solutions
- “own it”
- Numerous “complex” improvements
- 3-4 Several “smaller” fixes
- Weekly standing meetings
- Follow up monitoring using IPAC and NSQIP data

SSIs are occurring neurosurgery patients undergoing elective lumbar-laminectomies staying in hospital one night



The 5 why's



- Asking “Why?” or “What caused this problem?”
- Quick identification of the root cause.
- Popularized by Toyota in 1970's

Data collected at kick off meeting

Value time, knowledge and experience

	Why 1		Why 2		Why 3
Pre Op Process	No standardized antibiotic orders		difficult to determine patient MRSA status		
Pre Op Process	Under dosing antibiotics-not based on weight, only one antibiotic		Current order sets weight based dosing ranges are non-uniform		
Pre Op Anesthesia	Dexamethasone pre/op intra op		to reduce inflammation		to reduce post op n/v
Patient	Ability to do hibiclens shower pre op		patient unable to wash own back		bacteria left on skin
Pre-Holding	No meds in preholding-affects antibiotic timing		The antibiotics would be circulating by time incision made		Instruction on pre op antibiotic order for timeframe to start the antibiotic not followed ie 90 min pre op

Data continued

Why1		Why2		Why3		Why4		Why5
Uncovered hair and arms		Leads to skin cells shedding onto sterile surfaces and instruments		Proceeding with surgery after break in technique leads to bacteria on surfaces and instruments		Bacteria on surfaces and instruments introduces bacteria into the wound		
BAIR warmer in close proximity to incision site		Proper distance not known		Blows bacteria onto sterile surfaces and instruments		Proceeding with surgery after break in technique leads to bacteria on surfaces and instruments		Bacteria on surfaces and instruments introduces bacteria into the wound
Hand Hygiene		Lack of knowledge of scrub procedure/not communicated to the team		Procedure not posted		Ongoing education not occurring		
Break in sterile technique		Staff don't feel safe speaking up when break occurs (this happens approx 1/20 cases)		Proceeding with surgery after break in technique leads to bacteria on surfaces and instruments		Bacteria on surfaces and instruments introduces bacteria into the wound		

Implemented changes

Pre Op

- Revised order sets to reflect the weight based pre op antibiotics
- Cefazolin ≤ 120 kg 2 gm IV or >120 kg or BMI ≥ 40 3gm IV within 60 min. of incision.
- re-dose <80 kg 1 gm or ≥ 80 kg 2 gm every 3 hours.
- Vancomycin 20 mg/kg IV (max 2 gm) within 90 min. of incision.
- no re-dosing
- Clindamycin ≤ 80 kg 600 mg or >80 kg or BMI ≥ 40 900 mg IV within 60 min. of incision.
- re-dose with same dose every 3 hours.
- MRSA/MSSA screening on all neurosurgery patients
- Change pre op shower product to foam HCG with easier to understand patient education handout

Implemented changes

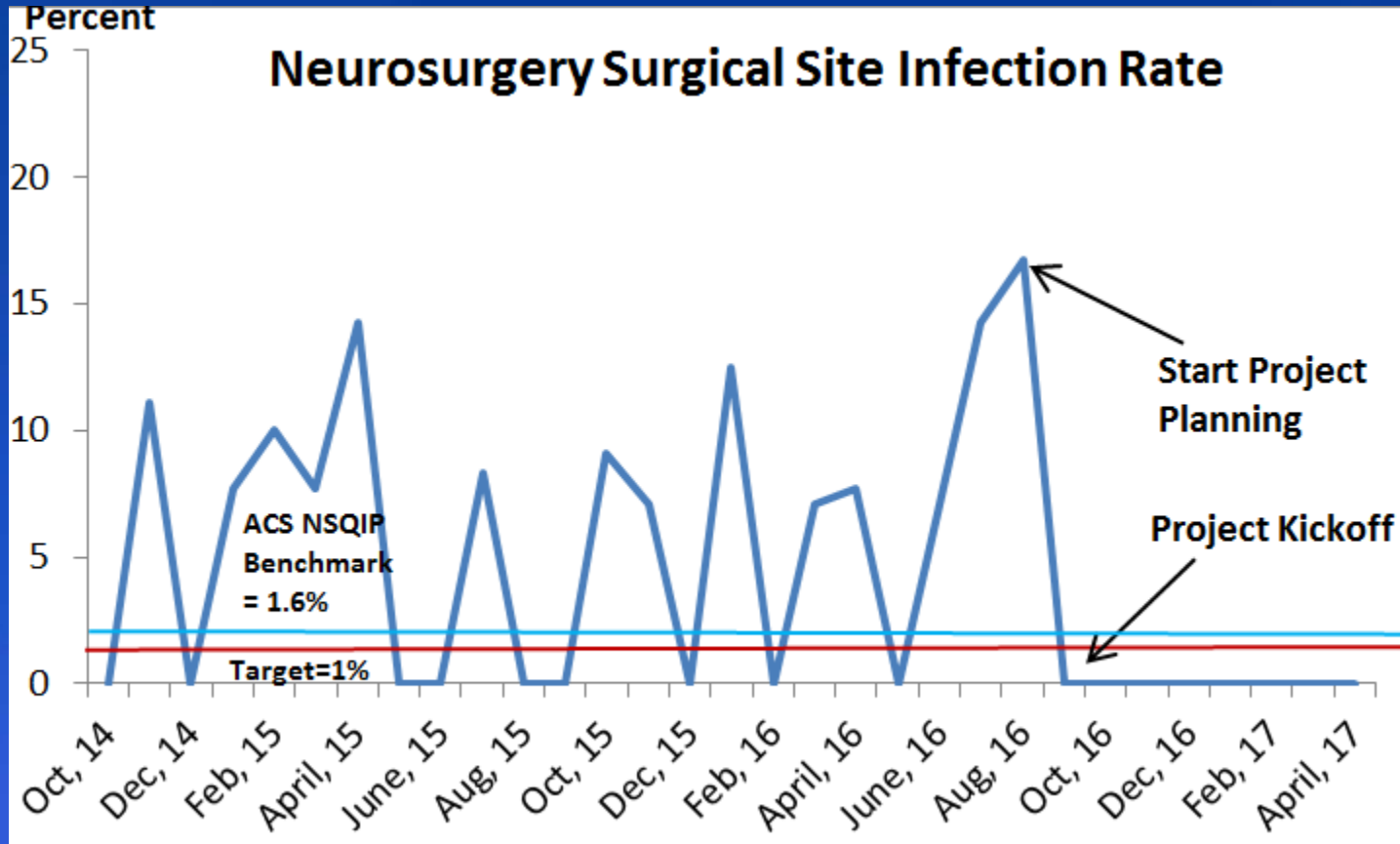
Intra Op

- Enforcement of the OR Dress Code
- Review Culture of Patient Safety emphasizing the importance of speaking up when breaks in sterility observed
- Limited OR room traffic during Neurosurgery cases
- Changed irrigation solution from an antibiotic solution to Normal Saline
- Removal and replacement of initial Metrx cannulated dilator with non-cannulated dilator for easier cleaning.
- Enforced current intra op product representative policies

Post Op

- Stopped discharging patients home on oral antibiotics
- 3rd Surgical Nursing staff reviewed and updated discharge education

NSQIP Monitoring DATA



IPAC Monitoring Data

November 2016 – June 2017

258 cases reviewed

3 case met NHSN criteria for infection

- 2 Superficial
- 1 Deep Incisional Primary

3/258= 1.2% Infection Rate

Summary

- Good data
- Share data
- Pick focus SSI and focus your efforts
- Front end planning/communication
- Big kickoff with 5 WHYS (0600-0800)
- Capitalize on the expertise without wasteful meeting time focusing on innovation/expertise
- Regular follow up/meetings with small core
- “own it” mentality and expect accountability
- Regular data monitoring

Future

- Carefully chose future projects
- Continued eye on SSI-THE WORK NEVER STOPS
- Review and share NSQIP and IPAC data
- Follow up on prior projects-share the successes
- Patient focus-QUALITY
- Financial component as directed by CMS penalties



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*The Needs of the Patient Come
First- W.J. Mayo*
Questions & Discussion