The Era of ERAS: Enhanced Recovery and Hysterectomy

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Disclosures:

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I have no financial relationships to disclose.

Objectives:

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1. To be able to understand the goals of ERAS
2. To learn various components of ERAS
3. To learn strategies for ERAS implementation
4. Discuss the feasibility and safety of same day discharge after minimally invasive hysterectomy

Background

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- Enhanced recovery after surgery (ERAS) protocol was developed by academic surgeons in Europe in 2001
- This group's goal was to empathize that the key surgical end point is quality, rather than speed of recovery
- This concept was based on several components
    1. Multidisciplinary team working together for patient care
    2. Multimodal approach to resolve issues that delay recovery and cause complications
    3. Scientific, evidenced based approach to care protocols
    4. Change in management using interactive and continuous audits

ERAS Components

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Preop

- Preop counseling
- Smoking/alcohol reduction
- Nutritional support
- Reduced fasting
- Preoperative medications

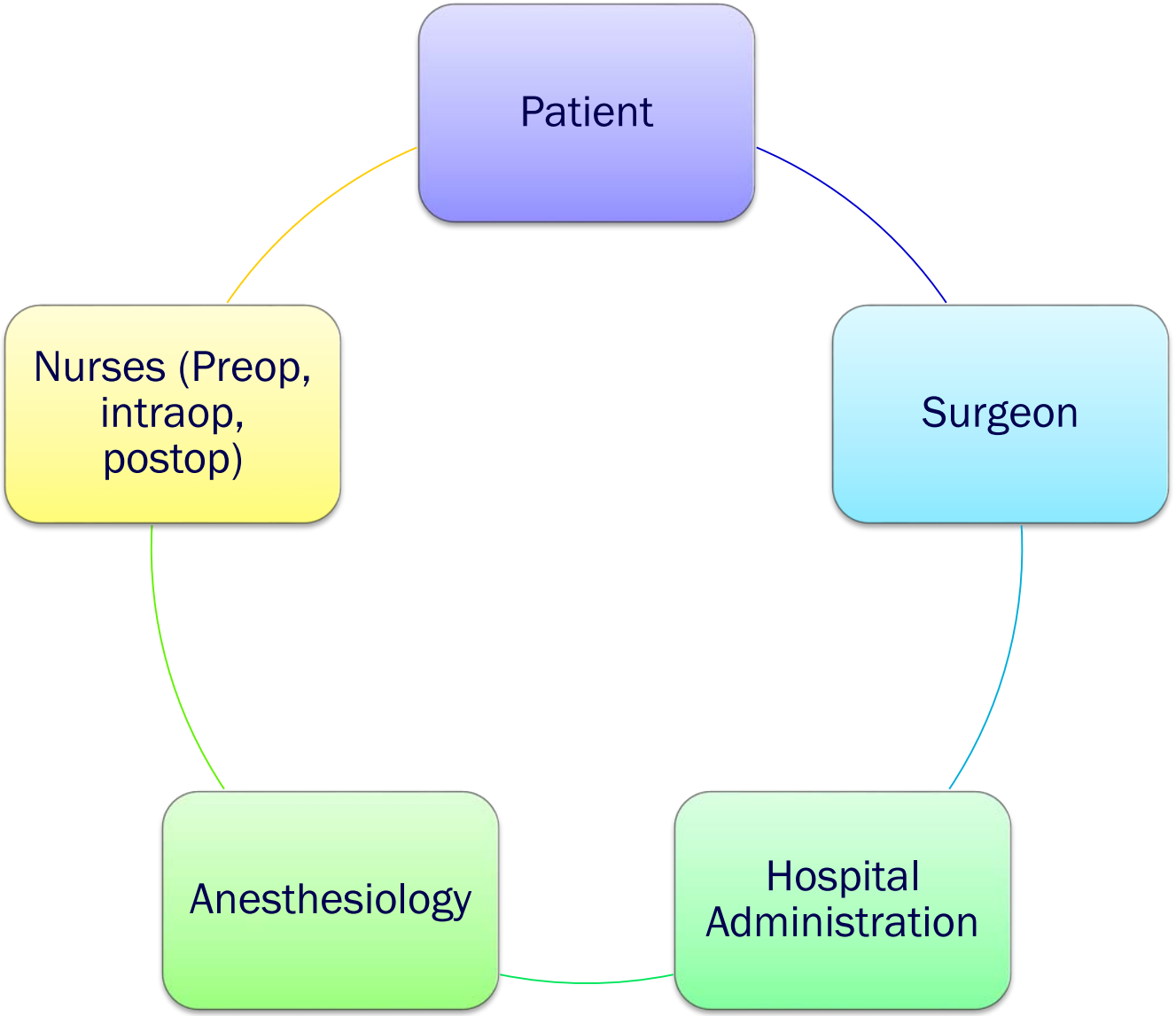
Intraop

- Minimally invasive routes of surgery
- Prophylactic antibiotics
- Fluid management
- Minimizing urinary catheters
- Hypothermia prevention

Postop

- Pain control
- Balanced fluid
- VTE prophylaxis
- Early Feeding
- Early mobilization
- Postop Follow-up

The ERAS Stakeholders



PDSA Cycle (Deming Cycle)

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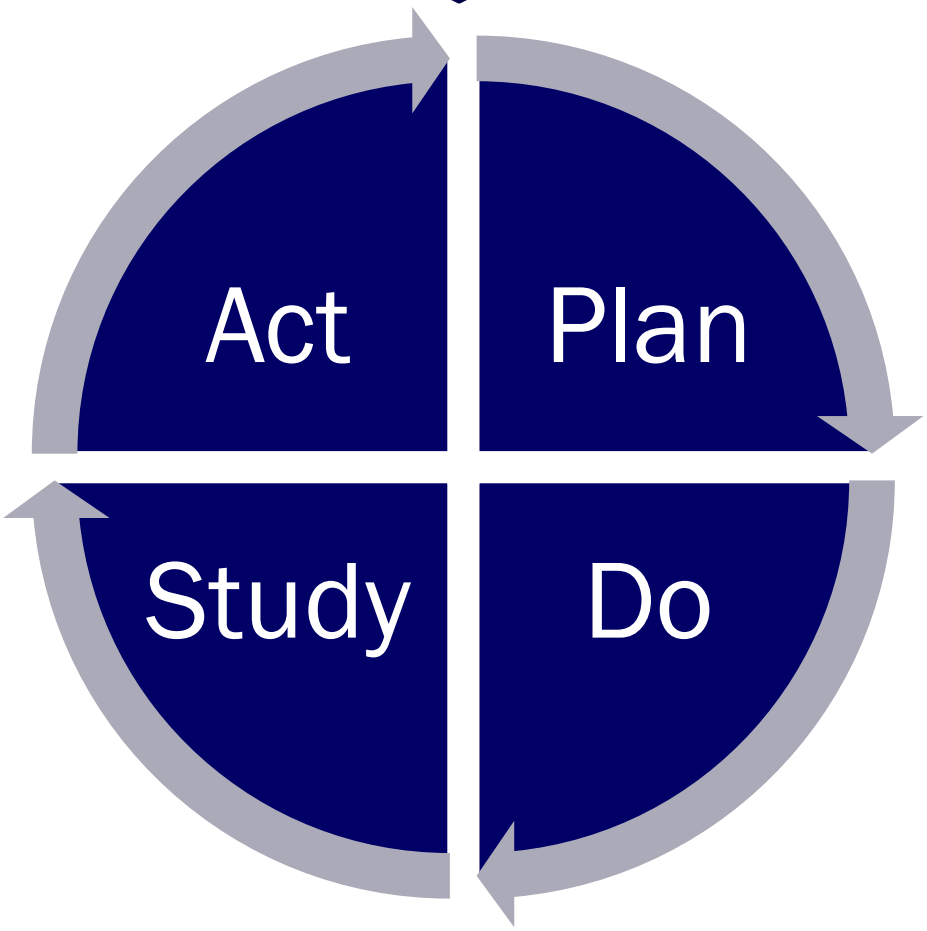
What is the situation/problem?



Adopt the change, or run through the cycle again

A change aimed at improvement

What did we learn?

Carry out the change or a small scale test

Plan: Gathering Data

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- What already exists in your institution?
    - Colorectal surgery, gyn oncology, general surgery
- What exists in other GYN departments?
    - MSQC Hysterectomy Care Package
- Synthesize the data
    - Both in GYN surgery and other specialties
- Reach out to the various stakeholders
    - Describe the problem to them and explain their role in the solution

Benign GYN Enhanced Recovery Protocol

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Version MICHIGAN MEDICINE UNIVERSITY OF MICHIGAN

Benign GYN Enhanced Recovery Protocol

3/9/2018

	ANESTHESIA		GYN	NURSING	PATIENT
PRE-ADMISSION	All patients referred to DF pre-op clinic unless otherwise instructed		Surgery case request Discuss same day discharge if candidate		NPO solids after midnight Clear liquids up to 2hrs before surgery
	Anesthesia chart review PRN		ERAS protocol ordered in case request Patient gets surgery booklet (at visit or via mail) Consider referral to MSHOP		Stop smoking 6-8 weeks before surgery
			Order antibiotics: cefazolin 2g (3g if > 120kg) and metronidazole 500mg. If PCN allergy, gentamicin 2mg/kg + clindamycin 900mg *refer to Peds dosing if <50kg		Bathe with soap the night before and day of surgery
			Bowel prep: ordered at discretion of surgeon.		
DAY OF SURGERY PRE-OP	Pre-meds	gabapentin 600mg po x 1 if < 60 y/o acetaminophen 1000mg po x 1 celecoxib 400mg po x 1* *if eGFR > 60, no contraindications to NSAIDS or cardiac history	Review procedure and consent with patient if SDS: Confirm plan and send Rx to pharmacy(pain meds, antiemetics, bowel regimen); sign Opioid Start talking form	POC pregnancy test per UMHS guidelines POC glucose check if DM Confirm NPO status	Carbohydrate Loading (patients with DM excluded) Drink the night before surgery White grape juice 24 oz Drink 2 hours before surgery (to complete 2 hours prior) White grape juice 12 oz
	Regional	No regional blocks	Confirm ERP protocol to be used with Anesthesiology	Administer pre-meds Place warm blankets	Continue home meds as instructed Bring ERP care map to hospital
	UMHS Prophylaxis for PONV: if risk factors (female, non-smoker, hx of PONV/motion sickness, opioid use post-op), consider dexamethasone +/- diphenhydramine, +/- haloperidol, +/- aprepitant or scopolamine patch		Confirm antibiotics, heparin to be given	IV placed, crystalloid started at 30-50ml/hr for TKO	
INTRA-OP	VTE prevention	- SQ heparin 5,000 units after induction - SCDs placed upon arrival to OR			
	Infection control	- Administer IV antibiotics (cefazolin, metronidazole) per UMHS guidelines and re-dose as per protocol - Skin prep with 2% chlorhexidine gluconate and 70% isopropyl alcohol solution and betadine vaginal prep per protocol			
	Nausea/vomiting prophylaxis	Per UMHS PONV Guidelines (multimodal approach, >2 antiemetics)			
	IV Fluids	Goal of intra-op euvolemia, goal < 2L IV fluids for routine cases without significant blood loss or fluid shifts. Target UOP 0.3-0.5ml/kg/hr. Fluid management to be discussed at pre-incision time out. Use Alert Watch fluid management tool for guidance.			
	Avoid hypothermia	Goal body temp > 36.0ºC			
	Analgesia	- IV opioids at discretion of anesthesia - ketorolac 15mg IV once at end of procedure* *if no contraindications to NSAIDs			
	Anesthesia	Avoidance of nitrous oxide preferred PMID 26545294, 16534302, 15242436			
	Local anesthesia	Incisional infiltration: 0.5% ropivacaine (not to exceed 0.5mL/kg) or bupivacaine 0.25% (not to exceed 1mL/kg) PMID: 27741199			
PACU	Order IV opioid of choice		MiChart post-op order sets: GYO Fast Track PostOp (for laparoscopy) GYO ERAS PostOp (for laparotomy)	IV opioids of choice prn sparingly, titrate to pain scores	May initiate clear liquid diet once awake and alert
	Consider PCA for laparotomy patients only		Perform post-op check 4-6hours out of OR		
	Antiemetics as needed				

Anesthesiology and ERAS

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Nursing and ERAS

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Preop

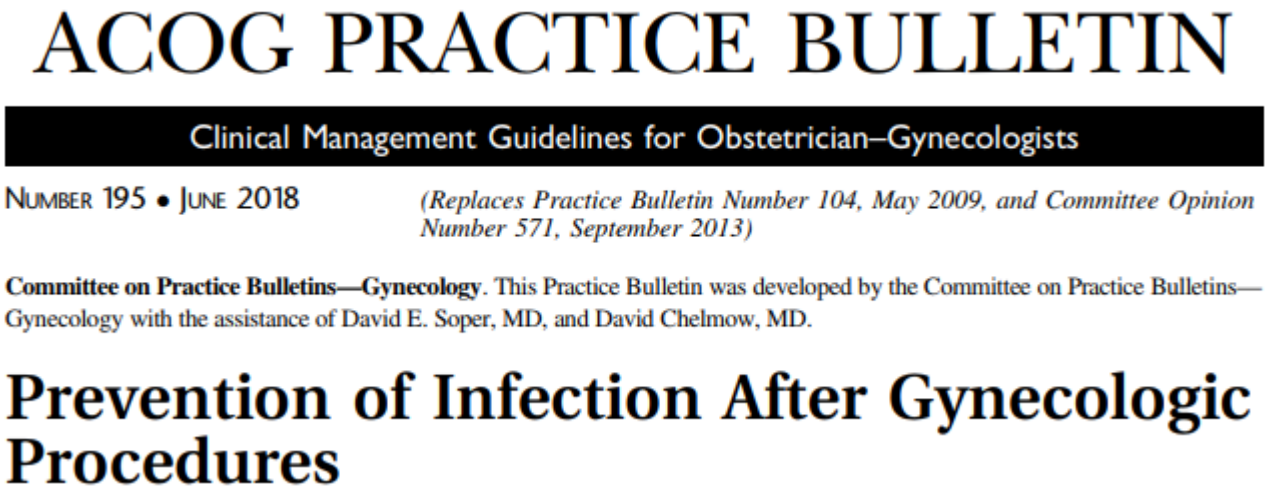
- Counseling of anticipated course in clinic
- Expectations supported in Preop holding

Intraop

Postop

- Early feeding and ambulation
- Pain control goals
- Postoperative phone calls

Preoperative Antibiotic Choice



ACOG PRACTICE BULLETIN

Clinical Management Guidelines for Obstetrician–Gynecologists

NUMBER 195 • JUNE 2018

(Replaces Practice Bulletin Number 104, May 2009, and Committee Opinion Number 571, September 2013)

Committee on Practice Bulletins—Gynecology. This Practice Bulletin was developed by the Committee on Practice Bulletins—Gynecology with the assistance of David E. Soper, MD, and David Chelmow, MD.

Prevention of Infection After Gynecologic Procedures

- For all hysterectomies, recommend cefazolin 2g IV within 1 hour of procedure (3g if >120kg)
- If cephalosporin is contraindicated, metronidazole 500mg IV or clindamycin 900mg IV PLUS gentamicin 5mg/kg IV or aztreonam 2g IV

Preoperative Antibiotic Choice

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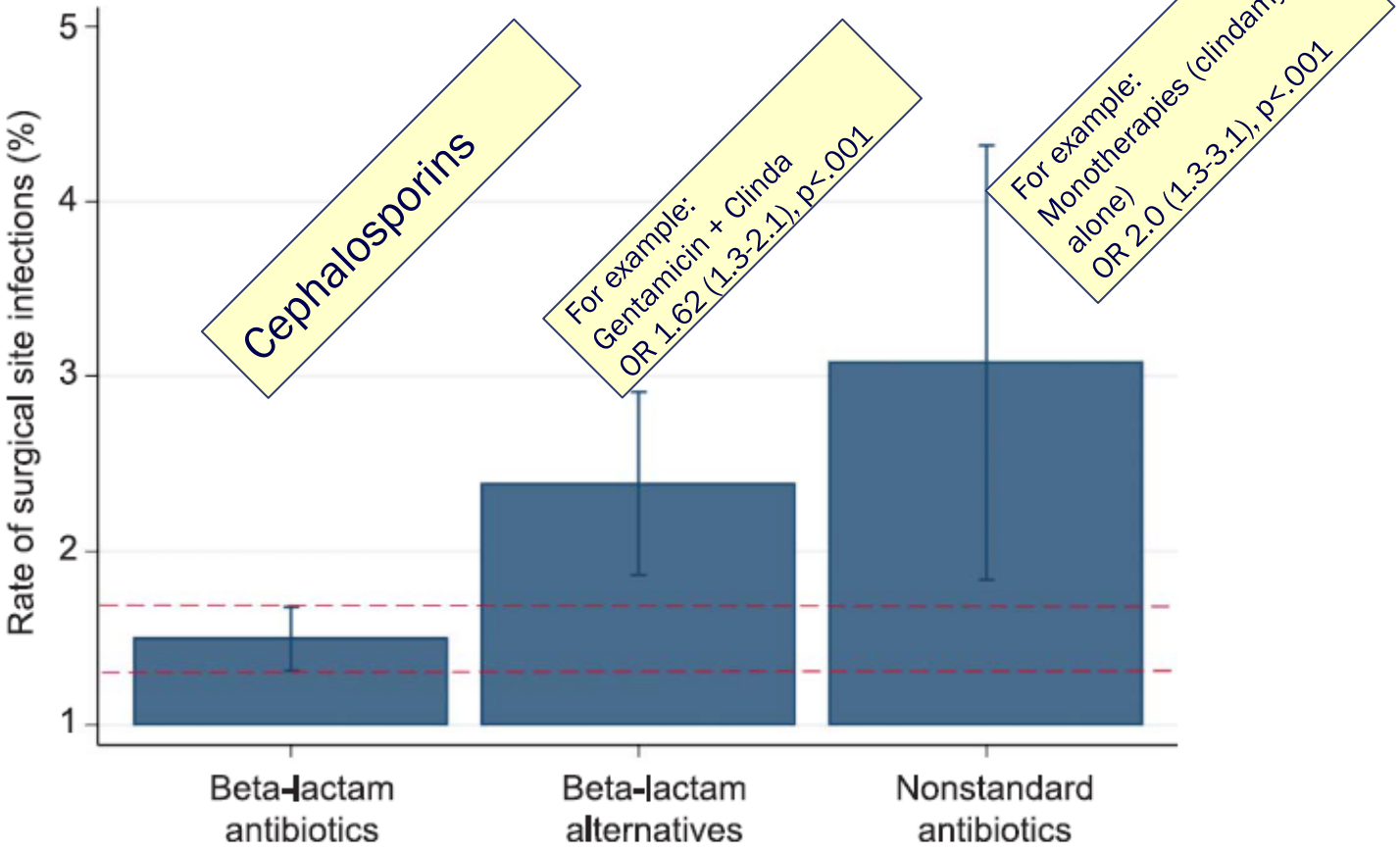
Prophylactic Antibiotic Choice and Risk of Surgical Site Infection After Hysterectomy

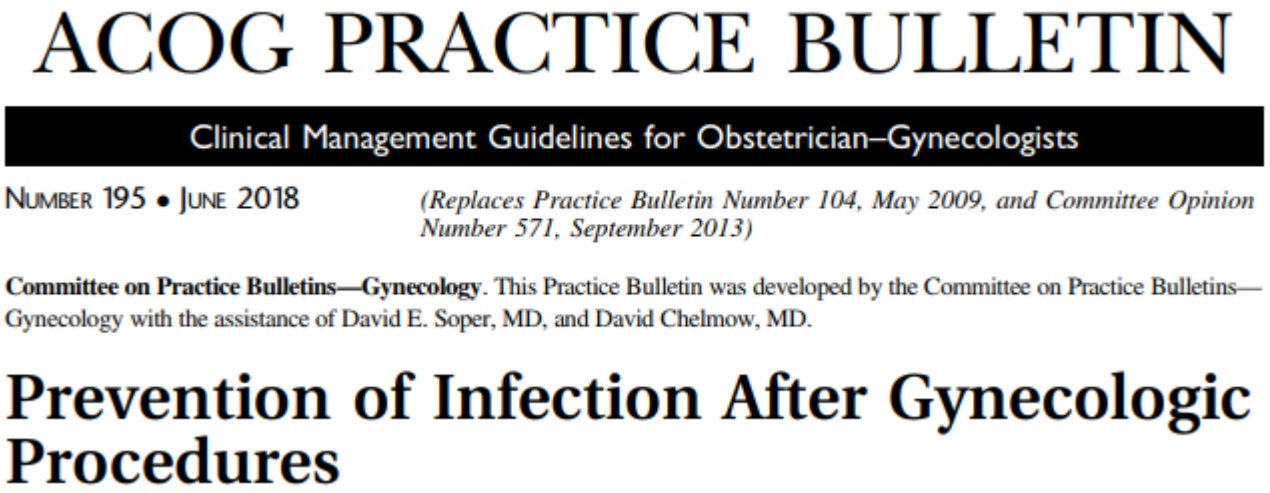
Shitanshu Uppal, MBBS, John Harris, MD, Ahmed Al-Niaimi, MD, Carolyn W. Swenson, MD, Mark D. Pearlman, MD, R. Kevin Reynolds, MD, Neil Kamdar, MS, Ali Bazzi, MS, Darrell A. Campbell, MD, and Daniel M. Morgan, MD



QI improvement opportunity?

1. *Eliminate non-standard antibiotics*
2. *Safely decrease the use of beta lactam alternatives in patients with unknown allergies or intolerance (nausea & vomiting)?*

Preoperative Antibiotic Choice



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Prevention of Infection After Gynecologic Procedures

- Alternatives to cephalosporin should be considered with anaphylaxis, urticarial or bronchospasm to penicillin or history of Stevens Johnsons/Toxic Epidermal Necrolysis to cephalosporins
- Rare cross-reaction with 2nd and 3rd generation cephalosporins with penicillin
- Incidence of anaphylaxis from cepholasporins are rare (0.0001% to 0.1% reported)

Preoperative antibiotics- Adding Flagyl

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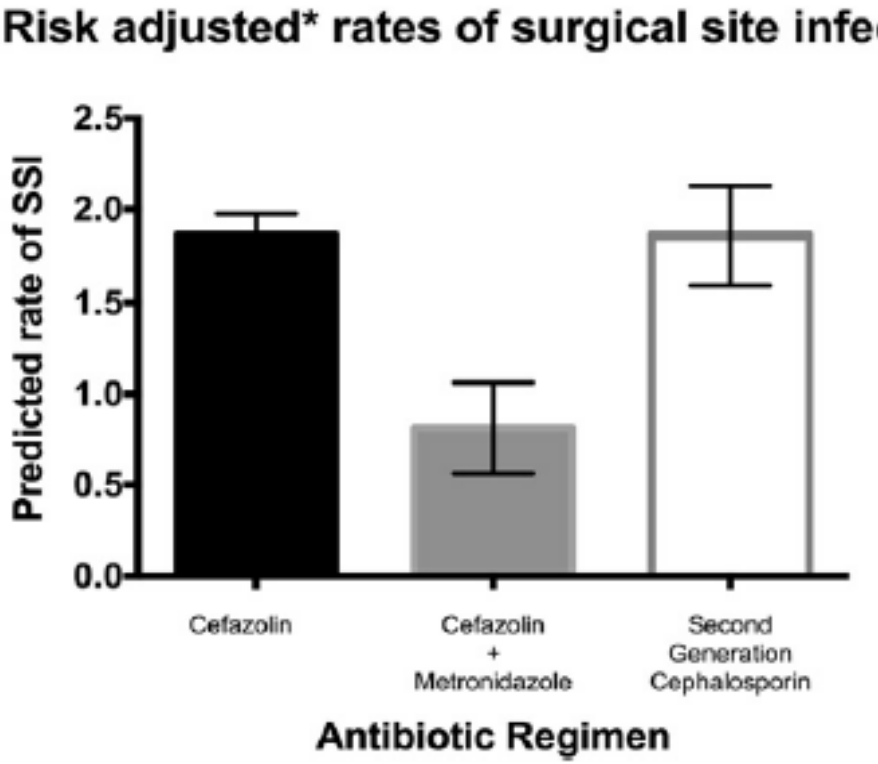
GYNECOLOGY

Reducing surgical site infections after hysterectomy: metronidazole plus cefazolin compared with cephalosporin alone

Sara R. Till, MD, MPH; Daniel M. Morgan, MD; Ali A. Bazzi, MD; Mark D. Pearlman, MD; Zaid Abdelsattar, MD, MSc; Darrell A. Campbell, MD; Shitanshu Uppal, MBBS



Postoperative Narcotic Prescriptions

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MSQC
Michigan Surgical Quality Collaborative

OPEN
OPIOID PRESCRIBING ENGAGEMENT NETWORK

Opioid Prescribing Recommendations for Opioid-naïve Patients

Procedure	Hydrocodone (Norco) 5 mg tablets	Codeine (Tylenol #3) 30 mg tablets	Tramadol 50 mg tablets	Oxycodone 5 mg tablets
Hysterectomy				
Vaginal	**20**			**15**
Laparoscopic & Robotic	**30**			**20**
Abdominal	**40**			**25**

Recommendations were based on patient-reported data from MSQC and published studies. Recommended amounts meet or exceed self-reported use of 75% of patients. Previous studies have shown that when patients are prescribed fewer pills, they consume fewer pills with no changes in pain or satisfaction scores. Recommendations are for patients with no preoperative opioid use. For patients taking opioids preoperatively, prescribers are encouraged to use their best judgment.

These recommendations will be updated frequently with new data.
Find up-to-date recommendations, and patient education materials at:

opioidprescribing.info

Last Updated: 9/29/17

Same Day Discharge for MIS Hysterectomy

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- Same day discharge has been demonstrated to be safe and acceptable, both in benign gynecology and GYN Oncology literature
- Can reduce hospital costs and resource utilization
- Can decrease iatrogenic complications such as VTE or infections
- No increase risk of re-admissions, but may have increased rate of ED visits

Same Day Discharge for MIS Hysterectomy

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- There are no clear published guidelines or protocols for same day discharge
- In GYN Oncology patients, increased 30-day readmission in patients with diabetes, COPD, disseminated cancer, chronic steroid use, daily alcohol use >2 drinks, bleeding disorders
- In various studies, increased success in same-day discharge in patients with:
  - Lower EBL (<400mL)
  - Age <70
  - Starting surgery before 1pm
  - Shorter OR times

Same-Day Discharge Exclusion Criteria

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- History of significant cardiopulmonary, hepatic, renal disease
- Untreated obstructive sleep apnea
- BMI ≥ 50
- Need for therapeutic anticoagulation
- Bleeding disorder
- Chronic opioid use with daily OME ≥ 100 or ≥50 with medical comorbidities
- Chronic alcohol use
- Poor functional status
- No home support for first 24 hours after discharge
- Intraoperative/PACU concerns (OR time > 6 hours, higher EBL)

ERAS for Same Day Discharge

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- PACU Management:
  - Regular Diet
  - Ondansetron/prochlorperazine IV/PO
  - TKO in PACU
  - Morphine IV until tolerating PO; then transition to oxycodone
- PACU Nursing:
  - Initiation of teaching skills for discharge (injection teaching, ISC, wound care)
- Discharge planning
  - Medications sent to hospital pharmacy for pickup (acetaminophen, ibuprofen, oxycodone, miralax, ondansetron)
- Clinic Nursing
  - Telephone call to patient on POD#1 to f/u on postoperative recovery

PDSA Cycle (Deming Cycle)

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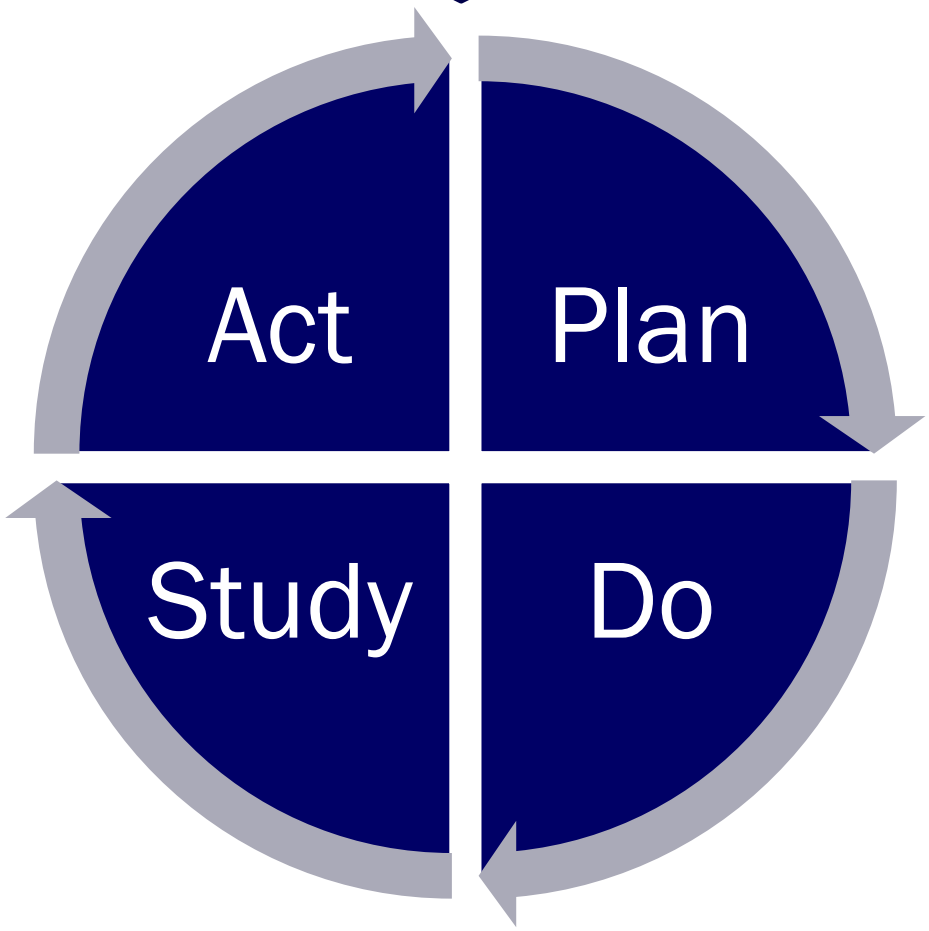

Adopt the change, or run through the cycle again

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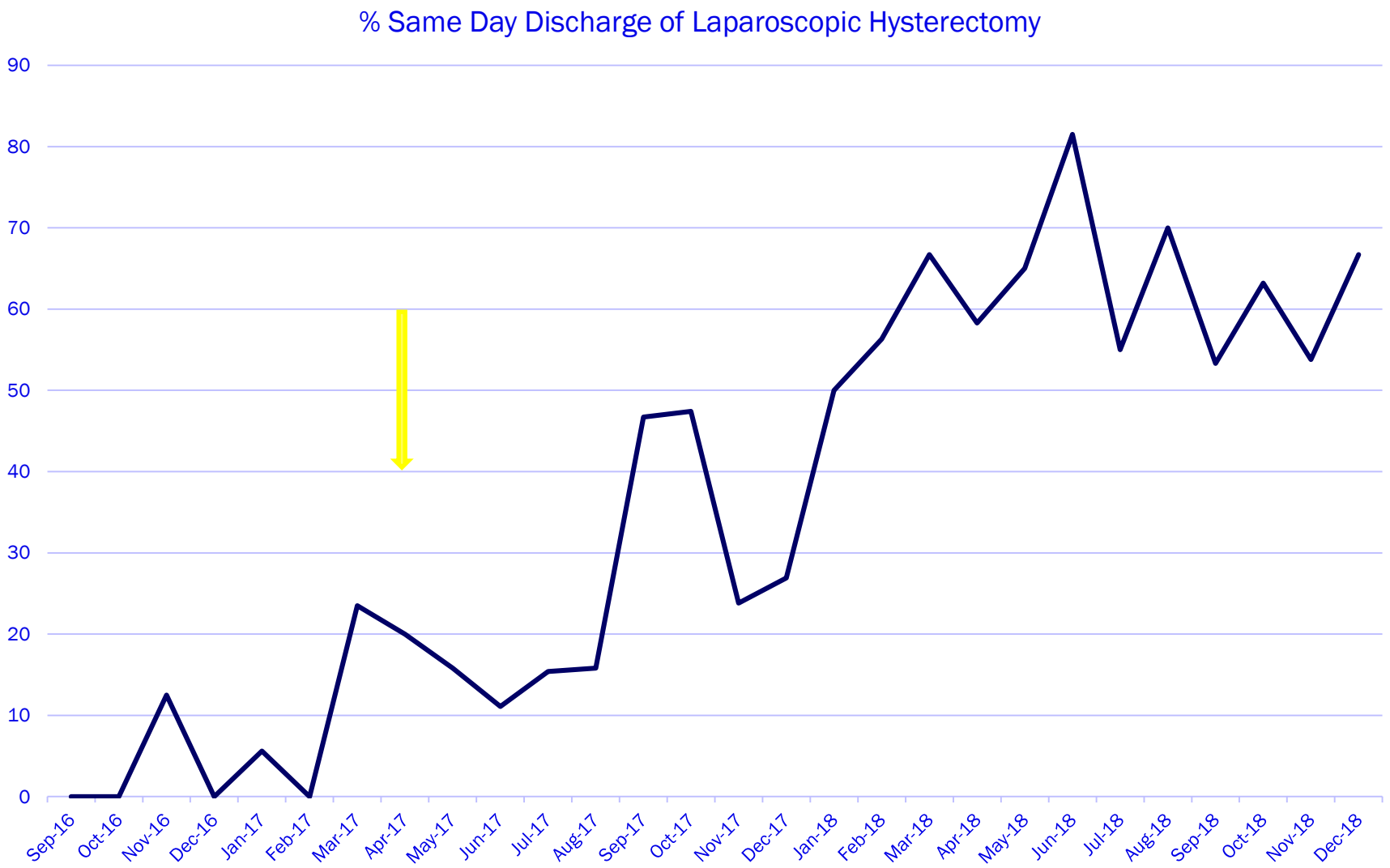
What did we learn?

Carry out the change or a small scale test

Evolution of Same Day Discharge



PDSA Cycle

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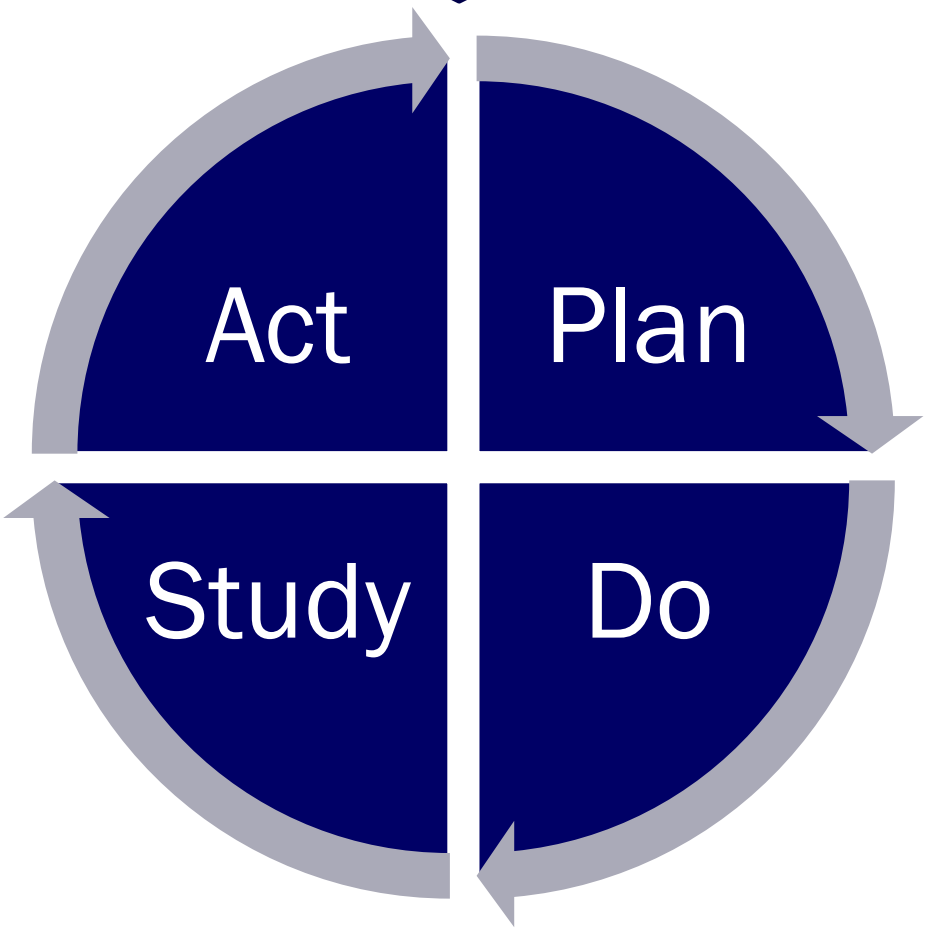

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Questions?

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