

***Enhanced  
Recovery  
After  
Surgery***

*at*

**GBMC**

# Objectives

- ▶ To review the principles of Enhanced recovery programs and why we are implementing Enhanced Recovery Programs at GBMC.
- ▶ To discuss the Anesthesia provider's roll in ERAS.
- ▶ To discuss recommended fluid management for ERAS patients.
  
- ▶ No Disclosures

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# Enhanced Recovery After Surgery (ERAS)

- ▶ ERAS is the standardization of a perioperative pathway for every patient scheduled to undergo a specific surgical procedure in accordance with established *Best Practices*.
- ▶ Pathways begin with preoperative optimization (prehabilitation) involving intense patient education of nutrition, hydration, exercise, and overall medical optimization during the initial medical assessment. Standardization of anesthetic regimens to minimize pain, opioid usage, and the surgical stress response, with postop early mobilization and oral intake.
- ▶ **Institutions where ERAS protocols are in place show decreased length of stays, increased patient satisfaction scores, decreased perioperative complications, and potentially better outcomes for oncology patients.**
- ▶ Plans are to begin with an ERAS protocol for colo-rectal (colon resections) August 1, 2016 with bariatric, gyn-onc, ortho-spine, and fore-gut to follow.

# What is ERAS?

## Enhanced Recovery After Surgery

### Multi-modal interventions

Pre-op Education

Pain Relief

Enteral Nutrition

Stress Attenuation

Exercise

### Multi-disciplinary approach

RNs

NSTs

CRNAs

Pharmacists

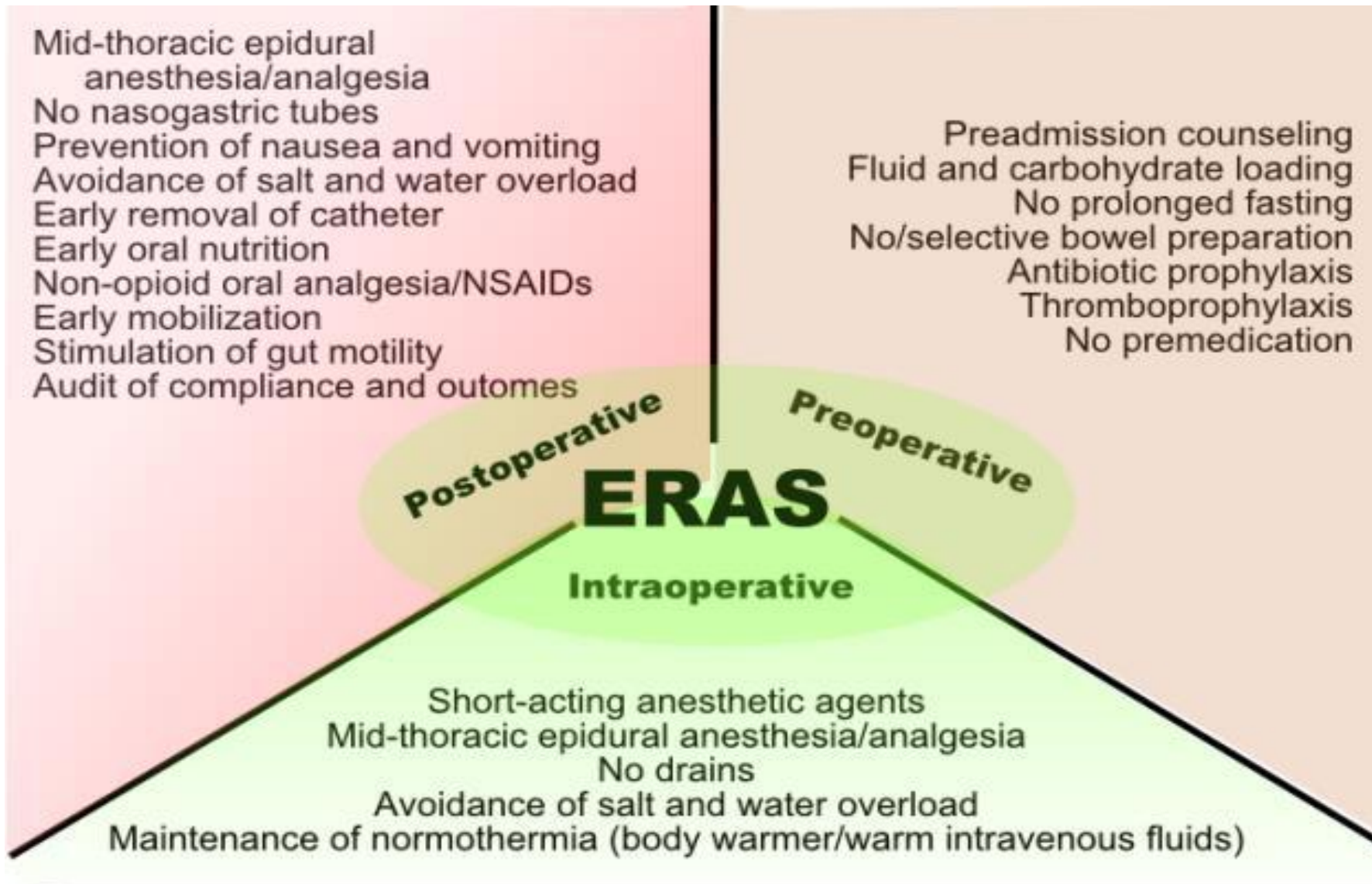
Surgeons

Anesthesiologists

PA's & NPs

PT/ OT

# Components of ERAS



# Total Joint Patient (Knee and Hip) Enhanced Recovery Program

\* Cohort: All anticipated (elective) Total Knee and Hip cases with at least 1-2 overnight stays in the hospital

\* Goal: **DREAMS** on POD1

**D**inking

**E**ating

**A**nalgesia

**M**obilizing

**S**leeping



# Pre-hospital/ PTC Phase

## \* **Education and Optimization**

- \* Recommend smoking cessation and alcohol abstinence (4 weeks optimal)
- \* Correct Anemia
- \* Nutrition Optimization, Albumin level
- \* Diabetes screen
- \* Pain Management
- \* Distribute ERAS bundle
- \* Scopolamine Patch prescription, if needed
- \* Encourage patient to drink fluids up to 2 hours prior to surgery



# Pre-OP/ Same Day Phase

- \* Document NPO status and Carb Drink intake
  - \* Clearfast drink 2-3 hours prior to surgery
  - \* Raises Insulin Sensitivity by 50% and results in 50% less insulin resistance Post-op
- \* NPO guidelines:
  - \* 2 hours clear liquid.
  - \* 6 hours for Diabetics, BMI >39, Gastroparesis, or pregnant



SCIENTIFICALLY FORMULATED  
for preoperative patients



Meets the American Society of Preoperative Fasting Guidelines for Clear Liquids

Beverage	Mfg	Total Carbs (g)	Maltodextrin Complex Carbs	Simple Sugars	Protein (g)	% Carbs	Calories	Volume (ml)	Osm
<b>Clearfast®</b>	<b>BevMD USA</b>	<b>50</b>	<b>44</b>	<b>6</b>	<b>0</b>	<b>14.0</b>	<b>200</b>	<b>355</b>	<b>270</b>
preOp®	Nutricia EUR/CDN/UK	50.4	40	10.4	0	12.5	200	400	260
Gatorade® 01 prime1X	Pepsico	25	1.2	23.8	0	21.1	100	118	650
Gatorade® 01 prime1X+8oz.H2O	Pepsico	25	1.2	23.8	0	7.0	100	355	220
Gatorade® 01 prime2X	Pepsico	50	2.4	47.6	0	21.1	200	237	650
Gatorade® 01 prime1X+4oz.H2O	Pepsico	50	2.4	47.6	0	14.1	200	355	460
Gatorade® 01 prime3X	Pepsico	75	3.6	71.4	0	21.1	300	355	650
Gatorade® 02	Pepsico	14	0	14	0	5.8	50	240	360
Gatorade® Thirst Quencher Powder 1X	Pepsico	21	0	21	0	5.9	80	355	210
Gatorade® Thirst Quencher Powder 2X	Pepsico	42	0	42	0	11.8	160	355	420
Gatorade® Thirst Quencher Powder 3X	Pepsico	63	0	63	0	17.9	240	355	640
Gatorade® 03	Pepsico	14	0	14	16	2.8	230	500	360
Boost®	Nestle	41	0	41	10	17.3	240	237	610
Breeze®	Nestle	54	0	34	9	22.8	250	237	750
Impact AR®	Nestle	45	0	45	18	18.5	340	237	930
Ensure Clear®	Pepsico	43	0	43	7	21.5	200	200	700
Pedialyte®	Pepsico	6	0	6	0	2.5	25	237	270

Maltodextrin- While technically a complex carbohydrate because of its low-sugar content, maltodextrin has a glycemic index of 130 (table sugar is only 65). A high glycemic index means that it goes through the digestive system and into the bloodstream very quickly.

“The ingestion of carbohydrate drink in the immediate preoperative period is associated with improved insulin sensitivity, which, in turn, improves the metabolic response to surgical trauma, shortens hospitalization time and may result in clinical benefits such as reduction of nausea, vomiting, hunger, thirst, anxiety, possibly accelerating postoperative recovery.”

Varadhan KK, Neal KR, Dejong CH, Fearon KC, Ljungqvist O, Lobo DN. The enhanced recovery after surgery (ERAS) pathway for patients undergoing major elective open colorectal surgery: a metaanalysis of randomized controlled trials. Clin Nutr. 2010;29(4):434- 40.

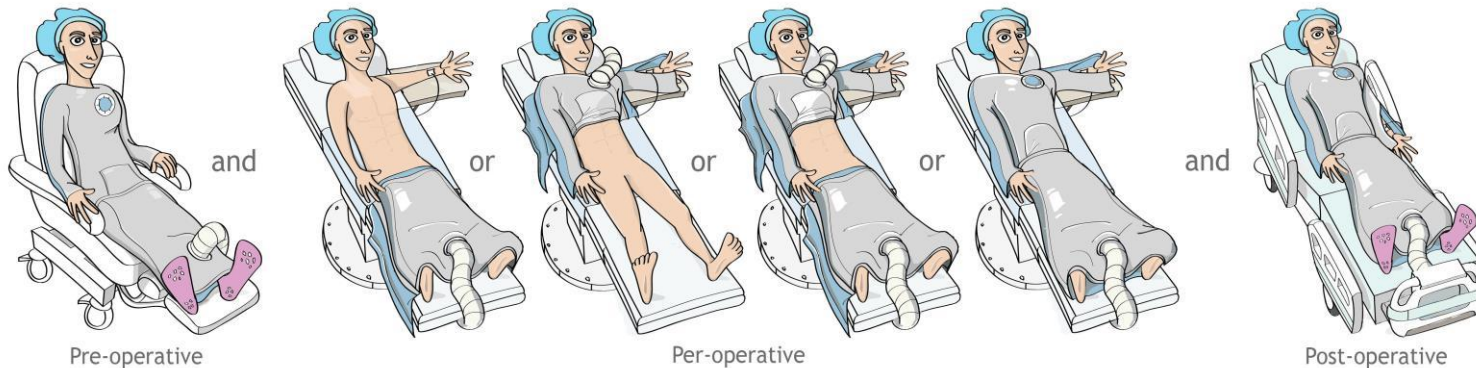
# Pre-OP/ Same Day Phase

## \* Meds given by Pre-op Nurse

- \* Tylenol 1000mg PO once. Do not give to patients with liver failure or elevated LFTs.
- \* Celecoxib 400mg by mouth x 1 dose
- \* Note: Do not give to patients with NSAID or sulfonamides allergy.
- \* If ordered, verify Scopolamine patch placement - do *not* give to pts with angle-closure [**narrow angle**] glaucoma

# Pre-OP/ Same Day Phase

- \* Chlorhexidine wipes
- \* Start IV, Lactated Ringers KVO, Normal Saline KVO for Renal patients
- \* Warming Blanket in Pre-Op



# Anesthetic Options

- \* Spinal Anesthetic

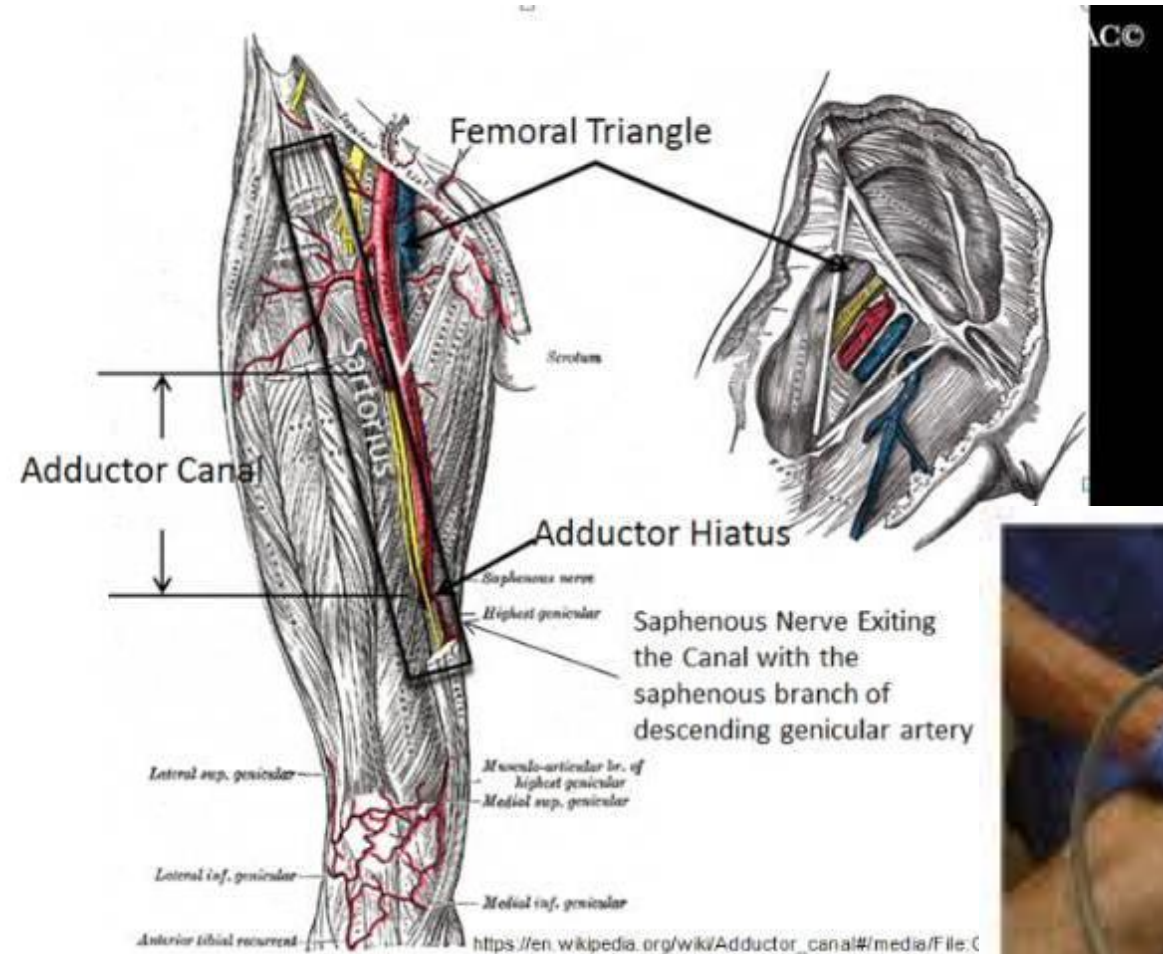
- \* General Anesthetic: Inhalational agent  $<0.5$  MAC

- \* Adductor Canal Block (**EXPAREL**)

- \* **EXPAREL** (bupivacaine liposome injectable suspension)

- Uses- DepoFoam® technology delivers bupivacaine over time to extend pharmacologic effect

# Intra-op Analgesia- Adductor Canal Block



# Post-Op

## Meds

- \*Acetaminophen 1000mg PO q6h
- \*Limit Narcotics
- \*Opioid tolerant- Consider Ketamine drip (patient must be in ICU or PACU)

# Post-op

## \* Diet

- \* Encourage Clear Liquid Diet in PACU

## \* Exercise

- \* Out of bed to chair with PT or Nursing staff, within 6 hours after surgery

## \* Other

- \* Incentive Spirometer 10x hour
- \* DVT prophylaxis per Orderset
- \* HOB elevated at least 30 degrees at all times
- \* Minimize IVF to less than 1L/ POD 0-1



Questions?