Enhanced Recovery After Mastectomy

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Enhanced Recovery After Surgery (ERAS) Background

- Created in late 1990s by Henrik Kehlet of Northern Europe.[1]
- Initially centered on research around discovering the best method of care for those undergoing open colorectal surgery.
- Holds a strong body of research that indicates improved outcomes brought forth by ERAS protocol.[2]
- Concept has grown significantly and is utilized in various kinds of surgery.[2]

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ERAS Protocol

- Consists of four central phases.
- Preadmission, Preoperative, Intraoperative, and Postoperative.[1,3]
- The preadmission phase focuses heavily upon the effective communication of realistic pre and post surgery goals such as the optimization of nutrition.
- Preoperative phase is akin to the preadmission phase, as a nutritional protocol is followed until directly before surgery.[1,3]

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ERAS Protocol Cont.

- Intraoperative procedure centers on tailoring the use of fluids, and medications to each patient, while effectively controlling pain after surgery by using the smallest quantity of opioids as possible.[1,3,4]
- Lesser use of opioids in conjunction with neural blocks, local anesthetics, and analgesia allows for patients to begin recovery earlier after surgery by decreasing patient pain after surgery.[4]
- Postoperative procedure directs the patient to mobilize early as well as begin eating earlier. In an ERAS Mastectomy, same day discharge is frequent.[1,3,4]

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COVID's Impact

- In many ways, COVID was a driving force behind this study.
- Coronavirus created a decrease in available hospital beds.
- The lack of space created a need for patients to be sent home faster to generate more open beds.
- ERAS protocol fits this need perfectly by allowing significantly less time spent in the hospital by each patient.

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Objective

- ERAS is a developing method that has multiple positive objectives.
- Three of the central objectives investigated

1. Reduced pain and post operative complications
   Evaluated by utilization of post-op and phase 2 pain scores.
2. Reduced recovery time
   Evaluated by comparing ERAS time of surgery to discharge with that of a standard procedure.
3. Reduced cost
   Evaluated by tabulating cost of an ERAS procedure compared to the cost of a traditional procedure.

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Inclusion/Exclusion Criteria

- During review, various criteria were created to ensure concise and effective data were able to be collected.
- Inclusion criteria are as follows
  - Mastectomy patients
  - Oncoplastic lumpectomy patients
  - Surgery conducted at Allina Clinic in New Ulm, Minnesota
- Exclusion criteria are as follows
  - Individuals with poor social support
  - Patients on blood thinners
  - Neoadjuvant chemotherapy patients

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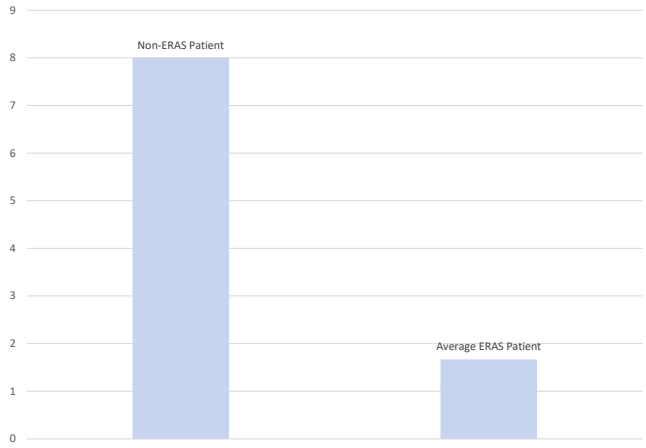
ERAS Pain Score Comparison (PACU)

- Use of less narcotics reduces the possibility of phase two complications that keep patients in the hospital.
- Consistently controlled pain leads to consistently earlier discharge.



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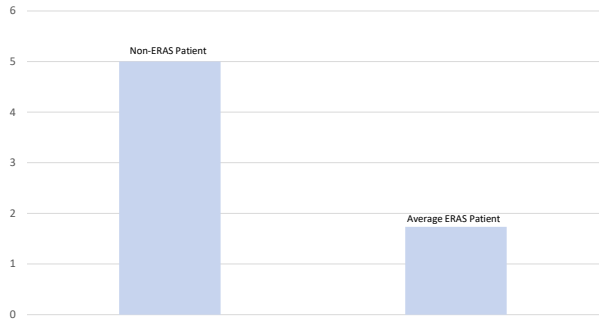
ERAS Pain Score Phase 2

- Two central side effects from narcotic use in standard mastectomy are postoperative nausea and vomiting and urinary retention.
- Although these are most commonly phase 2 side effects, they frequently originate from the narcotics administered in the PACU.
- Reduction of pain scores in both phases allow for less narcotic use, fewer complications, and an earlier discharge.



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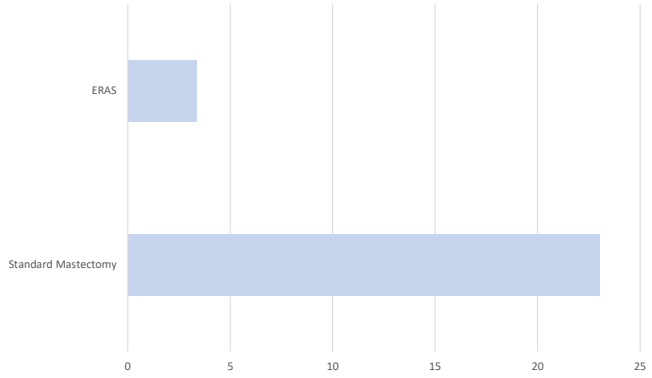
Duration of Stay After Surgery: ERAS vs. Standard Mastectomy

- Comparison of time until discharge between ERAS and standard inpatient protocol.



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ERAS vs NonERAS Mastectomy: A Cost Comparison

- *This charge is only for the hospital bed and nursing care. This does not include hospitalist/physician fees, any medications administered during the postoperative stay, or telemetry. An inpatient telemetry charge for 24 hours is $1,404.00.
- ** PECS1+PECS2, and all nerve blocks, are not unique to ERAS protocols. They were included only within the ERAS protocol to allow for comparison
- Fentanyl 50 mcg/ml vial $94.45/ vial
- Hydromorphone $99.50/ syringe

Non-ERAS anesthesia techniques/ medications/inpatient charger	Cost
Sevoflurane (charged every 15 minutes)	$60.00
Med/Surg/OB Room*	$1,514.00 every 24 hours
Average professional charges for inpatient hospitalist	$624.65
Average professional charges for subsequent visits during inpatient stay	$293.10
Total:	**$2,491.75**

ERAS Protocol techniques/medications	Cost
Scopolamine patch	$42.80
Oxycodone 5 mg Tablet	$28.45
Gabapentin 300 mg	$3.40
Celecoxib 200 mg capsule	$8.10
Acetaminophen 500 mg tablet (x2)	$3.20
Magnesium sulfate infusion (4 grams)	$84.65
Ketamine syringe 50 mg/ 5 ml	$49.80
Propofol infusion (TIVA -average price for case)	$250.00
Dexmedetomidine infusion	$46.50
PECS 1 +PECS 2 Block + Ultrasound + Ultrasound needle charge**	$930.00
Total:	**$1,446.90**

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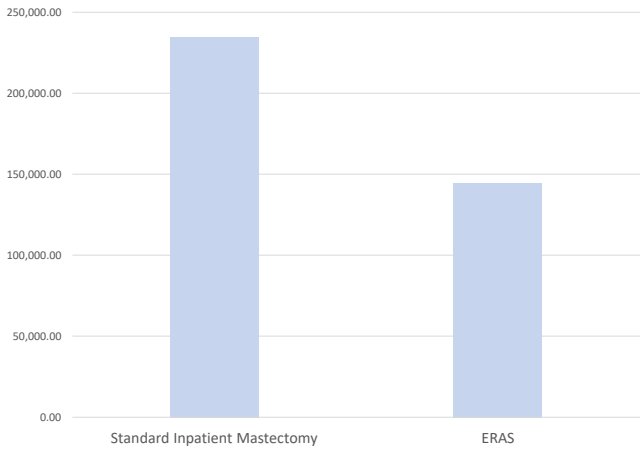
Projected Cost of 100 Patient Standard

- Total cost savings for 100 patients: **$89,965.10**



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Additional Outpatient Benefits

- Increased mobility by way of daily living. Reduces complications and contributes to physical recovery.
- ERAS focuses heavily on integrating early movement into recovery. Doing so produces many significant outcomes.
- Home care begins physical therapy earlier than in the hospital.
- Decreased infection rate
- Various unmeasurable but significant outcomes such as simply being home.

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Conclusions

- In this review, we were able to utilize data of bilateral mastectomies from 7/20/20 to 6/13/22 to evaluate and compare Early Recovery After Surgery techniques with standard protocol.
- Upon evaluating the data, it became clear that ERAS was effective in reducing post-op pain scores, time before discharge, and the cost of care.
- In the future, access to a larger data pool would allow for further and more detailed evaluation of potential benefits.

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References

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