Evolution, Analysis, and Implementation of Life-Saving Systems and Processes

Calvin L. Gruss, MD, MS
Clinical Instructor
Matthew D. McEvoy, MD
Vice-Chair for Educational Affairs
Professor of Anesthesiology and Surgery
Department of Anesthesiology
Vanderbilt University Medical Center

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1

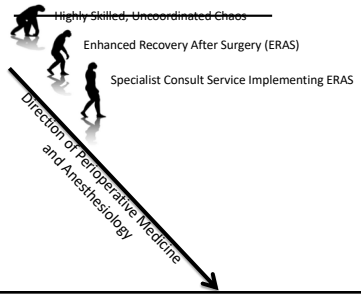
A Beginning Thought

"The immediate challenge to improving the quality of surgical care is not discovering new knowledge, but rather how to integrate what we already know."

Urbach DR, Baxter NN. BMJ 2005

2

Evolution of Perioperative Medicine

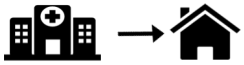


3

Perioperative Consult Service Collaborations: Current State

~3,200 patients/year

↓Average LOS 1.2d



* Mean LOS across multiple services: No PCS = 5.17d (N=1664) v. PCS 3.94d (N=2260)

↓ COST 15-20%

Opioids

↓ >80% intraoperatively
>80% postoperatively
>66% at discharge

*of note, no change over time with surgical services where a collaboration with PCS does not exist (urology/ENT/Vasc)

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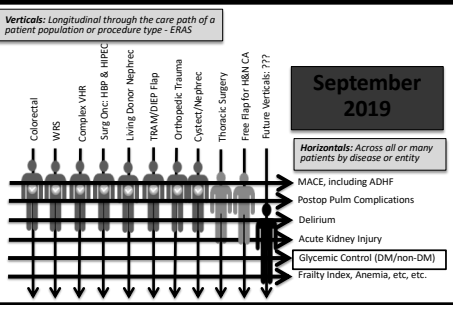
VUMC ERAS and Perioperative Medicine Program



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THE NEW OLD AGE

The Elderly Are Getting Complex Surgeries. Often It Doesn't End Well.

Complication rates are high among the oldest patients. Now a surgeons' group will propose standards for hospitals operating on the elderly.

By Paula Span

June 7, 2019

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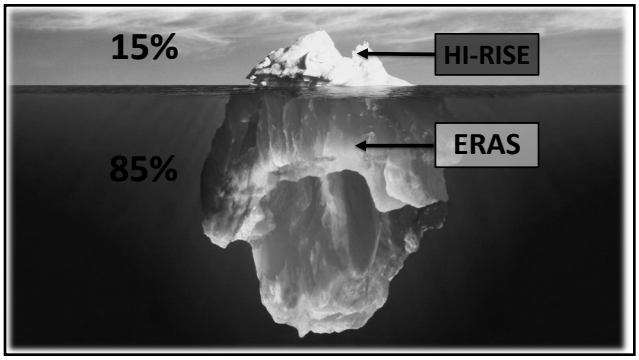
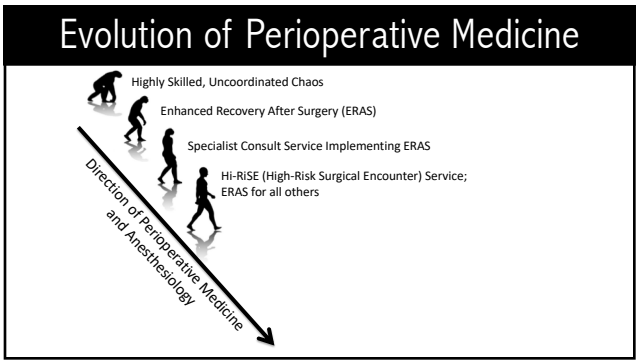
Optimize?

7


15%
HI-RISE
85%
ERAS

8


Evolution of Perioperative Medicine
Highly Skilled, Uncoordinated Chaos
Enhanced Recovery After Surgery (ERAS)
Specialist Consult Service Implementing ERAS
Hi-RiSE (High-Risk Surgical Encounter) Service;
ERAS for all others
Direction of Perioperative Medicine
and Anesthesiology

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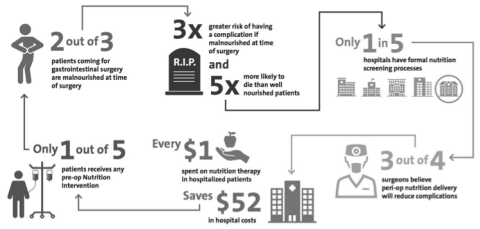
Nutrition



Wischmeyer P, et al. *Anesth Analg*. 2018

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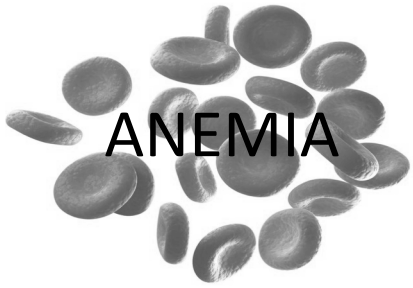
ANEMIA



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SMOKING

(Pop Health: 27% of TN residents)

12

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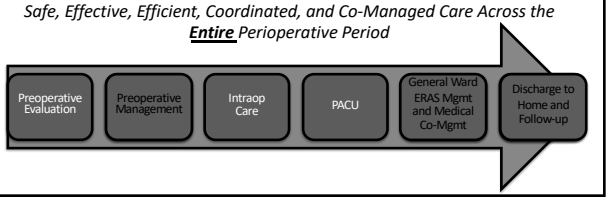
ERP + Hi-RISE: Clinical Pathway

One team with one shared goal from Decision to Discharge: Enhanced Recovery After Surgery

*Safe, Effective, Efficient, Coordinated, and Co-Managed Care Across the **Entire** Perioperative Period*



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Hi-RiSE* Preop Clinic in VPEC

Collaborating with surgeons and medical specialists as a primary point of **contact, care coordination, and medical management** for Hi-RiSE patients pre/perioperatively.

If elective surgical patients with these conditions are not optimized:

↓ Outcomes ↑ LOS ↑ Cost

*High-Risk Surgical Encounter

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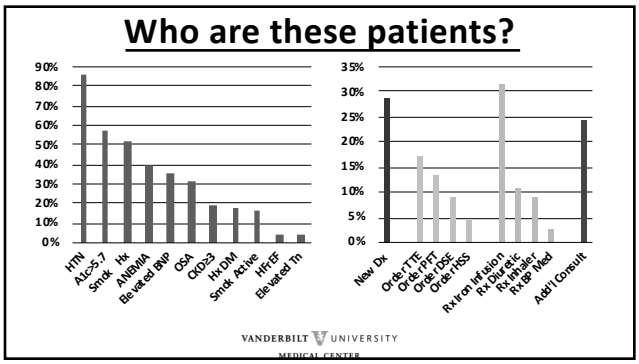
Who are these patients?
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
HTN
A1c>5.7
Smk Hx
ANEMIA
Elevated BNP
OSA
CKD≥3
Hx DM
Smk Active
HFrEF
Elevated Tn
35%
30%
25%
20%
15%
10%
5%
0%
New Dx
Order TTE
Order PFT
Order DSE
Order RSS
Rx Iron Infusion
Rx Diuretic
Rx Inhaler
Rx BP Med
Add'l Consult
VANDERBILT UNIVERSITY
MEDICAL CENTER

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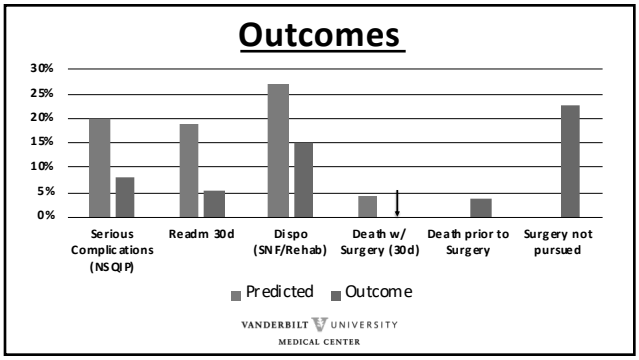
Outcomes
30%
25%
20%
15%
10%
5%
0%
Serious Complications (NSQIP)
Readm 30d
Dispo (SNF/Rehab)
Death w/ Surgery (30d)
Death prior to Surgery
Surgery not pursued
Predicted
Outcome
VANDERBILT UNIVERSITY
MEDICAL CENTER

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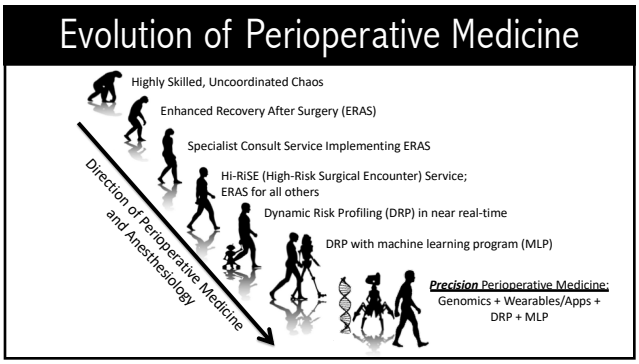
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Enhanced Recovery After Surgery (ERAS)
Specialist Consult Service Implementing ERAS
Hi-RiSE (High-Risk Surgical Encounter) Service;
ERAS for all others
Dynamic Risk Profiling (DRP) in near real-time
DRP with machine learning program (MLP)
Precision Perioperative Medicine:
Genomics + Wearables/Apps +
DRP + MLP
Direction of Perioperative Medicine and Anesthesiology

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