

PREOPERATIVE OPTIMIZATION- What Really Improves Outcomes?

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Disclosures

INTUITIVE
SURGICAL®



abbvie

Medtronic

Objectives



**PREOPERATIVE
OPTIMIZATION**

Evidence

Pitfalls

Future Directions

Objectives



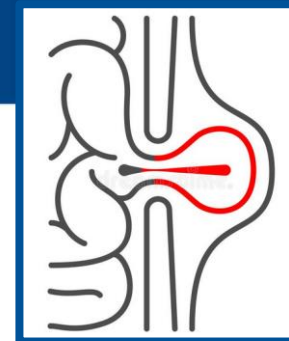
**PREOPERATIVE
OPTIMIZATION**

Evidence

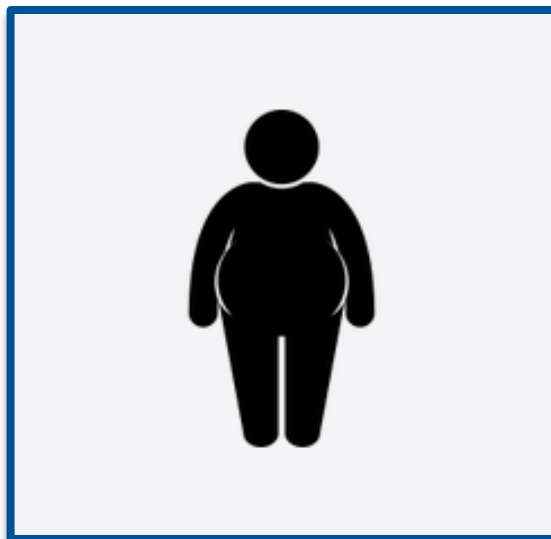
Pitfalls

Future Directions

Examples



Glycemic control



Obesity



Smoking

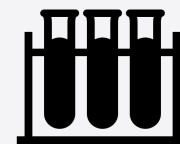
Ventral Hernia Management

Expert Consensus Guided by Systematic Review

Mike K. Liang, MD,* Julie L. Holihan, MD,* Kamal Itani, MD,† Zeinab M. Alawadi, MD, MS,*
Juan R. Flores Gonzalez, MD,* Erik P. Askenasy, MD,‡ Conrad Ballecer, MD,§ Hui Sen Chong, MD,¶
Matthew I. Goldblatt, MD,|| Jacob A. Greenberg, MD,** John A. Harvin, MD,* Jerrod N. Keith, MD,¶
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Paul Szotek, MD,¶¶ Shirin Towfigh, MD,|||| Shawn Tsuda, MD,*** Khashayar Vaziri, MD,†††
and David H. Berger, MD‡

Elective Ventral Hernia Repair
NOT recommended

HbA1c > 8%



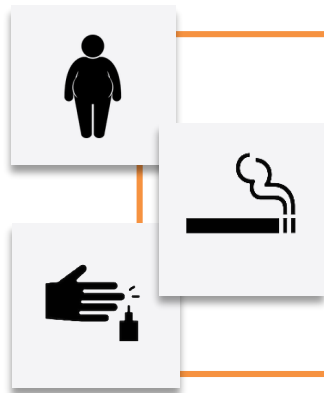
BMI > 50 Kg/m²



Active smokers

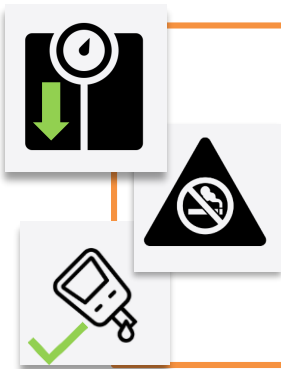


Evidence



Is _____ a risk factor?

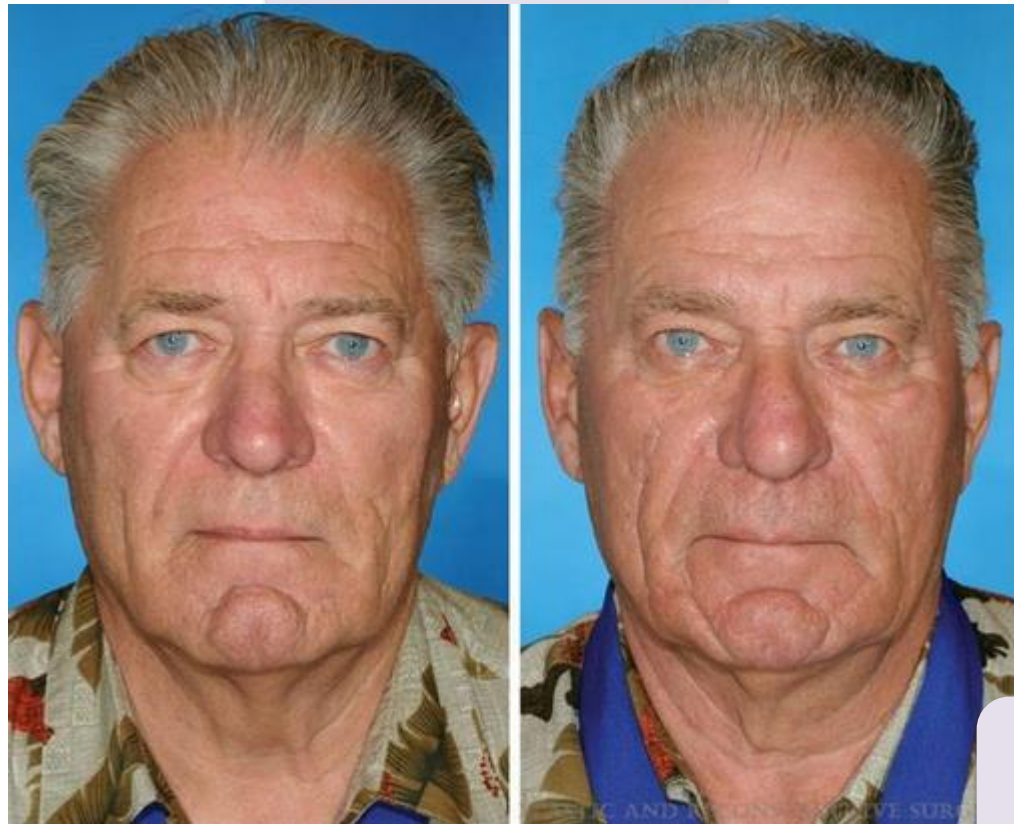
Complications



Does _____ lower risk?

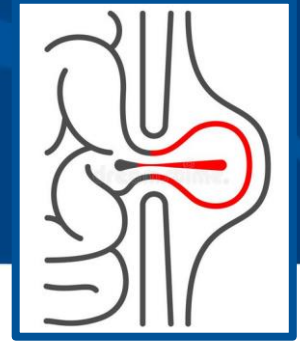
Is The Damage Already Done?

Identical Twins



Smoked 14
years more

HbA1c

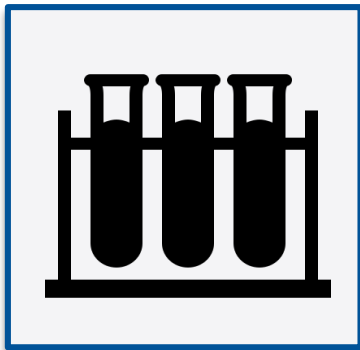


Is **↑ HbA1c** a risk factor?

Complications



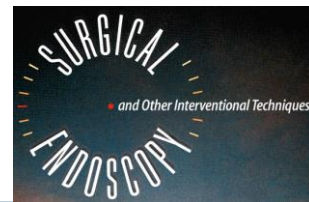
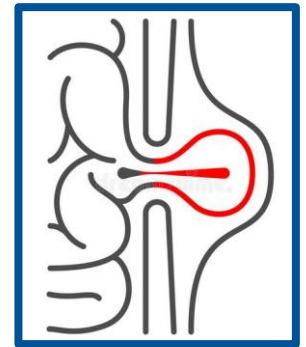
HbA1c & Ventral Hernias



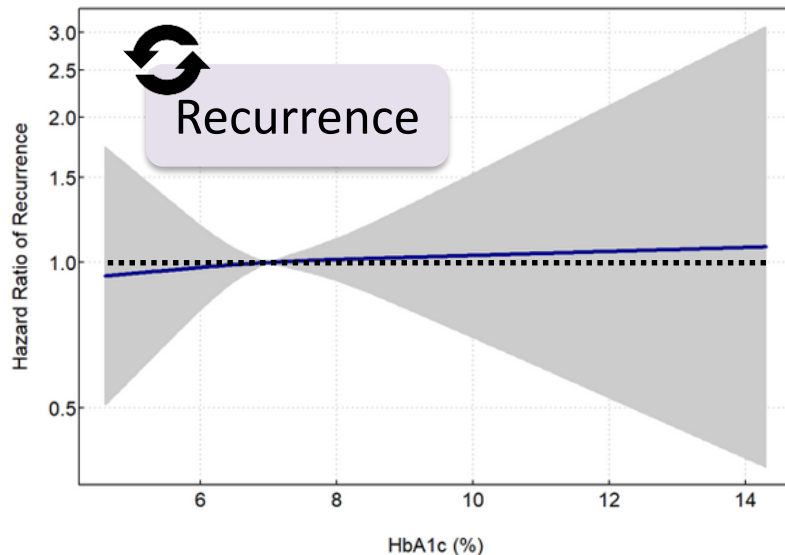
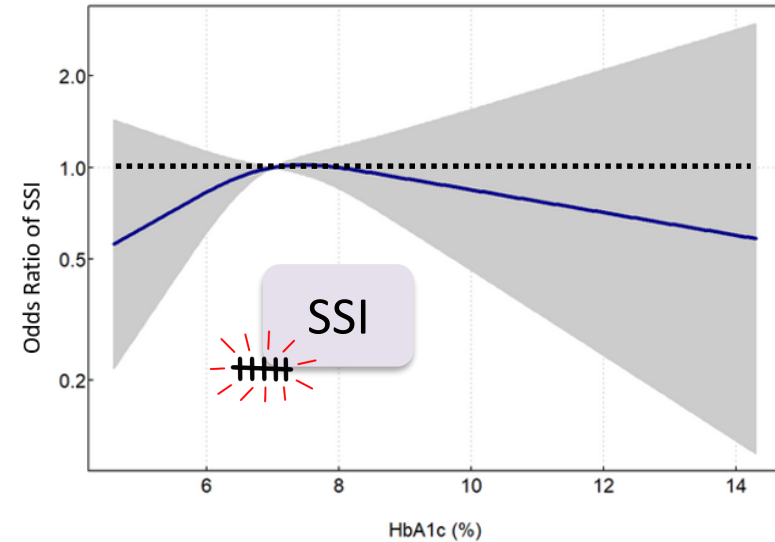
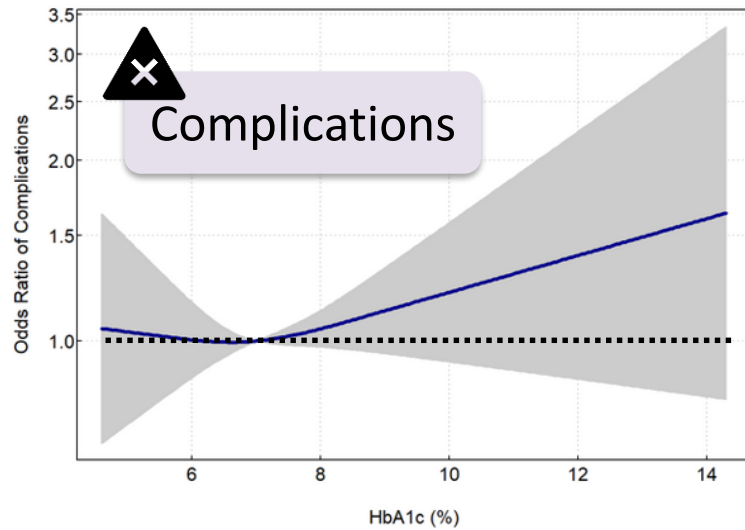
HbA1c



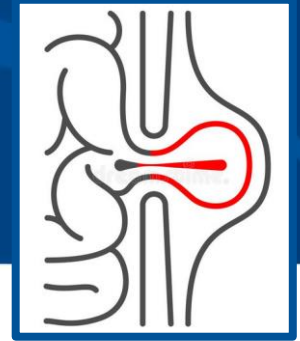
2,167 VHR in Diabetics



HbA1c & Ventral Hernias



HbA1c is NOT associated with adverse event in VHR



Is



BMI

a risk factor?

Complications



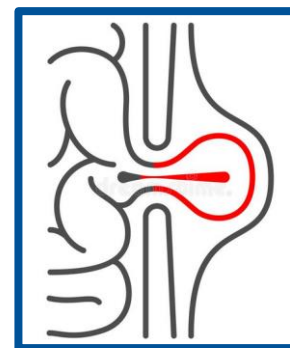
BMI & Ventral Hernias



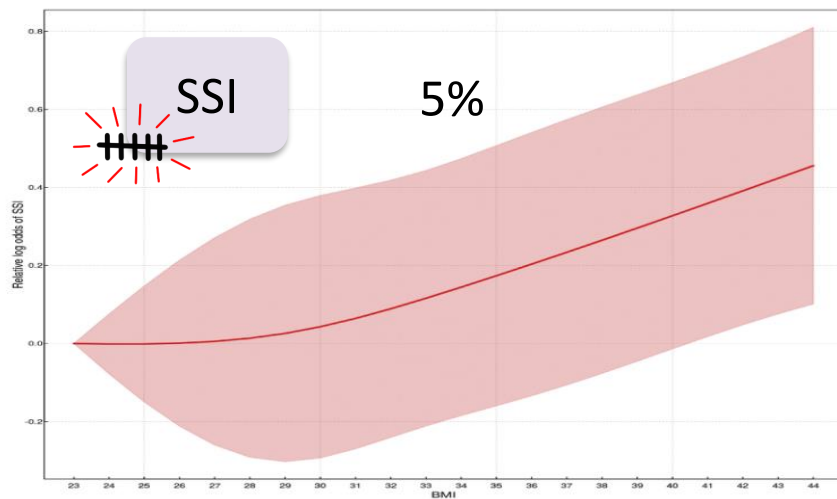
BMI



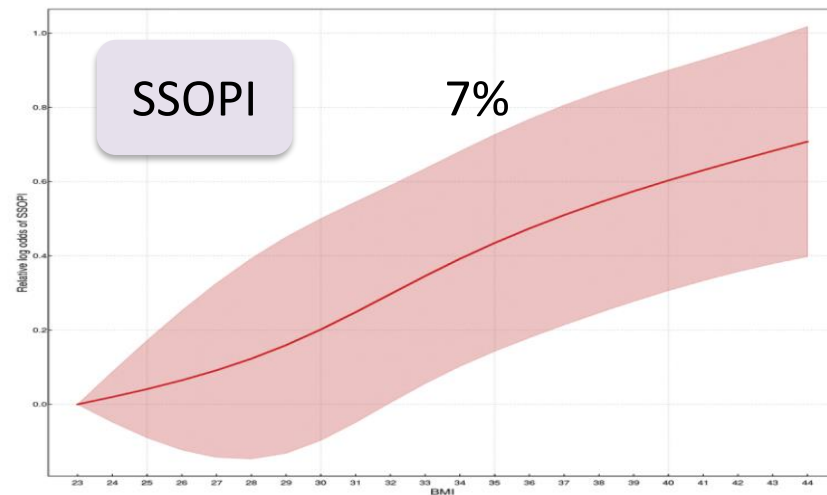
8,949 *open* VHR



BMI & Ventral Hernias



BMI 22-44

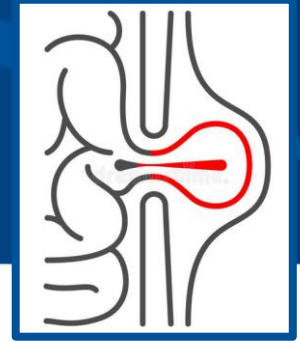


BMI 22-44

Escalating BMI is progressively associated with wound complications in VHR



Smoking & Ventral Hernia



Is **smoking** a risk factor?

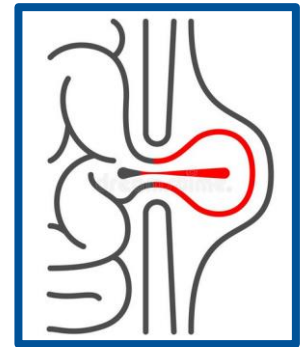
Complications



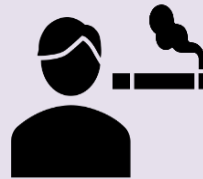
Smoking & Ventral Hernias



Smoking



open VHR



418

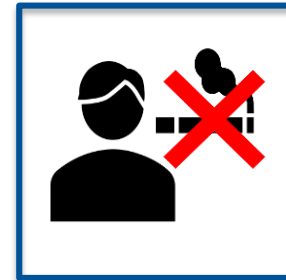


418

Smoking & Ventral Hernias



Versus



Outcome	OR	95% CI
SSI	1.01	0.98 – 1.03
SSOPI	0.99	0.80 – 1.18

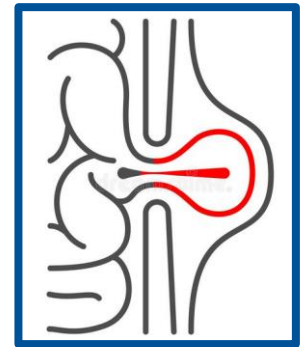
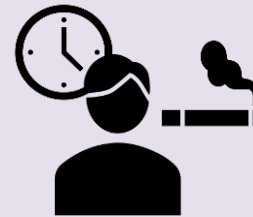
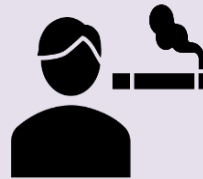
No difference in serious wound complications

Smoking & Ventral Hernias



Smoking

72,350 VHR



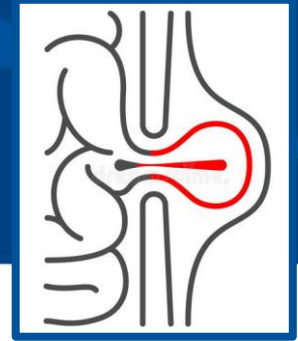
Smoking & Ventral Hernias



Complication	Active smoker	Former smoker	P value
Wound	6.0 %	4.4 %	<0.0001
Infectious	2.3 %	1.6 %	<0.0001
Respiratory	2.7 %	2.1 %	0.0001

Higher rate of complications in active smokers

Smoking & Ventral Hernia



Perhaps, a little

Is **smoking** a risk factor?

Complications



Objectives

**PREOPERATIVE
OPTIMIZATION**

Evidence

Pitfalls

Future Directions

Access to Surgical Care

Single center
Ventral hernia diagnosis
2016 - 2021

Optimization Cut-



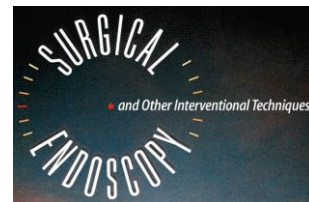
BMI < 40 Kg/m²



No smoking



HbA1c < 8%

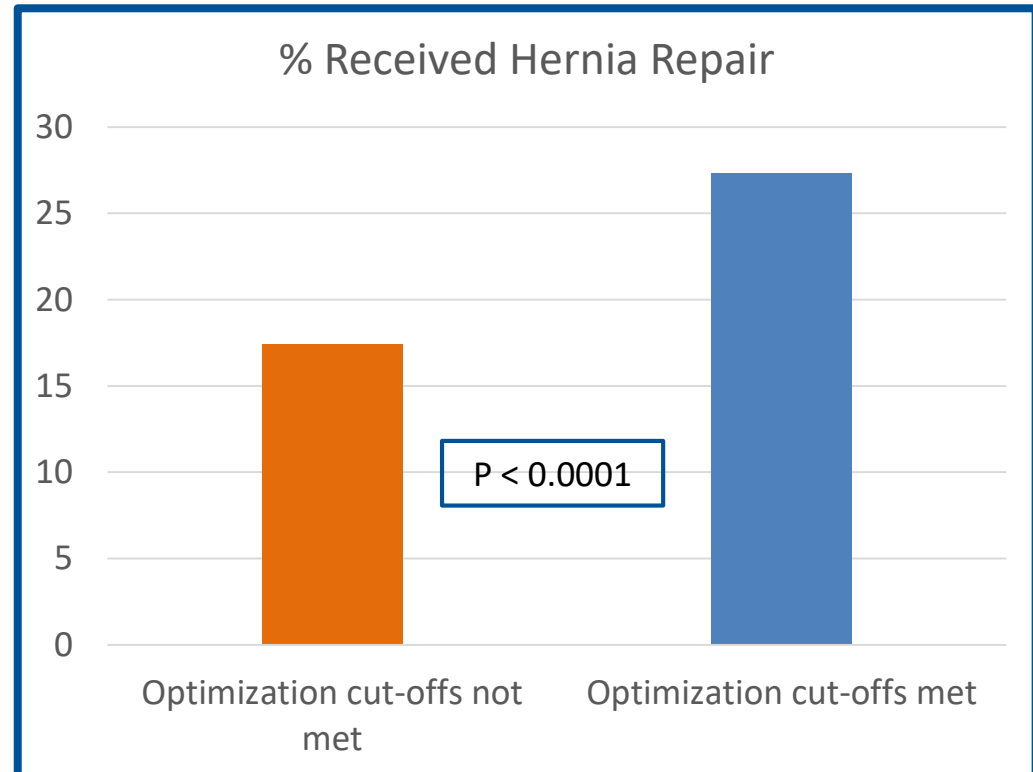


Access to Surgical Care

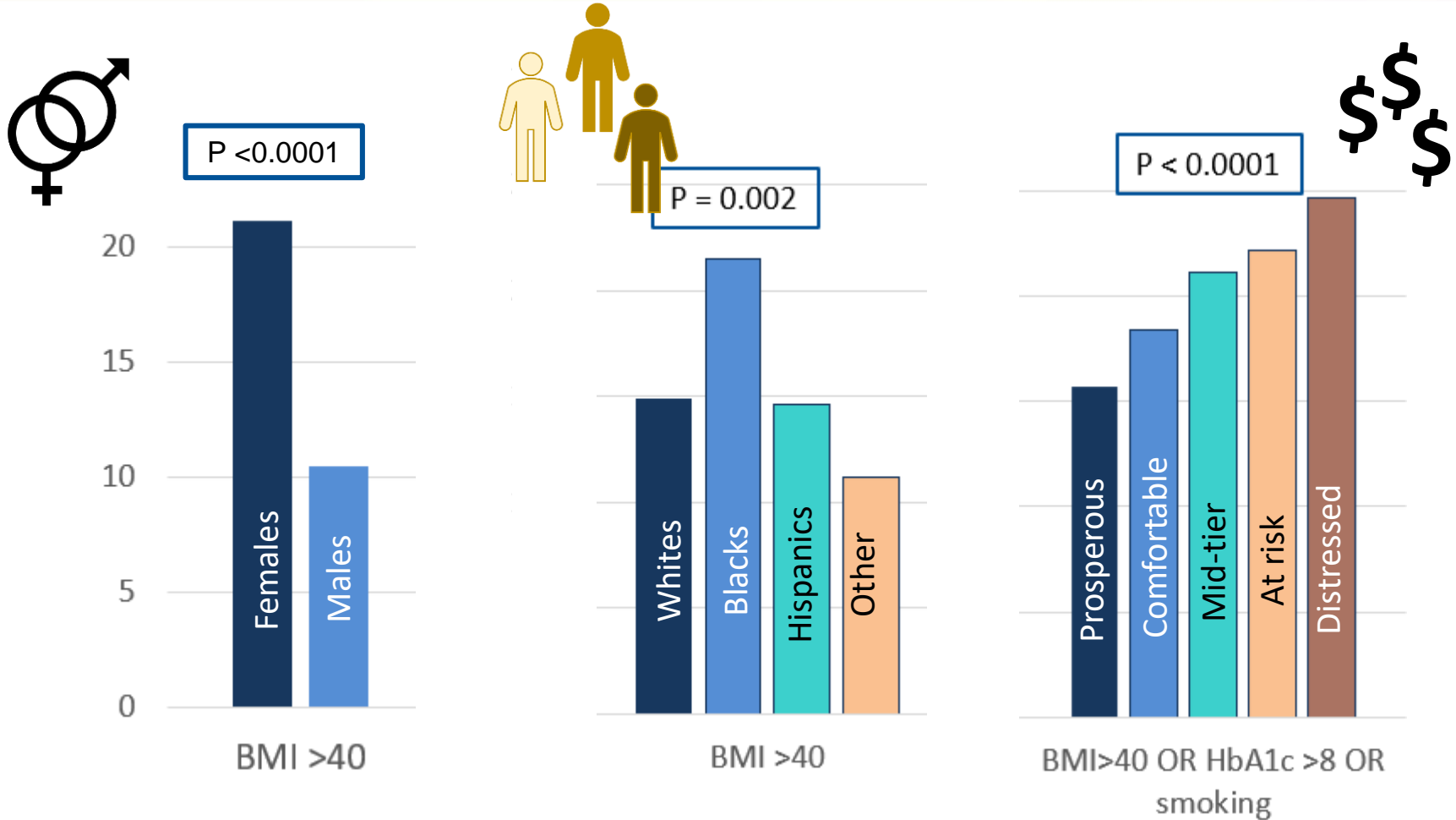


Total n = 5,638

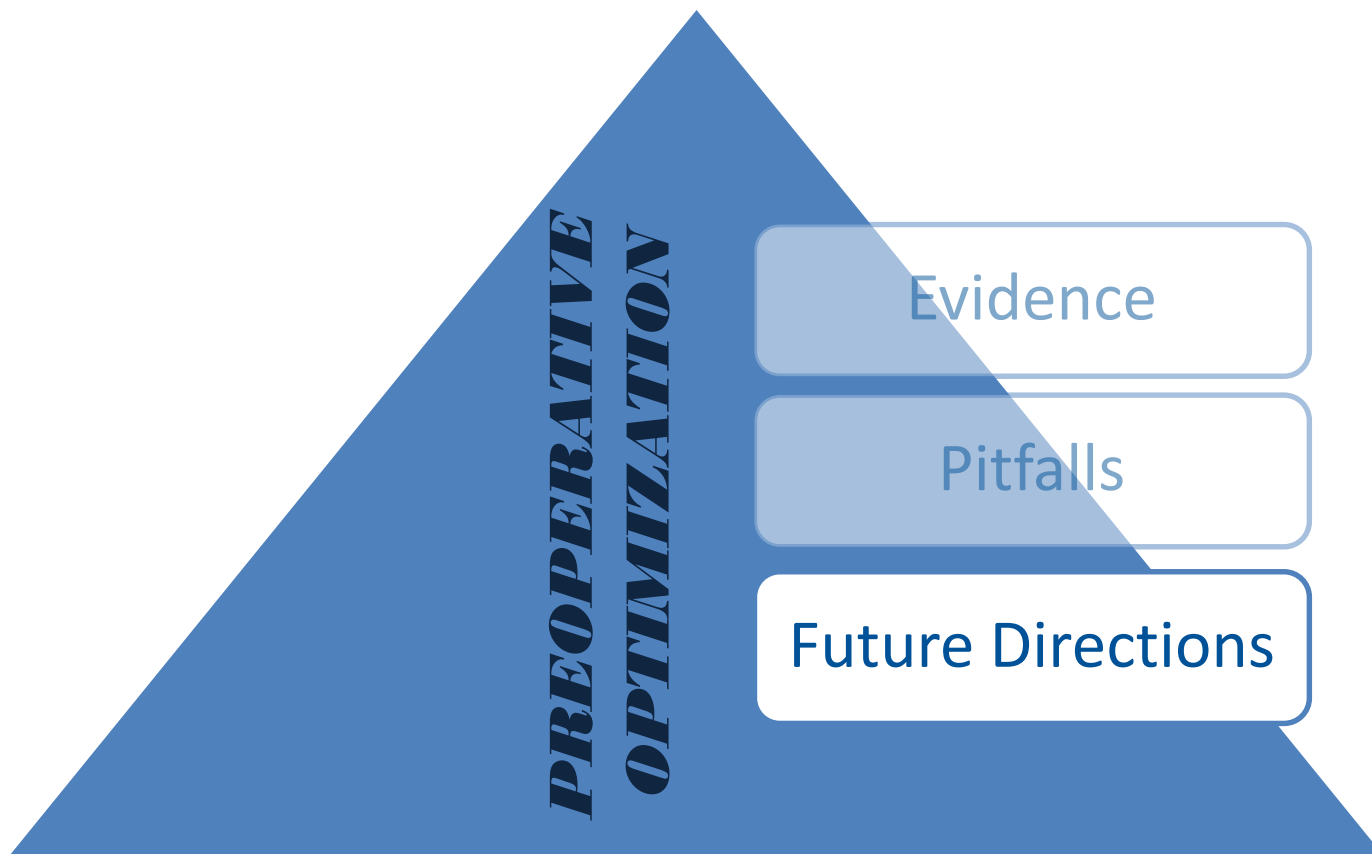
Optimization cut-offs ***not*** met



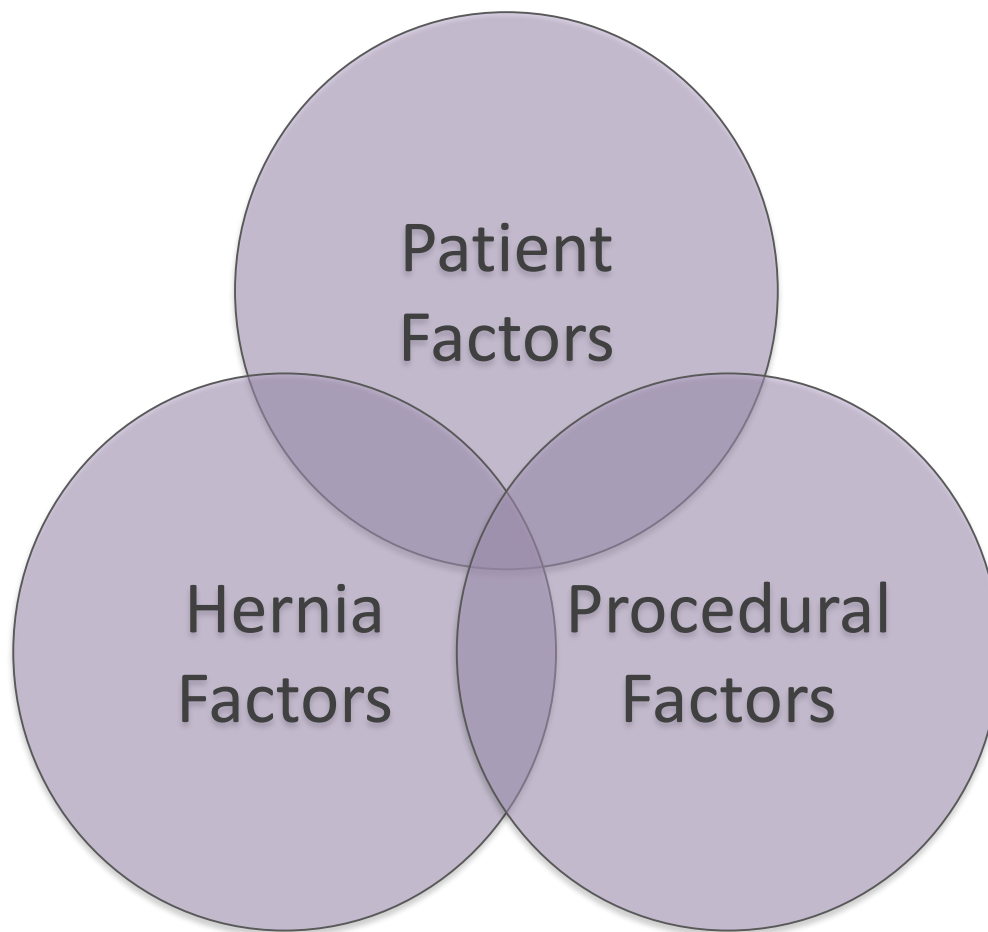
Disparity



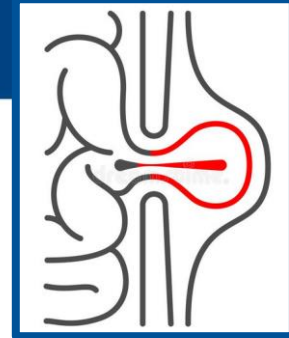
Objectives



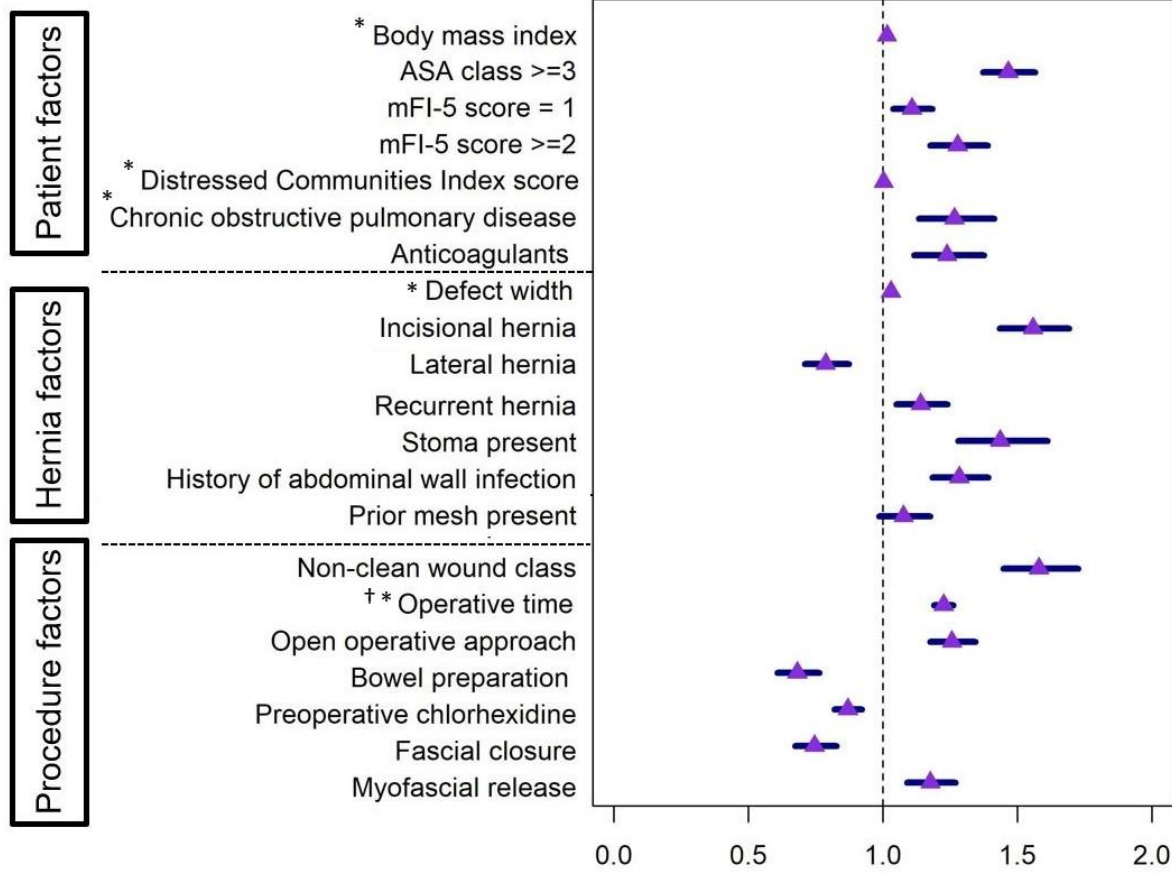
Perioperative Risk Factors



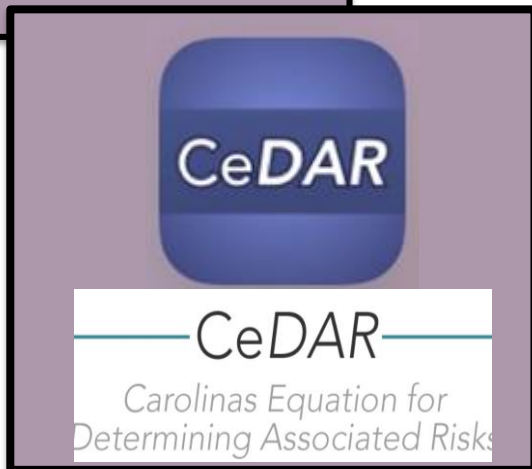
Perioperative Risk Factors



Odds Ratio with 95% Confidence Interval



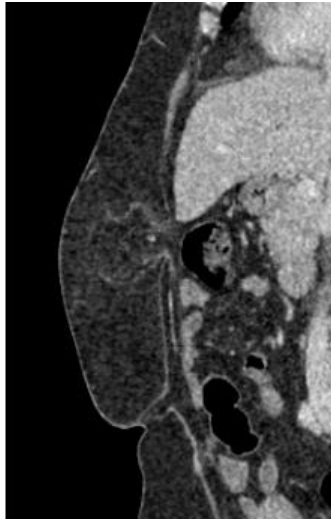
Risk Calculators



VERSUS



**Surgical
Risk Calculator**



Different Optimization Goals

Conclusions

ACH
QC

ACHQC can expand our understanding of modifiable risk factors in VHR



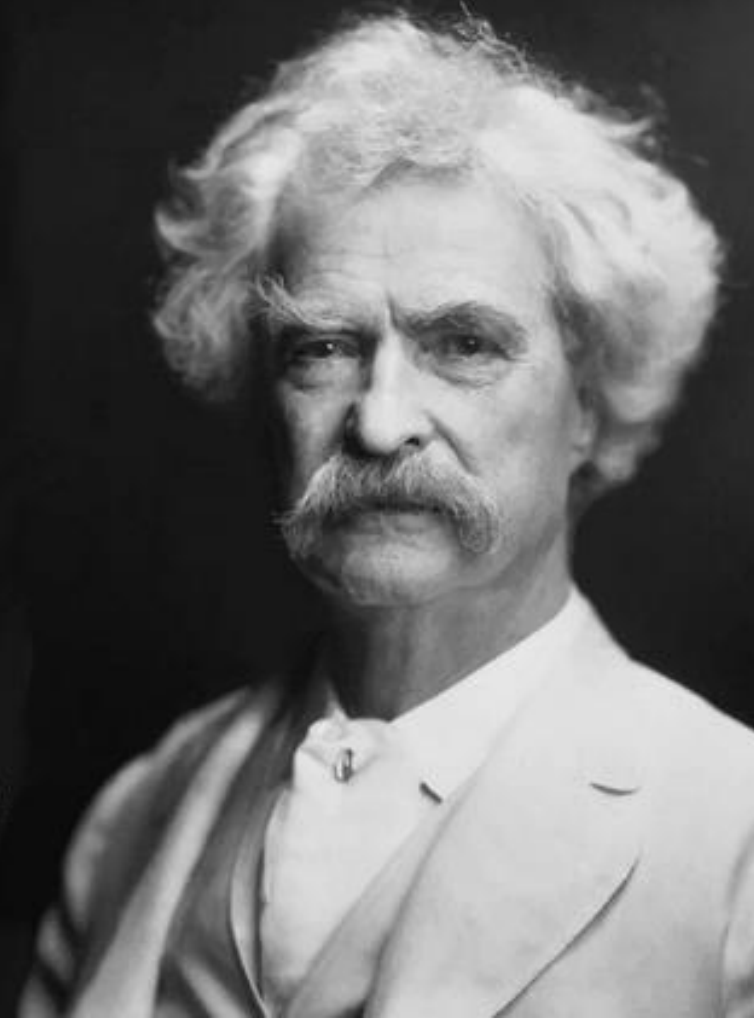
Improved outcomes needs to be balanced with restricting access to care & disparities



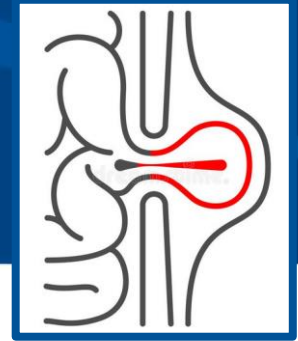
Individualized & realistic goals need to account for hernia, procedural & patient factors

It ain't what you don't know
that gets you into trouble. It's
what you know for sure that
just ain't so.

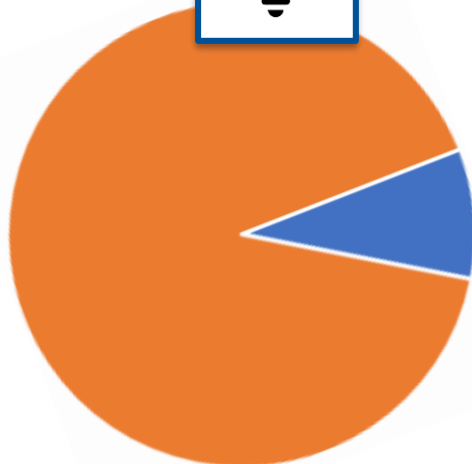
Mark Twain



Effectiveness of Optimization



1 year after implementation of preop optimization clinic



9 % optimized



13 % quit smoking

Vac-assisted delayed closure

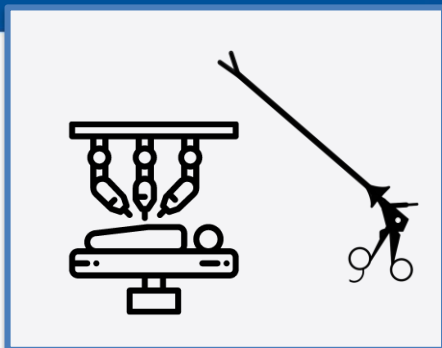




A 45-year-old woman with multiple past abdominal surgeries requires an abdominal wall reconstruction for recurrent ventral/incisional hernia. The surgical plan is for a retrorectus repair with a synthetic mesh. What reduces surgical site infections?

- A. Preoperative mechanical bowel preparation
- B. Removal of hair from the surgical site
- C. Extension of antimicrobial prophylaxis to 24 hours
- D. Smoking cessation 4 to 6 weeks before surgery
- E. Optimization of preoperative HbA1C

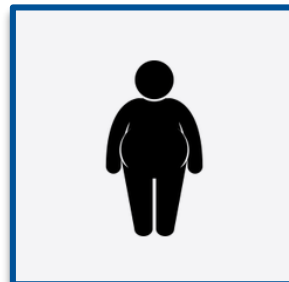
Abdominal Wall Reconstruction



N = 310



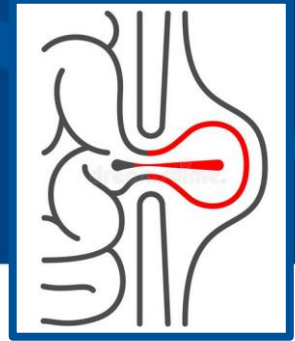
N = 151



Complication	BMI < 35	BMI >35	P value
30-day complication	10%	8%	0.43
Wound	7 %	8 %	0.55
Recurrence	7%	7%	0.91



Effectiveness of Optimization



BMI > 33

Over 2 year, N = 200

36
Elective

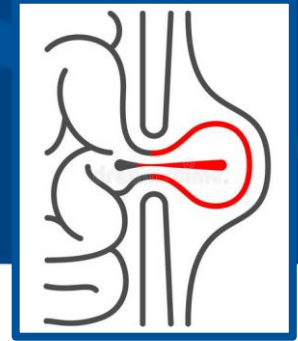
Initial BMI = 35

150
No Surgery

Initial BMI = 39

14
Emergent

Initial BMI = 40



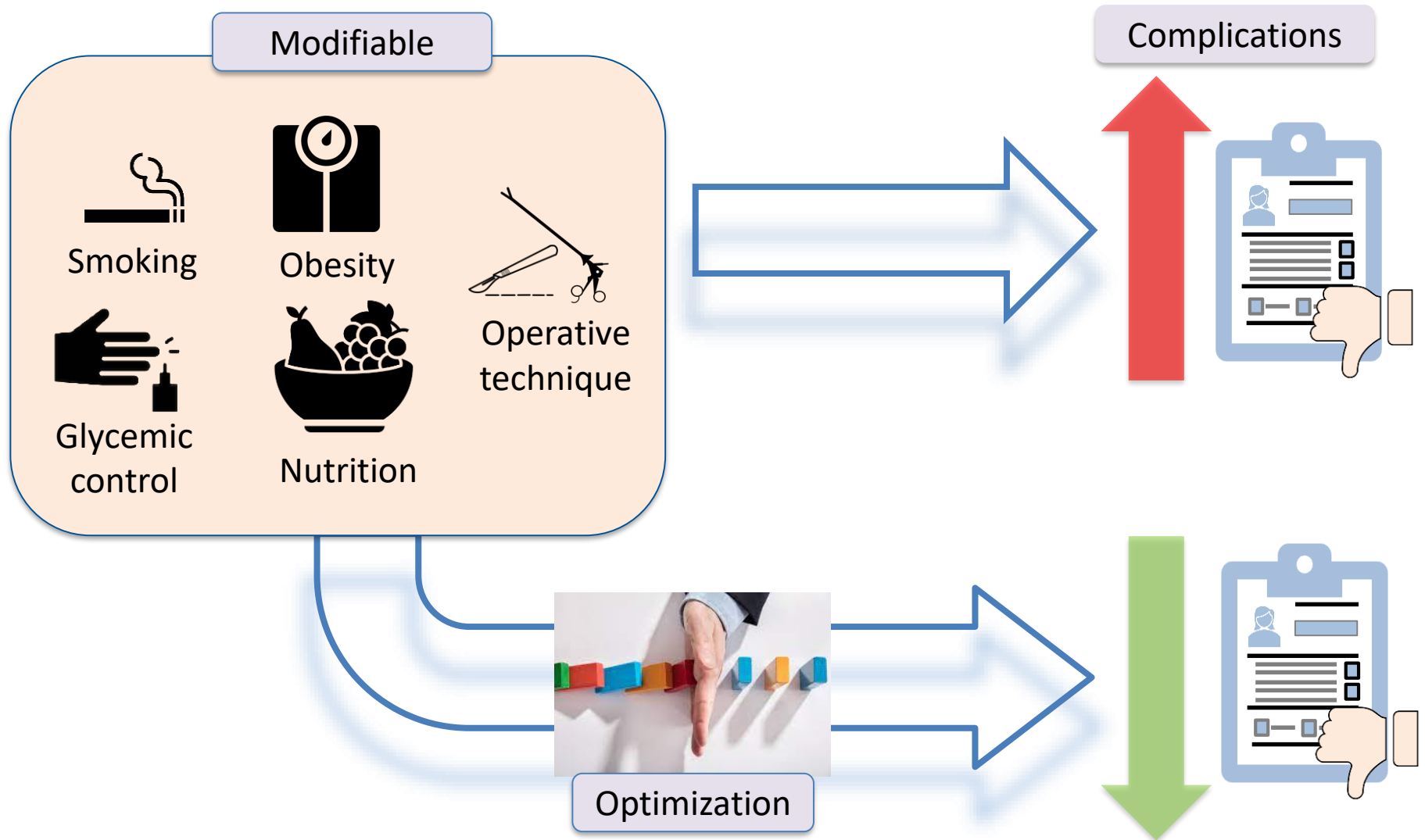
Is **↑ HbA1c** a risk factor?

Complications

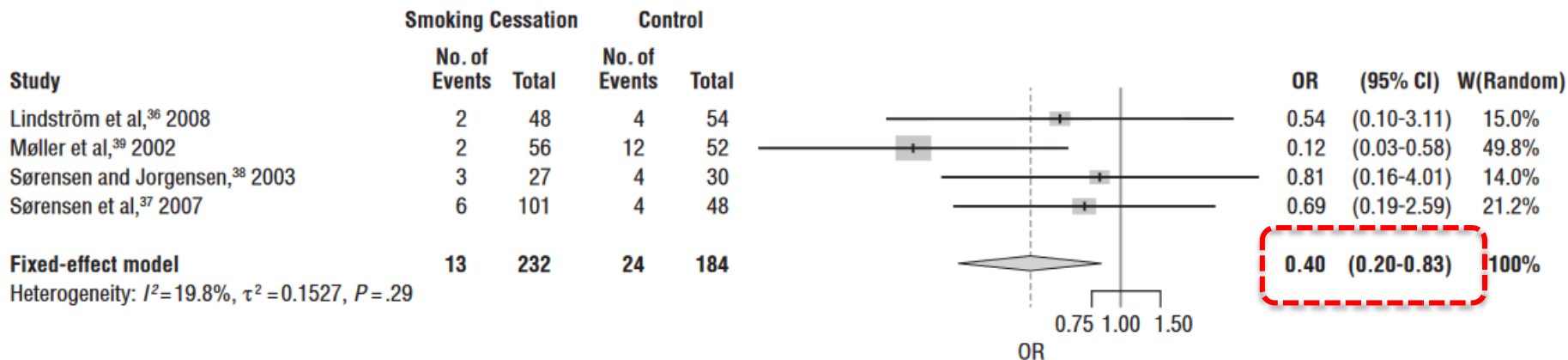
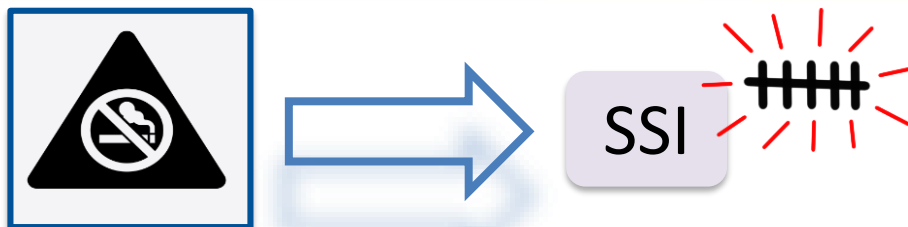


No evidence

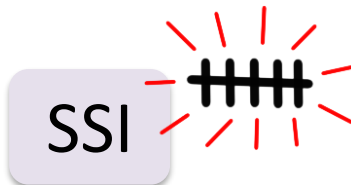
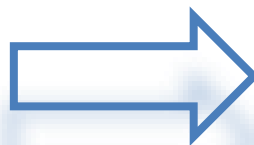
Premise of Preop Optimization



Smoking Cessation

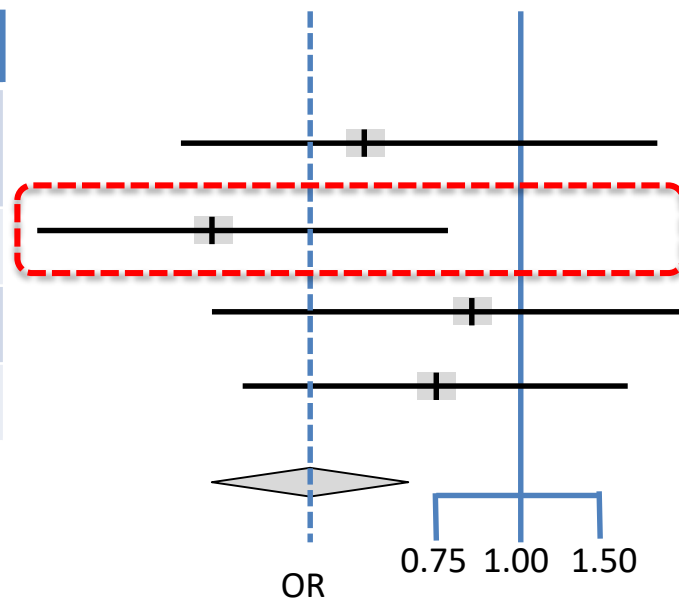


Smoking Cessation



OR 0.4

Study	Patient population
Lindström	Herniotomy, cholecystectomy, hip or knee arthroplasty
Møller	Hip or knee arthroplasty
Sørensen & Jorgensen	Colorectal resections
Sørensen	Inguinal or incisional herniotomy



Two Guidelines for SSI Prevention



Glucose < 200 mg/dL

HbA1c → No recommendation



Glucose < 150 mg/dL

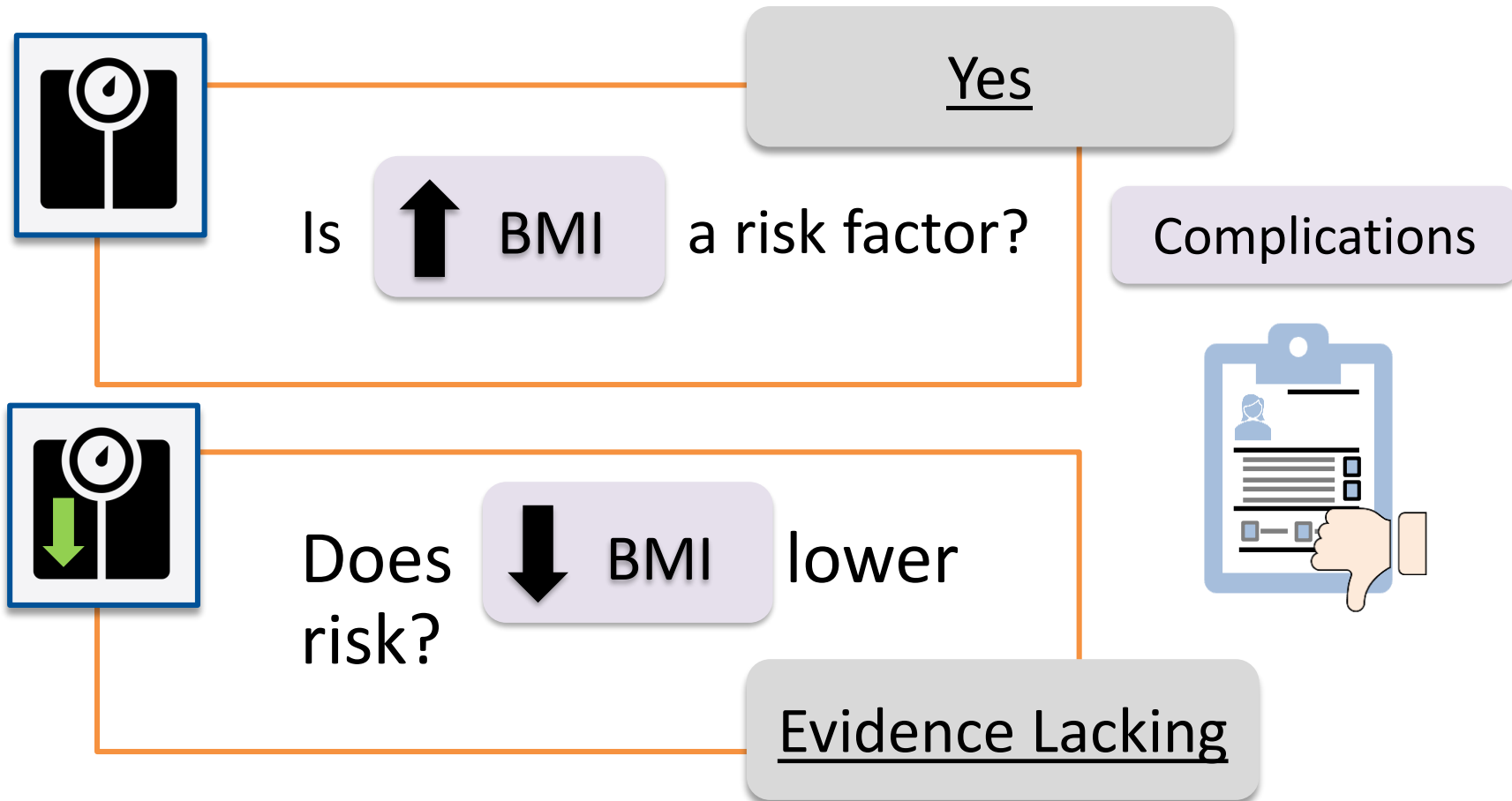
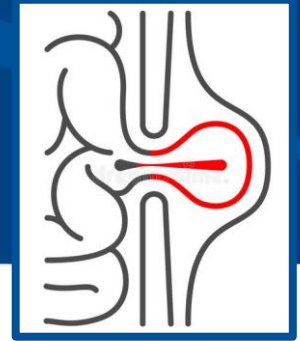
No evidence that improving
HbA1c decreases SSI

JAMA Surgery

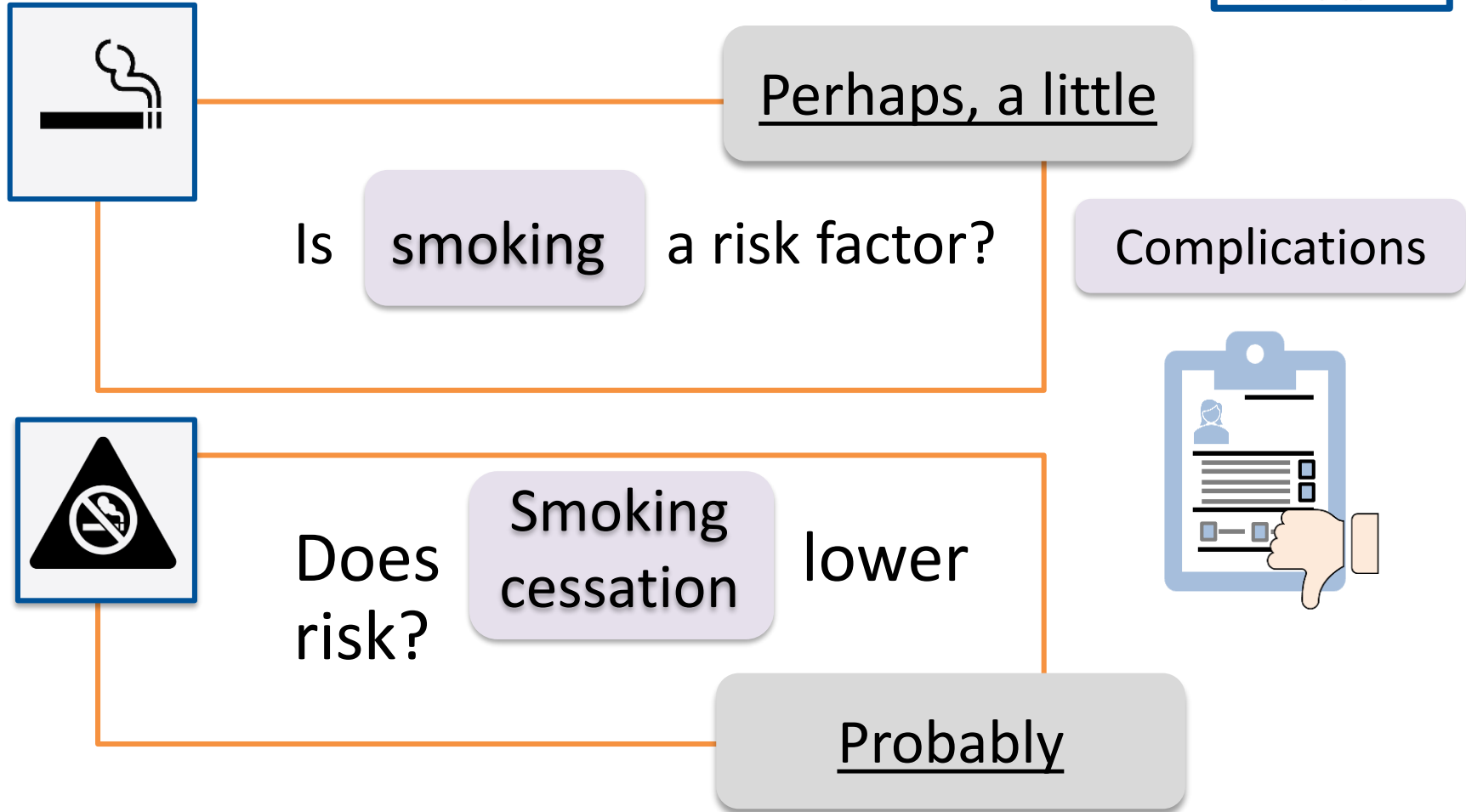
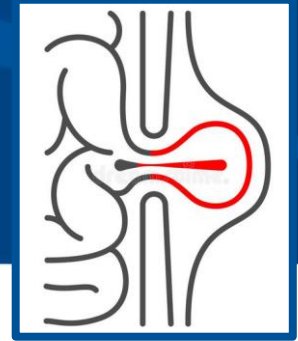
Berríos-Torres 2017

JACS | Journal of the
American College of Surgeons

Ban 2016



Smoking & Ventral Hernia



Cut-offs & Inequity



Ventral Hernia Management

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NOT recommended

HbA1c > 8%

BMI > 50 Kg/m²

Active smokers

