2024 ACHQC Quality Improvement Summit
March 23, 2024

Racial Disparities in Ventral Hernia Outcomes

How we can use the ACHQC to improve the quality and reduce the inequity of care

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Director, UNC Health Hernia Center
Associate Professor, Division of General Surgery
The University of North Carolina at Chapel Hill, Department of Surgery

UNC | SCHOOL OF MEDICINE
Surgery

Disclosures

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No pertinent conflicts with this talk or session

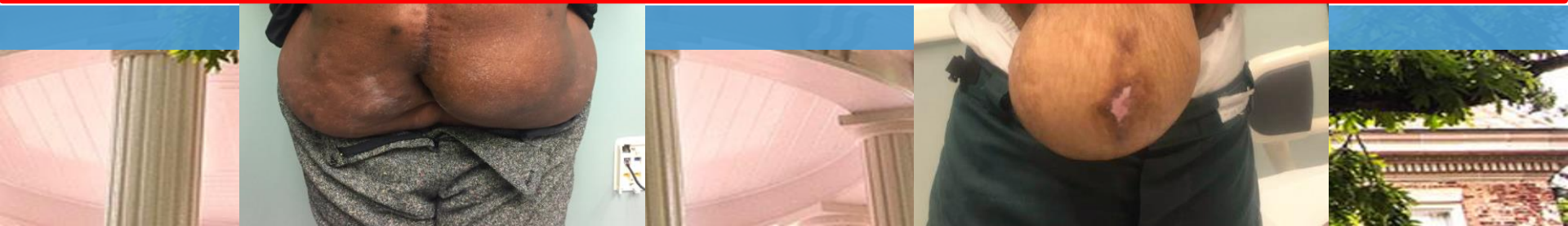
- Intuitive Surgical proctor (own institution only)
- Bard Davol honoraria

- No financial compensation, but I am a Board member for ACHQC

What racial disparities exist?

and

How can the ACHQC improve the inequity of care?



Outline

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- Racial disparities in healthcare
  - Access to surgical evaluation
  - Access to MIS techniques
- Racial disparities in ventral hernia outcomes
  - Access to surgical care
  - Elective vs Emergent Repair
- Why these outcomes disparities exist
- Using the ACHQC to improve the quality and reduce the inequity of care

Racial Disparities in Healthcare

Health Disparity

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"a particular type of health **difference** that is **closely linked with social, economic, and/or environmental disadvantage**. Health disparities **adversely affect groups of people who have systematically experienced greater obstacles to health** based on their **racial or ethnic group**; religion; socioeconomic status; gender; age; mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics **historically linked to discrimination or exclusion**"

- Healthy People 2030 (public health priorities identified by OASH)

OASH Office of Disease Prevention and Health Promotion

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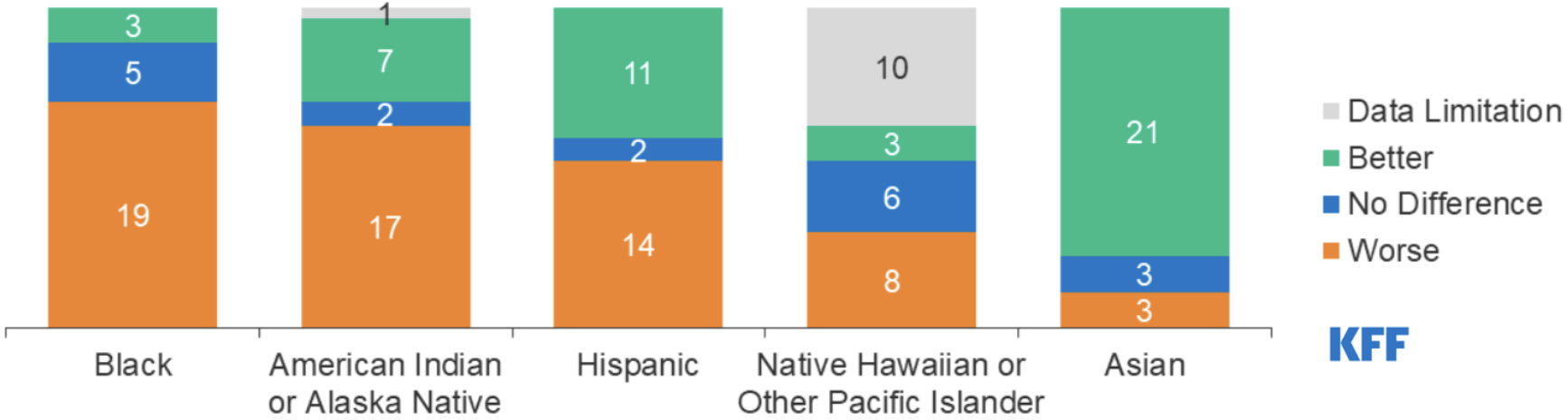
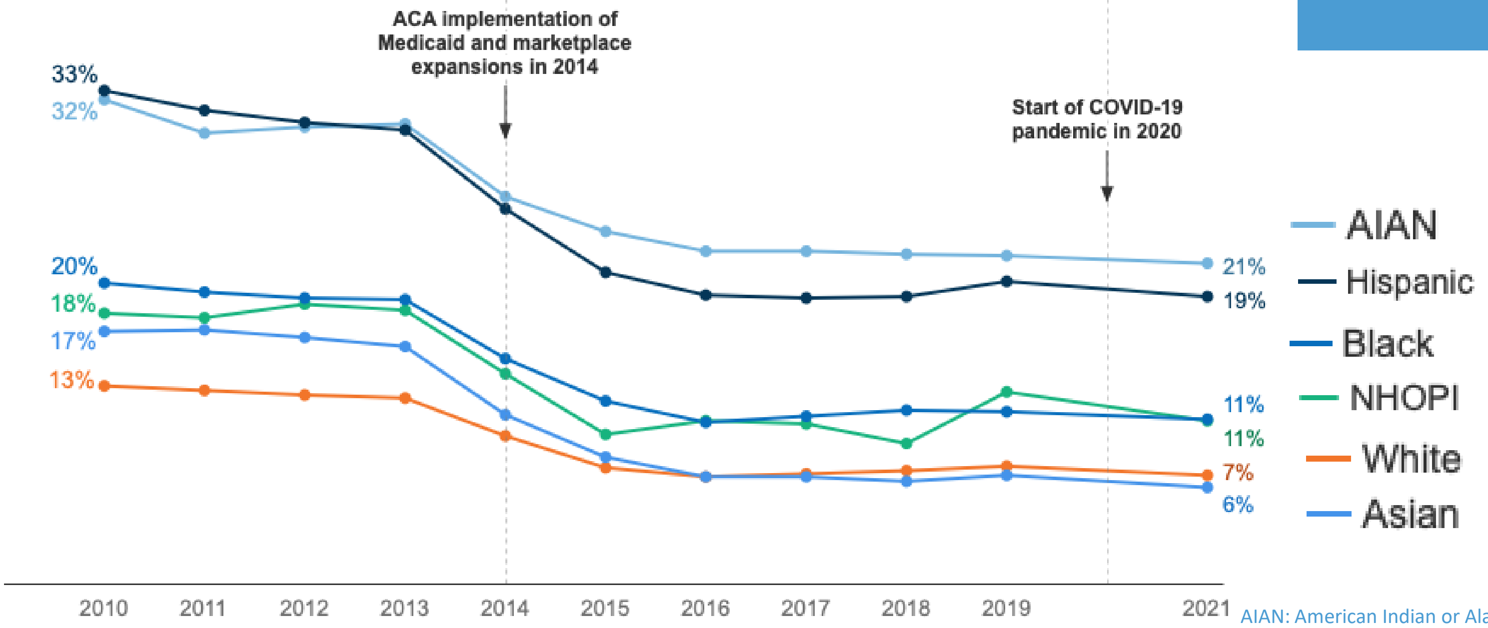
People of color fare worse than their white counterparts across many measures of health status



Evaluating 27 health status measures, compared to white counterparts, including infant mortality, pregnancy-related deaths, prevalence of chronic conditions, and overall physical and mental health status

https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-question-and-answers/

Uninsured Rates



AIAN: American Indian or Alaska Native
NHOPI: Native Hawaiian or other Pacific Islander

People of color are more likely to be uninsured compared to their White counterparts

https://www.kff.org/racial-equity-and-health-policy/report/key-data-on-health-and-health-care-by-race-and-ethnicity/

Disparities in Comorbidities

- People of color are more likely to have comorbid conditions

AIAN: American Indian or Alaska Native
NHOPI: Native Hawaiian or other Pacific Islander

https://www.kff.org/racial-equity-and-health-policy/report/key-data-on-health-and-health-care-by-race-and-ethnicity/

Disparities in Comorbidities

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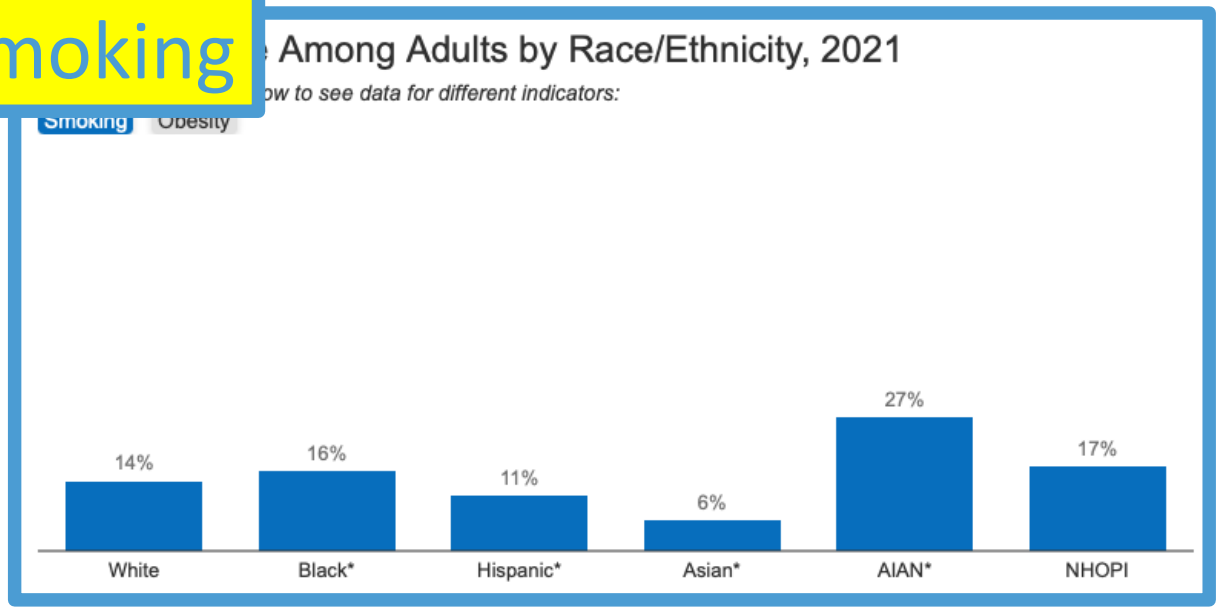
- People of color are more likely to have comorbid conditions

Smoking



KFF

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Disparities in Comorbidities

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

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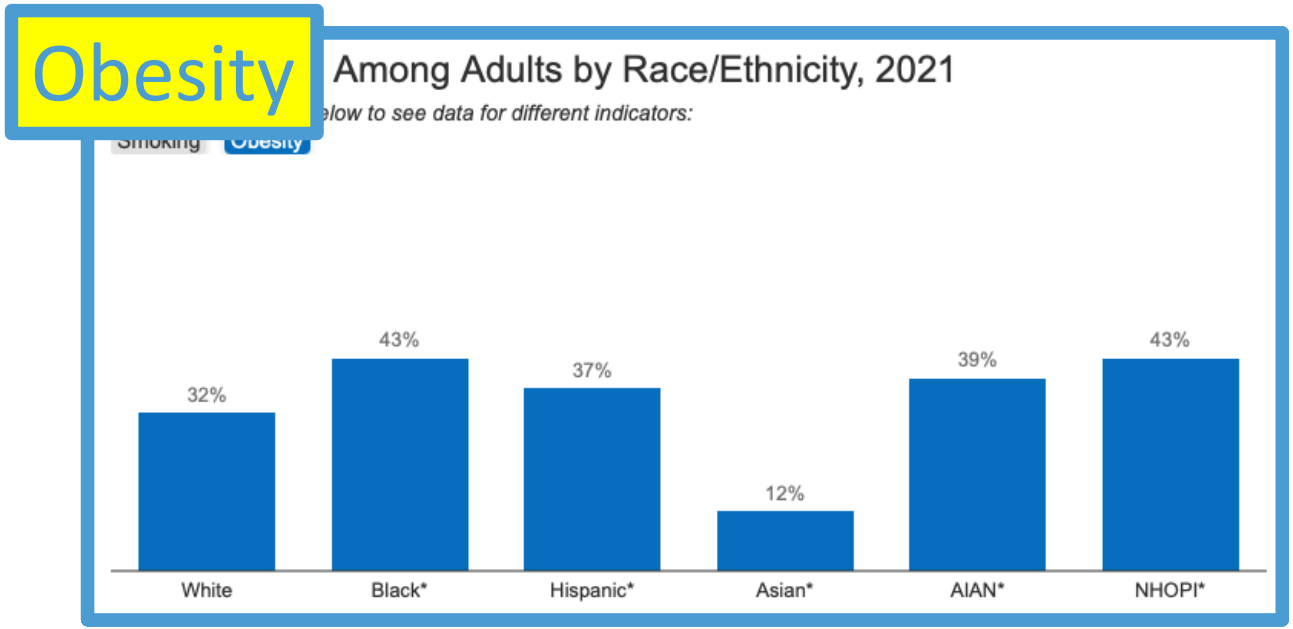

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Disparities in Comorbidities

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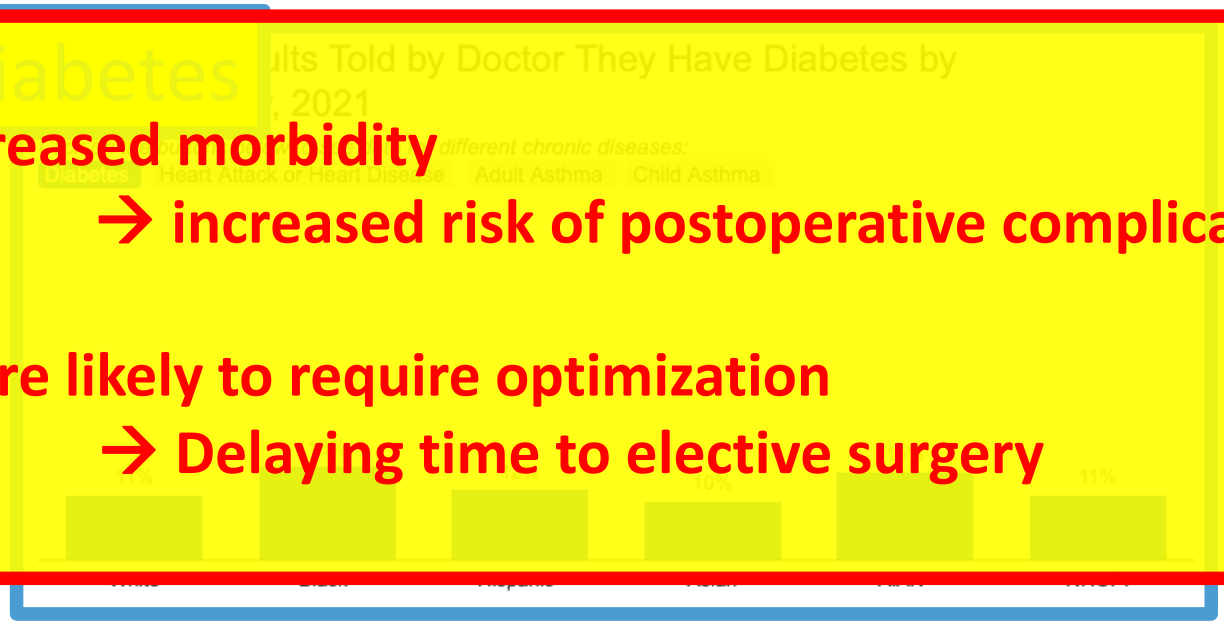

Increased morbidity

→ increased risk of postoperative complications

More likely to require optimization

→ Delaying time to elective surgery

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Access to Surgical Evaluation

Rates of Surgical Consultations After Emergency Department Admission in Black and White Medicare Patients

Sanford E. Roberts, MD; Claire B. Rosen, MD; Luke J. Keele, PhD; Christopher J. Wirtalla, BA; Solomiya Syvyk, BA; Elinore J. Kaufman, MD, MHSP; Patrick M. Reilly, MD; Mark D. Neuman, MD, MSC; Matthew D. McHugh, PhD; Rachel R. Kelz, MD, MSCE, MBA

2022

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- Retrospective cohort study of black and white Medicare patients admitted to the hospital from the Emergency department with an emergency general surgery condition between 2015-2018

- Included 1,686,940 patients
  - 214,788 (12.7%) black vs 1,472,152 (87.3%) white

- Primary outcome: receipt of a surgical consultation after admission

EGS condition
Colorectal
General abdominal
HPB
Intestinal obstruction
Upper GI

Roberts SE, Rosen CB, Keele LJ, Wirtalla CJ, Syvyk S, Kaufman EJ, Reilly PM, Neuman MD, McHugh MD, Kelz RR. Rates of Surgical Consultations After Emergency Department Admission in Black and White Medicare Patients. JAMA Surg. 2022 Dec 1;157(12):1097-1104.

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2022

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- **After standardizing for medical conditions and diagnostic imaging for conditions which included: abdominal pain, abdominal mass, and obstruction**

Table 2. Odds of Receiving a Surgical Consultation Among Black Patients Compared With White Patients[a]

Characteristic	Risk difference (95% CI)	Odds ratio (95% CI)	
		Unadjusted	Adjusted
Medical			
Black patients	3.17 (−3.41 to −2.92)	0.76 (0.75 to 0.77)	0.86 (0.85 to 0.87)

Roberts SE, Rosen CB, Keele LJ, Wirtalla CJ, Syvyk S, Kaufman EJ, Reilly PM, Neuman MD, McHugh MD, Kelz RR. Rates of Surgical Consultations After Emergency Department Admission in Black and White Medicare Patients. JAMA Surg. 2022 Dec 1;157(12):1097-1104.

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14% less likely

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Socioeconomic status			
Black patients	−2.49 (−2.75 to −2.23)	0.76 (0.75 to 0.77)	0.89 (0.88 to 0.90)

14% less likely

11% less likely

Roberts SE, Rosen CB, Keele LJ, Wirtalla CJ, Syvyk S, Kaufman EJ, Reilly PM, Neuman MD, McHugh MD, Kelz RR. Rates of Surgical Consultations After Emergency Department Admission in Black and White Medicare Patients. JAMA Surg. 2022 Dec 1;157(12):1097-1104.

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2022

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- After standardizing for medical conditions and diagnostic imaging for conditions which included: abdominal pain, abdominal mass, and obstruction

Black patients are less likely than white patients to have a surgical consultation, despite a potential surgical indication

Within hospital				
Black patients	−1.82 (−2.18 to −1.46)	0.78 (0.77 to 0.78)	0.92 (0.90 to 0.93)	8% less likely

Roberts SE, Rosen CB, Keele LJ, Wirtalla CJ, Syvyk S, Kaufman EJ, Reilly PM, Neuman MD, McHugh MD, Kelz RR. Rates of Surgical Consultations After Emergency Department Admission in Black and White Medicare Patients. JAMA Surg. 2022 Dec 1;157(12):1097-1104.

Access to MIS techniques

Access to common laparoscopic general surgical procedures: do racial disparities exist?

Kasey Leigh Wood[1] · Syed F. Haider[1] · Anthony Bui[1] · I. Michael Leitman[1]

2020

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- Retrospective review of ACS-NSQIP data from 2016
- Performed propensity score matching to evaluate patients undergoing common laparoscopic surgical procedures
- **Black race was significantly associated with lower likelihood of undergoing minimally invasive approach for all surgeries**

Variable	Unilateral inguinal hernia repair			Bilateral inguinal hernia repair			Cholecystectomy			Appendectomy			Colectomy		
	Percent		*p* value	Percent		*p* value	Percent		*p* value	Percent		*p* value	Percent		*p* value
	White patients (*N* = 3551)	Black patients (*N* = 3551)		White patients (*N* = 177)	Black patients (*N* = 177)		White patients (*N* = 5276)	Black patients (*N* = 5276)		White patients (*N* = 3379)	Black patients (*N* = 3379)		White patients (*N* = 5181)	Black patients (*N* = 5181)	
Laparoscopic	68.74	31.26	**< 0.0001**	74.58	53.11	**< 0.0001**	98.67	94.31	**< 0.0001**	98.96	92.81	**< 0.0001**	61.49	49.01	**< 0.0001**

Wood KL, Haider SF, Bui A, Leitman IM. Access to common laparoscopic general surgical procedures: do racial disparities exist? Surg Endosc. 2020 Mar;34(3):1376-1386. doi: 10.1007/s00464-019-06912-w. Epub 2019 Jun 17. PMID: 31209603.

Racial Disparities in Outcomes After Common Abdominal Surgical Procedures—The Impact of Access to a Minimally Invasive Approach

Syed Haider, MD,[a] Kasey Wood, BS,[b] Anthony Bui, MD, MSCR,[c] and I. Michael Leitman, MD[c,*]

2021

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- Follow-up study evaluating the impact of decreased access to MIS approach on postoperative complications

Haider S, Wood K, Bui A, Leitman IM. Racial Disparities in Outcomes After Common Abdominal Surgical Procedures-The Impact of Access to a Minimally Invasive Approach. J Surg Res. 2021 Jan;257:85-91.

Racial Disparities in Outcomes After Common Abdominal Surgical Procedures—The Impact of Access to a Minimally Invasive Approach

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2021

- Propensity score matching showed black race had higher odds of developing:
  - Any complication
  - Severe complication
  - Death

outcomes within the propensity score matched cohort.

Complication	OR	95% CI	P-value
Any	1.210	1.132-1.291	<0.001
Minor	1.053	0.970-1.142	0.212
Severe	1.352	1.245-1.466	<0.001
Reoperation	1.086	0.929-1.265	0.295
Readmission	1.065	0.964-1.175	0.210
Death	1.358	1.000-1.818	0.044

Haider S, Wood K, Bui A, Leitman IM. Racial Disparities in Outcomes After Common Abdominal Surgical Procedures-The Impact of Access to a Minimally Invasive Approach. J Surg Res. 2021 Jan;257:85-91.

Racial Disparities in Ventral Hernia Repair

Access to Surgical Care

Systemic Determinants in Surgery: Nonclinical Factors Affecting Time to Operation for Incarcerated Ventral Hernias

David E. Wang, MD[I], Paul J. Chung, MD[I], Rafael Barrera, MD[I], Gene F. Coppa, MD[I], Antonio E. Alfonso, MD[I], and Gainosuke Sugiyama, MD[I]

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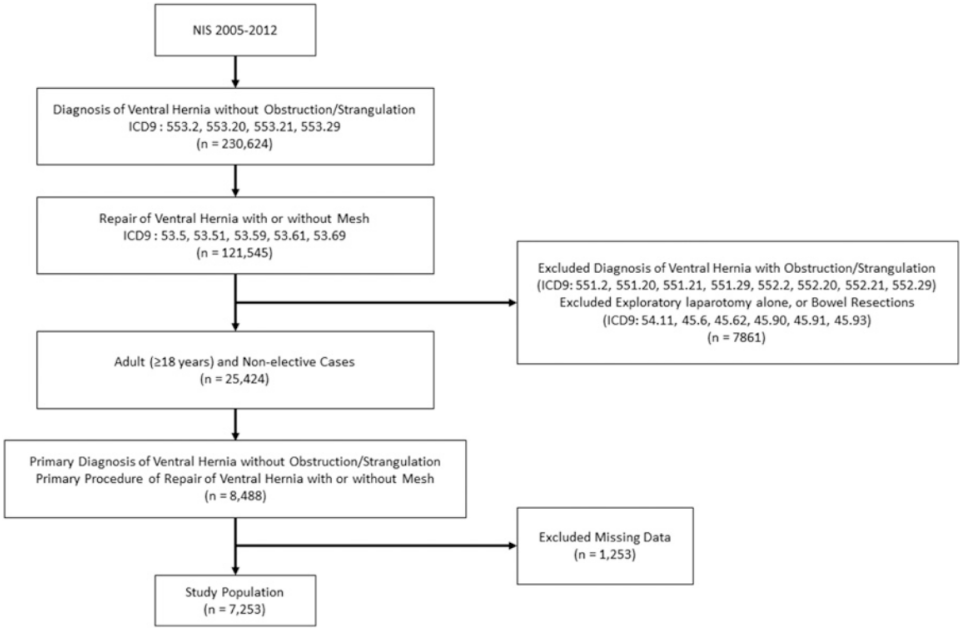
2023

- Retrospective evaluation of time from hospital admission to operation
- 2005-2012 National Inpatient Sample
- Adults >18yo, ventral incisional hernia without obstruction or gangrene who underwent non-elective ventral hernia repair
- Excluded diagnoses of obstruction and/or gangrene; procedures of exploratory laparotomy alone or bowel resection



Wang DE, Chung PJ, Barrera R, Coppa GF, Alfonso AE, Sugiyama G. Systemic Determinants in Surgery: Nonclinical Factors Affecting Time to Operation for Incarcerated Ventral Hernias. Am Surg. 2023 Jan;89(1):72-78.

Systemic Determinants in Surgery: Nonclinical Factors Affecting Time to Operation for Incarcerated Ventral Hernias

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2023

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Table 3. Univariate Analysis Comparing Nonelective Repair Within 1 Day (<1 day) to Those That Had Repair After 1 Day.

Characteristic	<1 day (n = 5710)	≥1 day (n = 1543)	*P* value
Sex			.111
Male	2104 (37%)	534 (35%)	
Female	3606 (63%)	1009 (65%)	
Age (mean ± SD), years	56.6 ± 14.4	56.0 ± 16.1	.156
Race			<.0001
White	4351 (76%)	1043 (67%)	
African American	619 (11%)	225 (15%)	
Hispanic	511 (9%)	213 (14%)	
Asian Pacific	41 (1%)	16 (1%)	
Native American	49 (1%)	10 (1%)	
Other	139 (2%)	36 (2%)	
Day of admission			<.0001
Weekday	5593 (98%)	1224 (79%)	
Weekend	117 (2%)	319 (21%)	
Insurance type			<.0001
Private	2548 (44%)	467 (30%)	
Medicare	2100 (37%)	637 (41%)	
Medicaid	644 (11%)	237 (16%)	
Self-pay	154 (3%)	113 (7%)	
No charge	39 (1%)	14 (1%)	
[illegible]	[illegible]	[illegible]	
Income level (based on patient zip code)			.004
4th quartile	1339 (23%)	328 (21%)	
3rd quartile	1610 (28%)	503 (33%)	
2nd quartile	1471 (26%)	360 (23%)	
1st quartile	1290 (23%)	352 (23%)	
Length of stay			<.0001
Mean	3.31 ± 3.58	6.48 ± 5.04	
Median	3	5	
Mortality			.057
No	5693 (100%)	1533 (99%)	
Yes	17 (0%)	10 (1%)	
van Walraven (mean ± SD)	1.41 ± 4.58	3.28 ± 6.53	<.0001

- **Non-white race**, weekend admission, non-private insurance, lower income levels, more comorbidities were **associated with increased time to operation and longer length of stay**

Wang DE, Chung PJ, Barrera R, Coppa GF, Alfonso AE, Sugiyama G. Systemic Determinants in Surgery: Nonclinical Factors Affecting Time to Operation for Incarcerated Ventral Hernias. Am Surg. 2023 Jan;89(1):72-78.

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Even after adjusting for socioeconomic variables, **white patients had <u>shorter times to operation</u> compared to African American and Hispanic** patients after hospital admission for incarcerated ventral hernia

Table 4. Multivariate Analysis Using Negative Binomial Regression.

Characteristic	Variables of interest	IRR*	95% CI	*P* value
Race	Hispanic	1.34*	1.09-1.66	.006
	African American	1.30*	1.07-1.58	.009
	Asian Pacific	1.39	.73-2.83	.338
	Other	.84	.56-1.28	.399
	Native American	.59	.28-1.27	.186
	White			

Wang DE, Chung PJ, Barrera R, Coppa GF, Alfonso AE, Sugiyama G. Systemic Determinants in Surgery: Nonclinical Factors Affecting Time to Operation for Incarcerated Ventral Hernias. Am Surg. 2023 Jan;89(1):72-78.

Elective vs Emergent Repair

Impact of Race and Socioeconomic Status on Presentation and Management of Ventral Hernias

Kimberly Bowman, BA; Dana A. Telem, MD; Jonatan Hernandez-Rosa, BA; Natalie Stein; Ruth Williams; Celia M. Divino, MD

2010

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

- Retrospective single center study from 2005-2008
- 321 patients undergoing ventral hernia repair

Black patients are more likely than white patients to present with acute hernia complications requiring emergency surgery (11% vs 4%; p<0.01)

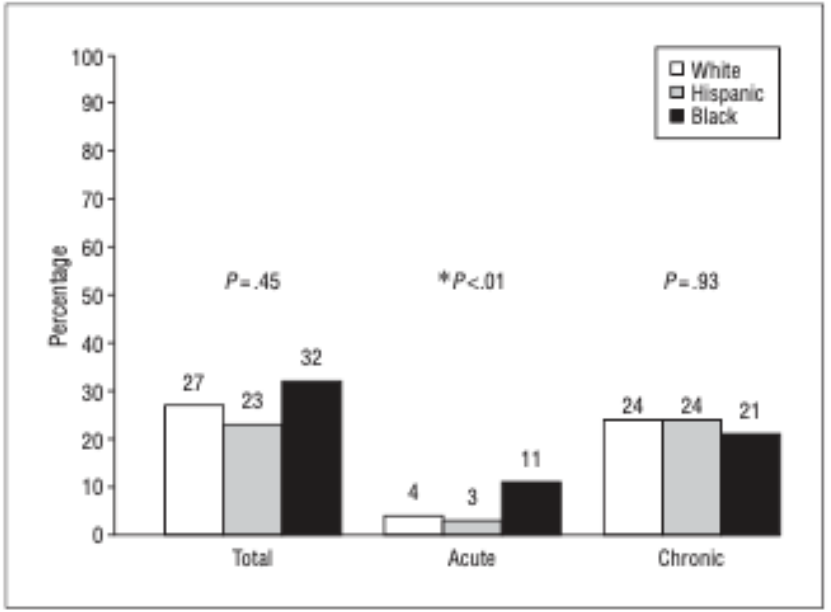

Figure 1. Complicated hernia presentation by acuity and race. *Black individuals were significantly more likely than white individuals to present with acute hernia complications requiring emergent surgery.

K, Telem DA, Hernandez-Rosa J, Stein N, Williams R, Divino CM. Impact of race and socioeconomic status on presentation and management of ventral hernias. Arch Surg. 2010 Aug;145(8):776-80. doi: 10.1001/archsurg.2010.141. PMID: 20713931.

Disparities in unplanned surgery amongst medicare beneficiaries

2023

Valeria S.M. Valbuena [a,b,c,*], Shukri H.A. Dualeh [a,c], Nicholas Kunnath [c], Justin B. Dimick [a,c], Andrew M. Ibrahim [a,c,d]

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CHAPEL HILL

- Cross-sectional study of Medicare beneficiaries undergoing incisional hernia repair, colectomy, or AAA repair between 2014-2018

- **Black, Hispanic, Asian, and Native American** beneficiaries had statistically significant **higher risk-adjusted rates of unplanned surgery compared to white beneficiaries**

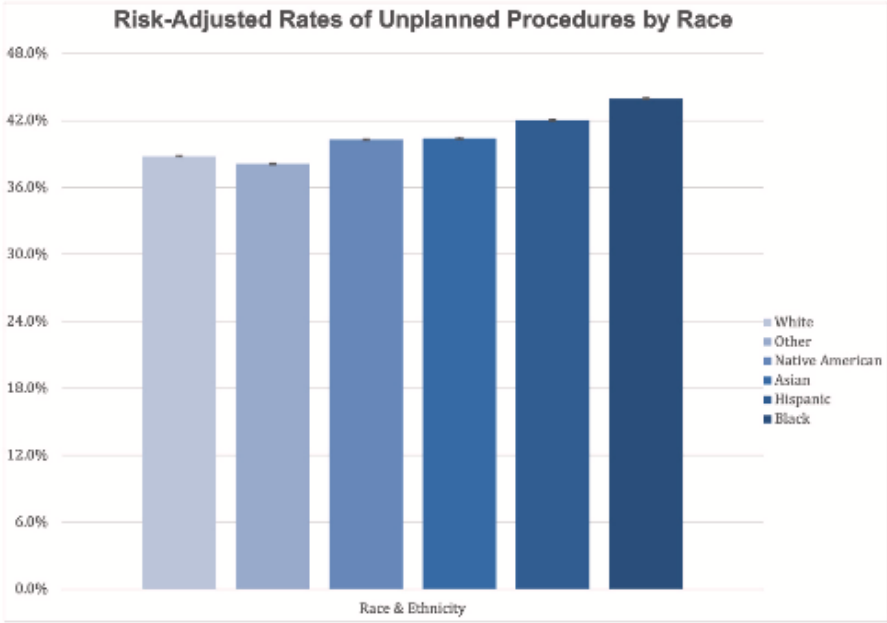

Fig. 1. Rates of unplanned surgery between races and ethnicities.

Valbuena VSM, Dualeh SHA, Kunnath N, Dimick JB, Ibrahim AM. Disparities in unplanned surgery amongst medicare beneficiaries. Am J Surg. 2023 Apr;225(4):602-607.

AJS The American Journal of Surgery

Disparities in unplanned surgery amongst medicare beneficiaries

Valeria S.M. Valbuena [a,b,c,*], Shukri H.A. Dualeh [a,c], Nicholas Kunnath [c], Justin B. Dimick [a,c], Andrew M. Ibrahim [a,c,d]

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30-day mortality for both elective and unplanned procedures was higher for Asian and Black Medicare beneficiaries

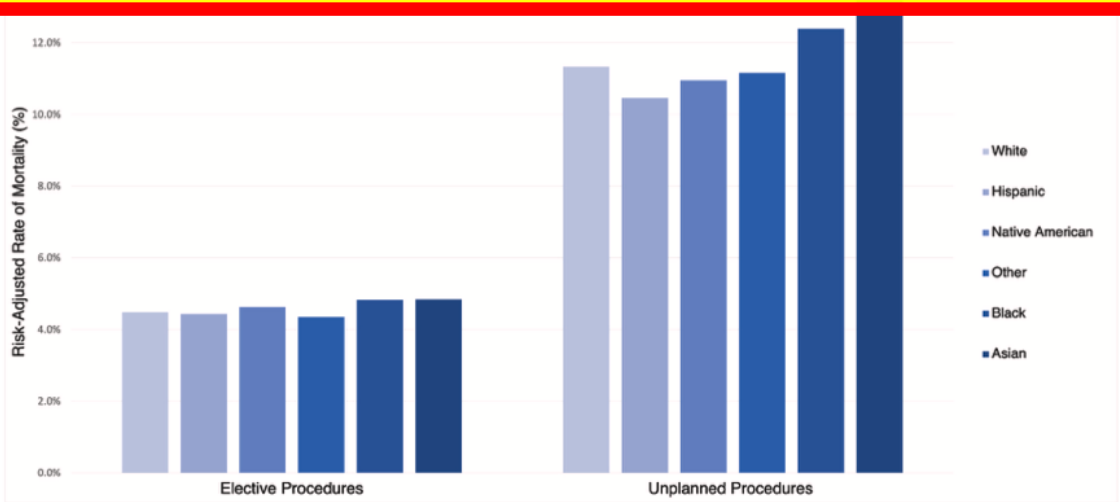

Fig. 2. Risk-Adjusted 30-day mortality rates across different races and ethnicities by admission type.

Valbuena VSM, Dualeh SHA, Kunnath N, Dimick JB, Ibrahim AM. Disparities in unplanned surgery amongst medicare beneficiaries. Am J Surg. 2023 Apr;225(4):602-607.

Predictors of emergency ventral hernia repair: Targets to improve patient access and guide patient selection for elective repair

Lindsey L. Wolf, MD,[a,b,c] John W. Scott, MD, MPH,[a,b,c] Cheryl K. Zogg, MSPH, MHS,[a] Joaquim M. Havens, MD,[a,b] Eric B. Schneider, PhD,[a] Douglas S. Smink, MD, MPH,[a,c] Ali Salim, MD,[b] *and* Adil H. Haider, MD, MPH,[a,b] *Boston, MA*

2016

- Retrospective review of Nationwide Inpatient Sample (NIS) from 2003-2011 to evaluate factors associated with emergency ventral hernia repair

- **Independent predictors of emergency repair include older age, non-white race, more comorbidities, and insurance status**

- **Emergency repair was associated with greater odds of in-hospital death, greater costs, and longer hospital stay**

Table III. Sensitivity analysis on race/ethnicity: risk-adjusted odds of undergoing an emergency ventral hernia repair using reweighted estimating equations

Variable	*Odds ratio**	*95% CI*	P *value*
Age group, y			
<45	—	—	—
45–54	0.91	[0.87, 0.96]	<.001
55–64	0.82	[0.78, 0.86]	<.001
65–74	0.77	[0.72, 0.82]	<.001
75–84	1.01	[0.93, 1.09]	.835
≥85	2.18	[1.95, 2.44]	<.001
Sex			
Male	—	—	—
Female	0.98	[0.95, 1.01]	.213
Race/ethnicity			
White	—	—	—
Black	1.82	[1.68, 1.97]	<.001
Hispanic	1.44	[1.29, 1.62]	<.001
Other	1.26	[1.10, 1.44]	.001
Charlson Comorbidity Index			
0	—	—	—
1	1.14	[1.10, 1.18]	<.001
2	1.25	[1.18, 1.32]	<.001
≥3	1.69	[1.57, 1.82]	<.001
Income quartile			
Lowest	—	—	—
Second	0.93	[0.87, 1.00]	.064
Third	0.91	[0.84, 0.99]	.037
Highest	0.94	[0.85, 1.05]	.283
Primary payer			
Private insurance	—	—	—
Medicare	0.97	[0.91, 1.02]	.224
Medicaid	1.28	[1.19, 1.37]	<.001
Self pay	3.56	[3.17, 3.99]	<.001
No charge	2.27	[1.39, 3.71]	.001
Other	1.16	[1.04, 1.30]	.009

Wolf LL, Scott JW, Zogg CK, Havens JM, Schneider EB, Smink DS, Salim A, Haider AH. Predictors of emergency ventral hernia repair: Targets to improve patient access and guide patient selection for elective repair. Surgery. 2016 Nov;160(5):1379-1391.

Health Disparities in Incisional Hernia Presentation: An Analysis of HCUP-NIS Years 2012-2014

The American Surgeon
2020, Vol. 86(7) 799–802

DOI: 10.1177/0003134820933574
journals.sagepub.com/home/asu
SAGE

Clairissa D. Mulloy, MS[1], Ryan D. Hoffman, MD[1], Denise M. Danos, PhD[1], and Frank H. Lau, MD[1]

2020

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- Retrospective evaluation of patients presenting with surgical emergencies related to incisional hernias
- 2012-2014 Healthcare Cost and Utilization Project – National Inpatient Sample (HCUP-NIS)
- 39,206 surgeries, 38.5% were non-elective
- After adjusting for age, sex, and insurance, the **odds of having a non-elective admission for an incisional hernia was significantly higher for non-white patients**
  - Black: OR 1.65, 95% CI [1.53-1.77]
  - Hispanic: OR1.39, 95% CI [1.28-1.51]
  - Other: OR 1.2, 95% CI [1.06-1.37]

Mulloy CD, Hoffman RD, Danos DM, Lau FH. Health Disparities in Incisional Hernia Presentation : An Analysis of HCUP-NIS Years 2012-2014. Am Surg. 2020 Jul;86(7):799-802.

National health disparities in incisional hernia repair outcomes: An analysis of the Healthcare Cost and Utilization Project National Inpatient Sample (HCUP-NIS) 2012-2014

Ryan D. Hoffman, BS[a], Denise M. Danos, PhD[b], Frank H. Lau, MD[c,*]

2021

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

- Further evaluation performed by the same group

- Non-elective incisional hernia repair was strongly correlated with worse outcomes:
  - In-hospital mortality (OR 3.01, 95% CI [2.51, 3.61])
  - postoperative complications (OR 1.2 , 95% CI [1.14, 1.25])
  - Increased length of stay (OR 2.96 , 95% CI [2.81, 3.12])

Hoffman RD, Danos DM, Lau FH. National health disparities in incisional hernia repair outcomes: An analysis of the Healthcare Cost and Utilization Project National Inpatient Sample (HCUP-NIS) 2012-2014. Surgery. 2021 Jun;169(6):1393-1399.

Making sense of why differences in care exist

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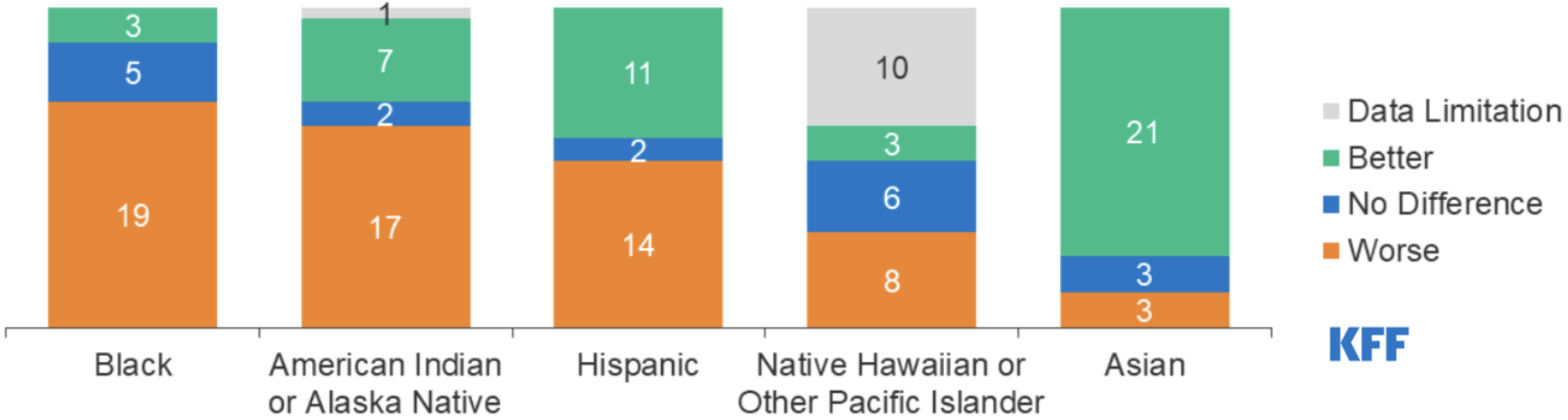
People of color have worse health status measures than their white counterparts



Evaluating 27 health status measures, compared to white counterparts, including infant mortality, pregnancy-related deaths, prevalence of chronic conditions, and overall physical and mental health status

https://www.kff.org/racial-equity-and-health-policy/issue-brief/disparities-in-health-and-health-care-5-key-question-and-answers/

Ventral Hernia Working Group (VHWG)

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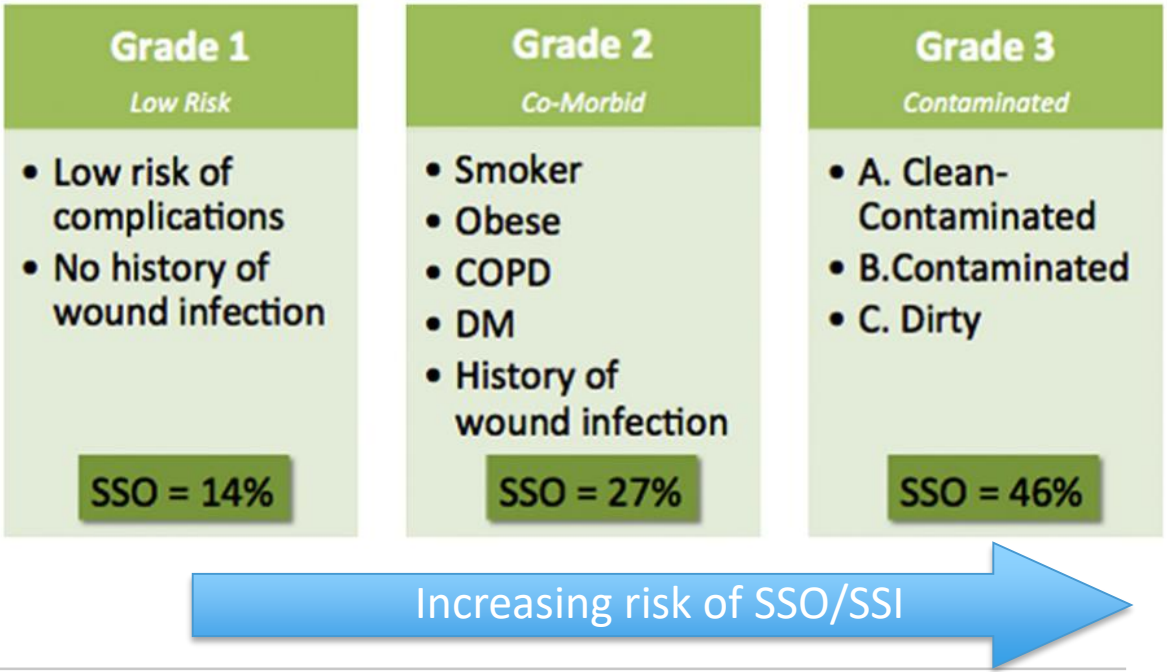
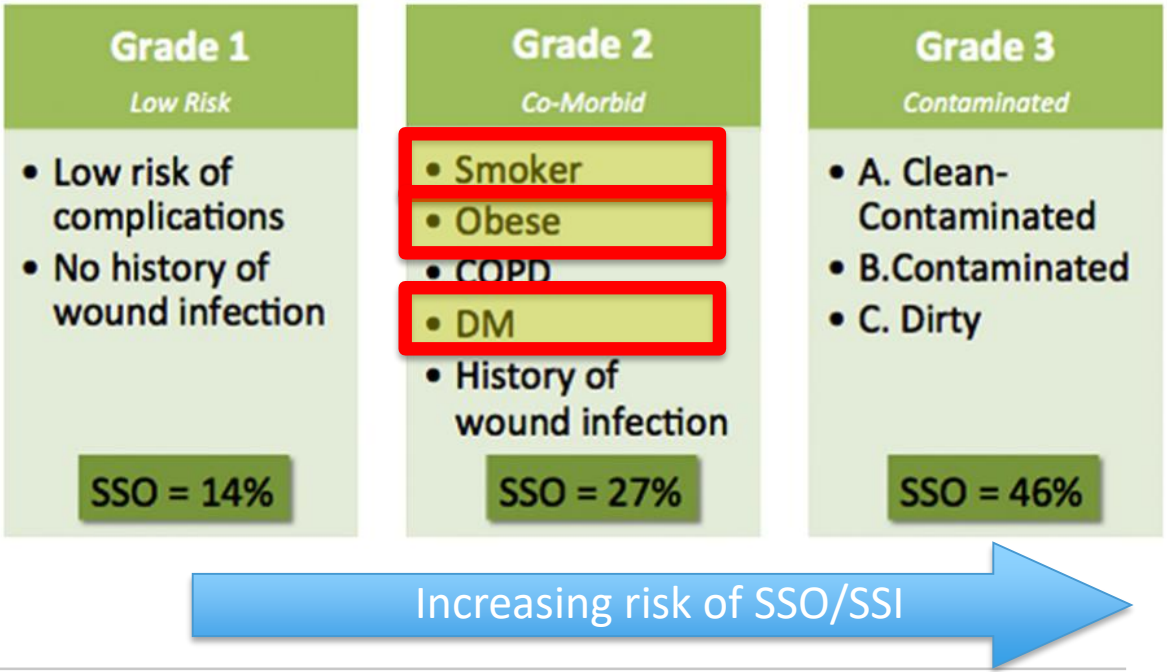
2012 Modified 3-class grading system to predict the risk of surgical site occurrence (SSO), which includes SSI, based on patient and surgical wound characteristics

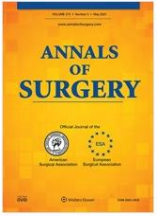


Kanters AE, Krpata DM, Blatnik JA, Novitsky YM, Rosen MJ. Modified hernia grading scale to stratify surgical site occurrence after open ventral hernia repairs. *J Am Coll Surg*. 2012;215(6):787-793.

Identified *potential* modifiable comorbidities



Kanters AE, Krpata DM, Blatnik JA, Novitsky YM, Rosen MJ. Modified hernia grading scale to stratify surgical site occurrence after open ventral hernia repairs. *J Am Coll Surg*. 2012;215(6):787-793.



REVIEW PAPER

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,¶ Robert G. Martindale, MD, PhD,†† Sean Orenstein, MD,†† Bryan Richmond, MD,‡‡ John Scott Roth , MD,§§ Paul Szotek, MD,¶¶ Shirin Towfigh, MD,|||| Shawn Tsuda, MD,*** Khashayar Vaziri, MD,††† and David H. Berger, MD‡*

Liang MK, Holihan JL, Itani K, Alawadi ZM, Gonzalez JR, Askenasy EP, Ballecer C, Chong HS, Goldblatt MI, Greenberg JA, Harvin JA, Keith JN, Martindale RG, Orenstein S, Richmond B, Roth JS, Szotek P, Towfigh S, Tsuda S, Vaziri K, Berger DH. Ventral Hernia Management: Expert Consensus Guided by Systematic Review. Ann Surg. 2017 Jan;265(1):80-89.

Preop Optimization and Education

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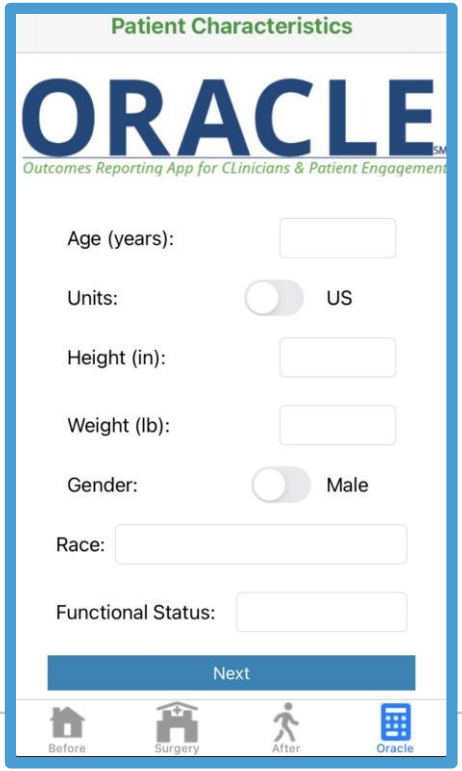
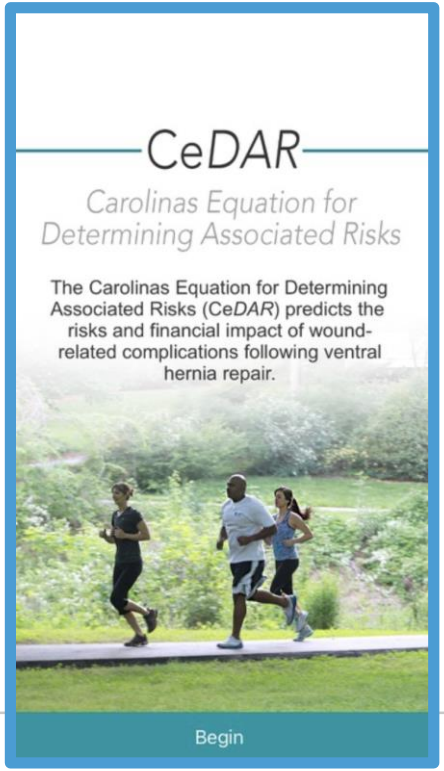
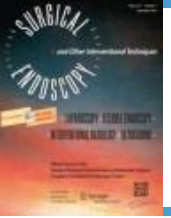




Can patients actually be optimized?



Gender, racial, and socioeconomic disparity of preoperative optimization goals in ventral hernia repair

2023

Mazen R. Al-Mansour[1,3] · Khal-Hentz Gabriel[2] · Dan Neal[1]

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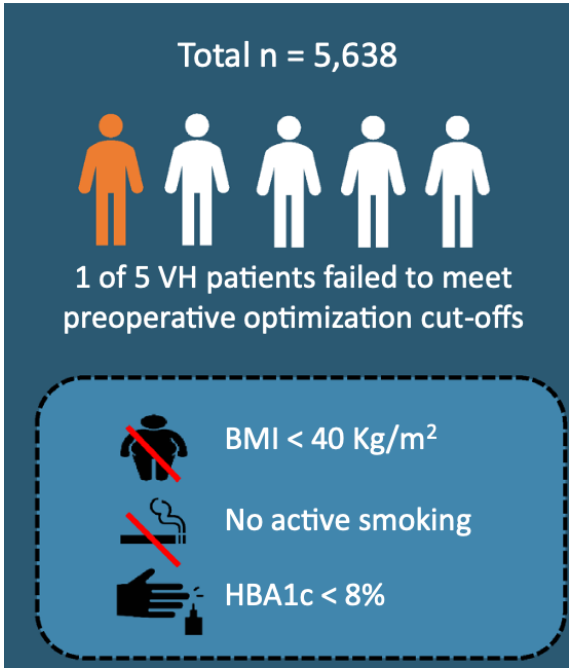
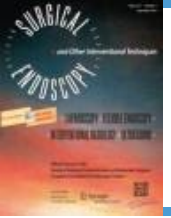
- Retrospective, single institution evaluation from 2016-2021
- 5,638 Adult patients with ventral hernias
- 21% of patients would require optimization prior to repair
  - 10% had BMI>40
  - 9% were active smokers
  - 4% had HBA1c >8



Al-Mansour MR, Gabriel KH, Neal D. Gender, racial, and socioeconomic disparity of preoperative optimization goals in ventral hernia repair. Surg Endosc. 2023 Dec;37(12):9399-9405.



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2023

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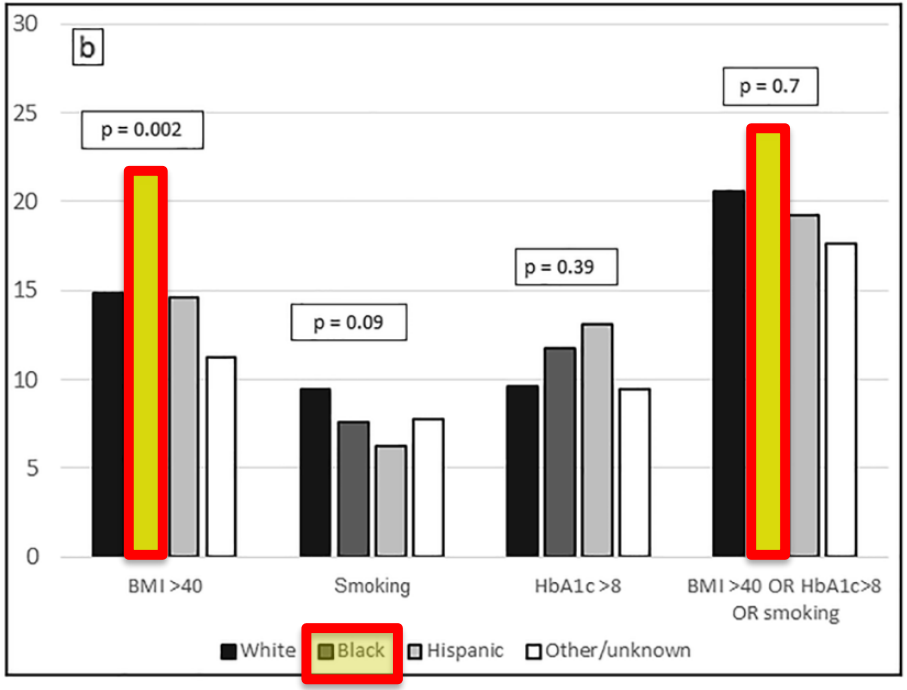
Higher proportion of Black patients with BMI>40, compared to other races

Not statistically significant, but Black patients had a higher proportion of optimization requirements compared to other races



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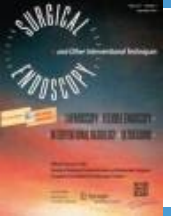

Gender, racial, and socioeconomic disparity of preoperative optimization goals in ventral hernia repair

2023

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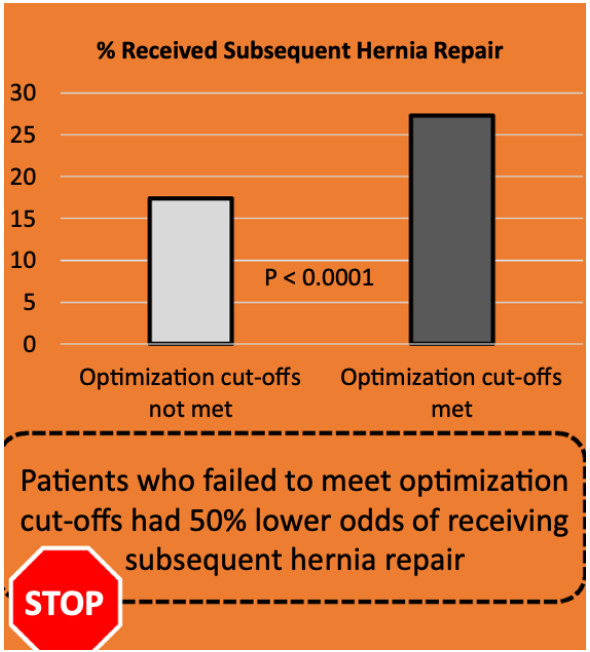
Unoptimized patients unable to meet their optimization goals had 50% lower odds of having their hernia repaired



Al-Mansour MR, Gabriel KH, Neal D. Gender, racial, and socioeconomic disparity of preoperative optimization goals in ventral hernia repair. Surg Endosc. 2023 Dec;37(12):9399-9405.

The efficacy of goal-directed recommendations in overcoming barriers to elective ventral hernia repair in older adults

Cameron A. Casson, MD[a,*], Julie M. Clanahan, MD[a], Britta J. Han, MD[a], Chloe Ferris, MD[a], Timothy R. Holden, MD[b], Bradley S. Kushner, MD[a], Sara E. Holden, MD[a]

[a] *Department of Surgery, Washington University, St. Louis, MO*
[b] *Department of Medicine, Division of Geriatrics and Nutritional Science, Washington University, St. Louis, MO*

2023

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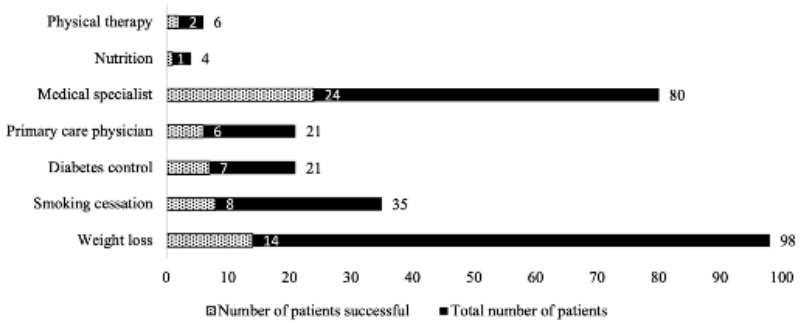
- Retrospective Single Center review to determine if adults >60 yo achieved surgeon-directed goals to progress to elective VHR from 2018-2021

- 559 patients evaluated
  - 182 (32.6%) deemed nonoperative with modifiable risk factors
    - 53.8% - surgeon recommendations for weight loss
    - 44% - comorbidity management by medical specialist
    - 19.2% - smoking cessation



Surgeon goal-directed recommendations to address barriers to ventral hernia repa
Note some patients had more than one barrier.

Casson CA, Clanahan JM, Han BJ, Ferris C, Holden TR, Kushner BS, Holden SE. The efficacy of goal-directed recommendations in overcoming barriers to elective ventral hernia repair in older adults. Surgery. 2023 Mar;173(3):732-738. doi: 10.1016/j.surg.2022.07.043. Epub 2022 Oct 21. PMID: 36280511.

The efficacy of goal-directed recommendations in overcoming barriers to elective ventral hernia repair in older adults

Cameron A. Casson, MD[a,*], Julie M. Clanahan, MD[a], Britta J. Han, MD[a], Chloe Ferris, MD[a], Timothy R. Holden, MD[b], Bradley S. Kushner, MD[a], Sara E. Holden, MD[a]

[a] Department of Surgery, Washington University, St. Louis, MO
[b] Department of Medicine, Division of Geriatrics and Nutritional Science, Washington University, St. Louis, MO

2023

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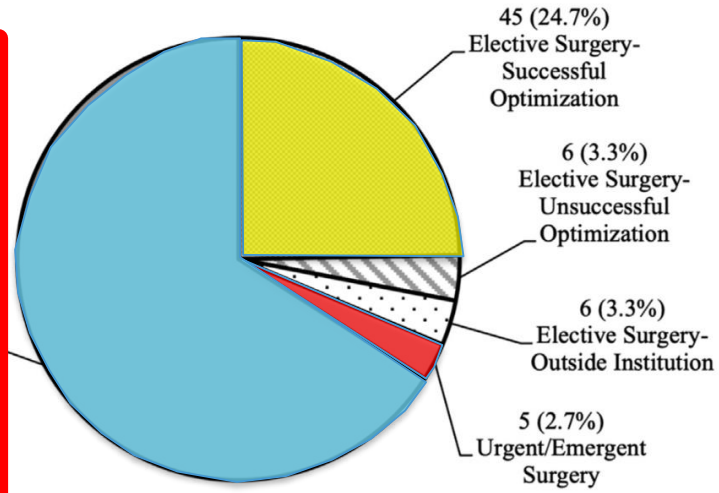
- 45 (24.7%) of patients achieved preoperative goals and advanced to elective surgery
- Majority of patients asked to undergo optimization were lost to follow-up
- ~
- Less than ¼ of patients successfully achieved their preoperative goals
- consultation despite being offered a follow-up appointment



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Using the ACHQC to understand the inequality to improve the quality of care for our patients

VIEWPOINT

Is Preoperative Optimization Right for Every Hernia Patient?
It's Time to Optimize the Optimization Process

2024

Serena S. Bidwell, MPH
University of Michigan Medical School, Ann Arbor.

Brian T. Fry, MD, MS
Department of Surgery, University of Michigan, Michigan Medicine, Ann Arbor; and University of Michigan Center for Healthcare Outcomes & Policy, Ann Arbor.

Dana A. Telem, MD, MPH
Department of Surgery, University of Michigan, Michigan Medicine, Ann Arbor; and University of Michigan Center for Healthcare Outcomes & Policy, Ann Arbor.

A 42-year-old female with a body mass index (BMI; calculated as weight in kilograms divided by height in meters squared) of 55 reports that her 3-cm abdominal hernia has been affecting her quality of life. She's afraid to wear tight clothing or take her kids to the playground, but multiple surgeons refused to operate because of her weight. Another patient, a 64-year-old male with a 30-pack-year smoking history and BMI of 23, sits in the clinic waiting room with a 6-cm hernia that has been causing severe pain and functional impairment. His wife says he's become more withdrawn. Though he's been advised to quit smoking before, he never realized that the timing of his operation might depend on it. "Will you help repair my hernia?" they each ask.

These hypothetical patients help illustrate that there are many considerations for the timing of elective hernia repair. We often adamantly propose delaying or deferring hernia operations in persons with severe obesity or who are actively smoking. We accept this recommendation based on numerous studies demonstrating that patients with high-risk comorbidities have higher rates of morbidity following hernia surgery. These recommendations, however, frequently discount the patient characteristic (such as tobacco use, morbid obesity, or unhealthy alcohol consumption) at the time of the surgery.[5] Furthermore, surgeons with the lowest rates of optimization had higher rates of complications and postoperative emergency department visits.[6] If we accept preoperative optimization as the gold standard, why are surgeons continuing to skip it for elective procedures primarily aimed at improving quality of life?

We know of some barriers to optimization: financial incentives to operate without delay and insufficient institutional infrastructure to support patients' efforts to lose weight, quit smoking, and gain better diabetic glucose control. To address these barriers, a recent statewide study offered to surgeons a financial incentive, an educational intervention to improve awareness, and extra support with on-site facilitation to encourage optimization.[5] Yet, many surgeons continued to forgo optimization, reporting that patients will "just go find somebody else" if they delayed an operation.[5] The ability to "doctor shop" for the surgeon who agrees to operate immediately puts pressure on surgeons to do so without optimization for fear of damaging their reputation and losing patients and revenue

Bidwell SS, Fry BT, Telem DA. Is Preoperative Optimization Right for Every Hernia Patient?: It's Time to Optimize the Optimization Process. JAMA Surg. 2024 Mar 6.

VIEWPOINT

Is Preoperative Optimization Right for Every Hernia Patient?

It's Time to Optimize the Optimization Process

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Put simply, it's unclear who benefits from preoperative optimization, who doesn't, and why. Furthermore, detailed hernia-, patient-, and operation-specific data are currently missing from the literature and may have significant implications on our understanding of which patients need preoperative optimization most.

Bidwell SS, Fry BT, Telem DA. Is Preoperative Optimization Right for Every Hernia Patient?: It's Time to Optimize the Optimization Process. JAMA Surg. 2024 Mar 6.

Opinion

VIEWPOINT

Is Preoperative Optimization Right for Every Hernia Patient?

It's Time to Optimize the Optimization Process

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

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Opinion

VIEWPOINT

Is Preoperative Optimization Right for Every Hernia Patient?
It's Time to Optimize the Optimization Process

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

What Do We Need?

In the context of elective hernia repair, we need to better understand the association between receiving surgery and quality of life to adequately determine which patients would benefit most from preoperative optimization. To do this, we need population-level hernia registry data that includes patient- and hernia-level characteristics, such as size, location, and mesh type, and long-term follow-up with patient-reported outcomes. Using this information, we can then capture the outcomes that matter, such as true recurrence rates, long-term pain, and return to normal activities of daily living.

Bidwell SS, Fry BT, Telem DA. Is Preoperative Optimization Right for Every Hernia Patient?: It's Time to Optimize the Optimization Process. JAMA Surg. 2024 Mar 6.


DATA IS
POWER
HOW INFORMATION
IS DRIVING THE FUTURE
ACHQC
ABDOMINAL CORE HEALTH QUALITY COLLABORATIVE

Does active smoking really matter before ventral hernia repair? An AHSQC analysis ☆,☆☆,★

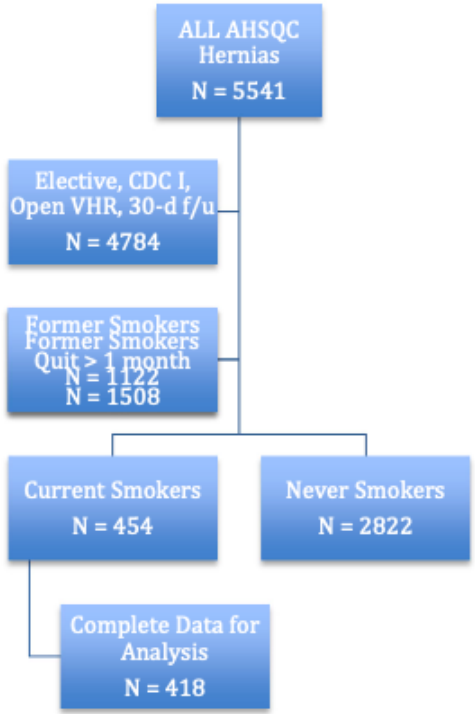
Clayton C. Petro, MD*, Ivy N. Haskins, MD, Luciano Tastaldi, MD, Chao Tu, MS, David M. Krpata, MD, Michael J. Rosen, MD, FACS, Ajita S. Prabhu, MD, FACS

Cleveland Clinic Department of General Surgery, Cleveland Clinic Comprehensive Hernia Center, OH

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

2019

- Evaluation of the association of active smoking on morbidity with elective open VHR
- Retrospective study using Abdominal Core Health Quality Collaborative (ACHQC) national database
- 1:1 Propensity matching of 418 current smokers to 418 never smokers who underwent elective pen VHR



Petro CC, Haskins IN, Tastaldi L, Tu C, Krpata DM, Rosen MJ, Prabhu AS. Does active smoking really matter before ventral hernia repair? An AHSQC analysis. Surgery. 2019 Feb;165(2):406-411.

Does active smoking really matter before ventral hernia repair? An AHSQC analysis ☆,☆☆,★

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Cleveland Clinic Department of General Surgery, Cleveland Clinic Comprehensive Hernia Center, OH

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2019

Well matched patient characteristics between the two groups, except for BMI and COPD

Table 1

1:1 Propensity matched demographics and comorbidities.

Demographics and comorbidities	Current smokers N = 418	Never smokers N = 418	*P* value
Age, y (mean ± SD)	52.7 ± 11.2	53.5 ± 11.2	.29
Female	52.6%	52.6%	.99
BMI (mean ± SD)	31.4 ± 6.9	33.3 ± 5.5	< .001*
Diabetes	19.4%	20.6%	.73
Hypertension	46.2%	47.1%	.84
COPD	18.4%	6.5%	< .001*
On steroids	2.4%	2.4%	> .99
History of SSI	18.6%	18.4%	> .99
History of hernia recurrence	35.4%	35.4%	> .99
ASA			> .99
– 1	2.6%	2.9%	
– 2	35.2%	35.9%	
– 3	59.1%	58.1%	
– 4	0	0	
VHWG			0.08
– 1	0	1.2%	
– 2	81.3%	80.4%	
– 3	18.7%	18.4%	
– 4	0	0	

ASA, American Society of Anesthesiologists; VHWG, Ventral Hernia Working Group

Petro CC, Haskins IN, Tastaldi L, Tu C, Krpata DM, Rosen MJ, Prabhu AS. Does active smoking really matter before ventral hernia repair? An AHSQC analysis. Surgery. 2019 Feb;165(2):406-411.

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Cleveland Clinic Department of General Surgery, Cleveland Clinic Comprehensive Hernia Center, OH

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

2019

Well matched operative characteristics

and fairly complex repairs

Table 2

1:1 Propensity matched operative characteristics.

Operative characteristics	Current smokers N = 418	Never smokers N = 418	*P* value
Hernia width, cm (mean ± SD)	7.7 ± 5.3	7.7 ± 4.7	.97
Hernia length, cm (mean ± SD)	12.0 ± 8.2	11.7 ± 7.6	.54
Operating room time >2h	62.4%	62.9%	.94
Skin flaps raised	28.2%	28.2%	> .99
Myofascial release	58.4%	60.5%	.57
Fascial closure	97.4%	97.4%	> .99
Concomitant procedure	17.5%	16.5%	.78
Mesh type			> .99
Permanent synthetic	91.4%	91.4%	
Absorbable synthetic	6.2%	6.2%	
Biologic	1.9%	1.9%	
Unknown	0.5%	0.5%	
Mesh location			.45
Onlay	6.7%	8.1%	
Inlay	5.0%	3.6%	
Sublay/underlay	88.3%	88.3%	

Petro CC, Haskins IN, Tastaldi L, Tu C, Krpata DM, Rosen MJ, Prabhu AS. Does active smoking really matter before ventral hernia repair? An AHSQC analysis. Surgery. 2019 Feb;165(2):406-411.

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Cleveland Clinic Department of General Surgery, Cleveland Clinic Comprehensive Hernia Center, OH

2019

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Table 3
Wound morbidity outcomes after 1:1 propensity matching.

Wound morbidity	Current smokers N = 418	Never smokers N = 418	*P* value
SSI	4.1%	4.1%	.98
Superficial	2.9%	2.9%	.53
Deep	1.2%	1.0%	
Organ space	0	0.2%	
SSO	12.0%	7.4%	.03*
Wound cellulitis	2.4%	1.2%	.19
Seroma	5.5%	1.2%	.0005
Other	4.1%	5.0%	.52
SSOPI	6.2%	5.0%	.43
Reoperation	1.9%	1.2%	.39
Mesh excision	0	0	

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THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

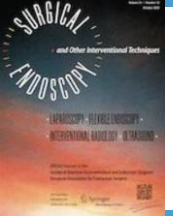
2019

No difference in 30-day morbidity between smokers and non-smokers

Table 4
All 30-day morbidity outcomes after 1:1 propensity matching.

All 30-day morbidity	Current smokers N = 418	Never smokers N = 418	*P* value
Ileus	6	4	.39
Bowel obstruction	1	1	> .99
Pain requiring readmission	4	3	.69
PE	2	1	.56
DVT	1	1	> .99
Stroke	1	0	.32
Sepsis	1	1	> .99
Septic shock	1	1	>.99
MI/cardiac arrest	0	0	NA
UTI	2	1	.56
Renal insufficiency	1	1	>.99
Renal failure	0	1	.32
Pneumonia	5	2	.23
Re-intubation	1	2	.56
Other complication	8	11	.45
Total	34 (7.5%)	30 (6.6%)	.60

Petro CC, Haskins IN, Tastaldi L, Tu C, Krpata DM, Rosen MJ, Prabhu AS. Does active smoking really matter before ventral hernia repair? An AHSQC analysis. Surgery. 2019 Feb;165(2):406-411.



S-144 lack of association between glycated hemoglobin and adverse outcomes in diabetic patients undergoing ventral hernia repair: an ACHQC study

2022

Mazen R. Al-Mansour[1] · Melanie Vargas[2] · Molly A. Olson[3] · Anand Gupta[4] · Thomas E. Read[1] · Nelson N. Algarra[5]

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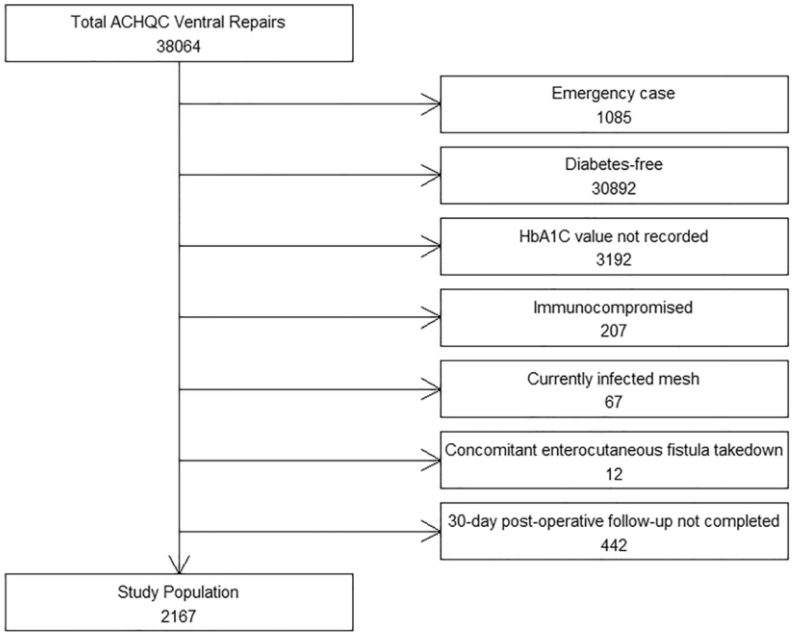
- Retrospective study to assess the association between HbA1c and outcomes after elective VHR in adult diabetic patients
- 2167 patients from the Abdominal Core Health Quality Collaborative (ACHQC) national database
- Divided between

  HbA1c < 8% (n=1776) vs HbA1c ≥ 8% (n=391)



Al-Mansour MR, Vargas M, Olson MA, Gupta A, Read TE, Algarra NN. S-144 lack of association between glycated hemoglobin and adverse outcomes in diabetic patients undergoing ventral hernia repair: an ACHQC study. Surg Endosc. 2022 Aug 15.

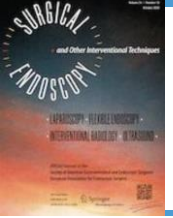


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Table 1 Patient, hernia, and surgeon characteristics

	Total ($n=2167$)	HbA1c < 8% ($n=1776$)	HbA1c > =8 ($n=391$)	p value
Age, median (IQR) year	61.0 (54.0–69.0)	62.0 (54.0–69.0)	59.0 (52.0–66.0)	< 0.001
Male, n (%)	1088 (50.2)	885 (49.8)	203 (51.9)	0.455
BMI, median (IQR) Kg/m2*	34.1 (30.1–38.1)	34.0 (30.1–38.0)	34.8 (30.6–39.0)	0.048
Race, n (%)*				0.056
White (non-Hispanic)	1781 (82.7)	1479 (83.7)	302 (78.0)	
Black (non-Hispanic)	234 (10.9)	183 (10.4)	51 (13.2)	
Hispanic	103 (4.8)	78 (4.4)	25 (6.5)	
Other	36 (1.7)	27 (1.5)	9 (2.3)	
ASA class, n (%)*				0.091
1	11 (0.5)	10 (0.6)	1 (0.3)	
2	455 (21.0)	392 (22.1)	63 (16.1)	
3	1622 (74.9)	1311 (73.9)	311 (79.5)	
4	77 (3.6)	61 (3.4)	16 (4.1)	
Distressed Communities Index, median (IQR)†	45.4 (18.1–72.9)	44.7(17.7–71.8)	48.2(21.5–76.7)	0.041
HbA1c, median (IQR) %	6.7 (6.0–7.5)	6.5 (5.9–7.0)	8.7 (8.3–9.8)	NA
Comorbidities, n (%)				
Heart failure	49 (3.8)	39 (3.6)	10 (4.3)	0.628
COPD	182 (8.4)	141 (7.9)	41 (10.5)	0.100
Hepatic insufficiency	34 (1.6)	25 (1.4)	9 (2.3)	0.198
Dialysis	26 (1.2)	25 (1.4)	1 (0.3)	0.058
Smoking within one year	293 (13.5)	225 (12.7)	68 (17.4)	0.013
Hernia width, median (IQR) cm*	6.0 (3.0–12.0)	6.0 (3.0–12.0)	5.0 (3.0–11.0)	0.066
Ventral hernia type, n (%)				
Incisional	1576 (72.7)	1305 (73.5)	271 (69.3)	0.094
Umbilical	464 (21.4)	368 (20.7)	96 (24.6)	0.095
Parastomal	158 (7.3)	127 (7.2)	31 (7.9)	0.592
Epigastric	87 (4.0)	69 (3.9)	18 (4.6)	0.512
Others	40 (1.8)	35 (2.0)	5 (1.3)	
Recurrent hernia, n (%)	741 (34.2)	616 (34.7)	125 (32.0)	0.306
Stoma present, n (%)*	150 (6.9)	123 (6.9)	27 (6.9)	0.989
History of abdominal wall infection, n (%)	277 (12.8)	215 (12.1)	62 (15.9)	0.044
History of open abdomen, n (%)	171 (7.9)	139 (7.8)	32 (8.2)	0.812
Surgeon affiliation, n (%)				0.239
Academic	1608 (74.2)	1326 (74.7)	282 (72.1)	
Private	368 (17.0)	302 (17.0)	66 (16.9)	
Private with academic affiliation	191 (8.8)	148 (8.3)	43 (11.0)	
Census region, n (%)†				0.053
Midwest	1045 (54.0)	858 (54.3)	187 (52.4)	
Northeast	133 (6.9)	113 (7.2)	20 (5.6)	
South	673 (34.7)	532 (33.7)	141 (39.5)	
West	86 (4.4)	77 (4.9)	9 (2.5)	

- Fairly complex patients
  - Median BMI 34
  - 77.5% were ASA class 3 and above
  - Median hernia width 6cm (3-12)
  - 63% were performed open
  - 46% required a myofascial release

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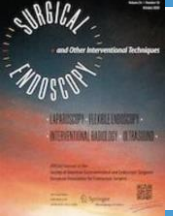

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No clinically significant difference in the rates of overall 30-day complications, wound complications, reoperation, mortality, length of stay, and pain scores based on HbA1c

	Total ($n=2167$)	HbA1c < 8% ($n=1776$)	HbA1c > = 8 ($n=391$)	p value
Follow-up, median (IQR) days	27.0 (16.0–58.0)	27.5 (17.0–59.6)	27.0 (16.0–51.8)	0.310
Intraoperative complications	64 (3.0)	56 (3.2)	8 (2.1)	0.242
Length of stay, median (IQR) days*	2.0 (0.0–5.0)	2.0 (0.0–5.0)	2.0 (0.0–4.1)	0.349
Overall 30-day complications, n (%)	548 (25.3)	437 (24.6)	111 (28.4)	0.119
30-day wound complications, n (%)				
SSI	102 (4.7)	82 (4.6)	20 (5.1)	0.674
SSO-EI	267 (12.3)	209 (11.8)	58 (14.8)	0.095
SSOPI	140 (6.5)	118 (6.6)	22 (5.6)	0.459
30-day reoperation, n (%)	56 (2.6)	42 (2.4)	14 (3.6)	0.170
30-day readmission, n (%)*	116 (5.4)	87 (4.9)	29 (7.4)	0.044
30-day mortality, n (%)	2 (0.1)	1 (0.1)	1 (0.3)	0.240
Scaled HerQLes scores, median (IQR)†				
Baseline	40.0 (20.0–63.3)	40.0 (20.0–63.5)	40.0 (18.3–63.3)	0.601
30-day	55.0 (33.3–81.7)	56.7 (33.3–83.3)	50.0 (28.6–74.7)	0.036
PROMIS T-score, median (IQR)†				
Baseline	46.3 (36.3–52.9)	46.3 (36.3–54.5)	46.3 (40.2–52.1)	0.407
30-day	46.3 (40.2–52.1)	46.3 (40.2–52.1)	46.3 (40.8–54.5)	0.092

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Is optimization improving outcomes or is it risking emergency surgery and higher complications?

Are the same optimization goals the right thing for all patients?

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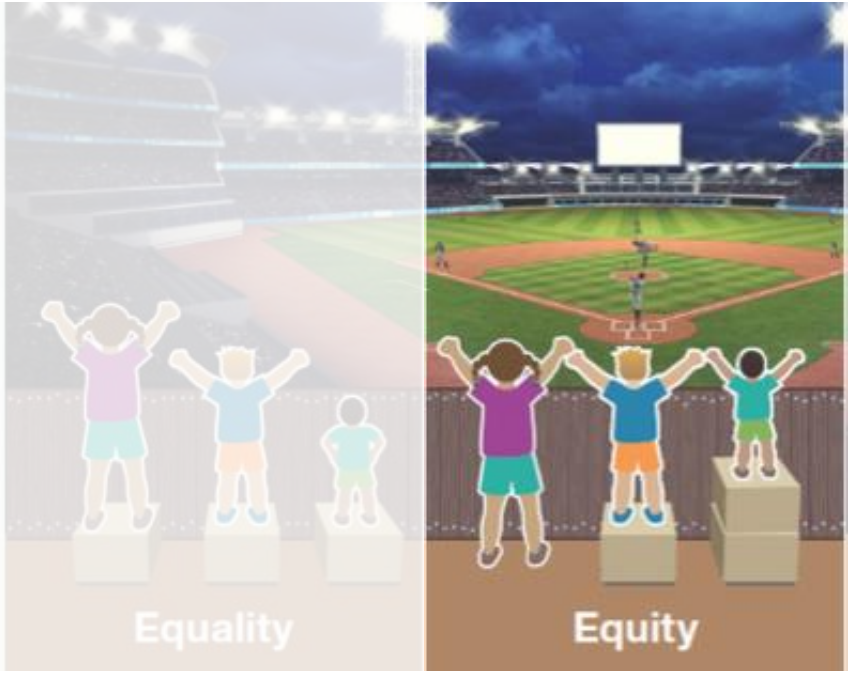
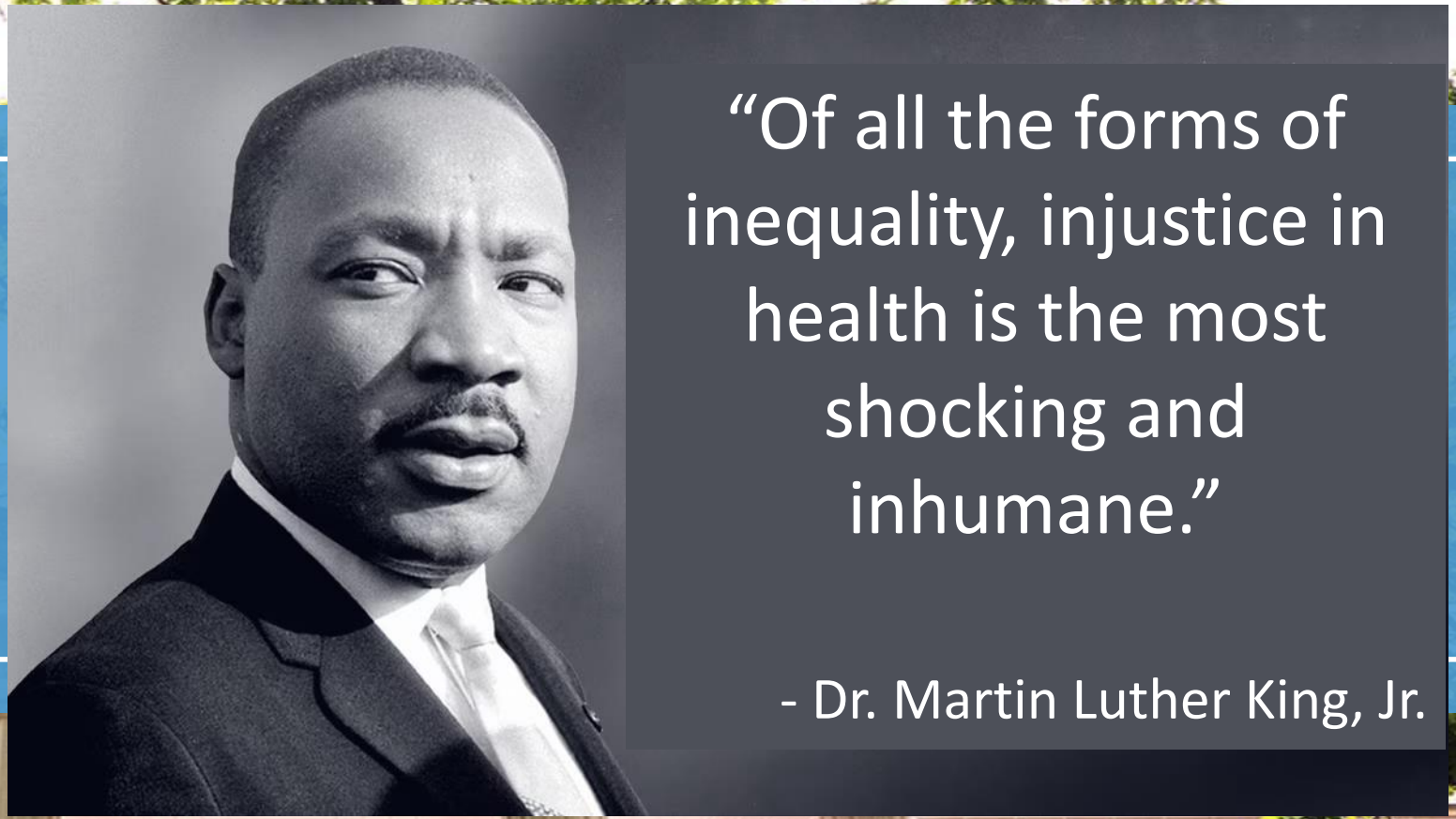


Should we tailor our optimization goals to improve the quality care we provide?


“Of all the forms of inequality, injustice in health is the most shocking and inhumane.”
- Dr. Martin Luther King, Jr.

- Racial disparities exist in health care
- Racial disparities exist in ventral hernia repair
  - Decreased access to surgical care
  - Increased time to surgical repair
  - Decreased use of MIS techniques
  - Increased need for optimization
  - Increased likelihood of emergency surgery
  - Increased postoperative complications
- Optimization criteria disproportionately affects non-white races
- Optimization criteria should be tailored to the patient, but how do we guide this?
- Tracking patient information and outcomes in a registry such as the ACHQC can help define criteria that matter and improve the quality of care in ventral hernia repair

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