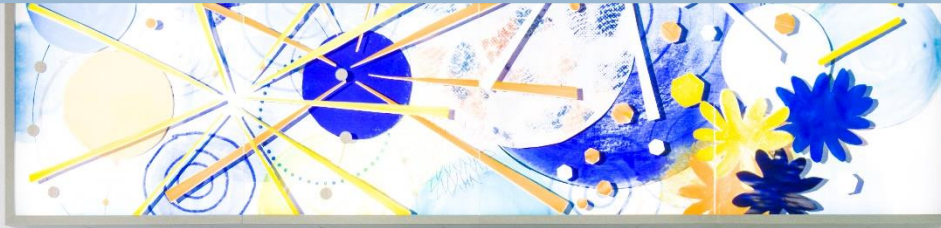


VENTRAL HERNIA REPAIR AND ITS MORTALITY – A QC ANALYSIS

Xavier Pereira, MD



Disclosures

- None

- **Used an AI Image generator for comedic relief**

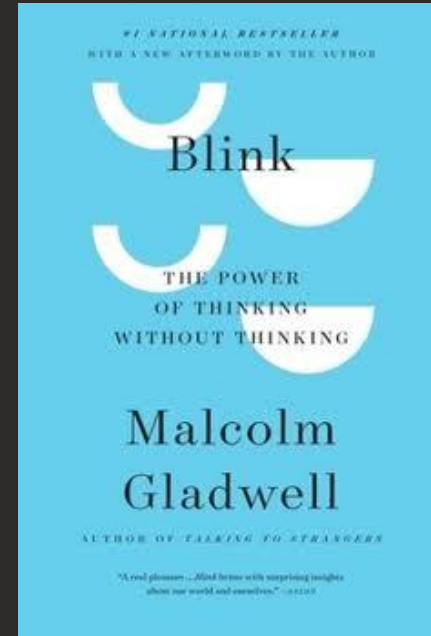
“Am I going to **die** from this surgery?”

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*‘**Experts**, whose instincts have been honed with thousands of hours of experience, tend to make great snap judgements...*

*... For **Novices**, the kinds of decisions they make in an instant are dangerous: hopelessly contaminated with bias and misinformation and faulty assumptions.’*

- Malcom Gladwell



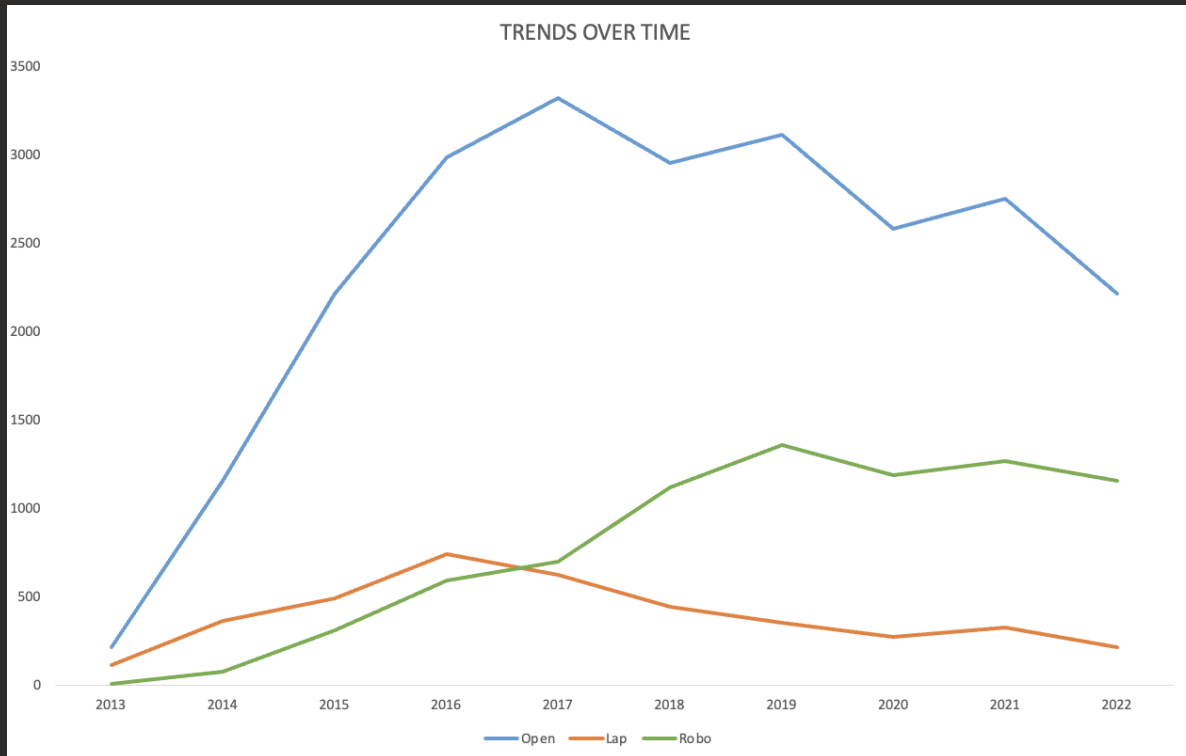
“Am I going to **die** from this surgery?”



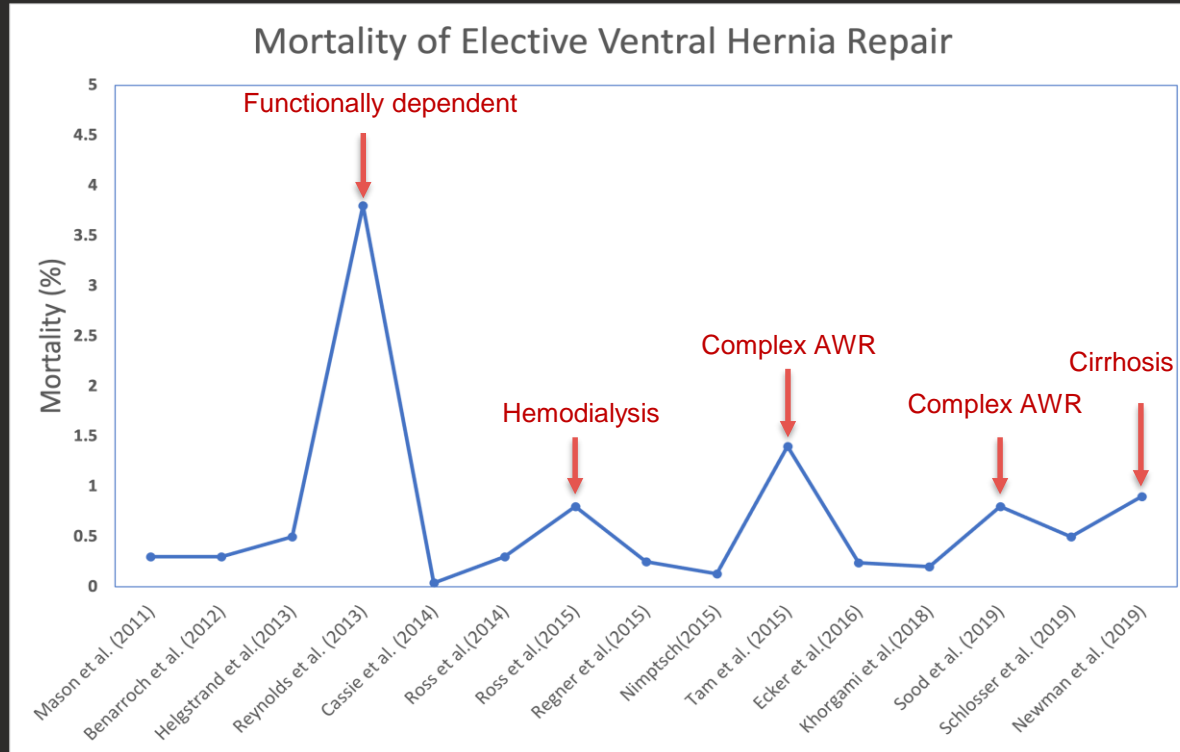
“Am I going to **die** from this surgery?”



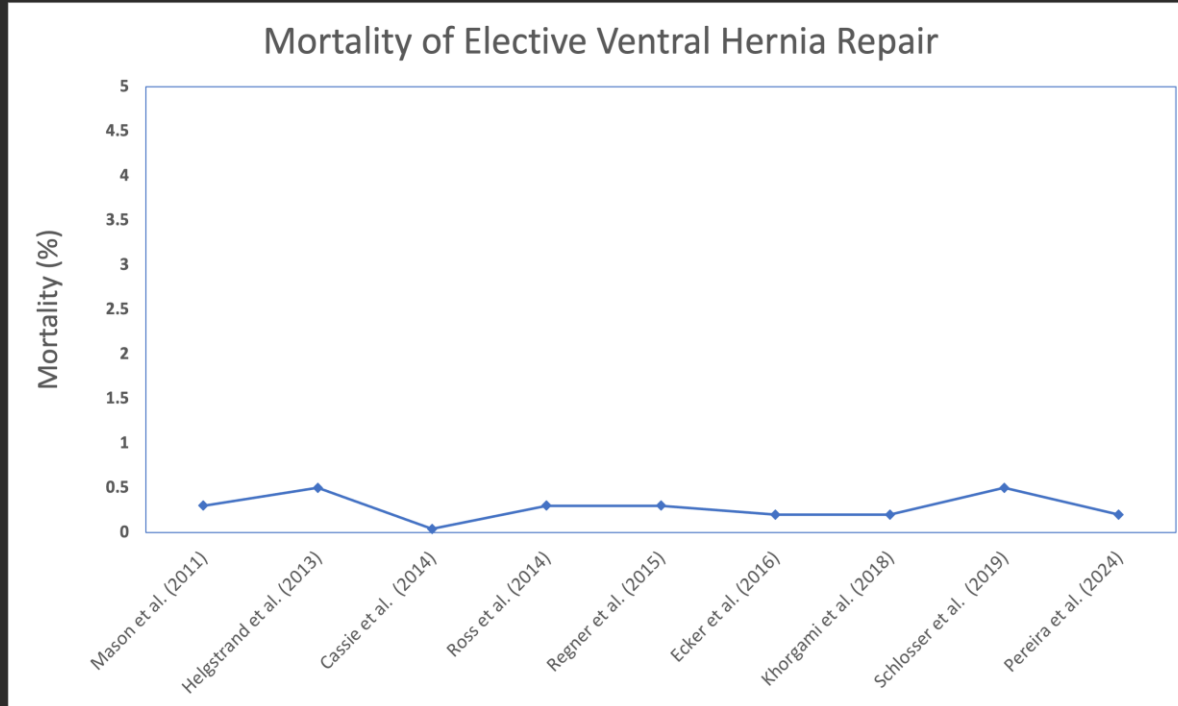
“Am I going to die from this surgery?”



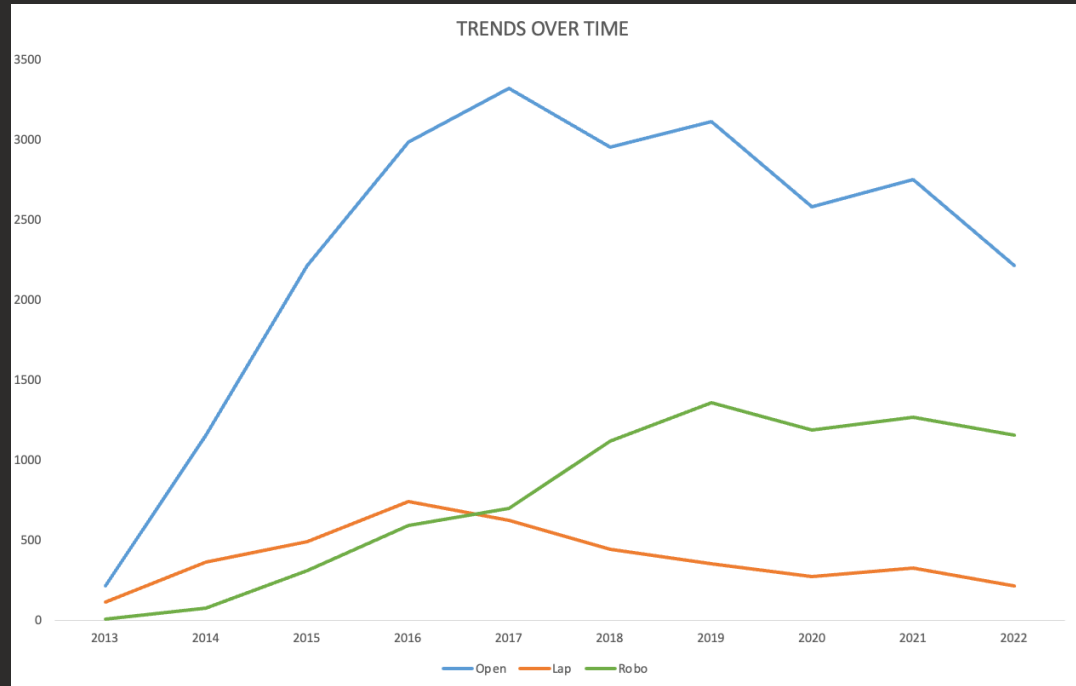
Any **death** in elective ventral hernia repair is unacceptable



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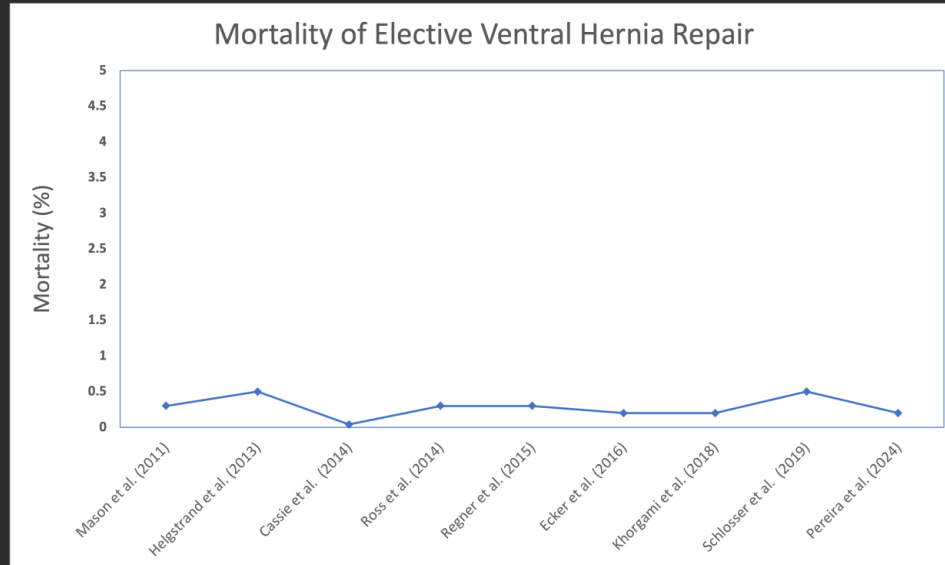


Any **death** in elective ventral hernia repair is unacceptable

1. To establish the 90-day mortality rate of elective ventral hernia repair using a hernia-specific database
2. Understand the risk factors that lead to death
3. Understand how the adoption of MIS has impacted mortality rate

The mortality of elective elective VHR is **0.2%**

DEMOGRAPHIC DATA	
	<u>Elective</u>
N (# cases)	35823
Age (median)	57
Percent Male	53
Race	
White (%)	84
Nonwhite (%)	16
Insurance	
Private (%)	52
Medicare (%)	30
Other (%)	18
Liver failure	1
Ascites	1
HTN	46
DM	17
Dialysis	1
COPD	6
Dyspnea at baseline	3
Anti-plt	12
A/C	6
Immunosuppressants	5
Active Smoking	9
AAA	1
BMI (median)	31
ASA (%)	
I-II	52
III-V	48
Unknown	0



The mortality of elective elective VHR is **0.2%**

DEMOGRAPHIC DATA				
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>
N (# cases)	35823	23920	3947	7956
Age (median)	57	57	57	57
Percent Male	53	54	47	50
Race				
<i>White (%)</i>	84	86	82	80
<i>Nonwhite (%)</i>	16	14	18	20
Insurance				
<i>Private (%)</i>	52	51	52	53
<i>Medicare (%)</i>	30	30	31	29
<i>Other (%)</i>	18	19	17	18
Liver failure	1	1	1	1
Ascites	1	1	0	0
HTN	46	45	46	49
DM	17	17	18	17
Dialysis	1	1	0	0
COPD	6	6	5	5
Dyspnea at baseline	3	3	3	3
Anti-plt	12	13	14	11
A/C	6	6	6	6
Immunosuppressants	5	5	5	3
Active Smoking	9	9	10	11
AAA	1	1	1	1
BMI (median)	31	31	32	32
ASA (%)				
<i>I-II</i>	52	51	51	55
<i>III-V</i>	48	49	48	44
<i>Unknown</i>	0	0	1	1

The mortality of elective elective VHR is **0.2%**

OPEN – 62
 ROBOTIC - 8
 LAP - 2

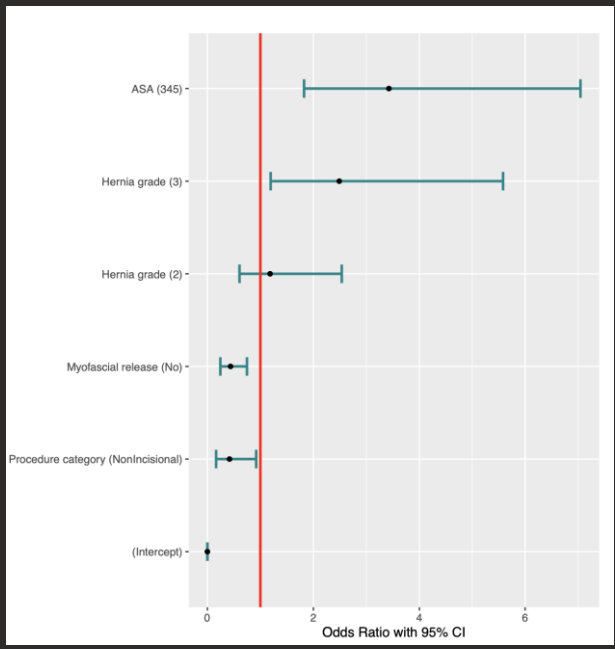
DEMOGRAPHIC DATA					
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>
N (# cases)	35823	23920	3947	7956	72
Age (median)	57	57	57	57	70
Percent Male	53	54	47	50	58
Race					
<i>White (%)</i>	84	86	82	80	79
<i>Nonwhite (%)</i>	16	14	18	20	21
Insurance					
<i>Private (%)</i>	52	51	52	53	26
<i>Medicare (%)</i>	30	30	31	29	61
<i>Other (%)</i>	18	19	17	18	12
Liver failure	1	1	1	1	2
Ascites	1	1	0	0	2
HTN	46	45	46	49	62
DM	17	17	18	17	26
Dialysis	1	1	0	0	1
COPD	6	6	5	5	13
Dyspnea at baseline	3	3	3	3	8
Anti-plt	12	13	14	11	15
A/C	6	6	6	6	19
Immunosuppressants	5	5	5	3	4
Active Smoking	9	9	10	11	10
AAA	1	1	1	1	3
BMI (median)	31	31	32	32	31
ASA (%)					
<i>I-II</i>	52	51	51	55	15
<i>III-V</i>	48	49	49	44	84
<i>Unknown</i>	0	0	1	1	1

OPERATIVE DATA							
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>	<u>Emergency</u>	<u>Emergency Deaths</u>
Recurrent hernia	26	28	22	21	40	32	40
OR length							
0-2 hours	57	55	78	52	24	56	47
2-4 hours	29	28	20	37	43	32	46
4+ hours	14	17	2	11	33	11	7
Hernia type incisional	61	60	65	62	90	64	60
Median hernia area (L x W)	20	20	12	20	150	20	40
Median mesh area (L x W)	225	320	225	225	645	225	300
Mesh Location							
Onlay	6	8	5	2	8	9	0
Inlay	3	3	2	2	2	7	0
Sublay	91	88	93	96	91	84	100
Myofascial release	34	41	1	31	71	24	27
Drain used	34	48	2	10	71	39	40
Intraop complication	2	3	1	1	10	4	7

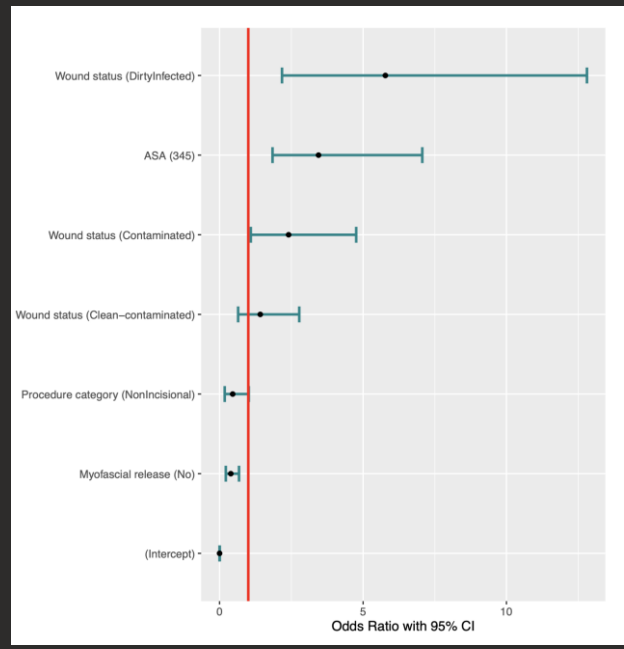
POST-OP COMPLICATIONS							
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>	<u>Emergency</u>	<u>Emergency Deaths</u>
LOS	1	1	0	0	6	4	6
Readmission	4	5	3	3	19	8	23
SSO	10	10	9	8	14	15	7
SSI	4	5	1	1	14	9	20
SSOPI	5	6	1	2	14	12	20
Reoperation	2	2	1	1	19	4	33
Death	0.2	0.3	0.1	0.1	0.2	1.6	1.6

OPERATIVE DATA							
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>	<u>Emergency</u>	<u>Emergency Deaths</u>
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Mesh Location							
Onlay	6	8	5	2	8	9	0
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Sublay	91	88	93	96	91	84	100
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Intraop complication	2	3	1	1	10	4	7

variable	OR	OR lower	OR upper	pvalue
(Intercept)	0.001	0.000	0.002	<.001
Hernia grade (2)	1.183	0.606	2.535	0.641
Hernia grade (3)	2.489	1.194	5.583	0.019
Procedure category (NonIncisional)	0.418	0.165	0.921	0.044
ASA (345)	3.425	1.824	7.043	<.001
Myofascial release (No)	0.437	0.245	0.747	0.003



variable	OR	OR lower	OR upper	pvalue
(Intercept)	0.001	0.001	0.002	<.001
Wound status (Clean-contaminated)	1.418	0.647	2.775	0.341
Wound status (Contaminated)	2.405	1.088	4.758	0.018
Wound status (Dirty/Infected)	5.775	2.175	12.803	<.001
Procedure category (NonIncisional)	0.458	0.180	1.018	0.074
ASA (345)	3.447	1.844	7.060	<.001
Myofascial release (No)	0.392	0.218	0.678	0.001



The Association Of Hernia-specific & Procedural Risk Factors With Early Complications In Ventral Hernia Repair (VHR): ACHQC Analysis



Retrospective ACHQC database analysis



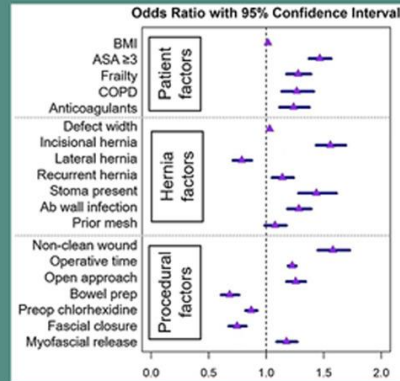
41,526 Elective ventral hernia repairs



Jan 2012 - Nov 2023

30-day complications

Overall complications	18%
Surgical site infection	3%
Surgical site occurrence (SSO)	9%
SSO requiring intervention	4%
Readmission	4%
Reoperation	2%
Mortality	0.2%



Multivariable analysis of 30-day complications



Hernia & procedural risk factors are associated with early complications following elective VHR.

These risk factors need to be considered in perioperative risk assessment tools in addition to patient-specific factors.

Al-Mansour, Ding, Yergin, Tamer, Huang. 2024



@AmJSurgery

AJS
The American Journal of Surgery



The mortality risk is **8x higher** in emergency repairs

DEMOGRAPHIC DATA							
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>	<u>Emergency</u>	<u>Emergency Deaths</u>
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Age (median)	57	57	57	57	70	59	69
Percent Male	53	54	47	50	58	44	47
Race							
White (%)	84	86	82	80	79	76	80
Nonwhite (%)	16	14	18	20	21	24	20
Insurance							
Private (%)	52	51	52	53	26	42	20
Medicare (%)	30	30	31	29	61	36	73
Other (%)	18	19	17	18	12	22	7
Liver failure	1	1	1	1	2	3	22
Ascites	1	1	0	0	2	4	22
HTN	46	45	46	49	62	56	73
DM	17	17	18	17	26	25	20
Dialysis	1	1	0	0	1	2	7
COPD	6	6	5	5	13	9	27
Dyspnea at baseline	3	3	3	3	8	8	13
Anti-plt	12	13	14	11	15	13	7
A/C	6	6	6	6	19	10	27
Immunosuppressants	5	5	5	3	4	6	0
Active Smoking	9	9	10	11	10	13	20
AAA	1	1	1	1	3	1	13
BMI (median)	31	31	32	32	31	35	28
ASA (%)							
I-II	52	51	51	55	15	30	7
III-V	48	49	48	44	84	70	93
Unknown	0	0	1	1	1	0	0

OPERATIVE DATA							
	<u>Elective</u>	<u>Open</u>	<u>Lap</u>	<u>Robotic</u>	<u>Deaths</u>	<u>Emergency</u>	<u>Emergency Deaths</u>
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SSO	10	10	9	8	14	15	7
SSI	4	5	1	1	14	9	20
SSOPI	5	6	1	2	14	12	20
Reoperation	2	2	1	1	19	4	33
Death	0.2	0.3	0.1	0.1	0.2	1.6	1.6

Conclusions

- Mortality is 0.2% for all comers
- Wound class, hernia grade, ASA, and myofascial release are related to increased mortality
- Emergency surgery 8x more likely to lead to death – especially with COPD, on A/C, or in the presence of liver failure or ascites
- Not enough data to assess impact of MIS

*"The key to good decision making is not **knowledge**. It is **understanding**. We are swimming in the former. We are desperately lacking in the latter."*

- Malcom Gladwell



THANK YOU

