

Supplementary Online Content

Shah R, Attwood K, Arya S, et al. Association of frailty with failure to rescue after low-risk and high-risk inpatient surgery. *JAMA Surg*. Published online March 21, 2018. doi:10.1001/jamasurg.2018.0214

eAppendix 1 10 most common low risk procedures and 10 most common high risk procedures

eAppendix 2 Mediation analysis

This supplementary material has been provided by the authors to give readers additional information about their work.

eAppendix 1**10 most common low risk procedures**

	CPT	COUNT	%	
1	44970	57637	11.1	Laparoscopic procedures on the appendix
2	43644	44609	8.6	Laparoscopy, with gastric bypass and Roux-en-Y gastroenterostomy
3	35301	41348	7.9	Thromboendarterectomy Procedures on Arteries and Veins
4	47562	37211	7.2	Laparoscopic Procedures on the Biliary Tract
5	27447	25146	4.8	Knee Replacement Surgery (Arthroplasty)
6	44204	19716	3.8	Laparoscopic Excision Procedures on the Intestines
7	19303	17962	3.4	Mastectomy
8	49560	16555	3.2	Hernioplasty, Herniorrhaphy, Herniotomy Procedures
9	47563	15841	3.1	Laparoscopic cholecystectomy
10	27130	14514	2.8	Repair, Revision, and/or Reconstruction Procedures on the Pelvis and Hip Joint

10 most common high risk procedures

	CPT	COUNT	%	
1	44140	26115	5.6	Colectomy, partial
2	44120	19184	4.1	Enterectomy, resection of small intestine
3	44160	12221	2.6	Colectomy with removal of terminal ileum and ileocolostomy
4	49000	12092	2.6	Exploratory laparotomy, exploratory celiotomy with or without biopsy(s)
5	47600	10559	2.3	Excision Procedures on the Biliary Tract
6	44145	10303	2.2	Partial colectomy with coloproctostomy
7	44005	10070	2.2	Enterolysis
8	44143	8507	1.8	Partial colectomy with end colostomy
9	34802	7412	1.6	Endovascular Repair of Abdominal Aortic Aneurysm
10	27880	7123	1.5	Amputation Procedures on the Leg (Tibia and Fibula) and Ankle Joint

eAppendix 2**Mediation analysis**

Major Complication				
	Low Risk		High Risk	
Association	beta (SE)	p-value	beta (SE)	p-value
RAI → Mortality (FTR)	0.143 (0.003)	< 0.001	0.097 (0.001)	< 0.001
RAI → Complication	0.079 (0.001)	< 0.001	0.055 (0.0004)	< 0.001
Complication → Mortality (FTR)	2.068 (0.024)	< 0.001	1.212 (0.007)	< 0.001
RAI (Complication) → Mortality (FTR)				
Direct	0.088 (0.003)	< 0.001	0.076 (0.001)	< 0.001
Indirect (through Complications)	0.055 (0.004)	< 0.001	0.020 (0.001)	< 0.001
Any Complication				
	Low Risk		High Risk	
Association	beta (SE)	p-value	beta (SE)	p-value
RAI → Mortality (FTR)	0.143 (0.003)	< 0.001	0.097 (0.001)	< 0.001
RAI → Complication	0.078 (0.001)	< 0.001	0.052 (0.0004)	< 0.001
Complication → Mortality (FTR)	2.056 (0.025)	< 0.001	1.160 (0.007)	< 0.001
RAI (Complication) → Mortality (FTR)				
Direct	0.083 (0.003)	< 0.001	0.076 (0.001)	< 0.001
Indirect (through Complications)	0.060 (0.004)	< 0.001	0.021 (0.001)	< 0.001

RAI- Risk Analysis Index, FTR- Failure to rescue