

Impact of COVID-19 pandemic on readmission rates following colorectal surgery: a retrospective cohort study

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Background/Rationale The COVID-19 pandemic placed increased pressure to discharge patients early; this could have resulted in rushed discharges requiring patients to return to hospital. The impact of the pandemic on readmission after colorectal surgery is unknown.

Methods The National Surgical Quality Improvement Program (ACS-NSQIP) database was used to compare patients undergoing elective colorectal surgery in 2019 and 2020, prior to and during the COVID-19 pandemic. Multivariable logistic regression was used to examine variables associated with readmission. Propensity score matching was then used to compare patients in the pre-pandemic and pandemic cohorts.

Results A total of 72 874 colorectal cases were included. There were 17.7% less cases in 2020. Rate of readmission was similar in both groups (9.6% vs 9.4%). There were fewer patients discharged to a facility such as nursing facility or rehabilitation centre in 2020, with more patients discharged home (Table 1). Year was not associated with readmission on multivariable analysis. In the matched cohort, readmission rates did not differ (9.7% vs 9.3% $p=0.129$) nor did mortality (0.8% vs 0.8% $p=0.686$).

Discussion No difference in readmission rates before or during the COVID-19 pandemic was observed; suggesting increased pressure to keep patients out of hospital in the COVID-19 pandemic did not result in patients being rushed home requiring repeat admission. More patients were discharged home with fewer to rehabilitation or nursing facilities in 2020, suggesting success with avoiding transitional services in the right setting.

Table 1. Outcomes in unmatched cohorts

	2019	2020	p-value
N	39,975	32,899	-
Readmission	3831(9.6)	3093(9.4)	0.404
Length of stay (days)	6.2(5.9)	6.3(5.9)	0.864
Mortality	328(0.8)	261(0.8)	0.686
Complications			
Superficial Surgical Site Infection	1248(3.1)	938(2.9)	0.033*
Deep Surgical Site Infection	199(0.5)	151(0.5)	0.451
Organ Space Surgical Site Infection	1985(5.0)	1754(5.3)	0.026*
Wound Disruption	255(0.6)	203(0.6)	0.723
Pneumonia	558(1.4)	618(1.9)	<0.001*
Unplanned Intubation	314(0.8)	282(0.9)	0.285
Pulmonary Embolism	213(0.5)	185(0.6)	0.591
Ventilator >48hrs	352(0.9)	309(0.9)	0.406
Progressive Renal Insufficiency	258(0.6)	234(0.7)	0.280
Acute Renal Failure	126(0.3)	103(0.3)	0.959
UTI	715(1.8)	555(1.7)	0.297
Stroke	104(0.3)	50(0.2)	0.002*
Cardiac Arrest	76(0.2)	68(0.2)	0.616
Myocardial Infarction	197(0.5)	202(0.6)	0.027*
Bleeding requiring Transfusion	2960(7.4)	2618(8.0)	0.005*
Deep Venous Thrombosis	420(1.1)	387(1.2)	0.107
Sepsis	1386(3.5)	1240(3.8)	0.030*
Septic Shock	506(1.3)	556(1.4)	0.288
Discharge Destination			
Against Medical Advice	34(0.1)	29(0.1)	<0.001*
Home with Care	259(0.7)	200(0.6)	
Home	36501(92.2)	30575(93.9)	
Hospice	88(0.2)	95(0.3)	
Senior Community	8(0.0)	10(0.0)	
Rehab	711(1.8)	452(1.4)	
Other Acute Care	92(0.2)	86(0.3)	
Nursing Facility	1854(4.7)	1087(3.3)	
Unknown	6(0.0)	4(0.0)	
Other Facility	36(0.1)	24(0.1)	

*Indicates statistical significance