

Impact Analysis of an Endoscopic Triage Algorithm Implemented During the Early Stages of the COVID-19 Pandemic

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Introduction

- During the COVID-19 pandemic, gastroenterology departments and practices were forced to cancel or reschedule procedures at unprecedented scale to preserve PPE and minimize viral spread.
- Several GI societies released guidelines for differentiating urgent cases from those appropriate to reschedule, but these were not comprehensive and did not account for regional variations in disease prevalence and outcomes
- The GI section of the Michael E. DeBakey VA Medical Center (MEDVAMC) created an internal triage protocol based on expert review
- Our aim was to gauge the appropriateness and impact of this algorithm by evaluating the resulting case load and reviewing associated outcomes
- This analysis will help inform future endoscopy planning and resource management

Methods

- Assessed the number of endoscopic cases performed by GI staff, inclusive of the following: colonoscopy, esophagogastroduodenoscopy (EGD), endoscopic ultrasound (EUS), enteroscopy, flexible sigmoidoscopy, and endoscopic retrograde cholangiopancreatography (ERCP)
- Defined the study period as 3/15/20 - 4/30/20
- Conducted baseline assessment of procedures completed in the nine months prior to activation of the triage algorithm in mid-March. This time span was divided into six-week increments to mirror the length of the study period
- Calculated average case totals for each six-week window to produce an estimate of historical case volume
- Reviewed each urgent case for diagnostic and therapeutic yield, complications, and COVID-19 test results
- Deemed procedures “high-yield” if they prompted a therapeutic intervention, resultant change in management, or time-sensitive diagnosis such as malignancy

Results

- 6,730 endoscopic cases were completed by GI faculty or fellows in the nine months prior to study period, an average of 1,122 per six-week block
- Over an equivalent period in the COVID-19 era, 158 endoscopic procedures were deemed “urgent” via the MEDVAMC triage protocol and performed—14% of the usual case load
- Colonoscopy volume fell most significantly to just 8% of baseline, with EGD volume following at 18%.

	Colonoscopy	EGD	ERCP	Flex Sig	EUS	Enteroscopy	Total
Study Period	54	71	8	8	10	7	158
Historical Avg.	649	388	24	25	26	10	1,122
% of Historical Avg.	8%	18%	33%	33%	39%	70%	14%

Table 1. Total case load by procedure type during study period versus historical volume

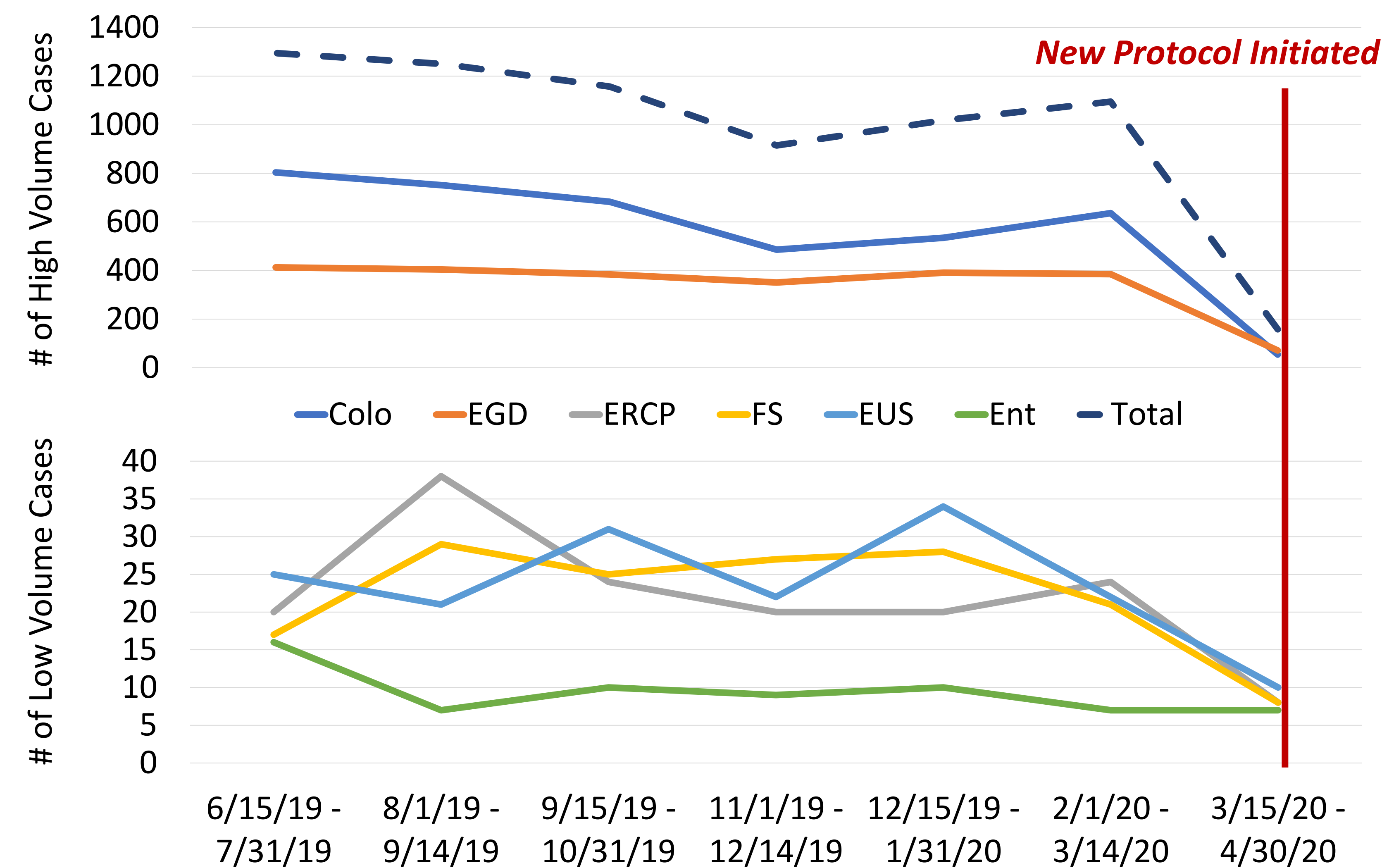


Figure 1. Total case load by procedure type over nine months prior to activation of COVID-era triage protocol

Procedure	Case Count	% Outpatient	% Inpatient	% High-Yield	Cases w/ Complication
Colonoscopy	54	46%	54%	24%	0
EGD	71	41%	59%	68%	0
ERCP	8	25%	75%	100%	1
Flex Sig	8	25%	75%	50%	1
EUS	10	90%	10%	60%	0
Enteroscopy	7	14%	86%	86%	0
Total	158	43%	57%	54%	2

Table 2. Comparison of relative utility and complication rate for urgent procedures performed during the study period

- Of 158 urgent cases performed, 54% were categorized as high-yield and <2% produced complications
- No patients tested positive for COVID-19 in the two weeks after their endoscopic procedure.

Conclusion

- The endoscopic triage protocol deployed at MEDVAMC during the first wave of COVID-19 was safe and effective
- The algorithm selected for procedures that were high-yield over half the time, indicating reliability and opportunity for further optimization
- The administrative policies enacted (e.g., screening, staffing changes, PPE) were effective in limiting spread of COVID-19, as no patients or staff tested positive secondary to a procedure
- Two key findings can provide guidance in the case of similar disruption:
 1. Advanced endoscopic procedure volume was less affected by adoption of the triage protocol, thus scheduling should reflect this. Practices should prioritize keeping advanced staff healthy and managing burn-out.
 2. Marked decline in colonoscopy volume implies subsequently inflated waitlists. Following surges, creative strategies to reduce queues should be explored, e.g., FIT testing, re-triage per new USPSTF surveillance guidelines, and limiting causes of rescheduling such as poor prep.