



# Complication Rates for Esophagogastroduodenoscopy and Colonoscopy Procedures Performed by GI Trainees at a Tertiary Care Center

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## BACKGROUND

- There are well established quality indicators for esophagogastroduodenoscopy (EGD) and colonoscopy detailing post-procedure complication rates for perforation, bleeding, infection and cardiopulmonary events
- Despite knowledge of complication rates for practicing gastroenterologist, there is limited data regarding complication rates for procedures performed by GI trainees
- Aim of this study is to report our experience with the rate of complications for endoscopic procedures performed by GI trainees

## METHODS

- Retrospective chart review of 772 procedures performed by GI trainees over a three-year period from 2018-2021
- Data was collected for total of 478 EGDs and 294 colonoscopies including level of trainee, type of anesthesia/sedation, procedure indication, inpatient versus outpatient status, ASA classification, and significant co-morbidities including coronary artery disease, pulmonary disease, inflammatory bowel disease and cirrhosis.
- Specific endoscopic interventions were also reviewed including biopsy, polypectomy, hemostasis, banding and dilation.
- Charts were reviewed for any complication occurring within 14 days after each procedure.

## RESULTS:

- A total of 3 procedural complications were identified among 772 procedures including both EGDs and colonoscopies
  - All complications occurred in patients undergoing EGDs
  - No complications occurred in patients undergoing colonoscopy
- Procedural complications included one post-variceal banding ulcer bleeding event in patient with cirrhosis and two aspiration events
  - One aspiration event occurred with moderate sedation and the other aspiration event occurred with anesthesia
- All complications were evenly distributed among level of training leading to a complication rate of 0.4%, 0.4% and 0.5% for first, second and third year fellows respectively (p=0.97)

	First year fellows (n = 261)	Second year fellows (n = 238)	Third year fellows (n = 189)	p-value
Mean age ± SD	57.4 ± 14.9	59.2 ± 15.4	58.5 ± 15.2	0.92
Female (%)	42%	41%	42%	0.98
Type of procedures				
• EGD	71%	47%	51%	<0.01
• Colonoscopy	15%	42%	38%	
• Both	14%	11%	11%	
Sedation				
• Moderate	58%	72%	73%	<0.01
• MAC	34%	21%	18%	
• General	8%	7%	9%	
Blood thinner (%)	70%	79%	77%	0.06
ASA Classification				
• 0	0%	0%	0%	<0.01
• 1	3%	5%	13%	
• 2	34%	59%	52%	
• 3	53%	30%	30%	
• 4	10%	5%	5%	
Coronary artery disease (%)	16%	16%	11%	0.41
Pulmonary disease (%)	17%	17%	15%	0.75
Cirrhosis (%)	26%	15%	22%	0.01
IBD (%)	4%	4%	8%	0.04
BMT/GVHD (%)	0%	2%	0%	0.01
History of abdominal surgery (%)	22%	37%	36%	<0.01
History of diverticular disease (%)	11%	17%	14%	0.14
<b>Types of Interventions</b>				
Polypectomy (%)	8%	22%	31%	<0.01
Biopsy (%)	46%	44%	51%	0.28
Hemostasis (%)				
• None	86%	90%	86%	0.88
• Clip	7%	7%	7%	
• Cautery	2%	0%	1%	
• Banding	5%	3%	6%	
Dilation (%)	1%	2%	4%	0.12
<b>Outcome</b>				
Complication (%)	0.4%	0.4%	0.5%	0.97

## DISCUSSION

- We demonstrated three procedural complications during 478 EGDs which equate to a complication rate of 6.2 per 1000 EGDs
  - Established quality measures indicate overall adverse event rate during EGD to be 1:200 with cardiopulmonary events accounting for up to 60% of adverse events
- We demonstrated no procedural complications during 294 colonoscopies
- The majority of our procedures were performed as inpatient status and over 80% of the patient population were ASA-2 and ASA-3 classification

## CONCLUSIONS

- GI trainee involvement in EGD and colonoscopy does not confer higher risk of complication compared to established quality measures
- More research is needed to elicit information regarding complication rates for procedures performed by GI trainees