Covariate	Statistics	Level	Deep N=233	Moderate N=225	P-value*
Sex	N (Col %)	Male	108 (46.35)	105 (46.67)	0.946
	N (Col %)	Female	125 (53.65)	120 (53.33)	
Race	N (Col %)	Caucasian	79 (34.35)	127 (59.07)	**<.001**
	N (Col %)	African American	137 (59.57)	79 (36.74)	
	N (Col %)	Hispanic	13 (5.65)	5 (2.33)	
	N (Col %)	Asian	1 (0.43)	2 (0.93)	
	N (Col %)	Other	0 (0)	2 (0.93)	
Age	Mean		59.43	59.04	0.540
BMI	Mean		43.06	42.61	0.467
Alcohol	N (Col %)	Yes	114 (49.14)	109 (48.66)	0.919
	N (Col %)	No	118 (50.86)	115 (51.34)	
Tobacco	N (Col %)	Yes	96 (41.2)	69 (30.67)	**0.019**
	N (Col %)	No	137 (58.8)	156 (69.33)	
Marijuana	N (Col %)	Yes	16 (6.9)	10 (4.46)	0.263
	N (Col %)	No	216 (93.1)	214 (95.54)	

Table 1: Demographic data of patient population

Covariate	Statistics	Level	Deep N=233	Moderate N=225	P-value*
Complication - hypotension	N (Col %)	Yes	27 (11.59)	5 (2.22)	**<.001**
	N (Col %)	No	206 (88.41)	220 (97.78)	
Complication - hypertension	N (Col %)	Yes	11 (4.72)	1 (0.44)	**0.004**
	N (Col %)	No	222 (95.28)	224 (99.56)	
Complication - bradycardia	N (Col %)	Yes	0 (0)	1 (0.44)	0.491
	N (Col %)	No	233 (100)	224 (99.56)	
Complication - arrhythmia	N (Col %)	Yes	2 (0.86)	0 (0)	0.499
	N (Col %)	No	231 (99.14)	225 (100)	
Intervention - phenylephrine	N (Col %)	Yes	21 (9.01)	0 (0)	**<.001**
	N (Col %)	No	212 (90.99)	225 (100)	
Intervention - antihypertensive	N (Col %)	Yes	7 (3)	0 (0)	**0.015**
	N (Col %)	No	226 (97)	225 (100)	

Table 2: Rates of complication and interventions

Tu1981

ASSOCIATION MODELING BETWEEN PATIENTS' AGE AND COMPLICATION RATE FOR ENDOSCOPIC PROCEDURES

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Background: The likelihood of observing complications after an endoscopic procedure is believed to relate to patient age. Prior studies have demonstrated that older patients (age>70) are more likely to experience complications than younger patients. However, currently there is still a lack of knowledge of the quantified association between patient age and complication across all age groups. **Aim:** This study is a preliminary attempt to model the quantitative association between patients' ages and complication rates for all endoscopic procedures. **Methods:** Leveraging the complication database of a large practice group from January 1, 2007 to December 2016, we conducted a retrospective longitudinal study to model the complication rates across different age groups. The major complications (unexpected admissions or surgery, prolonged hospitalizations, deaths) were self-reported into the complication database that was managed by nurses. Patient age was calculated when the patient was admitted into the clinics. Procedures were performed in hospital and ambulatory surgery center settings. **Results:** We collected the data of 163,591 endoscopic procedures performed between January 1, 2007 and December 31, 2016. There was a total of 213 documented complications. The top 3 complications include 75 cases of bleeding, 71 cases of perforations, and 42 cases of post-ERCP pancreatitis. The endoscopic procedures associated with these complications include 111 cases of colonoscopy, 66 cases of endoscopic retrograde cholangiopancreatography (ERCP), and 50 cases of esophagogastroduodenoscopy (EGD). (**Figure 1**) Comparing three broad age groups (Young: age<=20, Medium: 21<=age<= 59, and Elderly: age>=60), the young age group (age<=20) had the highest average complication rate of 0.43%, followed by elderly patent group (age>=60) with a mean rate of 0.182%. The medium age group (21<=age<= 59) had the lowest complication rate of 0.126%. The differences in complication rates between different age groups are significant ($p < 0.01$ for any group pairs). Using regression modelling, a statistically significant ($p < 0.001$) quadratic relationship can be established between the patients' ages and complication rates for all endoscopic procedures (**Figure 2**). On average, the complication rate is minimal among 52.1 years old patients. **Conclusion:** There is a significant difference of complication rates of endoscopic procedures across different age groups (**Figure 1**). Our regression modeling study shows that there is a strong quadratic relationship between ages and complications (**Figure 2**). Patient age could be a core factor for estimating the complication risks of endoscopic procedures. Our future study will focus on 1) improving the model by incorporating more data and risk adjustments, and 2) creating an evidence-based protocol for evaluating the likelihood of endoscopic procedure complications.

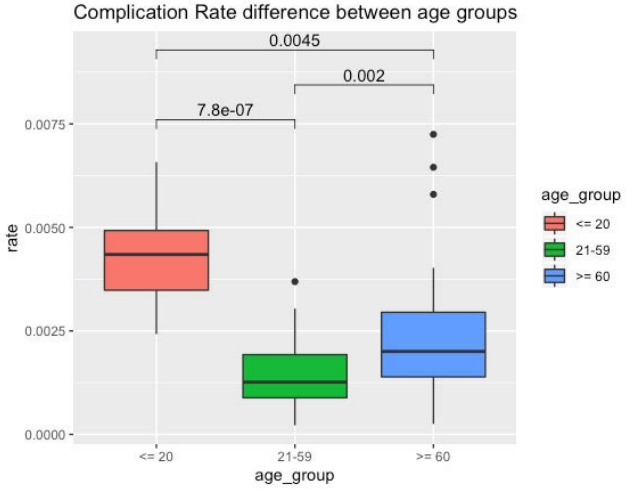

Figure 1: The boxplot shows the difference of complication rate between age groups. Boxes show 90% percentile. Complication rate is defined as the patients with complications divided by all visiting patients in this age group. The results indicate significant differences ($p < 0.001$) of endoscopic procedures complication rates.

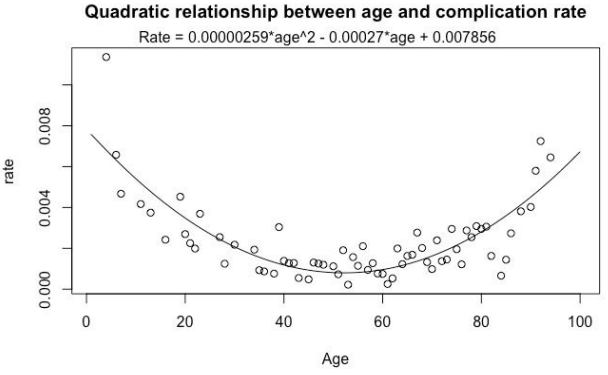

Figure 2: The modeled relationship between age and complication rate. Each dot quantifies the risk of complication by showing complication and procedure ratio. The curve is modeled using the ordinary least square requirement on a standard linear regression model with a quadratic term: $y = \beta_0 + \beta_1 x_1 + \beta_2 x_2^2$; where y is the complication rate and x is the age.

Tu1982

COMPARISON BETWEEN SPLIT-DOSE AND SINGLE-DOSE POLYETHYLENE GLYCOL ELECTROLYTE SOLUTION (PEG-ES) FOR COLONOSCOPY BOWEL PREPERATION: A SINGLE-CENTERED, RANDOMIZED COTROL TRIAL IN AN UNDERSERVED POPLATION

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Background: Colonoscopy for the detection and removal of adenomatous polyps has been proven to reduce the incidence of colorectal cancer. Among the most important aspects for the effectiveness of colonoscopy is the quality of bowel preparation. An inadequate bowel preparation has an adenoma miss rate up to 46%. PEG-ES are well established and cost effective for bowel cleaning; however, patient tolerance reduces compliance. Several studies indicate the advantage of split-dose over full dose as bowel cleansing. The objective of our study is to test the real world efficacy of the split dose bowel preparation with a 4L PEG-ES solution in our unique patient population. We aim to demonstrate improved quality measures such as better objective bowel cleanliness, increased detection of polyps and decrease need for repeat procedures. **Method**: This was a single-centered physician blinded randomized control trial. The study participants received a split-dose instruction for consuming 4L PEG-ES (GoLYTELY) 2L the evening before and 2L the morning prior to the procedure. The control participants received single-dose instruction for consuming 4L PEG-ES (GoLYTELY) the evening before. Prior to initiating the study, all clinical staff were given an in-service on using the bowel prep scoring system to ensure uniformity. Multiple sets of data were collected, including the cleanliness of the colon at the end of the procedure using the Boston Bowel Prep Score (BBPS) and a standardized collection tool. Data sets were compared for statistical significance. **Results**: A total of 166 patients were screened and enrolled in the study. 133 individuals successfully completed the study and were considered in the analysis. Gender, patient factors and ethnicity were similar across both groups. Time of the procedure was considered in the analysis. The study group demonstrated a 93% adequate bowel prep (BBPS ≧ 6) with 7% considered not adequate (BBPS <6). The control group 62% adequate and 38% not adequate. The average BBPS for the study group was 7.51 vs 5.66 for the control, demonstrating an average difference of 1.85 (P=0.0001, 95% CI from 1.27 to 2.44). 96% of the control group participants completed all 4L of PEG-ES with 60% reporting some degree of problem with tolerability or palatability. 100% of the study group participants completed all 4L with less than 10% reporting problems with