# Trainee Effects on Upper Endoscopy-Related Adverse Outcomes in the Months of July- September: An Analysis of the National Inpatient Sample Database

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## Introduction

- Trainees early in their career are on the path to acquiring new knowledge and skills & this applies to all fields of work including gastroenterology.
- As fellows begin the journey in navigating the realm of endoscopy, they are prone to inadvertently making mistakes.
- The aim of our study is to evaluate differences in outcomes of upper endoscopies performed before and after new trainees join programs across the nation.

## Methods

- Retrospective study utilizing the 2016 to 2018 National inpatient sample including patients 18 or older who underwent upper endoscopy during hospitalization at teaching hospitals.
- Patients admitted from January-March and October-December, transferred from another facility or admitted to non-teaching hospitals were excluded.
- Procedural complications, all cause in hospital mortality, length of stay (LOS), hospitalization cost was compared between early academic months (July-September) to late academic months (April-June).
- Multivariate logistic regression model was used for procedural complications and all- cause mortality while linear regression was used for the analysis of LOS and hospitalization cost.

| Outcomes | EGD during July-September | EGD during April-June | p-Value |
|---|---|---|---|
| Aspiration (N=28695) | 3.09% | 3.07% | |
| | Adjusted Odds ratio 1.01 (95% C.I 0.94-1.06) | | 0.81 |
| Bleeding or hematoma (N=1870) | 0.22% | 0.20% | |
| | Adjusted Odds ratio 1.12 (95% C.I 0.89-1.41) | | 0.39 |
| Accidental puncture or laceration (N=1155) | 0.12% | 0.13% | |
| | Adjusted Odds ratio 1.01 (95% C.I 0.75-1.3) | | 0.97 |
| In-hospital mortality (N=19280) | 2.14% | 1.95% | |
| | Adjusted Odds ratio 1.09 (95% C.I 1.01-1.17) | | 0.01 |
| Mean total hospitalization charge | $81,597 | $79,023 | |
| | Adjusted total charge $2052 higher | | 0.005 |
| Mean length of stay (days) | 6.8 | 6.6 | <0.001 |

## Discussion

- EGD-related 3 major adverse events were not different in both groups likely as a result of adequate procedural supervision.
- There was a significant increase in cost, length of hospitalization, and all-cause mortality in upper endoscopies that were performed in the months of July- September when new trainees enter residency and fellowship.
- Further measures may be needed to improve these outcomes early on, though some may be unavoidable.

## Results

- Total sample size attained was 911,235 upper endoscopies performed and nearly comparable percentages of these were performed in the months of July-September and April-June.
- No significant difference in the age, race or gender of patients in these two groups.
- Medicare was the predominant form of insurance in these patients, but distribution was not significant.
- Procedure-related complications such as aspiration, bleeding, and accidental puncture/laceration, were not statistically different between the two groups.
- However, in-hospital all-cause mortality, cost of hospitalization, and length of stay were all significantly higher in the group with upper endoscopies performed in July-September. The adjusted odds ratio for in-hospital mortality was 1.09 (95% CI 1.01-1.17).

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