

## Research Protocol - Retrospective (Non-Pt Data)

Title: Mortality Rates of Gastrointestinal Surgery Patients: A Comparison of HealthGrades® and NSQIP Databases

Authors:

Resident:

Attending:

Medical Student:

Objective: To assess the mortality rates of Gastrointestinal Surgery Patients, from 2006-2008 at Memorial Health University Medical Center, using HealthGrades® and NSQIP Databases.

Introduction:

Our hospital recently received a HealthGrades® report that indicated we were above the national average mortality for advanced age patients with small bowel obstruction (SBO) and above our risk adjusted, expected mortality rate. We would like to query these two databases for benign, gastrointestinal (GI) surgery mortality rates in patients of advanced age.

GI surgical problems such as SBO, cancer and perforated diverticulitis make up a large percentage of the average general surgical service. These problems are even more common amongst older surgery patients. We hypothesize that advanced age seniors would have higher mortality rates than younger patients with GI surgical problems, but we would have similar rates compared to our risk adjusted peer group hospitals [3].

We will investigate this group of patients using two large scale, validated, peer and risk adjusted databases available to us. The first, NSQIP (National Surgical Quality Improvement Project), is the American College of Surgeons database with hundreds of thousands of cases and hundreds of participating hospitals. It utilizes a rolling eight day cycle of case selection to sample all general surgery operative cases [20]. NSQIP uses current procedural terminology (CPT) codes and a robust clinical database created and maintained by a trained, validated, registered nurse [9].

The second database, HealthGrades®, is maintained by an independent, for-profit company that utilizes the Center for Medicaid/Medicare Services (CMS) case log. It samples each case of a specific diagnosis, but it limits its included cases to only patients who are traditionally covered by CMS. CMS case log is based on administrative data, chief among them International Classification of Diseases 9th Revision (ICD-9) codes. CMS traditionally covers patients 65 years of age and older, so the age group of interest is limited to those covered by CMS. Importantly, this database excludes in any of its data those with cancer diagnoses therefore limiting our comparison to benign GI surgeries only. In statistical evaluation, both databases use the observed/expected (O/E) ratio and are risk and peer adjusted. Both databases also employ the high/low outlier method of indicating comparison to the national average and to risk adjusted hospital outcomes [8].

Secondary Study Objectives:

1. Identify common perioperative surgical risk factors leading to mortality.
2. Validate use of NSQIP vs. HealthGrades® database for accurate assessment of morbidity and mortality.

Anticipated Length of Study:

One year from inception of study.

Methods:

NSQIP database will be queried with the CPT codes of interest for benign GI surgery limited to patients age 65 and older operated on from 2006 to 2008 at Memorial Hospital by the surgery education department attending physicians. HealthGrades® database information supplied includes patients ages 65 and older operated on at Memorial Hospital from 2006-2008 with GI surgery diagnoses by the ICD-9 codes [9].

- CPT codes
  - 39502, 39520, 39530, 39531, 43112, 43117, 43118, 43280, 43320, 43324, 43325, 43326, 43496, 43500, 43501, 43502, 43611, 43620, 43621, 43622, 43632, 43633, 43634, 43635, 43640, 43641, 43651, 43652, 43820, 43825, 43840, 43845, 43850, 43855, 43860, 43865, 43880, 44110, 44110, 44120, 44121, 44125, 44126, 44127, 44128, 44130, 44132, 44133, 44139, 44140, 44141, 44143, 44144, 44145, 44146, 44147, 44150, 44155, 44156, 44157, 44158, 44160, 44202, 44203, 44204, 44205, 44206, 44207, 44208, 44210, 44211, 44212, 44213, 44602, 44603, 44620, 44625, 44626, 44660, 44661, 44680, 44799, 45113, 44395, 44397, 44950, 64752, 64755, 64760
- ICD-9 codes Bowel Obstruction
  - 532.01, 532.11, 532.21, 532.21, 532.31, 532.41, 532.51, 532.61, 532.71, 532.91, 534.01, 534.11, 534.21, 534.41, 534.51, 534.61, 534.71, 534.91, 537.2, 537.3, 550.10, 550.11, 550.12, 550.13, 552.00, 552.01, 552.02, 552.03, 552.1, 552.2, 552.21, 552.29, 552.8, 552.9, 560.0, 560.1, 560.2, 560.31, 560.39, 560.81, 560.89, 560.9
- ICD-9 codes Cholecystectomy
  - 51.21, 51.22, 51.23, 51.24
- ICD-9 codes Gastrointestinal Bleed
  - 456.0, 456.20, 530.2, 530.21, 530.7, 530.82, 531.00, 531.01, 531.20, 531.21, 531.40, 531.41, 531.60, 531.61, 532.00, 532.01, 532.20, 532.21, 532.40, 532.41, 532.60, 532.61, 533.00, 533.01, 533.20, 533.21, 533.40, 533.41, 533.60, 533.61, 534.0, 534.00, 534.01, 534.20, 534.21, 534.40, 534.41, 534.60, 534.61, 535.01, 535.11, 535.21, 535.31, 535.41, 535.51, 535.61, 537.83, 537.84, 562.02, 562.03, 562.12, 562.13, 569.3, 569.82, 569.85, 569.86, 578, 578.0, 578.1, 578.9
- ICD-9 codes Gastrointestinal Surgeries and Procedures
  - 43.5, 43.6, 43.7, 43.81, 43.89, 43.91, 43.99, 44.00, 44.01, 44.02, 44.03, 44.40, 44.41, 44.42, 44.63, 44.64, 44.65, 44.66, 44.69, 45.61, 45.62, 45.63,

45.71, 45.72, 45.73, 45.74, 45.75, 45.76, 45.79, 45.8, 45.90, 45.91, 45.92,  
45.93, 45.94, 45.95

- ICD-9 codes Pancreatitis
  - 577.0, 577.1

This data will then be compared to the NSQIP database information. We are specifically evaluating mortality using observed/expected ratios and demographic information to include age at time of operation. We will separate the patients into cohorts of age in ten year increments. We will compare premorbid conditions, associated postoperative morbidities and mortality rates as reported by the databases. Statistical assistance will be obtained from the Research Department statistician as needed.

Exclusion criteria: diagnosis of cancer, age less than 65, surgeon other than department attending

Study design: This is a retrospective review of pre-existing databases and as such is not randomized. All identifying patient data is unavailable to these researchers. The patients are completely de-identified.

Hypothesis:

Patients operated on at Memorial Health University Medical Center for benign GI surgery diagnoses, from 2006-2008, have similar mortality rates to the risk adjusted national averages available via the NSQIP database and HealthGrades® database.

Expected Resources:

No financial support expected. Assistance from the biostatistician as needed for results tabulation. Assistance from the NSQIP administrator as needed to search database.

Expected Accrual:

NSQIP database preliminary search yields 459 cases that fit the profile. HealthGrades® database report includes 245 reported patients in the study group. All of these patients are de-identified by the respective databases.

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