

# Safety of Endoscopic Pancreatic Necrosectomy Compared with Percutaneous and Surgical Necrosectomy: A National Database Study

Daryl Ramai, MD, MSc, Dan M. McEntire, MD, Kameron Tavakolian, MD, Joseph Heaton, MD, MBA, MSc, Saurabh Chandan, MD, Banreet Dhindsa, MD, Amaninder Dhaliwal, MD, Marcello Maida, MD, Andrea Anderloni, MD, Antonio Facciorusso, MD, PhD, Douglas G. Adler, MD. FACG, FAGA, FASGE



Gastroenterology & Hepatology, University of Utah Health, Salt Lake City, UT, USA. Department of Medicine, Jersey Shore University Medical Center, Neptune City, NJ, USA. Division of Gastroenterology & Hepatology, CHI Health Creighton University Medical Center, Omaha, NE, USA. Gastroenterology & Hepatology, University of Nebraska Medical Center, Omaha, Nebraska, USA. Gastroenterology, McLeod Health Center, Florence, South Carolina, USA. Gastroenterology and Endoscopy Unit, S. Elia-Raimondi Hospital, Caltanissetta, Italy. Digestive Endoscopy Unit, Humanitas Clinical, and Research Center - IRCCS, Milano, Italy. Section of Gastroenterology, Department of Medical Sciences, University of Foggia, 71122 Foggia, Italy. Center for Advanced Therapeutic Endoscopy (CATE), Porter Adventist Hospital/PEAK Gastroenterology, Denver, Colorado.

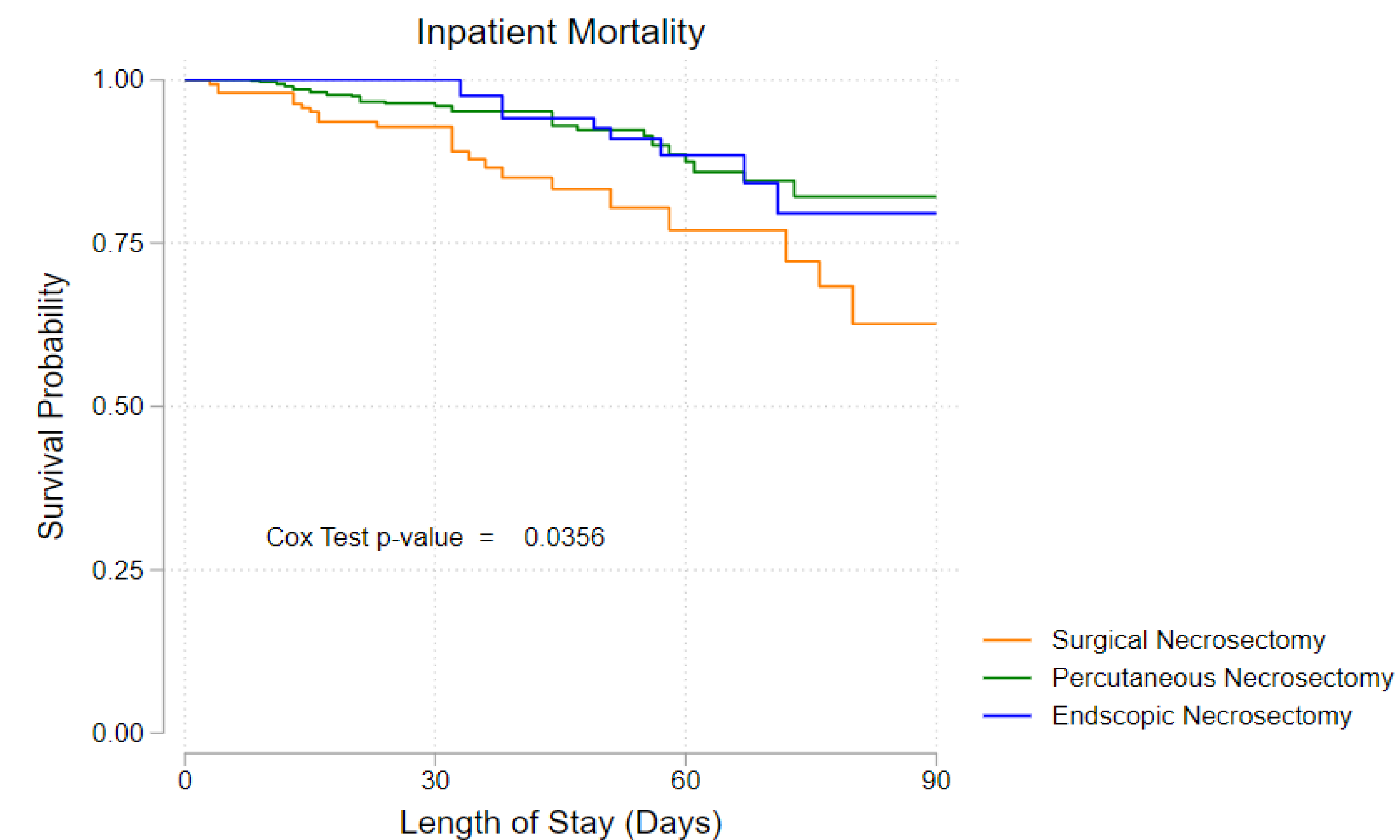
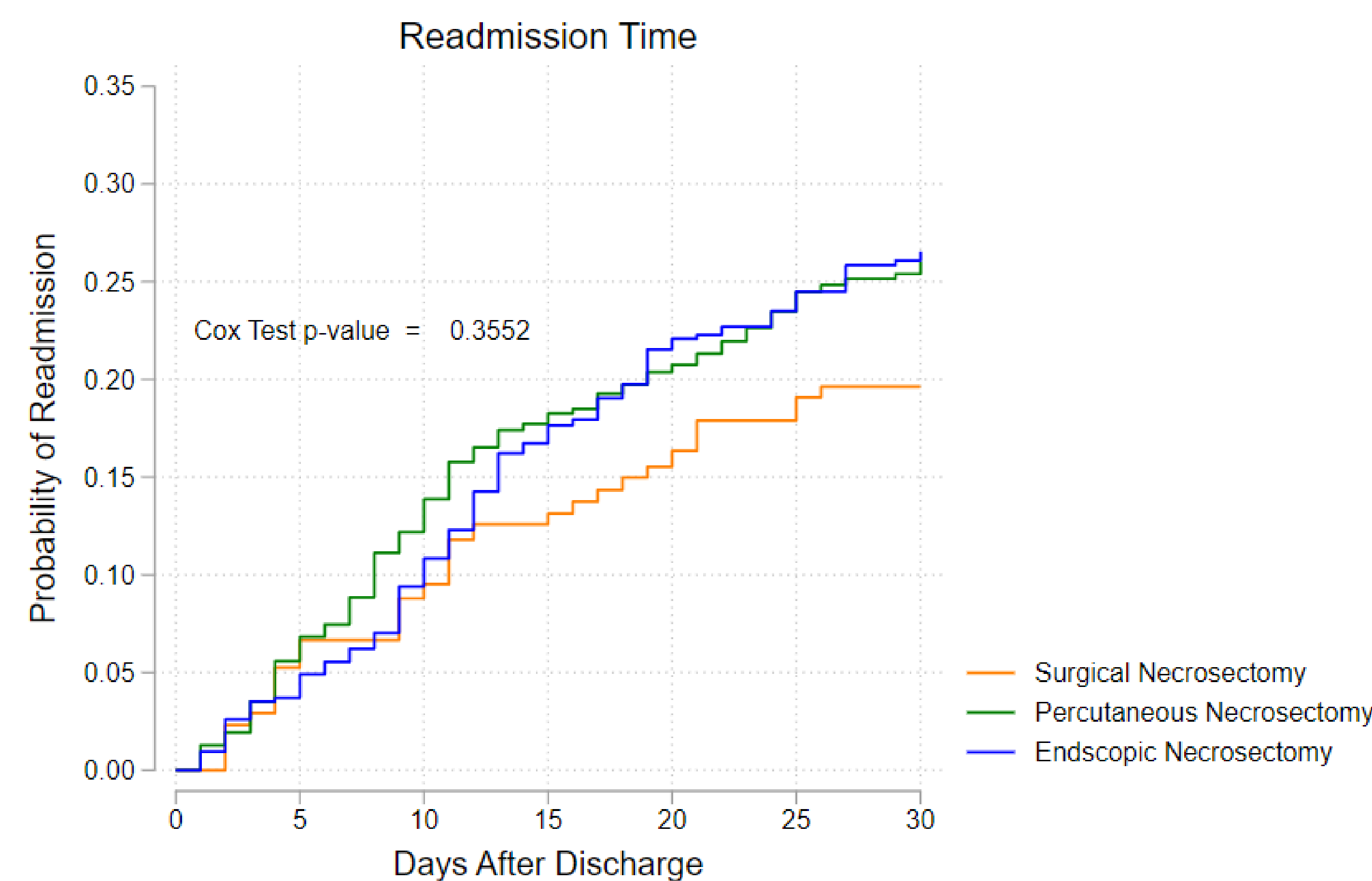
## THE NEED

- Pancreatic necrosis is an independent predictor of morbidity and mortality among patients with acute pancreatitis.
- Nevertheless, nationwide studies evaluating the effect of surgical, percutaneous, and endoscopic intervention on clinical outcomes is not well described in the literature.
- Thus, we aimed to examine the effect of each of these interventions on 30-day readmission rates, inpatient mortality, and healthcare utilization using a national inpatient database.

## METHODS

- Using the Nationwide Readmissions Database, we identified hospitalized patients who underwent pancreatic necrosectomy from 2016 to 2019.
- They were identified using the International Classification of Diseases, 10th Revision, Procedure Coding System.
- Patients were included in the study if they were at least 18 years of age with a non-elective admission diagnosis of pancreatic from January to November
- Patients were excluded if admitted in December to track 30-day readmission rates.
- Readmissions were also excluded if related to a traumatic injury.

Endoscopic necrosectomy is associated with significantly lower risk of inpatient mortality, adverse events, length of stay, and cost when compared to percutaneous and surgical approaches.



## CHARACTERISTICS

|              | Surgical | Percutaneous | Endoscopic |
|--------------|----------|--------------|------------|
| Admissions   | 271      | 1,338        | 672        |
| Discharged   | 232      | 1,280        | 652        |
| Readmissions | 45       | 333          | 173        |

## HOSPITAL PRACTICES

High volume centers (75%, n=1,672)

Large bed capacity (79.6%, n=1,815)

Metropolitan teaching hospitals (92.7%, =2,114)

Private insurance (45%, n=986)

• Medicare (30.8%, n=671)

## MORTALITY

- The rate of mortality was lowest for endoscopy (hazard ratio (HR) 0.27; 95% CI 0.08-0.90; P = 0.033) followed by percutaneous (HR 0.44; 95% CI, 0.20-0.98; P =0.045), compared to surgery.
- Endoscopy was associated with less post procedure bleeding and need for transfusion of blood products compared to percutaneous and surgical necrosectomy (n=74 vs n=195 vs n=102; P<0.001 and n=41 vs n=177 vs n=51; P<0.001, respectively).