

# Perioperative Care Implementation

## Evidence-based practice for patients with pancreaticoduodenectomy using the Enhanced Recovery After Surgery guidelines

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**BACKGROUND:** Pancreatic adenocarcinoma is an aggressive cancer that carries a poor prognosis. Pancreaticoduodenectomy (PD) offers the only potential cure, but the associated morbidity is high. The Enhanced Recovery After Surgery (ERAS) evidence-based guidelines for perioperative care for PD can be used to reduce variations in practice.

**OBJECTIVES:** The primary aim was to evaluate the feasibility of the ERAS guidelines for patients undergoing PD. Secondary aims were to assess length of stay (LOS), readmission within 30 days, 30-day mortality, and total surgical complication rates.

**METHODS:** Guideline feasibility was evaluated by percentage completion and compliance to each of the perioperative phases of the guideline. Hospital LOS, 30-day readmission, 30-day mortality, and total surgical complication rates were compared before and after ERAS implementation.

**FINDINGS:** The ERAS guidelines were feasible and safely implemented with no change in LOS, readmission, morbidity, and mortality rates.

### KEYWORDS

operative surgical procedures; outcome assessment; pancreatic adenocarcinoma

### DIGITAL OBJECT IDENTIFIER

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**PANCREATIC ADENOCARCINOMA (PA) IS AMONG THE FIVE MOST FREQUENT CAUSES** of cancer-related deaths in the United States. An estimated 53,670 new diagnoses of pancreatic cancer and 43,090 deaths occurred in the United States in 2016 (American Cancer Society, 2017). PA is relatively resistant to radiation and chemotherapy and has a high rate of local and systemic recurrence (Abrams et al., 2009; Ghaneh, Costello, & Neoptolemos, 2007; Orr, 2010). Five-year overall survival is 5%–6% (Bassi et al., 2001). Surgery is currently the only potential cure and the most relevant predictor of long-term survival.

Pancreaticoduodenectomy (PD) is the current standard operation for resectable pancreatic tumors situated in the head of the pancreas (see Figure 1). Improvement in surgical techniques has led to PD mortality rates of less than 5% in high-volume centers (Büchler et al., 2003); however, perioperative morbidity remains high (30%–40%) (Bassi et al., 2001) from bile leak, bleeding, cardiac dysrhythmias, delayed gastric emptying, ileus, pancreatic fistula, reoperations, respiratory distress and failure, sepsis, urinary tract infections, and surgical site infections.

Because of the complex surgical and medical management of these patients, the Enhanced Recovery After Surgery (ERAS) evidence-based guidelines for perioperative care for PD were implemented. The Carolinas Medical Center in Charlotte, North Carolina, performs about 100 PD operations per year. The morbidity and mortality rates at this center are similar to national levels, according to the historic data of 140 consecutive post-PD patients seen from January 2013 to August 2015.

### Guidelines

The ERAS guidelines for perioperative care for PD are systematically developed statements that facilitate decision making by healthcare providers for specific clinical circumstances, help reduce inappropriate variations in practice, and promote the delivery of high-quality, evidence-based health care (Varadhan, Lobo, & Ljungqvist, 2010). The ERAS guidelines represent a fundamental shift in the perioperative care of patients (Varadhan, Lobo, et al., 2010), and their implementation encourages full recovery, shortens hospital length of stay (LOS), and reduces complications after certain types of major