

# Chapter 7

## Health Economic Implications of Complications Associated With Pancreaticoduodenectomy: A Retrospective Cohort Cost Study

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### **ABSTRACT**

*Clinical costing is a powerful tool to bridge the disconnect between financial and clinical information, and is an ideal platform to conduct research aimed at informing value-based clinical decision making. This chapter will provide an example of the utility of activity-based costing to elucidate the costs of complications following pancreaticoduodenectomy, a high acuity procedure with high costs. It will show the significance of clear clinical costing in targeting cost containment in a tertiary hospital environment.*

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## **INTRODUCTION AND BACKGROUND**

As healthcare policy makers increasingly judge quality based on both costs and outcomes, the importance of cost containment has become paramount. Pancreaticoduodenectomy (PD), commonly referred to as a Whipple procedure (Whipple, Parsons, & Mullins, 1935), is a complex, highly invasive and costly surgical procedure performed most commonly in elderly patients and associated with significant perioperative morbidity. It is considered standard treatment for resectable malignant or benign cancers arising in the pancreatic head, ampulla, distal bile duct or duodenum. Despite low perioperative mortality, PD is associated with a morbidity rate of approximately 50% for major complications (Warrillow et al., 2010) due to its invasive nature. Postoperative complications are a greater determinant of mortality than patient and intraoperative risk factors post-major surgery (Khuri et al., 2005), and are associated with both increased length of stay (LOS) and the requirement for further operative intervention (Gupta, Turaga, Miller, Loggie, & Foster, 2011). Furthermore, it has been shown that the development of complications following pancreatic surgery is the most significant factor of increased cost (Enestvedt et al., 2012; Vonlanthen et al., 2011). Complications following PD have significant clinical and economic burden, and therefore represent a target for improvement.

Despite this knowledge, for patients undergoing PD there remains a lack of research investigating the basis of costs and their relationship to the development of complications. Topal et al. (Topal, Peeters, Vandeweyer, Aerts, & Penninckx, 2007) examined hospital cost-categories of PD using an activity-based costing method, and reported that hospitalisation and medical staffing costs were significantly increased in PD patients with complications. Further analyses of this nature are required to determine potential targets for cost containment and sustainable structural changes in the hospital services. Additionally, a dearth of accurate, quality costing data detracts from the ability to make conclusive remarks on the economic burden of complications following major surgery, including major pancreatic surgery (Patel, Bergman, Moore, & Haglund, 2013).

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