



# Budget Impact Analysis of Perioperative Nutrition in Surgical Oncology Patients

Cory Brunton, MS, BSN, RN<sup>1</sup>, Kirk W. Kerr, PhD<sup>1</sup>

<sup>1</sup>Abbott Laboratories, Columbus, Ohio, USA

## BACKGROUND

- Implementation of Enhanced Recovery After Surgery (ERAS®) protocols including preoperative oral carbohydrate loading and early immunonutrition are associated with reduction in hospital length of stay (LOS).<sup>1,2</sup>

## OBJECTIVE

- This analysis estimates the cost savings associated with implementing such ERAS® protocols in colorectal, Whipple procedure, distal pancreatectomy, gastric, and head and neck cancer surgical procedures.

## METHODS

- The model utilizes data from a retrospective analysis (Cochran et al, 2021) and meta-analysis (Drover et al, 2021) showcasing the reduction in LOS associated with the effect of perioperative nutrition in the five surgical procedures of interest.
- Perioperative nutrition consists of immunonutrition oral nutrition supplements before and after surgery; and carbohydrate loading with a clear carbohydrate drink up to 2-4 hours prior to surgery
- The cost of providing perioperative nutrition (Ensure Surgery and Ensure Pre-Surgery) to surgical patients is weighed against cost savings associated with reducing the mean LOS.
- The 2019 Healthcare Cost and Utilization Project data was used to calculate average costs for inpatient episodes.<sup>3</sup>
- Cost savings were estimated by comparing the total cost of care (adjusted to 2021 dollars) when utilizing perioperative nutrition versus not.

## Perioperative nutrition is a low-cost intervention to reduce post-operative LOS and hospital episode costs



## RESULTS

- Perioperative nutrition is associated with a 11-34% reduction in LOS depending on the surgery type.
- Assuming 100 patients for each surgical procedure, an average hospital episode cost of \$48,126, and \$121 cost for perioperative nutrition, total savings equate to \$5.1 million or average per patient savings of \$10,280.

Table 1. Surgical Procedure LOS, Cost and Savings Breakdown

	Colorectal		Whipple Procedure		Distal Pancreatectomy		Gastric		Head & Neck Cancer	
	Standard of Care	Perioperative Nutrition	Standard of Care	Perioperative Nutrition	Standard of Care	Perioperative Nutrition	Standard of Care	Perioperative Nutrition	Standard of Care	Perioperative Nutrition
<b>Mean LOS</b>	8.1	6.9	15.1	10.0	9.1	6.3	11.4	9.8	13.1	11.7
<b>Cost Per Admission</b>	\$31,946	\$27,378	\$65,036	\$43,070	\$38,593	\$26,718	\$65,584	\$56,206	\$39,470	\$35,252
<b>Savings per 100 patients</b>	\$444,734		\$2,184,468		\$1,175,379		\$925,754		\$409,719	

## CONCLUSIONS

- Perioperative nutrition can be a low-cost intervention to reduce post-operative LOS and hospital episode cost.
- More research is needed to examine the impact of perioperative nutrition not only on LOS but also on post-operative complications, 30-day hospital readmissions, and total healthcare utilization to enhance protocols implementing nutrition-focused care.

## REFERENCES

- Cochran et al. ERAS USA Conference. 2021. New Orleans, USA. 2. Drover et al. J Am Coll Surg. 2011;212(3):385-399.e1.
- HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP). 2019. Agency for Healthcare Research and Quality, Rockville, MD. [www.hcup-us.ahrq.gov/nisoverview.jsp](http://www.hcup-us.ahrq.gov/nisoverview.jsp)

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