

Immunonutrition and pre surgical wellness, critical elements in the pathway improved outcomes, reduced surgical site infection, length of stay, and readmission independents of enhanced recovery enhancing a proactive culture of safety

Authors: Baotram Tran, MD¹, Vinayak Gupta¹, Nancy Strange, RD, CNSC, CLT, CD¹, William Wooden, MD, FACS¹

¹Indiana University School of Medicine, Indianapolis, IN

Background

As Health Care providers we have now become keenly aware of need and opportunity to improve outcomes and reduce cost to the patients and the health care system at larger. Based on our NSQP data, 75% of the surgical patients treated at the IU Health Adult Academic Health Center have three or more risk factors for complications. To address the need to improve outcomes, we initiated OR Pre Surgical Wellness program. The core element was introduction Pre Surgical Immunonutrition in 2010-2011. We also enhanced our Pre Surgical medical and anesthesia optimization program, standardizing education on pre-surgical physical activity, general nutrition, 5 days pre-surgical immunonutrition supplement, smoking cessation, Chlorohexidine soap bathing, and Mupirocin pre-treatment. This formed the foundation of POWERR (P-re O-perative W-ellness, E-nhanced, R-apid R-ecovery) program. Carbohydrate loading and ERAS elements were added in 2014-2015, expanding our progress. This base program dramatically improves surgical outcome providing a foundation for surgical engagement and collaboration to add additional elements of ERAS.

Methods

A retrospective chart review of the patients at our institution who had received the POWERR intervention tool kit was performed. Review of length of stay, length of ICU stay, mortality, and surgical site infection were assessed.

Results

Consistent decreased in length of stay index for all surgical services was demonstrated after the implementation of POWERR compared to pre-implementation from 2010 to 2013, we recovered over 8 thousands days and reducing our LOS (length of stay) index from 1.142 in 2013 to 1.32 in 2014, 1.064 in 2015, and 1.063 in 2016. Over 8 thousand opportunity days were saved from 2013 to 2016, translating to a significant amount of cost saving in our health system. Our mean ICU days has decreased from 6.22 days in 2012 to 5.99 in 2015. Mortality index has decreased from 1.33 in 2012, to 1.11 in 2013 and 2014, and to 0.97 in 2015. Superficial surgical site infection (SSI) has decreased as well: after colectomy decreased from 7.89% in 2010 to 1.72% in 2016, after enterectomy from 6.25% to 0%, after gastrectomy from 17.14 to 7.14%, after hepatectomy from 6.74% to 2.33%, after pancreatectomy from 5.15% to 1.75%, after proctectomy from 11.11% to 0%. There was also a decrease in deep SSI after hepatectomy from 1.12% in 2010 to 0% in 2016 and after pancreatectomy from 1.03% to 0.58%.

Conclusions

All health care systems strive to achieve superior patient's safety and surgical outcome. We have dramatically improved our outcomes with a simple direct. Immunonutrition and wellness based program. This is easy to implement with fewer steps than Enhanced recovery and provides very tangible results for providers, patients and administration. This can rapidly build collaboration and engagement to advance progressive improvements with ERAS and other process.