

Project Title

Delivering Hassle-Free Integrated Care for Patients Undergoing Emergency
Laparotomy

Project Lead and Members

Project lead: Dr Jerry Goo, Consultant

Project members:

- Marc Ong Weijie, Consultant, General Surgery
- Tan Kok Yang, Senior Consultant, General Surgery
- Serene Goh Si Ning, Resident, General Surgery
- Kang Min Li, Senior Staff Physician, General Surgery
- Hilda Hu Haoling, Consultant, Anaesthesia
- Yvonne Wong Chiong Ling, Consultant, Anaesthesia
- Grace Lim Choong Yan, Consultant, Geriatric Medicine
- Priscilla Ng Consultant, Geriatric Medicine
- Kanak Naidu, Senior Consultant, Acute and Emergency Care
- Lim Woan Wui, Nurse Clinician
- Ong Yu Jing, Advanced Practice Nurse
- Sunny Tan Boon Chai, Senior Physiotherapist
- Ng Yeuk Fan, Director, Corporate Development

Organisation(s) Involved

Khoo Teck Puat Hospital

Project Period

Start date: Jan 2019

Completed date: On-going

Aims

To standardize perioperative care for patients undergoing emergent abdominal surgery for acute surgical conditions, and to optimize postoperative management subsequently

Background

See poster attached/ below

Methods

See poster attached/ below

Results

See poster attached/ below

Lessons Learnt

Transparency and regular audit have been shown to drive improvement and lead to better outcomes in surgery. Quality Improvement (QI)-focused regular measurement of outcome and process measures enabled the management teams to gain understanding of areas for better performance and aided improvement in this project. The primary factors of importance have been effective multidisciplinary teamwork, the appointment of dedicated local champions and a progressive cultural change in the involved departments.

Some areas which we would have liked to incorporate would be to create the protocol integrated online to make it hassle-free and easy to use. Initially we used a paper form for clerking of patients and collection of data, hence having this available on the computer system would certainly make it more convenient for ground staff to use.

Conclusion

See poster attached/ below

Additional Information

This project has employed evidence-based quality improvement practices to improve patient outcomes after emergency laparotomy (EL), and enhance clinical efficiency outcomes by bringing together a transdisciplinary team for patients. ELAP can be applied across healthcare institutions to promote standardization of care by adhering to a clear pathway with evidence-based care processes. Ongoing prospective audit and outcome-driven optimization is necessary for continuous improvement.

On a larger scale, KTPH is working with a network of other institutions in Singapore including TTSH, SGH and NTFGH to improve overall EL outcomes nationally. We are aiming develop a national EL audit, where new innovations can be shared and deficiencies be optimized across hospitals.

Project Category

Care & Process Redesign

Keywords

Care & Process Redesign, Value Based Care, Efficient Care, Workflow Redesign, Quality Improvement, Safe Care, Cost Saving, Multi-Disciplinary, Anaesthesiology, Emergency Medicine, Surgery, Geriatric Medicine, Nursing, Allied Health, Khoo Teck Puat Hospital, Integrated Emergency Laparotomy Pathway, Laparotomy, Perioperative Care, Postoperative Care, Value Driven Care, Patient Value Compass, Optimal Care Index, Mortality

Name and Email of Project Contact Person(s)

Name: Dr Jerry Goo

Email: goo.jerry.tt@ktph.com.sg

Delivering Hassle-free Integrated Care for Patients Undergoing Emergency Laparotomy

Ong MW¹, Goh SSN¹, Kang ML¹, Hu HH², Wong YCL², Lim GCY³, Ng P³, Kanak N⁴, Lim WW¹, Ong YJ⁵, Tan SBC⁶, Ng YF⁷, Goo JTT¹
¹General Surgery, ²Anaesthesia, ³Geriatric Medicine, ⁴Acute & Emergency Care, ⁵Nursing, ⁶Rehabilitation Services, ⁷Corporate Development, Khoo Teck Puat Hospital, Yishun Health.

Background

- Emergency Laparotomy (EL) is a common yet life-threatening surgery fraught with much risk
- Substantial variations in care processes for EL exist but to date, there is no standardized management in Singapore

Aims

- Implement an integrated Emergency Laparotomy Pathway (ELAP) and a transdisciplinary team to deliver **hassle-free** and **best-practice** care
- Improve the clinical and functional outcomes of patients who undergo EL
- Deliver high quality clinical care, improve patient satisfaction with value driven care (Optimal Care Index) approach

Methodology

- The transdisciplinary clinical team consists of Emergency Department (ED) physicians, General Surgeons, Geriatricians, Anaesthetists, Nurses, and Allied Health Professionals who care for the patients along the ELAP workflow from start to end
- A prospective study was conducted upon implementation of the pathway between 1 January-31 December 2019 (ELAP group)
- Comparisons were then made with retrospective data from the pre-implementation period between 1 January-31 December 2017 (pre-ELAP group)
- A total of 314 patients were included in this study: 152 patients in the pre-ELAP group vs 162 in the ELAP group

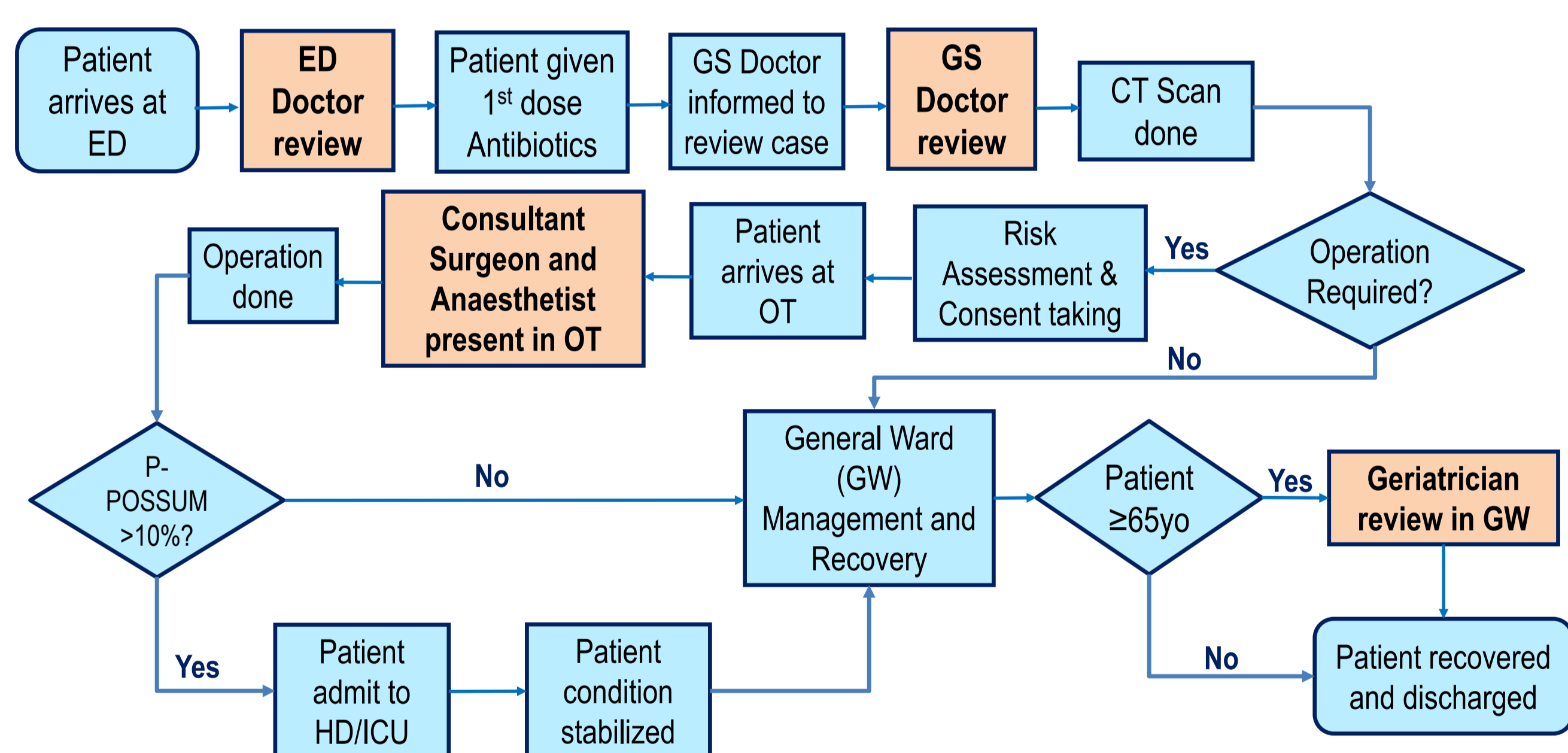
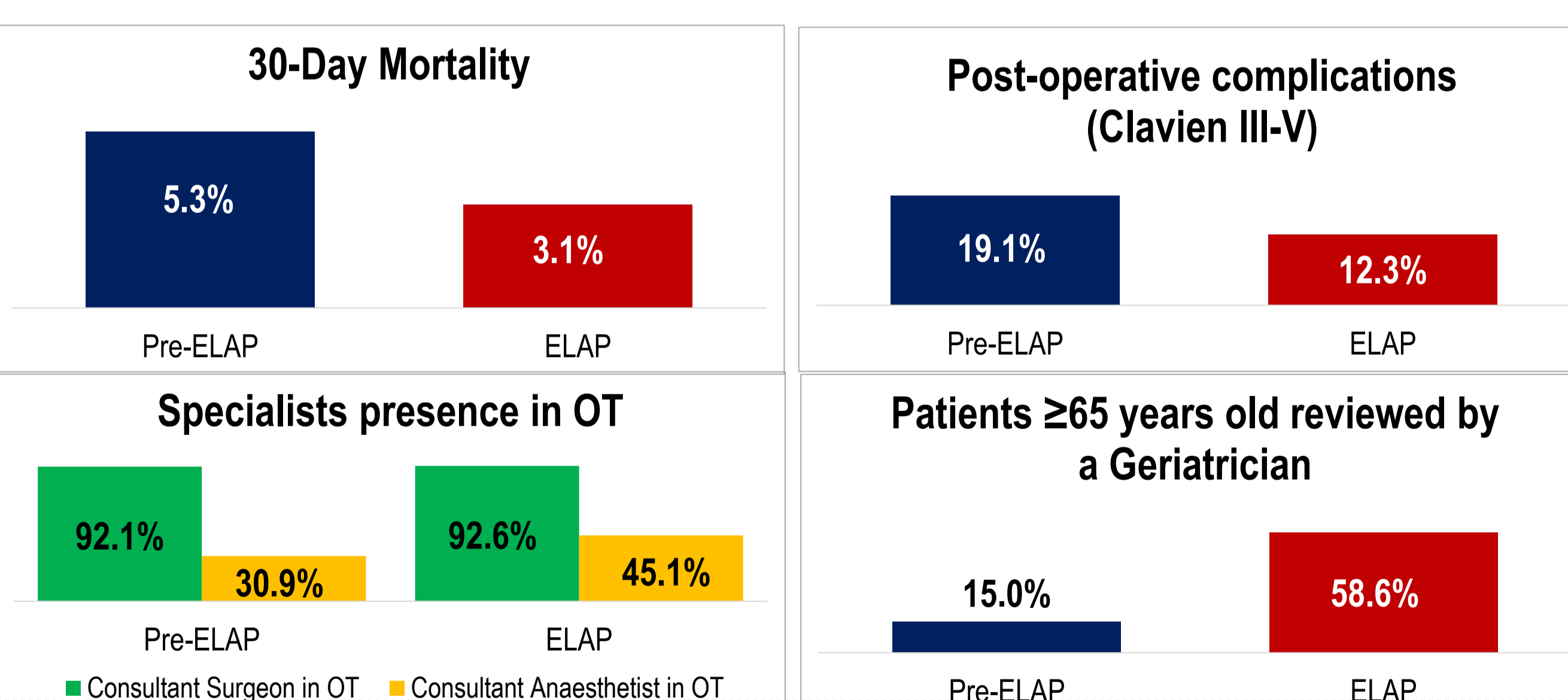


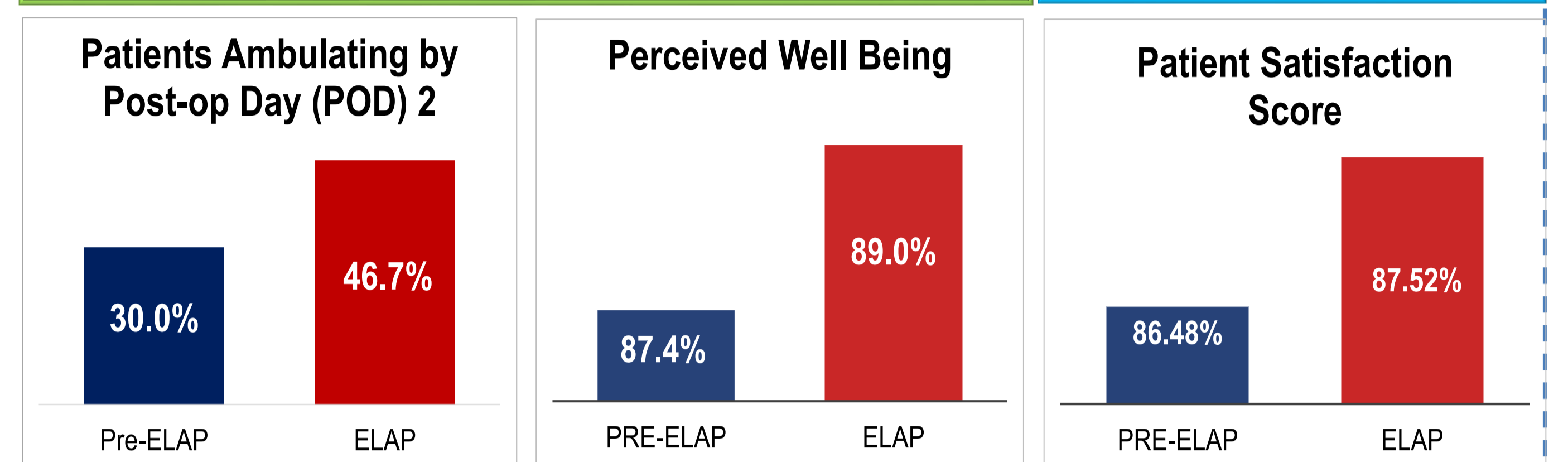
Figure 1. ELAP pathway workflow for a patient from time of arrival in ED to discharge. Boxes highlighted in orange represent transdisciplinary team involvement in the care of a patient in need of an emergency laparotomy.

Results

Clinical & Efficiency Outcomes

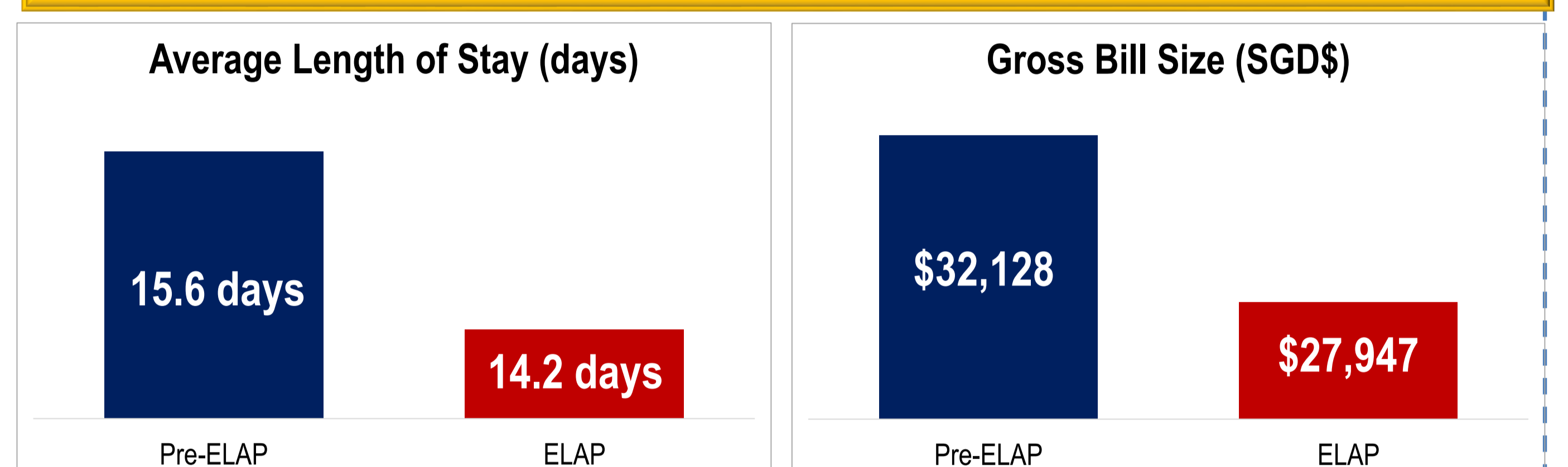


Functional Outcomes



Experience Outcomes

Costs-to-Patient Outcomes



Optimal Care Index (OCI)

Pre-ELAP

$$\text{OCI per \$1,000 spent} = \frac{23.7}{32,128} * 1,000 = +0.7$$

ELAP

$$\text{OCI per \$1,000 spent} = \frac{46.8}{27,947} * 1,000 = +1.7$$

The OCI score demonstrated a **2.5X increase in patient value gain** based on the 4 major outcome indicators guided by the Patient Value Compass (PVC)

Sustainability

- The ELAP workgroup meets quarterly to perform regular data auditing and discuss areas to improve on
- On a larger scale, KTPH is working with other hospitals including TTSH, SGH and NTFGH to improve overall EL outcomes nationally
- The eventual goal is to develop a nation-wide EL network where new innovations can be shared and deficiencies be optimized across hospitals

Lessons Learnt

- Transparency and regular audit have been shown to drive improvement and lead to better outcomes in surgery
- The main drivers of successful implementation were:
 - Effective multidisciplinary teamwork
 - Regular QI-focused measurement of outcomes
 - Appointment of dedicated local champions
 - Progressive cultural change

Conclusions

- Implementation of a transdisciplinary team and perioperative care pathway has helped to *save lives* and led to improvement in outcomes across the various measures for patients undergoing emergency laparotomy.
- Patients under the ELAP pathway received operations *Quicker*, recovered with fewer deaths and complications *Safer*, stayed in hospital for lesser days *Cheaper*, and had improved overall OCI Value *Better*.