Project Title

Sustaining a Multidisciplinary, Single-Institution, Postoperative Mobilization Clinical Practice Improvement Program Following Hepatopancreatobiliary Surgery During the COVID-19 Pandemic: Prospective Cohort Study

Project Lead and Members

Project lead: Adj A/Prof Vishal G Shelat

Project members: Wang B, Chow JLJ, Joseph PM, Chan JY, Abdul Rahman N, Low YH, Tan YP

Organisation(s) Involved

Tan Tock Seng Hospital

Healthcare Family Group(s) Involved in this Project

Medical, Nursing, Allied Health, Healthcare Administration

Applicable Specialty or Discipline

General Surgery, Physiotherapy

Project Period

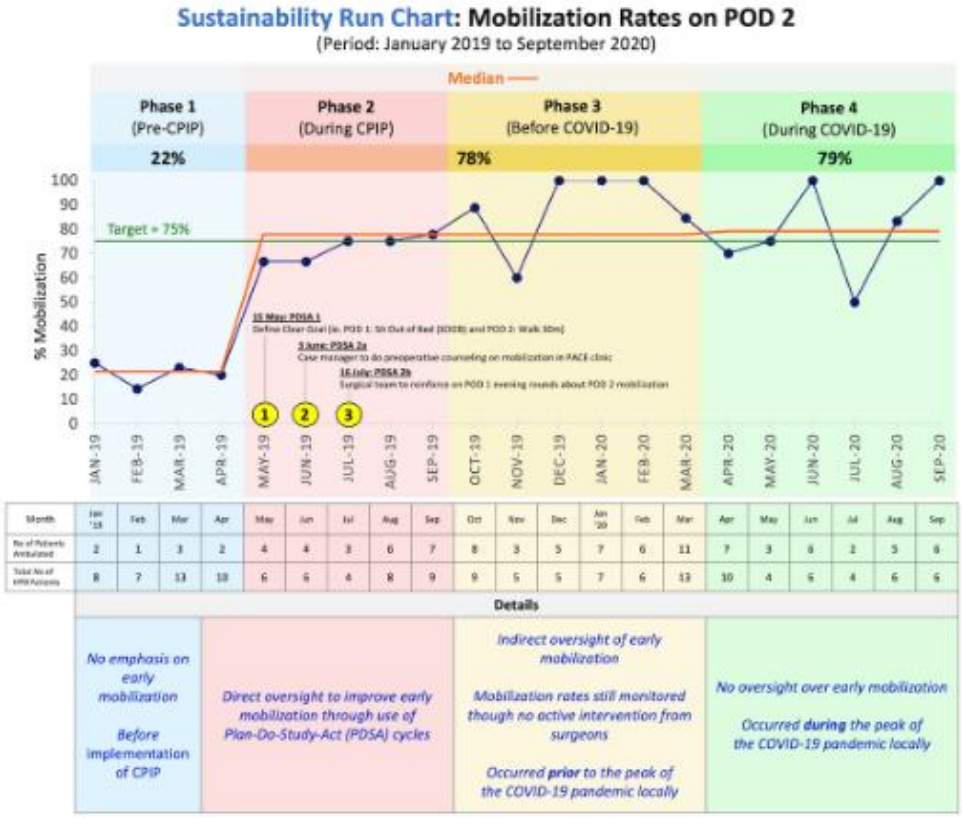
Start date: Jan 2019

Completed date: Sept 2020

Aims

This study aimed to assess the sustainability of our multidisciplinary single-institution Clinical Practice Improvement Program (CPIP) at 1-year post implementation to improve the postoperative mobilization rate of patients undergoing elective major Hepatopancreatobiliary (HPB) surgery during the COVID-19 pandemic.

Project Attachment



Background

Our institution showed a poor postoperative mobilization rate of 22% in patients undergoing elective major HPB surgery, with improvement to >75% following the implementation of a multidisciplinary surgeon-led clinical practice improvement project (CPIP). The quality improvement process does not end with the implementation of a solution. Specific steps must be taken, and mechanisms established to hold the gains, for breakthroughs in results come from sustaining changes. The median follow-up time for a health care CPIP is reported to be less than 1 year. Only a sustained initiative can be spread for adoption by others at multiple locations so that communities can reap gains. Ensuring sustainability is difficult due to the COVID-19 pandemic. Patient mobilization mandates staff to be near patients, which violates safe distancing measures. A 2020 clinical practice guideline for physiotherapy management during the COVID-19 pandemic recommended screening

referrals for mobilization and exercise to minimize staff in contact and high-filtration masks during physiotherapy sessions.

Methods

Successful mobilization was defined as sitting out of bed for >6 hours on POD 1 and ambulation of $\geqslant$ 30 m on POD 2, with a target mobilization rate of $\geqslant$ 75%. Preoperatively, case managers counsel patients and caregivers on postoperative goals and emphasize the benefits of early mobilization. Postoperatively, the surgical teams emphasize the benefits of mobilization during POD 1 evening rounds. The plan-do-study-act (PDSA) cycles were utilized to identify critical barriers to early mobilization, and changes were implemented to identify outcomes. Major HPB surgery was defined as surgery involving the HPB system and lasting more than 2 hours.

Results

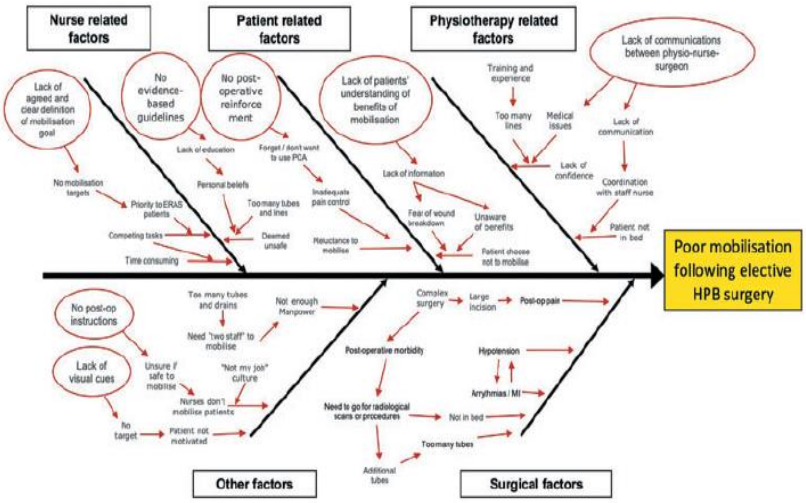


Figure 1 Fishbone diagram of factors leading to poor mobilisation following elective hepatobiliary and pancreatic surgery. ERAS, Enhanced Recovery After Surgery; HPB, hepatopancreatobiliary; MI, myocardial infarction; PCA, patient-controlled analgesia,

The average cost of inpatient stay per day per patient in the institution was approximately S$1114. The median length of stay during CPIP was 6 days (SD 7 days, IQR 2–53 days). Compared to the pre-intervention length of stay of 8 days, the difference of 2 days may mean a cost saving of S$2228 per hospital stay. In a given year, we expect a total of 90 patients to undergo elective major HPB surgery. The cost savings per annum for the hospital was estimated to amount to be S$200 520.

Lessons Learnt

First, there is no good reason to delay simple, actionable process changes that could impact clinical outcomes. We observed improvement in the postoperative mobilisation rate by modifying postoperative orders in operating records before CPIP.

Second, there is a finite resource available in any organisation. Shunting resources for crucial initiatives may have an unknown negative effect on other processes, and such effects may not be apparent immediately. In our experience, it could be possible that senior leadership monitored other ERAS protocols, and hence non-ERAS patients did not receive similar priority and care. Indicating mobilisation rates of non-ERAS patients could be used as a balance measure for the success of ERAS protocols.

Third, the voice of the patient is vital in their therapeutic journey. The results showed that despite active counselling by case managers, patients still prefer 'doctors—medical team' to explain and alleviate fears and anxiety about perceived side-effects of early mobilisation. Thus, patient-centred care delivered by quality vigilant healthcare workers is essential.

Fourth, process outcomes can impact clinical outcomes, as shown by the CPIP. We have
demonstrated that improving mobilisation rates reduces the median hospital length of stay and associated hospital costs.

Last, CPIP is an ongoing journey, and it must continue.

Conclusion

We demonstrated the sustainability of our CPIP in improving early postoperative mobilization rates in patients who underwent elective major HPB surgery 1 year following implementation, even during the COVID-19 pandemic.

Additional Information

We have published two manuscripts based on this project

1. Tang JH, Wang B, Chow JLJ, Joseph PM, Chan JY, Abdul Rahman N, Low YH, Tan YP, Shelat VG. Improving postoperative mobilisation rates in patients undergoing elective

major hepatopancreatobiliary surgery. Postgrad Med J. 2021 Apr;97(1146):239-247. doi: 10.1136/postgradmedj-2020-138650.

2. Chan KS, Wang B, Tan YP, Chow JJL, Ong EL, Junnarkar SP, Low JK, Huey CWT, Shelat VG. Sustaining a Multidisciplinary, Single-Institution, Postoperative Mobilization Clinical Practice Improvement Program Following Hepatopancreatobiliary Surgery During the COVID-19 Pandemic: Prospective Cohort Study. JMIR Perioper Med. 2021 Oct 6;4(2):e30473. doi: 10.2196/30473.

Project Category

Care & Process Redesign, Quality Improvement, Clinical Practice Improvement, Value Based Care, Length of Stay, Productivity, Cost Saving

Keywords

Postoperative Mobilization, COVID-19 pandemic, Enhanced Recovery After Surgery, Plan Do Study Act, Multidisciplinary

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