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Overview of the Surgical Outcomes Monitoring and Improvement Program Process and Its Learning Improvement in Hong Kong Hospital Authority

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Abstract

The surgical outcomes monitoring and improvement program (SOMIP) is a quality improvement program set up to monitor surgical outcomes and identify improvements in the public hospitals with surgical departments to reduce the Hong Kong Hospital Authority patient's emergency and elective mortality significantly. This individual reflection discusses the background, aim, limitations as well as its process and learning improvement of SOMIP.

Keywords: SOMIP, limitations, process improvements, learning improvements

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1 INTRODUCTION

In early 1995, Hong Kong Hospital Authority (HA) was only with the Surgical Outcomes Study and Quality Assurance Subcommittee, then the HA Coordinating Committee of Surgery was set up as a central surgical audit unit in 2001^[1]. These units conducted clinical audits based on retrospective cumulative data to compare the performance of those 17 surgical departments from 2002 to 2007. One to two major or ultra-major operations, such as major hepatectomy, oesophagectomy, and major lung resection, were selected each year for comparison^[2]. Up to 2008, HA implemented the surgical outcomes monitoring and improvement program (SOMIP). This program was governed by a steering committee comprising surgeons, an anesthetist, a physician, administrative managers, and statisticians. This is a quality improvement program set up to monitor surgical outcomes and identify improvement opportunities in 18 public hospitals with surgical departments^[3]. The SOMIP involves around 25,000 elective and emergency operations each year which

consist of general surgery, urology, plastic, and pediatrics. This is measured and compared to the risk-adjusted patients' outcomes after surgical operations among different hospitals in HA. It is an outcome-based, risk-adjusted, and corporate-wide validated program to measure and improve the quality of surgical operations in public hospitals also analyzes the mortality and morbidity within 30, 60, and 90d after an operation. The present correspondence describes and analyzes the effectiveness of emergencies and surgeries, as well as their quality and possible improvement for the patients.

2 AIMS

SOMIP provides an appraisal to hospitals based on risk-adjusted outcomes and an objective estimation based on the results of all peer hospitals. It enhances understanding of surgical performance and helps identify areas for improvement, also allows individual HA hospitals to benchmark their performance against the overall HA average

through risk-adjusted observed-to-expected mortality ratio (O/E ratio).

The process of SOMIP includes record reviews by nurse reviewers, statisticians analyzing the data, constructing the risk-adjustment model, and applying it in a hospital to obtain the O/E ratio and identify outliers. This purpose of SOMIP allows monitoring of performance and fair comparison between individual hospital authority hospitals and the overall HA. The report is open to the public for increasing HA's transparency. The public can realize some performances of HA's surgical situations.

3 LIMITATIONS

The limitations for SOMIP include (i) coverage, (ii) monitoring, (iii) number of events, (iv) HA electronic database, (v) potential issues, (vi) patient mortality, and (vii) surgeon skill and experience;

- (i) SOMIP is not a total of national surgical quality improvement program, it is a short report and excludes some surgical departments, e.g., orthopedics and neurosurgery;
- (ii) The retrospective annual case collection started from July 1 to June 30 within the monitoring period. It takes 13 months to complete case enrolment and an additional 3 months for data verification, model building, and statistical analysis;
- (iii) Not able to determine the risk-adjusted outcomes of individual operations or surgeons;
- (iv) Not easy to extend it to hospitals without an information infrastructure;
- (v) Data quality is affected by inter-rater reliability tests. Nurse reviewers are not blinded which causes information bias and data unreliable. Data definitions are updated regularly in the operation manual which can influence the time trend of analysis;
- (vi) The risk-adjusted models excluded disease factors, stage of disease, and treatment options. Data readiness and availability are further constraints; and
- (vii) Difficult to separate individual surgeon experience and credentials because surgical operations are performed by a team^[4].

3.1 Process Improvements

The process improvement is mainly based on two parts including (i) data collection from the corresponding hospital in HA, and (ii) process after results. Data is collected from each patient such as demographic variables and laboratory test results from clinical information systems. Operative variables, postoperative events, and postoperative adverse events are manual retrieval. Those are risk-adjusted outcome data.

- (i) Intraoperative documentation should have a handwriting sheet and remember on the whiteboard to prevent Illegible components, wrong entries, and not being consistent with other teams; Intra-

operative documentation should implementation in perioperative nursing information system. It digitalizes and standardizes intraoperative records, and improves data availability, as well as accuracy being instant data available to other teams; and

- (ii) The improvement of the process focuses on those lower outliers of data collection which depends on the feedback to the surgical units, root cause analysis, change culture, appropriate resource allocation, and service planning as well as the labor-intensive. Data are collected inconsistently. It is required to improve the system or format for all hospitals and analyze the predisposing factors rather than complications^[5].

3.2 Learning Improvements

The driving force for improvements such as public reporting, change in culture, appropriate resource allocation, and service planning. Based on the root cause analysis and implementation of the plan, do, study, act cycle for quality improvement. It consisted of the four important stages, plan, do, study, and act which become an audit cycle for learning. Plan: Planning and preparation; Do: Measuring the level of performance; Study: Making a plan of improvement; Act: Evaluate & Re-audit. It identifies the hospitals and surgeries with the highest rate of complications, also practical interventions to decrease the rate of complication and enhance the patient experience through the implementation of this SOMIP^[6].

4 CONCLUSION

SOMIP significant reduction of HA emergency and elective mortality rates. It develops the culture of "striving for surgical excellence" and hospital systematic improvement. However, it lacks follow-up actions, requires culture change, improves data quality as well as takes some prospective approaches.

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Conflicts of Interest

The author had no conflict of interest to disclose. This manuscript's contents originated from Siu-Kan Law Professional Certificate in Chinese and Integrative Medicine Management, Course: HSYS5014 Quality and Safety Management (CUHK in 2022).

Author Contribution

Law SK contributed to the concept, acquisition, and analysis of data, drafting of the manuscript, and critical revision of the manuscript for important intellectual content which was approved as a final version for publication.

Abbreviation List

HA, Hong Kong Hospital Authority

O/E ratio, Observed-to-expected mortality ratio
SOMIP, Surgical outcomes monitoring and improvement program

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