

Prevalence of Elective Surgery Cancellations in the Operating Room of East Avenue Medical Center (September 2019 – February 2020): A Hospital-Based Retrospective Study

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Abstract: Elective surgical cancellations pose threats to quality care. It is a significant source of psychological distress for patients and their families. This study aimed to determine the prevalence of elective surgery cancellations on the scheduled day of surgery at a tertiary DOH hospital in Metro Manila. A retrospective, hospital-based cross-sectional study design was conducted among nurses (n=259). Document review was employed using the client's hospital record for collecting data. The number of cases of elective surgeries ranges from 437 to 558 every month from September 2019 to February 2020. The average cases of surgical cancellation are around 25-29% from September 2019 to February 2020. The medical and paramedical staff-related recorded the most causes of surgical cancellations. September 2019 had the most prevalent cases of surgical cancellations. The surgical cancellation rate remains high. Most causes of cancellations are avoidable. Medical and paramedical-related causes such as improper scheduling, unavailability of surgeons and operating room equipment, and medical illness were the most prevalent reasons for the elective surgery cancellation. It is recommended that a root cause analysis should be done to identify the precedents for surgical cancellation. It is also advised to revisit the guidelines of the OR operations. This way, interventions to mitigate surgical cancellations will be evaluated and may initiate adopting best-fit interventions to solve the problem.

Keywords: cancellation; elective surgery; operating room

1. INTRODUCTION

1.1 Background

Cancellation of scheduled surgeries is a persistent issue confronting the operating room department staff and its management daily because this problem affects health care performance and patient outcomes.

The East Avenue Medical Center (EAMC) is a tertiary government training hospital under the Department of Health. It caters to patients from all over the country - pay and service cases. In 2018 alone, it catered to 7,189 pay and service elective and emergency operations. Service cases are performed by resident surgical and anesthesia doctors under the different residency training programs on collaboration and interface with resident medical doctors of the hospital. These resident doctors are under the guidance and mentorship of their respective consultants. Consultant surgeons pay cases, and anesthesiologists are duly acknowledged and accredited by EAMC.

The EAMC Main Operating Room has 11 rooms divided into seven major

operating rooms, one emergency operating room, two urology rooms, and one minor operating room. This theatre is manned by 32 Operating Room nurses and 16 nursing attendants. Elective procedures are scheduled on Mondays to Saturdays with a cut-off time for service cases but unlimited time for pay cases. The Operating Room has its Operating Room Management Committee (ORMAC) with rules and guidelines agreed upon by all the concerned Department Chairman, Nursing Supervisors of the Operating Room, Delivery Room, Post Anesthesia Care Unit, and Surgical Intensive Care Unit.

Like most government hospitals, EAMC experiences capacity constraints due to the growing number of patients, limited staffing, inadequate resources, and fixed limited space. Cancellation of elective surgical procedures causes a significant emotional toll on the patient and his relatives. It could lead to extended hospital stays, complications, and increased financial incapacity. Furthermore, case cancellations disrupt other scheduled surgeries, interfere with the other departments' plans and objectives, waste scarce resources, increase healthcare costs and cause emotional stress to all concerned; this also significantly affects the institution and its employee's image. Recognizing the causes of these cancellations will lead to finding solutions to provide better services. In so doing, this will help increase productivity and boost the morale of the entire operating team and may further the institution's respectability. Furthermore, the findings of this study will provide a basis for improvement of the quality management tools to attain minimal cancellation and prompt accomplishment of elective surgeries.

1.2 Statement of the Problem

The Operating Room Management recognizes this problem as an urgent and exceedingly important issue that needs to be addressed. Cancellation of cases indicates inefficient management of resources – men, machines, and materials – and hinders our service to patients.

Hence, this study aims to establish the prevalence of elective surgical case cancellations as scheduled and the reasons for these cancellations stratified according to their causes in a tertiary DOH hospital in Quezon City.

1.3 General Objective

To identify the factors in canceling elective surgeries in the operating room of East Avenue Medical Center from September 2019 to February 2020.

Specific Objectives

1. To determine the number of elective cases done as scheduled
2. To determine the number of cancellations of elective cases
3. To determine the prevalence of cancellations of elective cases as to:
 - 3.1 Patient-related
 - 3.2 Nursing staff related (ward and operating room nursing staff)

3.3 Medical and paramedical staff related (doctors, laboratory, pharmacy, and radiology personnel)

3.4 Hospital management- related

1.4 Scope and Limitation

The study was conducted only in the main operating room (4th floor), which covers all surgical patients of all ages, gender, pay, service patients, and admitted patients. Outpatient cases are scheduled for elective surgical procedures from Mondays to Saturdays, excluding holidays, but elective surgeries have been canceled during the study period from September 2019 to February 2020.

1.5 Review of Related Literature

East Avenue Medical Center is a Department of Health tertiary training hospital (DOH). In compliance with the no-refusal policy of (DOH) and looking at the incontestable knowledge, abilities, and competence of doctors and nurses, the institution has a steadily increasing influx of patients from all over the country with medical and surgical issues ranging from the simplest to the most complex. Resident physicians schedule and nurses assist as many patients as possible per day to reduce the number of patients in the wards and make room for patients on the waiting list who urgently need their services.

Due to different factors, reasons, and circumstances, most elective cases cannot be accommodated. Canceled surgeries increase costs, decrease efficiency, and waste time and resources. It affects the institution, the medical staff, and the patient. Mutwali et al., (2016) revealed that the termination of elective surgical operations is not unusual, but these terminations can be avoided so as not to cause considerable anguish to the patient. Each hospital should formulate careful planning to deal with this effectively and efficiently.

The occurrence of canceled elective surgical operations can be attributed either to the hospital, patient, or physicians. In the Ogwal et al. (2020) study, the dominant reason for the cancellation was facility-related, which could have been counteracted. Non-availability of certain medical team members due to their limited staffing, the prioritization of emergency over elective cases, and the lack of time to complete an operation in the crucial period also contributed to these cancellations.

According to Cho, H., Lee, Y., Lee, S., Kim, J. et al. (2019), the leading causes of surgical cancellations were because of surgery schedule-related, surgery-related, and patient-related. These findings were also supported by the study of Nigatu and Aytolign (2019) with the addition of hospital administration-related factors. Moreover, Desta M, et al. (2018) reaffirmed that improper scheduling, unavailability of surgeons, medical illnesses, and unavailability of operating room equipment were the most prevalent causes for the cancellation of elective operations. These avoidable cancellations were due to financial constraints, deficient pre-operative assessment, patients not showing up for surgery, and lack of

time (Kaddoum, R *et al.* (2016).

A 15-month study in a Nigerian Hospital revealed that the top reasons for canceling elective cases were patient-related factors followed by surgeon-related factors (Okeke, CJ, Obi, AO *et al* (2020). Non-availability of funds was the most common reason for patient-related factors. Most canceled surgical operations were from the General Surgery, Orthopedics, and Urology Departments. According to National Health Service England, some canceled operations due to non-clinical reasons are to be rescheduled within twenty-eight (28) days, or the patient's treatment will be funded by the hospital of the patient's choice and at the time convenient to the patient. Some of the non-clinical reasons that were found include the unavailable beds, surgeons, theater staff, equipment failure, and emergency cases overtaking elective cases. To lessen the cancellations of elective surgeries, the National Heart Center Singapore (NHCS) established its Pre-Operative Evaluation clinic managed by a cardiothoracic surgery unit composed of doctors, nurses, and physiotherapists. The team conducts a comprehensive pre-admission check on patients to prevent surgeries from cancellation. These steps include a review of their pre-operative diagnostics, laboratories, and medication history; financial counseling and a pre-operation video is shown to the patient and his family for them to have an idea and understanding of the whole hospitalization process.

Cancellations of elective cases are primarily preventable and avoidable. The table below shows the common causes of surgical cancellations found in studies according to Desta (2018).

1. Patient-related	a. Refusal to surgery b. patient on medication c. acute and chronic medical illness d. patient not fasting e. patient not paid f. failure to arrive
2. Nursing staff related (ward and operating room nursing staff)	a. failure to provide pre-op meds b. failure to relay the schedule of surgery
3. Medical and paramedical staff related	a. surgeon unavailability b. diagnosis change c. patient require other surgical work-up d. emergency scheduling e. over scheduling of elective surgery
4. Hospital management- related	a. no availability of equipment b. delayed laboratory test c. lack of oxygen and blood d. unavailability of beds

1.6 Conceptual Framework

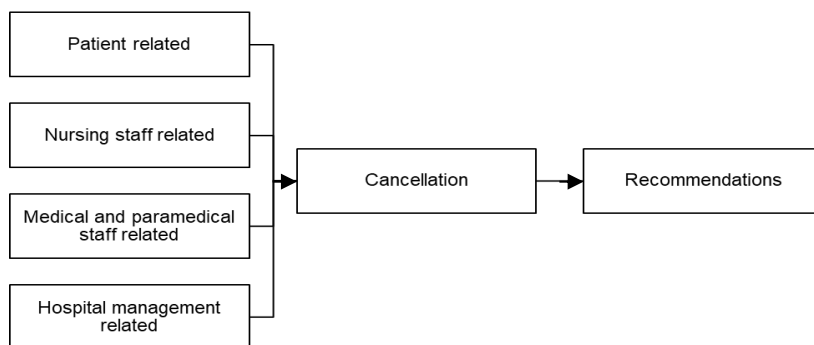


Figure 1. Factors affecting the cancellation of elective surgeries

The figure above shows the interplay of variables that will be entertained in the study. Previous literature indicates that several factors were found to have caused the cancellation of elective surgeries. These factors could be patient-related, nursing staff-related, medical and non-paramedical, and hospital management-related. These factors are the independent variables. Moreover, the cancellation of elective surgeries is the dependent variable. The study findings will be the basis for recommendations to identify strategies to minimize further cancellation of elective surgeries.

2. METHODOLOGY

2.1 Research Design

A hospital-based, retrospective evaluation of cancellations of surgical operations was conducted. Document review was employed using the client's hospital record. Review references will include logbooks such as the Operating room schedule and Operating room record

2.2 Sample/ Sampling Design

A cross-sectional design will be utilized in the sampling selection. Approximately 500 surgeries performed in the operating room are scheduled monthly. For this study, data that will be gathered for the study will follow the following criteria:

2.3 Inclusion Criteria

Minor and major elective surgical procedures from September 2019 to February 2020 (6-month period only).

2.4 Exclusion Criteria

All emergency surgical cases

2.5 Data Gathering Procedure

This study sought approval to conduct the study first at the Nursing Services Office. When the approval was secured, the researcher prepared the manuscript together with study tools that were utilized. Then, the research proposal will be forwarded to Professional Education, Training, and Research Office (PETRO) for technical review. Then, ethics approval from East Avenue Hospital Ethics Review Board has sought after. Furthermore, when permission was secured, actual data collection commenced. The researcher utilized a self-made tool to gather data from hospital reference reviews using OR records. After data were collected, data analysis and interpretation followed.

2.6 Ethical Considerations

The study secured ethics approval from East Avenue Medical Center Review Ethics Board with approval code EAMC IERB 2021 – 69. Furthermore, the researchers secured consent from the administration regarding using the patient records for the study. Each data collection tool was coded with numbers to ensure the anonymity of the respondents. Only the researchers had access to the documents. The researchers declared no conflict of interest in completing the study.

3. RESULTS AND DISCUSSION

Figure 1 shows the number of elective cases done as scheduled from September 2019 to February 2020. It can be seen that elective cases range from almost 320 to 400 cases each month. Figure 2, however, shows the total number of canceled elective cases. October 2019 had the highest number of canceled elective cases. It can be observed in the two figures that October 2019 had the highest number of elective cases and the number of cancellations, while December had the least recorded cases. The prevalence rate of canceled elective surgical procedures ranges from 24% to 29%, which is considered high. September and October 2019 are the months with the most prevalent elective surgical cancellations. Figure 4 shows elective surgical cancellations are more common in in-service wards than in pay wards. Figures 5 to 8 show that medical & paramedical staff-related factors are the leading causes of elective surgical cancellations.

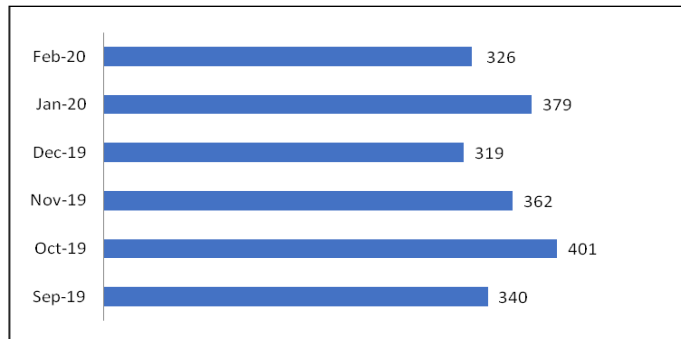


Fig. 1. Total Number of Elective Cases Done

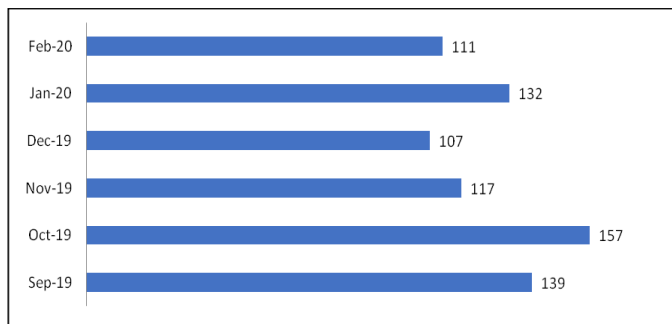


Fig. 2. Total Number of Cancelled Elective Cases

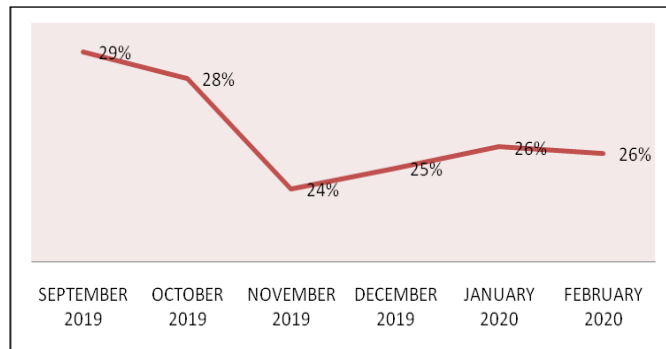


Fig. 3 Prevalence Rate of Elective Surgical Procedures Cancellation

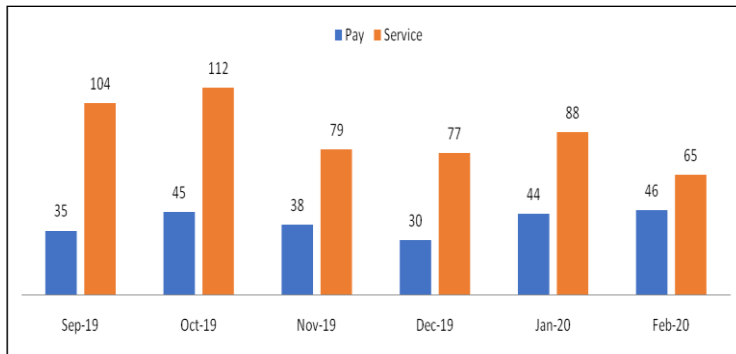


Fig. 4 Number of Cancelled Surgical Elective cases by Case Type

Causes of Elective Surgical Cancellations

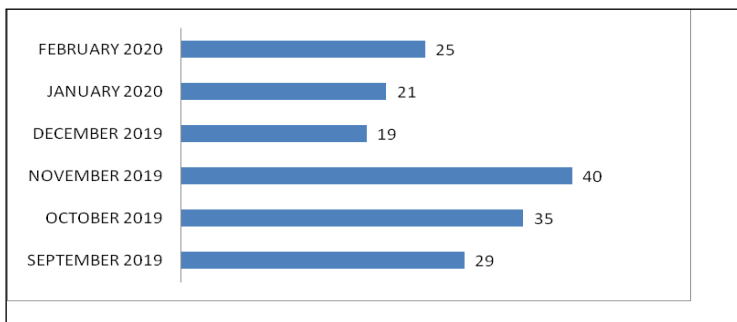


Fig. 5 Number of Patient-Related Cancellations

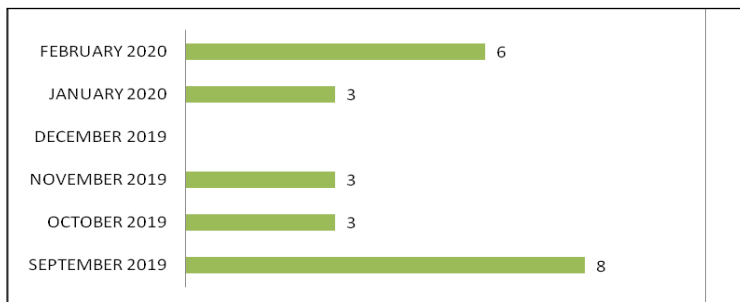


Fig. 6 Number of Nursing Staff-Related Cancellations

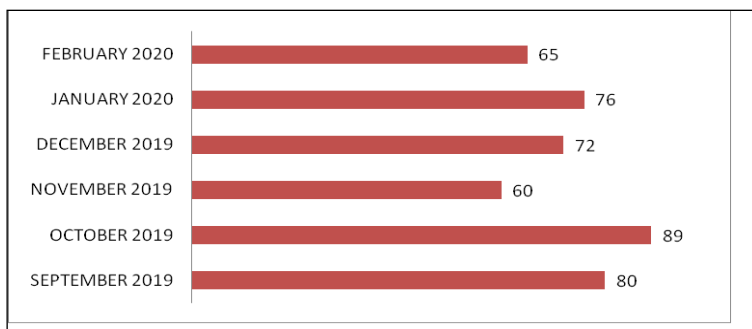


Fig. 7 Number of Medical & Paramedical staff- related Cancellation

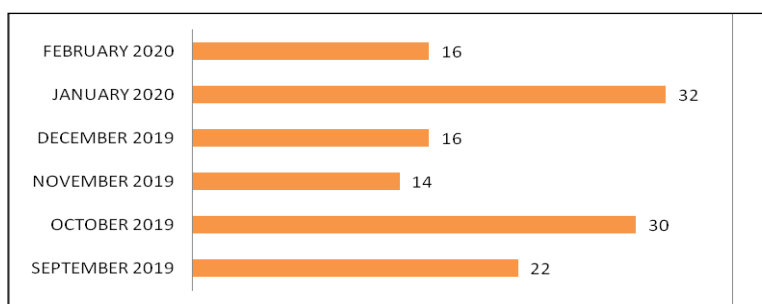


Fig. 8 Number of Hospital management- related Cancellations

Elective surgical cancellations pose threats to quality care services. It is identified as a significant burden owing to limited health resources, increased operating room costs, threats to patient satisfaction, wasted operating room time, and decreased efficiency. An efficient surgical service should have a low cancellation rate (Chalya PL et al., 2011; Leslie RJ et al., 2013; Perroca MG et al., 2007). However, there are known reasons that caused the surgical cancellations. This study shows that 24-29% of the elective surgical cases were canceled, which may be analyzed as preoperative system inefficiency. The result of the current research is supported by the studies conducted in India (Garg R et al., 2009), in Burkina Faso (Lankoandea M et al., 2016), and in Nigeria (Ebirim LM et al., 2012). Still, the current cancellation prevalence rate is higher when compared to studies done in America (Kaddoum et al., 2016), Brazil (Santos, 2017), and Germany, 12.7% (Schuster et al., 2011). This discrepancy might be due to the lack of operating room equipment and bed and the unavailability of a surgeon in public hospitals in the Philippines. Thus, this reduces the operating room time and gives priority to emergency referral cases, which subsequently end up canceling the elective surgical cases.

This study shows that patient-related factors accounted for the second

cause of canceled cases. This study is similar to other studies done in Brazil (Santos, 2017), India (Garg R et al., 2009), and Burkina Faso (Lankoandea M et al. 20016) patient-related factors were the common cause for cancellation. The leading causes of patient-related cancellations are acute and chronic medical conditions and medication use. This may be explained by the fact that patients who continue taking medications on the day of surgery due to illness may affect the surgical procedure and the efficacy of the anesthetic agent. Another identified cause of surgical cancellation is hospital administration-related accounts. Observed in China (Chiu CH, Lee A, Chui PT, 2012) and Sudan (Chiu CH, Lee A, Chui PT, 2012) was a failure to prepare cross-matched blood, an OR material shortage, and a lack of bed availability (Mutwali et al., 2016). It is noteworthy that nurse-related factors accounted for minor causes of elective surgical cancellation. The results suggest that nurses prepare to ensure their readiness before the surgery, thus preventing unnecessary circumstances that may inhibit the conduct of the procedure. Surgical cancellations are more common in service (charity) wards than pay wards, which are more prevalent in public hospitals because patients in charity care have less access to resources than those in pay wards. This study cannot establish a causal relationship, for it is difficult to know which factors preceded the exposure or outcome. Furthermore, it is less likely to generalize the result to the general population because it is a health facility-based study.

4. CONCLUSIONS

The surgical cancellation rate in EAMC remains high and most medical and paramedical-related. Most cancellations were preventable.

5. RECOMMENDATIONS

This study recommends revisiting the guidelines of the OR operations. Hospital resources need to be used more efficiently. Apply scheduling rules to weekly schedules for surgeons, anesthesiologists, and surgical team members. Add beds to the postoperative unit depending on the number of surgical cancellations. Prior clinical screening of patients and patient involvement in this manner may increase patient satisfaction with treatment decisions made during the initial consultation, a strong predictor of surgical participation. When patients are actively involved, they are more likely to support the treatment plan and participate adequately, reducing the likelihood of delay or abandonment. Further research is needed to determine which patient conditions are most associated with delays and cancellations so that resources and interventions can be focused on these areas.

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