

Cancellation of Elective Surgical Procedures, a Single Royal Medical Services Hospital Experience

Mohammed Al Khawalde DDS, Faisal Al Gudah MD**, Nidal Al Soud MD^,
Mohammed Al Hroot MD^^*

ABSTRACT

Objectives: To determine the percentage, reasons and possible suggested measures to reduce the rate of cancellation of elective surgical operations.

Methods: This descriptive study was performed at Queen Alia military hospital (QAH) in the period between January 1st 2011 and January 1st 2012 by collecting and analyzing the daily records of cancelled elective operations.

Results: A total of 7163 patients were scheduled for elective surgeries during the study period, 6601 patients had their operation performed at the scheduled time. 553 patients had their operation cancelled at the day of surgery and the percentage of cancellations was 7.72%.

The highest number of cancellation was observed in December (70 cases out of 646 scheduled cases 10.84%) whereas February had the lowest number of cancellations (23 cases out of 572 scheduled cases. 4.02%). General surgery and orthopaedics had the highest number of cancellation (186 and 177 respectively) whereas ENT and maxillofacial surgery had the least number of cancellations (38 and 10 respectively). The most common causes for cancellations were patient-related, around 68% of the cancellations were due to patients' absence and their medical fitness for surgery at the day of planned operation, and the other causes of cancellations were due to lack of time (overbooked list) or lack of necessary equipments and devices.

Conclusions: The percentage of surgical cancellation at our hospital is relatively low; most of the cancellations could be easily avoided by efficient planning, proper communication with the patients and proper preoperative medical assessment.

Key words: Cancellations, Elective surgical operations, Operating theatres.

JRMS December 2015; 22(4): 52-56 / DOI: 10.12816/0018557

Introduction

Surgical cancellation is defined as a scheduled surgery which is not performed at the intended date. Cancellation of elective scheduled operations leads to an inefficient use of operating

room time, a waste of hospitals' resources and negative social and psychological impact on both patients and their families.^(1,2) Thus, it is a healthcare problem in most hospitals where scheduled operations are cancelled at the last minute, even on the day of surgery. Different

From the Departments of:

* Dentistry, Oral & Maxillofacial surgery, King Hussein Medical Center, (KHMC), Amman-Jordan

** Family Medicine, (KHMC)

^Anaesthesia, (KHMC)

^^General Surgery (KHMC)

Correspondence should be addressed to Dr. M. Al Khawalde (KHMC), E-mail:khawalde@gmail.com

Manuscript received April 27, 2014. Accepted September 25, 2014

scenarios usually occur with regard to the cancellation procedure; in some cases, patients have been prepared for theatre, and staffs are assembled and expecting to operate. In others, patients and staff may not be directly affected especially when a surgeon has cancelled an operation, the patient has been informed, but the theatre booking has been retained.⁽³⁾

The traditional reasons for cancellations are usually related to patients (ie. if they miss their appointment, medically not fit for operation and in some instances they refuse the surgery), organizational procedures (ie. availability of instruments and tools such as prosthetic joints or ophthalmologic lenses), and clinical staff (ie. overbooked lists, lack of proper communication between theatre staff and surgeons).^(4,5) One of the most common reasons is the insufficient pre-operative medical assessment of patients which leads to case cancellation usually by the anesthetist. Other common causes for cancellations include ineffective planning and coordination within the clinical units (basically between surgeons, anesthetists and theatre nurses), surgical list overruns (which indicates the lack of time for the list to be performed) and the patients' absence at the day of their scheduled appointment.

There are many studies in the literature that investigate the rate and reasons of cancellation and monitor the cancellation procedure of the elective operations. The average percentage is between 10% to 40%⁽⁶⁻¹⁵⁾ and it was mentioned that more than half of the cancellations could be avoided by redesigning work processes, improving planning and coordination between clinical staff, and performing earlier clinical pre-operative assessment of the patients.⁽¹⁶⁻¹⁸⁾

This study was conducted at Queen Alia military hospital in Amman / Jordan to determine the number and percentage, reasons and possible suggested measures to reduce the rate of cancellation of elective surgical operations.

Methods

This study was prospectively conducted at Queen Alia military hospital (QAH) in the period between January 1st 2011 and January 1st 2012.

This hospital is one of the major hospitals of the

Royal Medical Services (RMS) in Amman/Jordan with a capacity of 200 beds. Surgical operations of general surgery, orthopedic, otolaryngology, ophthalmology, gynecology and maxillofacial surgery are routinely performed from Sunday to Thursday in 6 surgery rooms, one of them is usually reserved for emergency cases.

All patients planned for elective surgery are either admitted before surgery for preoperative medical assessment by a responsible internist or anesthetist or prepared few days before surgery and operated as out-patients. The operating list is prepared by the surgeons a day before the planned surgery then verified by the senior consultant who is assigned to operate or supervise the other surgeons. A pre-surgical anesthetic evaluation to assess patient's fitness for surgery is not usually performed before the operation unless requested by the senior surgery consultant a day before surgery.

The Study included all patients who were scheduled to undergo elective surgery and the operation was cancelled for specific reason. The collected data from the operating room included patients' demographic data, the type of operation cancelled, and reasons for cancellation. The reasons for cancellation were categorized as lack of time, medical fitness, instruments availability, patient attendance and others.

All data were collected and analyzed using SPSS V. 16.0 (SPSS Inc., Chicago, IL, U.S.A.)

Results

A total of 7163 patients were scheduled for elective surgery during the study period, 6601 patients had their operation performed at the scheduled time of which 2449 were out-patients and 4152 were in-patients. A total of 553 patients had their operation cancelled at the day of surgery and the rate of cancellations was 7.72%. The age of patients ranged between 2 to 90 years; average 43.7, there was no significant difference between males and females in the cancellation group (male to females ratio was 1:0, 85 and $p > 0.05$).

The highest number of cancellation was observed in December (70 cases out of 646 scheduled cases 10.84%) whereas February had

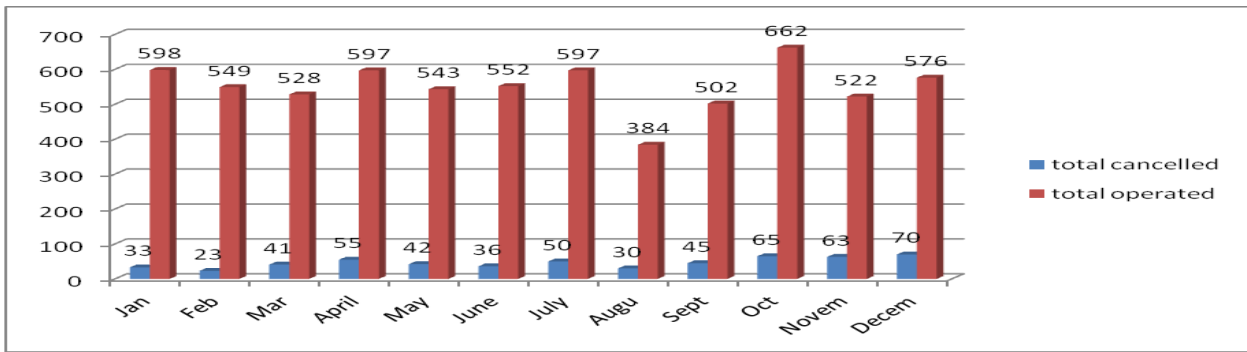


Fig. 1: Monthly operated and cancelled surgeries

Table I: Contribution of every specialty in cancellation rate

	Cancelled cases		Operated cases	
	n	%	n	%
General surgery	186	34	1850	28
Ophthalmology	41	7	703	11
Gynacology	101	18	2107	32
Orthopedic	177	32	1327	20
ENT	38	7	427	6
Maxillofacial	10	2	187	3
Total	553		6601	

Table II: Causes of cancellations

	not fit	Equipments N/A	not attended	time	Other	Total %
General surgery	45	0	66	55	20	33.60
ophthalmology	18	0	15	3	5	7.40
Gynaecology	35	0	48	10	8	18.20
Orthopaedic	54	14	55	22	32	32
ENT	26	0	7	4	1	6.80
Maxillofacial	3	0	6	0	1	1.80

Potentially avoidable Non-Avoidable

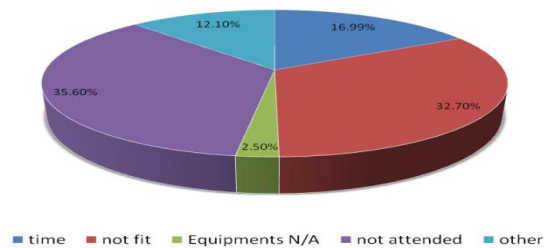


Fig. 2: Causes of cancellations

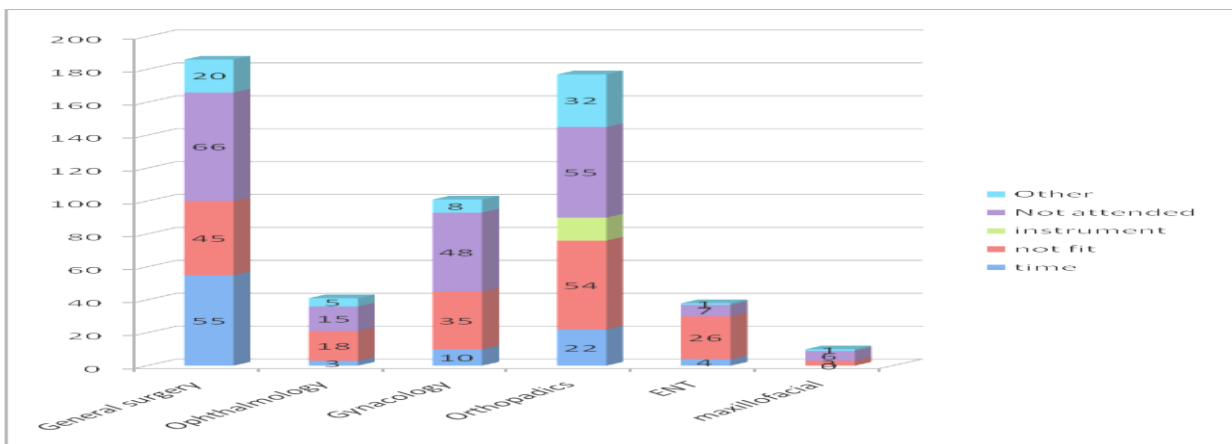


Fig. 3. The pattern of cancellations of every surgical specialty

lowest number of cancellations (23 cases out of 572 scheduled cases, 4.02%) Fig.1, Table I.

General surgery and orthopaedics had the highest number of cancellation (186 and 177 respectively) whereas ENT and maxillofacial surgery had the least number of cancellations (38 and 10 respectively)

The most common causes for cancellations were patient-related, around 68% of the cancellations were due to patients' absence and their medical fitness for surgery at the day of planned operation, and the other causes of cancellations were due to lack of time (overbooked list) or lack of necessary equipment and devices. Table II, Fig. 2.

The pattern of cancellations of every surgical specialty is shown in Fig. 3

Discussion

The cancellation of elective surgeries is a parameter to assess quality of patient care and quality of healthcare management system; this is because of the negative impact of cancellation on both patients and hospital. Thus it is considered by some authors as a failure of the healthcare system and subsequently, an incident report should be filled for each surgical cancellation.⁽¹⁴⁾

Cancellation also has a major cost implication to the hospitals because of wasted hospital resources and major impact on patients' health, psychological status and their families.

The Cancellation percentage (7.72%) reported in our study is considered low compared to other similar studies in the literature where the cancellation rate ranged between 9% to 15% (18-22), This could be attributed to the relatively strict monitoring of the overall operating theatre procedures.

It is clear from our results that at least two thirds of the cancellations are potentially avoidable and therefore the cancellation rate could even drop more, it is interesting that 197 patient (35.60% of the cancellation rate) did not show up at the day of planned surgery, thus, a strong emphasis on preoperative communication with patients or their relatives has a paramount importance on decreasing the total number of cancelled cases, whereas about 33% of the cancellations were due to inadequate patient preparation for general

anesthesia. This is emphasized by other investigators who also mentioned the idea of avoidable cancellations.⁽¹⁵⁾

The preoperative anesthetic evaluation could also play a significant role in the reduction of the cancellation rate. In order to avoid cancellations of medically unfit patients, a thorough preoperative anesthetic assessment is essential.⁽²³⁾ Unfortunately, preoperative anesthetic clinic for the evaluation of medical and anesthetic fitness of the patient is not routinely performed in our hospital, and this is because of the lack of manpower to run such clinics.

Another interesting point was also noticed in orthopaedic surgery; lack of necessary instruments such as prosthetic joints or drills and saws contributed in about 3% of the cancellation rate, therefore sufficient preparing of the theatres and preoperative arrangement with the relevant instruments' providers would surely reduce the cancellation rate attributed to this cause.

Finally; it was noticed that general surgery and orthopaedics contributed in about 66% of the cancellation rate; therefore it might be wise to review the current protocol of the surgical operation procedures in order to reduce their cancellation.

Based on our results, it was found that the vast majority of cancellations could be avoided by improving the hospital procedures and protocols through the following recommendations

1. Establishment of preoperative anaesthesia clinic to assess the medical fitness of patients undergoing elective surgeries at least for those who have a remarkable medical history.
2. Ensuring the availability of necessary instrument and tools especially for orthopaedic surgery patients such as prosthetic joints and drills and saws before preparing the surgical list.
3. Preparing the surgery list after proper communication with patients or their relatives to ensure that they will attend for the operation.
4. Re-calculating the necessary surgery time required for the lists to be performed especially by the general surgery staff.
5. Performing a monthly or bimonthly audit to review the cancelled cases, investigate

the reasons of cancellation and regularly update the hospital protocols to prevent future cancellations

Conclusions

The rate of surgical cancellation in our hospital is relatively low; most of the cancellations could be easily avoided by preparing the theatres, proper communication with the patients and proper preoperative medical assessment. Further improvement of operating theatre system is highly advised and can be implemented by new guidelines and more strict enforcement of procedures and regulations.

References

1. **Robb WB1, O'Sullivan MJ, Brannigan AE, et al.** Are elective surgical operations cancelled due to increasing medical admissions? *Irish Journal of Medical Science* 2004; 173:129-132.
2. **Rakesh G, Anju RB, Poonam B, et al.** Reasons for cancellation of cases on the day of surgery—a prospective study. *Indian Journal of Anaesthesia* 2009; 53 (1):35-39.
3. **Schofield WN, Rubin G, Piza M, et al.** Cancellation of operations on the day of intended surgery at a major Australian referral hospital. *Medical Journal of Australia* 2005; 182: 612-615.
4. **Tait AR, Voepel-Lewis T, Munro HM, et al.** Cancellation of pediatric outpatient surgery: Economic and emotional implications for patients and their families. *J Clin Anesth* 1997; 9(3):213-219.
5. **Ivarsson B, Larsson S, Sjöberg T.** Postponed or cancelled heart operations from the patient's perspective. *J Nurs Manag* 2004; 12(1):28-36.
6. **Ivarsson B, Kimblad PO, Sjöberg T, Larsson S.** Patient reactions to cancelled or postponed heart operations. *J Nurs Manag* 2002; 10: 75-81.
7. **Dix P, Howell S.** Survey of cancellation rate of hypertensive patients undergoing anaesthesia and elective surgery. *Br J Anaesth* 2001; 86:789-793.
8. **Aaserud M, Trommald M, Boynton J.** Elective surgery cancellations, ring fencing and efficiency. *Tidsskr Nor Laegeforen* 2001; 121: 2516-2519.
9. **Pollard JB, Olson L.** Early outpatient preoperative anaesthesia assessment: does it help to reduce operating room cancellations? *Anesth Analg* 1999; 89: 502-525.
10. **Chalya PL, Gilyoma JM, Mabula JB, et al.** Incidence, causes and pattern of cancellation of elective surgical operations in a University Teaching Hospital in the Lake Zone, Tanzania. *African Health Sciences* 2011; 11(3): 438-443.
11. **Hussain AM, Khan FA.** Anesthetic reasons for cancellation of elective surgical inpatients on the day of surgery in a teaching hospital. *J Pak Med Assoc* 2005 Sep; 55(9):374-378.
12. **Singha GC, Aghaa R, David R.** Roberts. Cancellations in day-case ENT surgery. *J of Ambulatory Surgery* 2005; 12: 57-60
13. **Nabeel S, Rashid A, Abbas SM.** Reasons for cancellation of elective cardiac surgery at Prince Sultan Cardiac Centre, Saudi Arabia. *J Saudi Heart Assoc* Jan 2012; 24(1): 29–34.
14. **Leslie RJ, Beiko D, van Vlymen J, Siemens DR.** Day of surgery cancellation rates in urology: Identification of modifiable factors. *Can Urol Assoc J* 2013 May-Jun; 7(5-6): 167-173.
15. **Rajender K, Ritika G.** Reasons for cancellation of operation on the day of intended surgery in a multidisciplinary 500 bedded hospital. *J Anaesthesiol Clin Pharmacol* 2012 Jan-Mar; 28(1): 66-69.
16. **Hovlid E, Bukve O, Haug K, et al.** Sustainability of healthcare improvement: what can we learn from learning theory?. *BMC Health Services Research* 2012; 12(1):235.
17. **Schofield WN, Rubin GL, Piza M, et al.** Cancellation of operations on the day of intended surgery at a major Australian referral hospital. *The Medical Journal of Australia* 2005; 182(12):612- 615.
18. **Sanjay P, Dodds A, Miller E, et al.** Cancelled elective operations: an observational study from a district general hospital. *Journal of Health Organization and Management* 2007; 21(1):54-58.
19. **Ezike HA, Ajuzieogu VO, Amucheazi AO.** Reasons for elective surgery cancellation in a referral hospital. *Ann Med Health Sci Res* 2011 Jul-Dec; 1(2): 197-202.
20. **Rai M, Pandit JJ.** Day of surgery cancellation after nurse led pre-assessment in an elective surgical centre: the first 2 years. *Anesthesia* 2003; 58:692-9.
21. **Dakum NK, Ramyil VM, Misauno MA, et al.** Reasons for cancellations of urologic day care surgery. *Nigerian of Surgical Research* 2006; 8(1-2): 30-33.
22. **El-Bushra AD, Mohamed IM, Awadalla MA, et al.** Cancelled elective surgical operations at El Obeid Hospital, Western Sudan. *Sudan Med J* 2008; 44 (1, 2 & 3):56-61.
23. **Sapna B, Anup M, Aikta G, et al.** Cancellation of elective cases in pediatric surgery: An audit. *J Indian Assoc Pediatr Surg* 2010; 15(3): 90-92.