ORIGINAL ARTICLE

Reasons for cancellation of elective cardiac surgery at Prince Sultan Cardiac Centre, Saudi Arabia

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The cancellation of surgery is a significant drain on health resources. However, a persistent problem in most hospitals is short notice cancellation of scheduled operations, even upto the day of surgery. In some cases, patients have been prepared for surgery, and the staff is assembled and expecting to operate. In UK 8% of scheduled elective operations are cancelled within 24 hours of surgery. The reasons include cancellation by the patient, cancellation for poorly optimized medical conditions, or cancellations due to poor organization. Many of these are difficult to quantify. However, one relatively easily measured factor is the possibility that some operating lists were predictably over-booked. An operating list may over-run because of delayed starts, slow turnover, unanticipated surgical/anaesthetic problems or staff shortages. Many of these are difficult to quantify.

Background and objective: **Prince Sultan Cardiac center is one of the largest referral center in the Middle East and there is no published data on the reasons for cancellation of specifically cardiac procedures. However, an audit was performed to assess the reasons for the cancellation of the cases on the day of surgery in cardiac theatres. According to one of the studies published in an Australian journal the percentage of cancelled cardiothoracic cases was determined to be 15.8%.**

Results: **Total number of cardiac surgical patients including pediatric and adult during a period from June 2008 to May 2009 were 2191. Out of those, 1681 cases were done during the study period, 510 (23.27%) cases were cancelled during the study period. The operation theatre was functional for 331 days during the study period. Cancellations done by the surgeons were 34% while the patient's related cancellations were 32%. The administrative issues contributed to 34% in overall cancellation and anaesthetist-related cancellation were 0%.**

Conclusion: **We estimated 22% of the elective operations which were cancelled on the day of surgery were potentially avoidable. There is still a need to do further research to look for the identifiable reasons and strategic measures to eliminate the reasons for cancellation on the day of surgery.**

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The cancellation of surgery is a significant drain on health resources. Major hospitals invest considerable resources in maintaining operating suites and having surgeons and theatre staff available on a predictable schedule. However, a persistent problem in most hospitals is the short-notice cancellation of scheduled operations at the last minute, even up to the day of surgery. In some cases, patients have been prepared for surgery, and the staff is assembled and expecting to

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operate. In others, patients and staff may not be directly affected (e.g., when a surgeon has cancelled an operation, the patient has been informed, but the theatre booking has been retained).

The late cancellation of scheduled operations is a major cause of the inefficient use of operating-room time and is thus a waste of resources. It is also potentially stressful and costly to patients in terms of the working days lost and the disruption of daily life. There have been reports of depressive effect of cancellation on patients and of the high level of emotional involvement before surgery [1,2]. Repeated cancellations have implications for patient satisfaction, staff morale, hospital patient relationships and training. The under utilization of theatre time has self-evident repercussions for waiting lists. There is little literature available on the reasons for elective surgical cancellation, which is inevitably multifactorial [3].

In UK 8% of scheduled elective operations are cancelled nationally, within 24 hours of surgery [4]. In total 10 to 40% of booked elective operations are cancelled before the surgery takes place. The reasons include cancellation by the patient, cancellation for poorly optimized medical conditions, or cancellations due to poor organization, lack of co-ordination b/w the surgical team and the anaesthetist, bed managers and the surgical team or sometimes poor co-ordination between the patient and the hospital admission [5]. The most common cause of the remaining cancellations was lack of theatre time (i.e., over-booked operating lists). The audit commission has estimated that in about 5% of hospitals in the UK. The majority of operating lists were consistently over-booked.

An operating list may over-run because of delayed starts, slow turnover, unanticipated surgical/anaesthetic problems or staff shortages. Many of these are difficult to quantify. However, one relatively easily measured factor is the possibility that some operating lists are predictably over-booked.

In North America, the provision of surgical-anaesthetic services is virtually unlimited in time because of the way in which health care is financed. Theatres are often utilized for as long as needed for operations and cancellations due to over-running are rare. Instead, over-runs add to overall costs, which can pose different but equally important problems for the hospital [6–11].

A variety of studies have examined the reasons for late cancellations based on the retrospective analysis of hospital records [2,12–20], including some studies which have used limited interventions to reduce cancellations [21–23]. The National Health Service (NHS) in the United Kingdom has developed software to monitor and report theatre cancellations, including day of surgery cancellations [24,25]. These studies and the NHS software rely on records maintained by theatre staff. Although useful for the day-to-day monitoring of surgery, such records may not provide enough information for the design of policies to reduce late cancellations.

Prince Sultan Cardiac Centre is one of the largest referral centres in the Middle East and there is no published data on the causes of cancellation of specifically cardiac operations. However, an audit was performed to assess the causes for the cancellation of cases on the day of surgery in cardiac theatres. According to one of the studies published in an Australian journal the percentage of cancelled cardiothoracic cases was determined to be 15.8% [26].

Design/Methodology

Prospective and retrospective data was collected for a period of one year from June 2008 until May 2009 to identify cancelled operations on the day of surgery.

The reasons for cancellation were grouped into the following:

(a) Cancelled by whom: surgeon, anaesthetist, or other.
(b) Reason for cancellation: anaesthetist related, surgeon related, administrative issues, or patient related.
(c) Whether cancellation was justifiable or not.

Cancellations and reasons

A cancellation on the day of intended surgery was defined as any operation that was either scheduled on the final theatre list for that day (generated at 15:00 on the previous day) or subsequently added to the list, and that was not performed on that day. During each day of surgery, theatre staff compiled a list of cancellations. The form for this included a column for ‘‘classification and comment’’, where theatre staff recorded a reason for the cancellation. Sometimes this information was limited to by whom cancelled (e.g., ‘‘by doctor’’). We obtained copies of these lists each day.

Data analysis

Cancellation reasons were entered into a Microsoft Excel spread-sheet. Cancellation reasons were classified as follows:

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