

## CAUSES OF POSTPONEMENT OF ELECTIVE SURGERY IN MAYO HOSPITAL LAHORE

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### ABSTRACT

*Introduction: Elective surgery is an important part of a hospital's workload. Whenever a case is put on list, it involves interaction of a number of people and in the same way its postponement affects many parties. The purpose of this study was to highlight the causes of such postponements, their impact on the hospital and to devise an approach to avoid preventable causes.*

*Methods: This study was conducted in two operation theatres of Mayo Hospital Lahore over a period of one year i.e. from April 2009 to May 2010. All the patients scheduled to undergo elective surgical procedures in these operation theatres were included. Total number of cases, number of cancellations as well as causes of cancellation were noted.*

*Results: A total of 252 lists were planned in both theaters and 2394 patients were put on list. Among this total number the operations of 179 patients (7.47%) were postponed. The highest proportion of postponements was due to time constraints (35.75%). Other main reasons were patients with uncontrolled blood pressure and cardiac problems (15.08%), treatment of blast victims (11.17%), strikes of the staff (8.37%) and non-availability of ICU bed / ventilator in addition (5.58%) there were other less common causes as well.*

*Conclusion: As a large proportion of postponements was due to mismanagement of the list time, it was therefore clear that there was lack of proper list planning and unrealistic time allotment for cases. This led to a large number of cancellations at the end of the day. This can be easily prevented by keeping in mind a rough time span taken by each procedure and calculating the total number of cases possible on each table.*

### INTRODUCTION

Mayo Hospital is a tertiary care referral centre. It is a 1799 bedded hospital where a large number of admissions are made daily through out patients department for surgical procedures. In addition to general surgery this hospital caters for neurosurgery, cardiac surgery, thoracic surgery, ENT, ophthalmology, paediatrics, orthopaedic, urology and maxillofacial patients. With the exception of orthopaedics, all other surgeries in Mayo Hospital are being performed free of cost. This means a huge number of patients most of whom belong to lower socioeconomic class and travelling from far flung areas, arrive here to be operated. Unanticipated postponement on the day of surgery is a tremendous emotional as well as economical trauma for such patients in addition to causing an increase in operation theatre costs and decrease in its efficiency.<sup>1</sup>

This study was performed in order to find out the rate of postponement of the scheduled cases on the operation day and to evaluate the causes of such cancellations which in turn would help in figuring out workable solutions.

### MATERIALS AND METHODS

The study period was one year (April 2009 to May

2010). All the patients scheduled to undergo elective surgery in two main operation theaters of Mayo Hospital were included in this prospective study. General surgery as well as thoracic and maxillofacial surgery is performed in these theatres. The operating lists are prepared by the surgeons. The list prepared after preanaesthetic assessment at 2.00 PM a day prior to surgery was considered as the final list. Any operation that was either scheduled on the final theatre list for that day or was subsequently added to the list and that was not performed on that day was considered cancelled and was included in the study. Proforma (Table 1) giving patient information, surgical procedure planned, duration of surgery and possible causes of cancellation was distributed to both the theatres and cause of postponement was noted. No special consent from patients for this study was deemed necessary.

### RESULTS

Over a period of one year 2394 cases were planned in two theaters of Mayo Hospital, out of which 179 were postponed on the day of the surgery, which comes to 7.47% of the total cases. There were many reasons of postponement of surgery. Main reasons for postponement are shown in table 2.

**Table 1:** Proforma for possible reasons.

Name _____	Age _____
Sex _____	Diagnosis _____
Total Number of Patients on List _____	
Date _____	
<input type="checkbox"/> Patient not NPO	<input type="checkbox"/> Aspiration
<input type="checkbox"/> Failed Intubation	<input type="checkbox"/> Epistaxis at Induction
<input type="checkbox"/> Shortage of Anaesthetist	<input type="checkbox"/> Surgery not needed
<input type="checkbox"/> Chest Infection	<input type="checkbox"/> Time Constraints
<input type="checkbox"/> Cardiac Problem	<input type="checkbox"/> Uncontrolled Diabetes
<input type="checkbox"/> Anaemia	<input type="checkbox"/> Hypertension
<input type="checkbox"/> Haematological cause	<input type="checkbox"/> Fever
<input type="checkbox"/> Jaundice	<input type="checkbox"/> Gut not prepared
<input type="checkbox"/> Patient not Euthyroid	<input type="checkbox"/> Patient refusal
<input type="checkbox"/> Blood not arranged	<input type="checkbox"/> No Water
<input type="checkbox"/> Bomb Blasts	<input type="checkbox"/> Power Breakdown
<input type="checkbox"/> Surgical Equipment not available	<input type="checkbox"/> Strike
<input type="checkbox"/> Anaesthetic Equipment Failure	
<input type="checkbox"/> Unscheduled Holiday	

The highest number of cancellations in our study was due to lack of operation theatre time i.e. 35.75% of the total postponements followed by the group of patients with uncontrolled blood pressure and cardiac problems (15.08%). Management of unexpectedly presenting blast victims was an important reason for postponement of cases (11.17%). Another reason was strikes by junior doctors (8.37%) and 5.58% cases were postponed due to non-availability of ICU beds and ventilators. Nine cases (5.02%) were deferred to absence of concerned surgeon. Less common causes included non arrangement of blood (3.35%), change in the surgical plan (3.35%), chest infection (2.79%), failure of the patient to turn up for the surgery (2.23%), unprepared patient's gut for the planned surgery (2.23%), uncontrolled diabetes (1.11%), patients' refusal to give consent for the surgery (1.11%), failure or non-availability of anaesthetic equipment (1.11%), unacceptable NPO period and failed endotracheal intubation (0.5% each).

**DISCUSSION**

Elective surgical list is a major component of any hospital's workload. A large proportion of a hospital's budget and human resources are invested in

**Table 2:** Reasons for postponement of surgical procedures (n = 2394).

Shortage of Time	35.75%
Medical reasons:	18.98%
Cardiac problem and Hypertension	15.08%
Chest infection	2.79%
Uncontrolled Diabetes	1.11%
Bomb Blast	11.17%
Strike	8.37%
Shortage of ICU Beds / Ventilators	5.58%
Gut not prepared	2.23%
Patient not NPO	0.5%
Change in Surgical Plan	3.35%
Fixed to turn up for Surgery	2.23%
Blood not arranged	3.35%
Patient Refusal	1.11%
Non-availability of Anaesthesia Equipment	1.11%
Failed Intubation	0.5%
Absence of Surgeon	5.02%

managing a single theatre day. After hospital admission, day of surgery cancellations mean gross underutilisation of these resources leading to inefficiency of the system. In addition to the patient and his / her relatives each list involves surgeons, anaesthetists, nurses, other paramedical staff, recovery rooms and ICU. As mentioned earlier, the patient population of Mayo Hospital largely belongs to lower income group working on daily wages. Cancellation of an operation will lead to significant financial and logistic consequences for the patient as well as for the relatives. Imagine the stress and psychological trauma of being mentally prepared for the surgery for so many days, enduring the torture of tolerating hunger and thirst in cruel summers of Lahore for several hours and then finally being told that their surgery can not be performed today. No wonder the patient and the relatives feel disappointed, frustrated and anxious.<sup>2</sup> It is therefore imperative to find out major causes of such cancellations and suggest practical solutions especially for potentially avoidable causes.

Cancellation of elective cases is a major cause for concern in operation theatres. Many studies and audits have been carried out all over the world. However, it is important to note that percentage of postponement and their causes differ widely from hospital to hospital depending upon the circumstances. In UK, 8% of scheduled operations are cancelled *within 24 hours* of surgery.<sup>3</sup>

In a study by William et al<sup>4</sup> 11.9% of theatre

sessions were cancelled on the day of surgery including 13.2% elective procedures scheduled on working weekdays. Most common causes were lack of theatre time, lack of postoperative bed, patient cancellation and clinical or diagnostic change in the patient's condition (17 – 19% for each).

Similarly Arshad et al<sup>5</sup> at Ayub Medical College Abbottabad, found their cancellation rate to be 25%, largest proportion being due to insufficient theatre time (36%) followed by medical reasons (31.6%) and shortage of beds (16.2%). Tauseef et al<sup>6</sup> at Aga Khan University observed that out their rate of cancellation of elective cases to be 6.7%, most of them (58%) due to patient related causes.

In our study cancellation rate was found to be 7.47%, the commonest cause being insufficient theatre time (35.75%). This was found to be due to a number of factors. It was observed that most of the lists were being finalized by junior surgical staff, consultants decide the major cases only. Junior doctors not fully aware of the surgical plan, unfamiliarity with the procedure prepared lengthy lists that led to cancellation of operations. The unrealistic approach and underestimation of time required for each procedure complicated the problem. Unplanned admissions or admissions forced by administration due to some political influence were a rather frustrating cause of cases being postponed at the end of an operating day. Booking of the patient and a final list review by consultant regarding surgical plan, serial number of cases and time taken by each case can help overcome this problem. A consultant who is familiar and experienced in a procedure will obviously take lesser time than a less experienced surgeon and the trainee. Mere presence of consultants of both anaesthesia and surgery can speed up the list.

Other reasons leading to shortage of operation time were late start of the list and loss of time between cases. Delay in starting can be easily overcome by introducing an attendance system and making sure that all the concerned personnel assemble at the right time and are ready to operate. Time loss in between cases was caused by a variety of factors with lack of a proper recovery being the most important. Because of this reason anaesthetists were forced to make sure that patients were fit for being shifted to the ward instead of an HDU, which obviously took much longer. Having a well equipped and properly staffed recovery area can help overcome this delay. A deficient transportation facility sometimes caused awake patients to wait on the operating tables for being shifted to their respective wards. Also limited number of workers slowed down cleaning of the operation theatre space between the cases.

Another cause of delay was limited number of surgical instrument "sets" due to which there was loss of time as equipments used for previous patient were being sterilised and prepared for the next case. All these problems can be overcome by simple measures and small investments by the hospital which will given to long term benefit. A good operation theatre manager can improve scheduling, reduce time spent preparing and cleaning and better handling of available resources.<sup>7</sup>

Inadequate control of hypertension and cardiac problems as well as other medical diseases can be overcome by a thorough history, relevant investigations, in time consultations from the concerned specialties and making sure that the patients stick to the prescribed regimen.

Another unfortunate cause of postponement was mass casualty created due to bomb blasts which led to cancellation of entire elective lists. Although Mayo Hospital has a twenty four hour working dedicated emergency department, due to a large number of patients arriving in a very short time, elective theatres had to be opened as well. Besides cramping the wards for space, these sudden admissions affected the entire elective lists.

Strikes by doctors can be avoided by better communication between the administration and doctors, providing respect and better facilities to the doctors and eliminating victimisation of doctors for political gains.

Of the cases postponed in our study, almost 6% were postponed due to non availability of ICU beds or ventilators. Being a tertiary care teaching centre our hospital deals with a large number of complicated cases. Many of the cases reach the hospital at very late stages of their disease and a bad ASA status. Such patients obviously require ICU care. Increasing the number of ICU beds to at least 1.5 – 2 beds per theatre and avoiding unnecessary ICU admissions can help this problem.

**In conclusion** it was obvious that most of the causes of postponement of elective surgery were avoidable and can be prevented by simple steps. It is imperative however that all sources of problems receive attention leading to better utilization of hospital resources and less patient discomfort.

#### ACKNOWLEDGEMENTS

The authors thank the Vice Chancellor of the KEMU and the M.S of Mayo Hospital for providing facilities for this work.

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