# TITLE : STUDY OF TURNAROUND TIME IN ORTHOPEDIC AND SPINE SURGERIES IN OPERATION THEATRE AT INDIAN SPINAL INJURY CENTRE

By
Dr. Harmandeep Singh
IIHMR MBA HM_21_0416
2016-2018

Guided by
Dr.Mohan Bairwa
The IIHMR University, Jaipur

# INTRODUCTION

- Indian Spinal Injury Centre is a 178 bedded tertiary care hospital situated in New Delhi. It is one of the most advanced spine, orthopedic and neuromuscular surgery centre in India.
- Operation theatre (OT) is one of the costliest components in secondary care, efforts in improving OT efficiency should be at the forefront so as to improve health service efficiency because they typically generate the highest returns among all hospital departments.
- OT inefficiency is a common and well recognized source of financial waste within the hospital.
- Inefficiencies in OT not only lead to financial loss but also results in employee fatigue employee dissatisfaction and increase attrition rate.

## PROBLEM STATEMENT

During a routine audit it was noticed that large amount of funds are being lost in giving overtime to the OT staff. The overtime was significantly because of running of OT for extended hours. Before bringing a new Operating room(OR) ,a study on turnaround time was carried out

## RATIONALE

Rationale behind this project is that the hospital leadership recognized the potential for improvement, particularly the opportunity to increase the OT efficiency. In order to realize this goal, turnaround time will be targeted for improvement. Improving the turnaround time can result in significant savings and nullify the need of creating new OR.

## OBJECTIVES

- To study the Turnaround time in operation theatre at Indian Spinal Injury Centre.
- To identify the factors responsible for delay in OT turnaround time.
- To make suggestions to improve OT turnaround time

## OPERATIONAL DEFINITION

### Turnaround time (TAT)

- **For Nurses**, TAT means, the time from one patient leaving the operating room to the next patient entering the operating room.

- **For Anesthesiologists**, TAT means, the time from shifting and handing over of first patient's vitals in Post-Anesthesia Care Unit **(**PACU) to the induction of anesthesia of the next patient.

- **For Surgeons**, TAT means, the time from the closure of one patient's surgical wound to the next patient's incision.

## METHODOLOGY

- A Descriptive study was carried out at operation theatre at Indian Spinal Injury Centre, New Delhi, during the period of 11$^{th}$ April to 21st April 2018.
- Orthopaedic and spine surgeries were considered and no general surgery cases were taken into consideration.
- Sample Size: 61 patients undergoing spine and orthopedic surgeries.

## Data Collection

Primary data was collected through observation inside the OT and data tabulated in the OT register.

## Study variables

Following variables were studied:

- Time period between wheel in of the patient inside the OR till its Induction.
- Time period From Incision to closure of the wound.
- Time period From Closure of wound till the patient is wheeled out of the OR.
- Time period from wheel out till the time next patient shifted inside the OR.

## DATA COLLECTION TOOL

Data collection tool includes the following information

- Patient ID, age, sex, type of surgery, surgeon name, anesthetist name
- Patient wheel in time in the OR
- Time taken to induce the patient
- Incision time
- Wound closure time
- Patient wheel out time

# DATA ANALYSIS

| Hospital | Mean Induction Time | Mean Incision to Closure Time | Mean Closure to patient out Time | Mean Patient out to next patient in Time | Mean Total Time |
|---|---|---|---|---|---|
| ISIC | 50 min | 125 min | 20 min | 35 min | 230min |
| International Benchmark | 19 min | 120min | 12 min | 20 min | 171min |
| Required Improvement | 31 min | 5 min | 8min | 15 min | 59min |

## RESULTS

- Analysis of the data depicted that there is a scope of improvement in time taken to induce the  patient by 31 minutes.
- Surgery time was more than the industry benchmark by 5 minutes.
- For taking the patient out, the OT staff takes 8 more minutes as compared to the industry standards.
- A difference of 15 minutes was seen between wheel out of a patient and wheel in of next patient as compared to set standards by surgery management group.

## DISCUSSION

- The mean TAT from wheel in of a patient inside the OT to wheel in of the next patient is more as compared to the international benchmark. It can be reduced by one hour/surgery.
- The major reason of delay is in time taken to induce the patient by the anesthetist as compared to the international benchmark it is more than double and improving it only will lead to considerable change in OT turnaround time.

## RECOMMENDATIONS

- Specific anesthetist to be allotted for each OR, and he/she should be responsible for all cases in that OR (along with help from his/her colleagues).
- Prior discussions among the surgeon and the anesthetist (who will be giving the anesthesia on that day) should be done as it will reduce the delays in planning anesthesia in difficult cases.
- Induction room to be utilized more to get the next case ready as the first one is nearing completion. Anesthetic department and OT manager to make sure adequate equipment is available in the induction room.
- Specific OT technicians to be allotted to each OR who will be responsible for any delay caused in shifting of the patient.

# REFERENCES


- A. Volpin, O. Khan, F. Haddad, Theater cost is £16/Minute so what are you doing just standing there? J. Arthroplast. 31 (1) (2016 Jan), 18/11/2015-22-6.
- B. Denton, J. Viapiano, A. Vogl, Optimization of surgery sequencing and scheduling decisions under uncertainty, Health Care Manag. Sci. 10 (1) (2007 Feb), 18/11/2015-13-24.
- R. Kasivisvanathan, A. Chekari, 7 Ways to Improve Theatre Efficiency, 2013. Available at: http://www.ldfa.co.uk/articles/2013/12/2/7-ways-to-improve-theatre-efficiency (accessed 25.10.15).
- M. Gamble, 6 Cornerstones of Operating Room Efficiency: Best Practices for Each, 2013. Available at: http://www.beckershospitalreview.com/or-efficiencies/6-cornerstones-of-operating-room-efficiency-best-practices-for-each.html (accessed 25.10.15).
- Hoover, J.A.3rd (1994). Ambulatory surgery centers best practices for the 90s. Journal of Healthcare Materials Management,12 (5),20-25
- Mitchell,L.(1996). Benchmarking, benchmarks, or best practices ? Applying quality improvement principles to decrease surgical turnaround time. Best practices Benchmarking Healthcare,1(2),70-74

# THANK YOU