

## Original Research Article

# Case study on reimbursement process and settlement of bills of patients treated under package charges in super speciality public hospital

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### ABSTRACT

**Background:** In the Government hospitals, because of constraints of resources, patients are often asked to buy certain items required for their treatment procedure. There is an inadvertent delay in bill reimbursement process due to the cumbersome procedure, which causes dissatisfaction among patients. Thus, it was highly imperative to reduce the reimbursement time and improve the level of patient satisfaction by improving quality of services. The present study depicts modifications initiated to reduce causes of delay and improve patient satisfaction.

**Methods:** Process mapping was done for different procedures which are carried out under package system at Cardio Neuroscience Centre. All the available documents were analysed from Operation theatre, Wards, ICU, Billing section, Account office, OPD area etc. and Interviews were taken from consultants, nursing staff, staff working at Billing section, Account office etc. to identify causes of delay.

**Results:** The study helped in improvement in efficiency by 60% percent and reduces the number of resources by 10 percent.

**Conclusions:** The study helped to increase productivity gains and improve accuracy.

**Keywords:** Account section, Billing, Delay, Process mapping, Patient satisfaction, Reimbursement

### INTRODUCTION

The tertiary care super specialty hospital in north India was established in 1956. Fifty-two departments and seven super-speciality centres manage practically all types of disease conditions with support from pre-clinical and para clinical services. In this public hospital, because of constraints of resources, patients are often asked to buy certain items required for their treatment procedure. Such demands from the hospital, which can be at odd hours, depending on the treatment causes great inconvenience to the patients or their attendants. Various feedback reports received from the patients treated at this hospital have suggested that the hospital should provide the items

required for the treatment, and the money for it can be collected by the hospital from the patient in advance. This tertiary care hospital is the premier medical institution in the country, has been quick to understand the requirement of user charges for medical treatment. Recovery of user charges as package charges has been in operation at the cardio thoracic centre since 1995.<sup>1-2</sup> Prior to this, the system was functioning as a patient revolving fund in which the patient has to deposit some money at the admission which is based on assumed expenditure for his treatment. Adjustments were made at the time of discharge. Detailed accounts had to be maintained for each of the items of the treatment procedure resulting in cumbersome accounting. The package service now

functioning at cardio neuroscience centre with predetermined cost of treatment procedures was designed to overcome the unmanageable accounting procedures of the earlier system. The current practice is primarily based on the cost of material required for the treatment procedure and the patient is required to deposit the package charge at the time of admission.<sup>3</sup> The surgical and medical consumables required for the procedure are procured by the centre in bulk and therefore are available to the patient at significantly lesser cost. Settling of patient's account is much easier and faster in this system and can be completed soon after the receipt of the utilization certificates from all the patient care areas by billing section.

**Problem statement**

There is an inadvertent delay in bill reimbursement process due to the cumbersome procedure, which causes dissatisfaction among patients. Thus, it was highly imperative to reduce the reimbursement time and improve the level of patient satisfaction by improving quality of services. The present case study depicts modifications initiated to reduce causes of delay and improve patient satisfaction.

**METHODS**

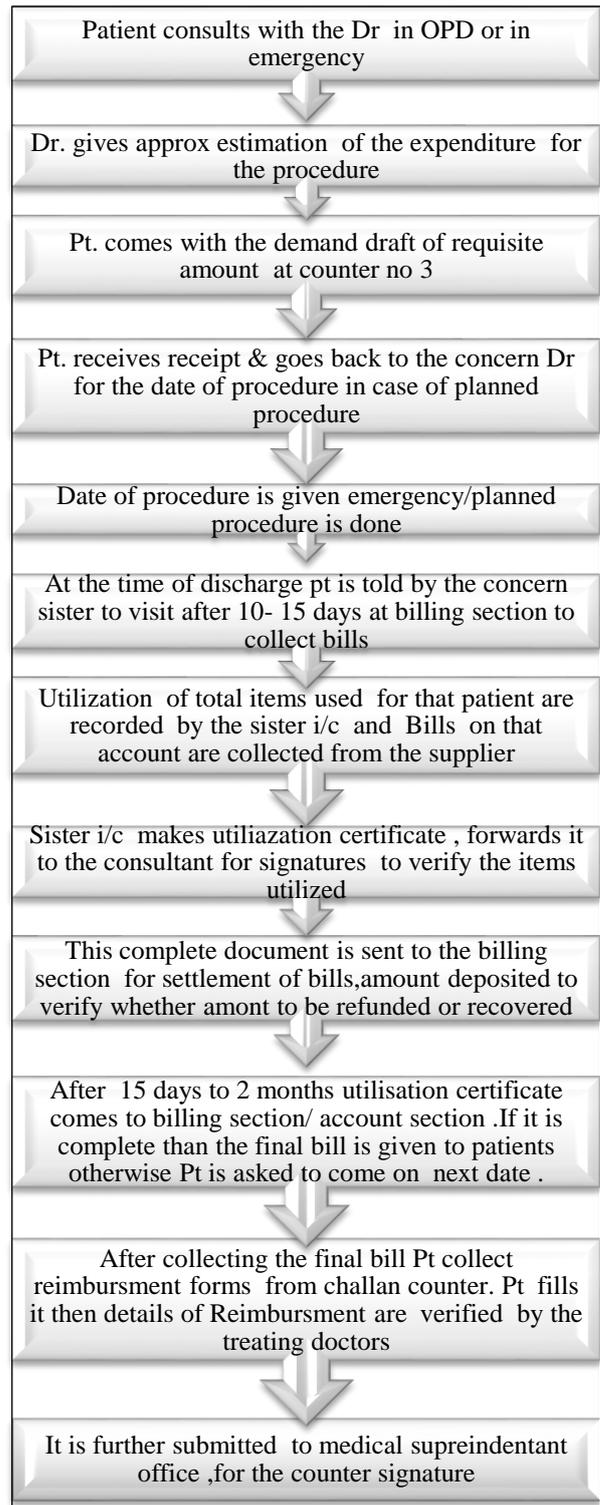
Study was conducted to know existing process of reimbursement process and settlement of bills and the time taken in the reimbursement and settlement of bills of patients treated under package charges at cardio neuroscience centre.

The study was cross sectional descriptive in which data of last two months were collected along with non structural interview conducted with various stake holders. Process mapping was done for different procedures which are carried out under package system at cardio neuroscience centre and a cause-effect tree was generated to determine the cause of delay in final billing process. All the available documents were analysed from operation theatre, wards, ICU, billing section, account office, OPD area etc.

Interviews were taken from consultants, nursing staff, staff working at billing section, account office etc. causes of delay in the reimbursement and billing process were identified. Modifications in the process were done to expedite reimbursement process. Modifications were aimed to curb down all causes resulting in delay in reimbursement process was initiated.

**Inclusion/Exclusion criteria**

Only those bills of patients were considered who were treated under package charges at cardio neuroscience centre only other bills from other centers were not included in the study.



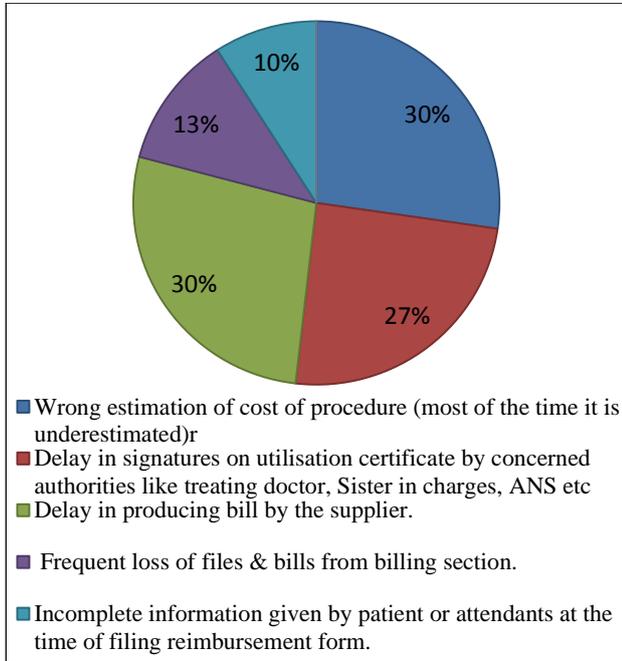
**Figure 1: Process mapping.**

**RESULTS**

Following causes of delay were observed

- Wrong estimation of cost of procedure (most of the time it is underestimated).

- Delay in signatures on utilisation certificate by the concerned authorities like treating doctor, Sister in charges, Assistant Nursing Superintendent etc
- Delay in producing bill by the supplier.
- Frequent loss of files and bills from billing section.
- Incomplete information given by patient or attendants at the time of filing reimbursement form.



**Figure 2: Causes of delay.**

Following modifications were done

- Re-engineering was done on the present operational model which can result in better patient service, and significant cost savings.
- Among the key process improvements initiated team was created based on bill types, of different specialty.
- Proper filing system to be followed in the billing section for easy retrieval of files.
- Meticulous managing both the specialist and hospital bills.
- Automation of billing section was done which will improve the overall efficiency and speedy processing of bills.
- This simplified the process hence increasing efficiency and improving patient's satisfaction.
- Upward revision of package charges for procedures as the package charges collected from patients was suited since charges have not been revised since 2003, and the total cost of most of these procedures have gone up.

Modifications in the process thus improved the overall efficiency of the process and enabled the team to process larger volumes of reimbursement bills in reduced time.

## DISCUSSION

Billing is the process of generating an invoice to recover sales/service price from the customer. Billing process is the final step in hospital, which is directly proportional to patient satisfaction. Billing plays a vital role in the discharge process, which involves much of clerical work in the billing office and demands time. Billing documents are important for any hospital, its operations encloses clinical aspect, financial aspect and administration for better functioning and decision making.<sup>4</sup> The six-sigma business management strategy, originally developed by Motorola Corp., seeks to improve the performance of a process by identifying and eliminating causes of defects and errors, thereby minimizing the variability in business processes.<sup>4-6</sup>

Targets for error reduction included a goal of no more than 3.4 DPMO, or 6 standard deviations (sigma) from the process mean. Defects are reduced by 5 basic processes: defining, measuring, analyzing, improving, and controlling. Processes are adjusted to fix the root causes of the problem, and data is collected and analyzed in multiple ways to measure improvements in error rates. For widespread improvement to occur, organizations must undergo a cultural change embracing the use of Six Sigma.<sup>7-8</sup> Applications of six sigma in healthcare settings began to appear in the published literature around 1999. More than 28 publications indexed in PubMed have applied six sigma methodologies to a range of health-care settings, from managed care companies, hospital emergency rooms, intensive care units, nuclear medicine and radiology departments, surgical and telemetry units, and other general hospital settings.<sup>9</sup>

The department of radiology at Akron Children's Hospital embarked on a lean six sigma mission as part of a hospital wide initiative to show increased customer satisfaction, reduce employee dissatisfaction and frustration, and decrease costs. Three processes that were addressed were reducing the MRI scheduling back-log, reconciling discrepancies in billing radiology procedures, and implementing a daily management system. Keys to success is that managers provide opportunities to openly communicate between department sections to break down barriers. Executive leaders must be engaged in lean six sigma for the company to be successful.<sup>10</sup>

In other study, one large insurance company executed a lean six sigma project to cut operational costs for property and casualty (P and C) insurance claims and improve customer satisfaction. They concluded that when the clock is ticking in time-bound, customer-sensitive operations, using lean six sigma can be a smart move toward achieving operational excellence and customer satisfaction.<sup>11</sup>

Study done in a tertiary health care concluded that billing process is a part of discharge process but still it is one of the vital functions for maintaining the financial essence

of organization. If the billing process system is poorly understood it leads to incorrect documentation, which can result in claim rejection. Hence it is important for billing personnel's to understand the billing process and to have good communication skills in order to have an effective billing process in healthcare organization.<sup>4</sup> Study done by Janita Vinaya Kumari Sikkim Manipal University, Directorate of Distance Education, Bangalore, Karnataka, India revealed that delay in discharge process in this tertiary care teaching hospital of Karnataka and is one of the factors that eventually lead to patient dissatisfaction.<sup>5</sup>

To decrease healthcare costs, Candy B, Levtzow et al, investigated their laboratory billing practices at a tertiary academic medical center to determine where they could apply sigma sigma tools to improve these processes. The application of six sigma quality improvement tools Supplier- Input-Process-Output-Customer (SIPOC) to the clinical laboratory setting helped identify specific billing processes to improve, applied specific interventions to improve billing processes, and create solutions to improve and maintain improved performance of billing practices.<sup>6</sup>

Hence there is clearly a need to improve the process of settlement of bills, reimbursement of bills to increase efficiency of staff and patients' comfort. Patients and their attendants satisfaction will always be the priority for any health care organization.

## CONCLUSION

Improvment in efficiency by 60% percent and reduce the number of resources by 10 percent. Increased productivity gains separating the suspense processes from the bills processing increased productivity, resulting in better controls and rigorous quality measures while paying the bills. This translated into larger volumes being processed with improved customer service. Improved accuracy with the help of the modifications, the team increased the overall accuracy of bills being processed from a 98.50 percent to 99.50 percent thereby significantly reducing errors which result in incorrect payments or delays.

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*Ethical approval: The study was approved by the Institutional Ethics Committee*

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