

# A Study to Assess the Factors Contributing to Delay in Discharge Process in a Teaching Hospital

Jenyz M Mundodan<sup>1</sup>, KS Sarala<sup>2</sup>, V Narendranath<sup>3</sup>

## ABSTRACT

**Background:** Delay in obtaining discharge is often a reason for dissatisfaction for patients, even for those who may have had a comparatively uneventful stay in the hospital.

**Aim:** To study the factors contributing to delay in discharge process in a teaching hospital.

**Materials and methods:** A time motion study was conducted in a teaching hospital wherein the time taken for discharge was measured for 69 patients. The outcome variable in the study was the time needed for the discharge process in total as well as for each individual step. Mean time at each step was identified and compared between groups using *t* test and analysis of variance (ANOVA).

**Results:** The mean time for discharge process was 5 hours 41 minutes. The mean time between advice of discharge and physically leaving the ward varied from 6.62 hours in urology to 3.01 hours in ear, nose and throat (ENT). Only 13 patients (18.8%) were discharged within the National Accreditation Board for Hospitals and Healthcare Providers (NABH) prescribed time limit of 180 minutes. The maximum delay occurred during time taken for discharge summary completion.

**Conclusion:** Very few patients were discharged within the prescribed time limit, with considerable delay in the time taken for discharge summary completion.

**Keywords:** Delay, Patient discharge, Patient waiting time, Teaching hospital, Time and motion studies.

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## INTRODUCTION

Discharge is “the process of activities that involves the patient and the team of individuals from various discipline working together to facilitate the transfer of patient from one environment to another.”<sup>1</sup> The patient discharge process as “the final step of the treatment procedure during a patient’s length of stay,” and timely discharge as “when the patient is discharged home or transferred to an appropriate level of care as soon as they are clinically stable and fit for discharge.”<sup>2</sup> There are clinical, legal, and administrative aspects involved in addition to record keeping while discharging a patient from the hospital. This includes settlement of hospital bills, procurement of drugs, arranging transportation, and so on.

After a stay in the hospital, no matter how short the duration, the patients and their relatives are eager to leave the hospital premises and return to their home environment. Any aspect that causes delay in this can lead to discontent among the patients. It has been observed that the delay in obtaining discharge has most often been a reason for dissatisfaction for patients, even for those who may have had a comparatively uneventful stay in the hospital.

The reasons for delay also vary with regions as well as type of hospitals. A study in Esfahan, Iran, in 2004 showed that the average time for patients to complete the discharge process was 4.93 hours, with the main factors affecting average waiting time being patients’ financial problems and distance between different wards.<sup>3</sup> A similar study in a tertiary care teaching hospital of Bengaluru found that the time taken for billing completion contributed the most to the total time taken for discharge followed by time taken for discharge summary writing.<sup>4</sup> Another study in a 500-bedded hospital found that discharge was often delayed beyond the scheduled time; the reasons of being late included delay in clinical rounds by

<sup>1</sup>Department of Community Medicine, Government Medical College, Idukki, Kerala, India

<sup>2,3</sup>Department of Hospital Administration, Ramaiah Memorial Hospital, Bengaluru, Karnataka, India

**Corresponding Author:** Jenyz M Mundodan, Department of Community Medicine, Government Medical College, Idukki, Kerala, India, Phone: +91 9846788680, e-mail: jenyz.ali@gmail.com

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consultants, delay in correction of discharge summary, insurance clearance, and delay after billing settlement when patient is not prepared for discharge.<sup>5</sup>

There are time limits prescribed by the NABH for individual components within the discharge process.<sup>6</sup> In a study carried out in wards of Sher-i-Kashmir Institute of Medical Sciences (SKIMS), Srinagar, the average time taken for all types of discharges was more than the prescribed NABH criteria. The SKIMS was following many objective elements of standards AAC 13 and 14 but the discharge process and time need to be defined and documented.<sup>7</sup> Similarly, Tak et al. conducted a comparative time motion study of all types of patient discharges, comprising insurance patients, self-payment patients, and discharges against medical advice, wherein there was a delay in all types of discharges in this hospital in all the steps, except for the time needed to return unused medicines to the pharmacy; the average time taken for each step of discharge

procedure was markedly higher when compared with the standards prescribed by NABH.<sup>8</sup>

In order to reduce the turnaround time for the discharge process, the time taken for the whole discharge process beginning from discharge order till the patient leaves the hospital needs to be studied. This is important to identify the bottlenecks and their root causes. It becomes necessary to identify the exact points where there is a delay in the “substeps” of process of discharge, so that necessary corrective steps may be taken. This study was done to understand the factors that influenced the time for discharge process in a teaching hospital in South India.

**MATERIALS AND METHODS**

A descriptive time and motion study was conducted in a 1,000-bedded teaching hospital in Kerala from July to September 2018. The study included patients admitted in the selected wards who were to get discharged during this period.

The sample size was calculated to be 56 using the formula for time motion studies [ $n = \{(z/p)(\sigma/t)\}^2$ ] considering mean time (t) from discharge being 105 minutes ( $\sigma = 80$ ), with a 20% precision. Stratified random sampling was used so as to get proportional number of cases from the departments of cardiology, urology, medical oncology, surgical oncology, pediatrics, ENT, and ophthalmology.<sup>9</sup>

The time taken for discharge from physician writing orders on the case sheet to completion of billing process in all the departments was observed and measured using a checklist, on which the concerned staff would mark the time. The pro forma was attached to the individual case sheets. All the concerned staff in the wards, pharmacy, billing section and insurance section were sensitized regarding the need to mark the time at each individual check point. The staff nurses in the corresponding wards were asked to cross-check this. The process was monitored by the quality control team.

The pro forma contained details such as the patient’s hospital number, department/ward, type of payment, mode of discharge summary, etc. The outcome variable in the study was the time needed for the discharge process—in total as well as for each individual step.

Data thus collected were compiled and analyzed using SPSS (version 20). Mean time at each step was identified and compared between groups using t test and ANOVA. The key points of delay were identified. Personal/sociodemographic details of individual patients were not taken for analysis.

**RESULTS**

A total of 69 patients/case sheets were taken in to the study. These cases were from seven different wards, namely, cardiology, urology, medical oncology, surgical oncology, pediatrics, ENT, and ophthalmology (Fig. 1). Discharge summary was generated by medical transcription in 22 (31.9%) cases, while it was generated manually for 47 (68.1%) patients. About two thirds (68.1%) of the patients made their payment by cash, while the remaining were those who availed any one type of insurance.

**Discharge Process Time (in Hours)**

The mean time for discharge process from the time the patient is advised discharge till the patient physically leaves the hospital ward was found to be 5.68 hours [ $\pm 2.25$ ] (5 hours 41 minutes). This time was 5.47 (5 hours 28 minutes) for the cash patients and

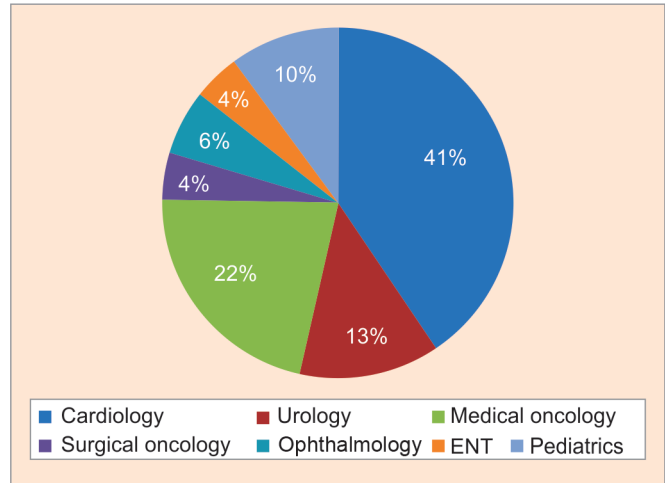


Fig. 1: Distribution of cases according to department

6.15 hours (6 hours and 9 minutes) for those availing cashless/ insurance service. This difference was not statistically significant ( $p = 0.118$ ). The mean time between advice of discharge and physically leaving the ward varied between departments from as high as 6.62 hours in urology and 5.64 hours in cardiology to as low as 3.01 hours in ENT (Table 1). Only 13 patients (18.8%) were discharged within the NABH prescribed time limit of 180 minutes. For 24 patients, the net time between advice for discharge and leaving the hospital premises extended beyond 6 hours (Fig. 2).

Further break down showed that the maximum delay occurred during time taken for discharge summary completion—and average of more than 4 hours, this was followed by the time taken for bill clearance. The mean time required for bill clearance was significantly higher in those cases where the case sheets were filled in manually as compared to the cases sheets that were filled in by transcription (30.33 minutes vs 77.89 minutes,  $p = 0.08$ ). No significant difference was seen in this time period between those availing insurance service and those who paid by cash ( $p = 0.136$ ) (Table 2).

**Major Bottlenecks Identified**

- Time taken for summary preparation
- Time taken for picking the chart from ward for billing
- Time delay in communication regarding the final bill
- Final bill settlement
- Final check out.

**DISCUSSION**

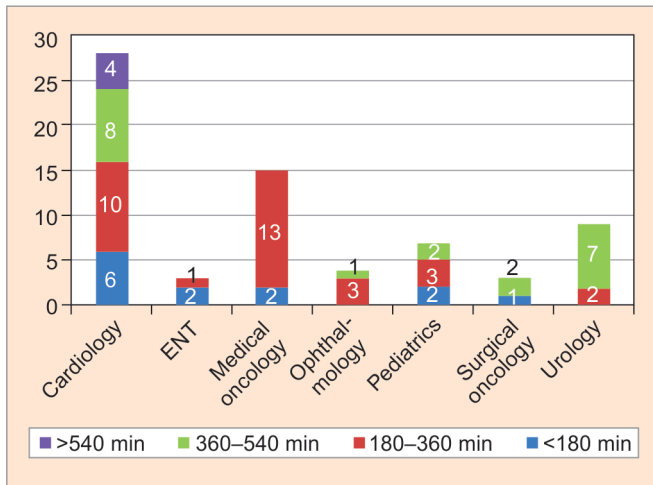
**Discharge Process Time**

For majority of the patients (91.2%), the discharge process took more time than the standards prescribed by NABH, i.e., 180 minutes.<sup>6</sup> The mean time for discharge process from the time the patient is advised discharge till the patient physically leaves the hospital ward was found to be 5.68 hours [ $\pm 2.25$ ] (5 hours 41 minutes). In a similar study by Kumari in a teaching hospital in Karnataka, the average time taken for the whole discharge process of an individual patient was found to be 2 hours 22 minutes.<sup>10</sup>

In another study done in Bengaluru, the average time taken for the discharge process was 218 minutes (3 hours and 38 minutes). About half (49.1%) of patients got discharged within 180 minutes,

**Table 1:** Time taken for discharge in various departments

Department	n	Minimum	Maximum	Mean	Std. deviation
Cardiology	28	75	620	327.57	163.853
ENT	3	139	240	180.67	52.767
Medical oncology	15	172	325	260.40	58.939
Ophthalmology	4	215	393	276.50	80.372
Pediatrics	7	61	496	291.29	154.467
Surgical oncology	3	110	540	356.67	221.886
Urology	9	285	480	397.44	58.318



**Fig. 2:** Time for discharge in various departments

**Table 2:** Mean time taken for each process in discharge

Check points	Time taken
Time taken for starting summary preparation	16 minutes 44 seconds
Time taken for discharge summary completion	4 hours 07 seconds
Time taken for chart movers to pick the chart from the ward to the counter for billing	12 minutes 31 seconds
Time taken for billing	25 minutes 31 seconds
Time taken for replacing case sheet to ward	39 minutes 23 seconds
Time taken for final bill clearance by patient relatives	59 minutes 12 seconds
Time taken by the patients to physically leave the ward	50 minutes 14 seconds

40.4% of patients got discharged between 181 minutes and 361 minutes and about 10.4% of the patients got discharged after more than 362 minutes.<sup>4</sup>

The inter process time, i.e., time taken for the activities in the discharge process in the billing department was only 25 minutes in the study by Kumari, while in this study it was seen to be 2.05 hours. However, this difference may partly be attributed to the difference in the sequence of activities involved in completion of discharge process.<sup>10</sup>

### Reasons for Delay in Discharge

In our study, the main reason for delay was found to be the time taken for preparation for summary, followed by the delay in picking

the chart from ward for billing and the delay in communication regarding final bill. Kaur and Dilawari studied the feedback given by the patients getting discharged; they found that 38.5% patients responded that they did not know the reason for the delay, 19% blamed the nursing staff, and 18% said it was due to the delay in billing.<sup>11</sup>

### RECOMMENDATIONS

- Discharge summary can be prepared before confirming the discharge to the patient. Time for discharge process can be fixed for a time as, say, 2:00 PM as the interns and junior residents will be busy with the ward rounds and clinical discussion till that time.
- Updating the patient file on a daily basis will ensure that the complete information is recorded, allowing faster discharge summary dictation. This would involve central electronic patient charts and adopt an efficient electronic medical records (EMR) system.
- After summary preparation from outpatient departments, the case sheet can be sent directly to the billing counter.
- Billing counter staff can be arranged to contact and inform the ward staff directly once the bill is ready.

### CONCLUSION

The study clearly shows that there is a significant delay in discharges in this hospital, and the duration varies considerably between departments. Delay is seen in all the steps, especially in the preparation of discharge summary.

Time and tedious discharge procedures often contribute to patient dissatisfaction and thus reflects on the image of such hospitals. Moreover, timely discharge of patients will help to improve the bed management in the hospital.

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