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# A study on time management of discharge and billing process in tertiary care teaching hospital

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## ABSTRACT

**Background:** Discharge and Billing process being the final step in the hospital experience is likely to be well remembered by the patient. Even if everything else went satisfactorily, a slow, frustrating discharge process can result in low patient satisfaction. Thus this study was carried out with the aim to ascertain the average time taken for the patient to be discharged in a tertiary care teaching hospital of Karnataka. Method: Registers were designed for the study purpose and were kept in the ward and billing office. Instructions were given to the nurses in the ward and clerical staff at the billing office about the study and entries to be made in the register. The average time taken for the whole discharge process of an individual patient was calculated using the data maintained in the registers. The statistical analysis was made to ascertain the average time taken for discharge. Appropriate tables and graphs are used for representing various findings and results. Results and Conclusion: The average time taken for the whole discharge process i.e. Intra processing time +Inter processing time of an individual patient is 2 hours 22 minutes.

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## Introduction

In the present competitive world, quality of health care is playing an important role in the modern society. Among various factors affecting the health care system, discharge process is one of the important factors related to patient satisfaction. It is the process that occurs when the patient leaves the facility. It implies that the patient has previously been admitted to the facility. As the final step in the hospital experience, the discharge process is likely to be well remembered by the patient. Even if everything else went satisfactorily, a slow, frustrating discharge process can result in low patient satisfaction. It is an important area which touches the patients' emotion; influence the image of the hospital and patient satisfaction. Therefore, the demand for effective health services is ever increasing.

Mogli defines "discharge as the release of a hospitalized patient from the hospital by the admitting physician after providing necessary medical care for a period deemed necessary" [1]. Sakarkar defines "discharge as the release of an admitted patient from the hospital" [2]. Discharge process is defined as 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 [3]. Soon after completion of treatment, the patient as well as his or her escorts expects to be relieved off immediately. The delay in discharge process leads to dissatisfaction and affects the image of the hospital.

Discharge planning is essential to the concurrent patient care review system conducted as part of the hospital's utilization management effort. If discharge planning is delayed, patient's stay can be unnecessarily extended. Discharge planning is centralized, coordinated effort, to ensure that each patient has a planned program for needed continuing care and follow-ups. When it comes to the discharge subject, it's the moment

where the patient pays for the services enjoyed in the hospital and the management receives for the same. This we call Billing, which plays a vital role in the discharge process, which involves much of clerical work to be done in the billing office and demands time. But for the satisfaction of the patient, minimizing the time consumption in billing is again an important factor.

Billing and discharge process documents are vital for any hospital. Its importance encompasses the Clinical aspect, Financial aspect, Scientific database for research purpose, Administration both retrospective and prospective, help to improve the functioning of the hospital as well as to make many administrative decisions and these documents are also legally important.

Therefore this time management study on discharge and billing process is undertaken with the aim of giving better services for the patient satisfaction within the minimum time. This can be done only with the help of thorough study of time taken for the whole discharge process beginning from Discharge order time till the patient leaves the Hospital.

## Methodology

The present study was carried out in a tertiary care teaching hospital of Karnataka. A Hospital based observational study was done and 2205 patient records were subjected to analysis. For the purpose of the study, different registers were maintained in the ward and the billing department of the hospital to calculate the average time taken for the discharge process of each patient from the time doctor writes for the discharge of the patient to the time the bill is ready in billing department.

## Results and Discussion

### Intra Processing Time

This is the time taken for the activities in the discharge process outside the billing department i.e. from DOT (Discharge

order time) to FRBD (File received in the billing department). (Table 1)

Total time taken for an individual discharged patient medical record to reach the billing department is calculated by using the following formula.

Time taken for the medical record to reach the billing department from the ward, of an individual discharged patient = Time at which medical record is received in the billing department from the ward (FRBD) – Time at which discharge order is given to that patient from the ward/doctor (DOT)

Time duration between DOT & FRBD indicates the intra processing time taken for each patient. Same method is used to calculate the intra processing time for the whole sample size (2205 patients) and the total intra processing time for the entire sample size is calculated on the basis of each patient's intra processing time. The Total Time taken for patient medical records to reach the billing department from the ward for 2205 patients = 3475:40 hours. i.e. Intra processing time for 2205 patients = 3475:40 hours.

$$= 3475:40 \text{ hours} / 2205$$

$$= 1:57(1:58 \text{ hour})$$

Therefore the average time taken for an individual patient medical record to reach billing department from ward (Intra processing time) = 1.58 hrs.

#### Inter Processing Time

It is the time taken for the activities in the discharge process in the billing department i.e. from FRBD (File received in the billing department) to BPC (billing procedure completed). (Table 2)

Total time taken for the billing of an individual patient is calculated by using the following formula.

Time taken for billing of an individual patient discharge = Time at which the billing procedure is completed (BPC) – time at which medical record received in the billing department from the ward (FRBD)

Time duration between FRBD & BPC indicate the total time taken in the billing department for each patient. Same method is used to calculate the inter processing time for the whole sample size (2205 patients) and the total inter processing time for the entire sample size is calculated on the basis of each patient's inter processing time. The Total Time taken in the billing department for 2205 patients = 549:45 hours. i.e. Intra processing time for 2205 patients = 549:45 hours.

$$= 549:45 \text{ hours} / 2205$$

$$= 0:25 \text{ minutes}$$

Therefore the average time taken in the billing of an individual patient file (inter processing time) = 25 minutes

#### Whole Discharge Process

It is the total time taken for the whole discharge process i.e. from the time doctor writes for discharge of the patient till the bill is ready in the billing department for the payment to be made by the patient/patient party. (Table 3)

Total Time taken for whole discharge process of an individual patient = Time taken for medical record to reach the billing department from the ward (DOT to FRBD) + Total time taken in the billing department (FRBD to BPC)

Total time taken for whole discharge process for 2205 patients = Total time taken for medical record to reach the billing department from the ward + Total time taken in the billing department.

$$= 3475:40 + 549:45$$

$$= 4025:25$$

Total time taken for the whole discharge process for 2205 patients = 4025:25hrs

$$= 4025:25 / 2205$$

$$= 1:82$$

$$= 2 \text{ hours } 22 \text{ minutes}$$

The average time taken for the whole discharge process of an individual patient is 2 hours 22 minutes

#### Conclusion

From this study, it was found that the total average time taken for the patient to be discharged in a tertiary care teaching hospital of Karnataka was 2 hours 22 minutes. It was observed that the Intra processing time for discharge process was more than the Inter processing time. Average time of 25 min was taken for the Inter Process for each patient i.e. time taken for the activities within the billing department. Whereas it takes more than six times for Intra Processing time, i.e. 1:58 hrs for the activities outside the billing department. According to Kulkarni in his book "Hospital Management Accounting, Planning and Controlling, he states that the Patients should not wait for more than 15 minutes at the time of discharge. [4] This clearly indicates that there is delay in discharge process in this tertiary care teaching hospital of Karnataka and is one of the factors that eventually lead to patient dissatisfaction.

#### Reference

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- [3] Goel S.L and Kumar R, Hospital Administration and Management, Deep and Deep publications: New Delhi.
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#### Appendices

**Table 1. Time motion study in the ward**

S.L No.	In-Patient No.	DOT	FOW	DSR	PDW	Signature of the ward nurse

**DOT- Discharge order time**

**FOW- Time when the file moves out of the ward**

**DSR- Time when Discharge summary is received**

**PDW- Time when Patient is discharged from ward.**

**Table 2. Time motion study in the billing office**

S.L No	In-Patient No.	Ward	FRBD	BPC	PP	Signature of the billing clerk

**FRBD-**Time when the file received in the billing department

**BPC-**Time when the billing procedure is completed

**PP-** Time when the Payment is made by the patient/patient party

**Table 3. Comprehensive time motion study analysis**

SL NO	WARD	DOT	FOW	FRBD	BPC	PP	PDW	IPT	InPT	TTD

**IPT - Intra Processing Time**

**InPT- Inter Processing Time**

**TTD- Total Time taken for Discharge**