ANALYSIS OF TIME TAKEN FOR THE DISCHARGE PROCESS IN A SELECTED TERTIARY CARE HOSPITAL

1SHOBITHA SUNIL, 2SARALA K.S., 3R G SHILPA

1Post Graduate Student, Faculty of Management and Commerce, M. S Ramaiah University of Applied Sciences, Bangalore- 560058,
2Assistant Hospital Administrator, M.S. Ramaiah Hospital, and Bangalore- 560054
3Assistant Professor, Faculty of Management and Commerce, M S Ramaiah University of Applied Sciences, Bangalore- 560058
E-mail: 1 shobitharao29@gmail.com, 2 dr.saralaks2014@gmail.com, 3 shilparg.ms.mc@msruas.ac.in

Abstract- Time taken for the completion of discharge process is an important indicator of quality of care. As per NABH, the time taken for completion of the discharge process should not exceed 180 minutes. Discharge process is the last stage of the patient journey in the hospital and is more likely to be remembered by the patient. So delay in the discharge process can be depressing to the patients and also increases the pressure on hospital beds. The present study was conducted in M.S Ramaiah hospital to analyze the break up time taken for discharge and evaluate the level of patient satisfaction for the discharge process. The total time taken for the discharge process was broken up into time taken for discharge summary writing, discharge summary completion, billing completion and patient to leave the ward. The break up time was recorded using a format which was distributed in all the wards. A validated (Cronbach’s alpha-0.8) questionnaire was used to record the patient impression and satisfaction for the discharge process in the hospital. The data was analyzed using SPSS through Correlation, linear regression analysis and Chi Square test. Time taken for billing completion contributed the most to the total time taken for discharge followed by time taken for discharge summary writing. Most of the patients rated their discharge process experience as average – below average and opined that the discharge process in the hospital was not well organized. Based on the findings of the study, Adequate staffing, providing training in communication skills to the staff, were some recommendations given to improve the time taken for Discharge Process

Key words- Break Up Time, Billing Completion, Category Of The Patient, Patient Satisfaction, Time Taken For The Discharge Process.

I. INTRODUCTION

A hospital mainly provides two types of services, being outpatient and inpatient services. Out of which the outpatient is a person who receives ambulatory care in the hospital, which do not require an overnight hospital stay. “An ‘inpatient’ is a person who has been admitted to a hospital for purposes of receiving inpatient hospital services Health law Professional Series (2004). The inpatient in a hospital has to go through and experience three different stages. First is admission next is Intervention and the final stage is discharge. During the discharge of the patient, after the necessary interventions, a number of procedures have to take place by engaging various staff members and departments making the process complex. As per Mogli, “Discharge is the release of a hospitalized patient from the hospital by the admitting physician after providing necessary medical care for a period deemed necessary”. As per Sakhrkar, “Discharge is the release of an admitted patient from the hospital”. As per NABH, “Discharge is a process by which a patient is shifted out from the hospital with all concerned medical summaries ensuring stability. The discharge process is deemed to have started when the consultant formally approves discharge and ends with the patient leaving the clinical unit. The admission and discharge processes can act as bottlenecks in many of the hospitals and thus adversely affect the efficiency of the hospital (Davies & Macaulay). It is a very important indicator of quality of care and patient satisfaction.. Delay in Discharge of the patient also increases the pressure on beds of the hospital Delay in discharge is bad for both hospitals and the patients. It increases cost to the hospitals and is depressing to the patients. Delayed discharge also increases the patient’s exposure to hospital acquired infections (P Hendy et.al, 2012). So, effective strategies must be in place to solve this issue. National Accreditation Board for Hospitals and Health Care Organizations has set a standard of 180 minutes for the completion of the discharge process. Fortis hospital Gurgoan has set a bench mark of 90 minutes for the total time taken for the discharge.

II. LITERATURE REVIEW

A study was done in Iran to analyse the waiting time for the discharge. The author SimaAjamii, (2007) collected the data using questionnaires, observation and checklist. The collected data was analyzed using SPSS and OR methods. Queuing model was used to study the reasons for delay in the discharges. Average waiting time for all the wards was found to be 4.93 hours. As per hospital personnel opinion the main reasons identified for the delay were delay for the discharge summary completion, lack of proper guidelines for the staff involved in the discharge process and absence of Hospital Information networking systems. According to JanitaVinayaKumari, (2012), the final stages of hospitalization i.e. the discharge and the
billing process is more likely to be remembered by the patient. A study was conducted in a tertiary care teaching hospital to calculate the average time taken for the discharge of the patient. For the purpose of collection of data for the study registers were designed and kept in wards and the billing office. 2205 patient records were analyzed. The average time taken for the discharge of the patient was 2 hours and 22 minutes.

A time motion study conducted in a hospital by SwapnilTak et al., (2013), observed that there is a delay for all the types of discharges i.e. insurance patients, cash patients, DAMA etc. in the hospital. The total time taken for the discharge was compared against the NABH standards. The total time taken for insurance, self- payment and DAMA patients was 278, 337 and 302 minutes respectively. As per the satisfaction survey conducted by the author, 69.80% of the patients felt that the discharge process was lengthy and 61.53% of the patients believed that process can be speeded up.

According to Silva et.al (2014), the main reasons for discharge delays are the processes and can be improved by appropriate interventions. The study was conducted in two Teaching hospitals by reviewing the medical records of the patient admitted to internal medicine ward. A pilot study was conducted to determine the sample size. The delays in discharges that occurred in two hospitals were 60% and 50.7% respectively. The main reasons identified for the delay were waiting for the test reports, delays in making clinical decisions and in providing specialized consultation.

### III. METHODOLOGY

As mentioned above, the present investigation was limited to M. S. Ramaiah Hospital. The present study was conducted in all the wards of the hospital with the some exceptions. All the categories of patients and departments were included under the present study. All the inpatients who got discharged from the hospital in the month of March 2016 were considered for the study. A total of 1872 patient discharges were considered for analysis. A format to record the break up time of discharge was distributed in all the wards. The data collected was analyzed using Descriptive statistics, Co relation and linear regression analysis. To record patient opinion and satisfaction for the discharge process a self- administered questionnaire was distributed among a sample of 300 patients (Confidence level-95%, Confidence interval-5.52%) selected using Convenience sampling. The collected data was analyzed using Chi- Square test. For statistical analysis SPSS, IBM-20 was used.

### IV. RESULTS AND ANALYSIS

The average time taken for the discharge process was 218 minutes (3 hours and 38 minutes). The longest time taken was for General patients amongst other categories and for the OBG amongst the other major departments.

As per the figure, about 49.1% of patients got discharged within 180 minutes, 40.4% of patients got discharged between 181-361 minutes and about 10.4% of the patients got discharged above 362 minutes. Most of the patients are getting discharged after 180 minutes, which is mainly due to delay in the discharge summary writing and lengthy billing process.

![Comparison of total time taken for discharge against NABH standards](image1)

![Comparison of billing time of wards with and without Ward secretaries](image2)

### Table 4.1 Results of Correlation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total time taken for discharge</th>
<th>TS writing</th>
<th>TS typing</th>
<th>Discharge billing</th>
<th>Patient leave ward</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>R</td>
<td>r</td>
<td>r</td>
<td>r</td>
<td>r</td>
</tr>
<tr>
<td></td>
<td>0.65</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>
The Co-efficient of Determination ($r^2$) calculated proves that time taken for Discharge summary writing, time taken for DS typing and Time taken for billing completion contributes to delay in total time taken for Discharge 42%, 32% and 45% respectively. The time taken for patient to leave the ward contributes only 4%. The results obtained are statistically significant with $P<0.01$

**Regression analysis**

Dependent variable: Total time taken for discharge
Independent variable: Time taken for billing completion

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardised Coefficients</th>
<th>Standardised Coefficients</th>
<th>t</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>123.434</td>
<td>9.962</td>
<td>40.313</td>
<td>0.000</td>
</tr>
<tr>
<td>Minutes for billing completion</td>
<td>1.052</td>
<td>0.07</td>
<td>12.781</td>
<td>0.000</td>
</tr>
</tbody>
</table>

On linear regression analysis, the constant value obtained was 1.05. For every unit change in the time taken for billing total time taken for discharge will change by 1.05. The results obtained were statistically significant with $P=0.0000$. Total time taken for discharge $= 123.43 + 1.05 \times \text{time taken for billing}$.

![Figure 4.6 Longest Step in the Discharge Process](image)

When the patients were asked about the longest step in the discharge process about 34.33% of the patients experienced delay in the billing process followed by 26.33% of patients experienced delay in discharge summary completion.

![Figure 4.3 Results of Patient Preparation for Discharge - Rough Bill Estimate](image)

On evaluation of patient readiness for discharge it was found that rough bill estimate was not given to 46% and 50.9% for General and General Concession patients respectively.

![Figure 4.4 Results of Patient Satisfaction for Discharge Process Experience](image)

Most of the patients rated Behavior of the hospital staff as good which means they are satisfied with the behavior of the staff involved in the discharge process. When coming to discharge process experience most of the patients rated average and below average.

**V. FINDINGS AND RECOMMENDATIONS**

- Most of the patients about 50.9% of the patients discharge was taking more than the standards prescribed by NABH i.e. 180 minutes. Hence to reduce the time taken, a ward based coordinator must be in place to coordinate and monitor discharge. There should be appropriate guidelines for the staff involved in the discharge process and it should be common throughout the hospital.
- On correlation and regression analysis it was found that billing time contributes the most to the total time taken for discharge (45%). Most of the patients also agreed that billing was the
step that took longest time in the discharge process followed by Discharge Summary Completion. So there should be adequate staffing depending on the patient load especially in the billing department. Presence of Ward secretaries had shown to reduce the billing time. So Ward secretaries must be appointed in other wards to reduce the billing completion time.

- The second contributing factor for delay in time taken for the discharge is the discharge summary writing. So, the staff involved in the discharge process should be trained in discharge procedures especially the communication skills for effective communication and coordination.

- Most of the patients are not counseled for the prerequisites of the billing. This increased the time taken for billing completion as the patients would not be ready with the billed amount. The patients should be counseled about their discharge date and pre requisites of billing prior to the day of the discharge. The patients and the attenders must be made active participants of the Discharge process.

- Appropriate feedback must be taken from the patients about the discharge process in particular. There should also be a proper mechanism in place for analysis of those feedback forms.

CONCLUSION

Patient discharge is a complex process involving cooperation and coordination of all departments and staff in the hospital. Discharging patient in a timely manner is a challenging task. Through improvement in their processes, other hospitals have become successful in reducing the time taken for discharge process (Fortis Hospital, Gurgaon had reduced the time taken for discharge to 90 minutes). In this study, time taken for discharge process in M.S. Ramaiah Hospital was analyzed. It was found that time taken for billing completion was contributing the most to the total time taken for the discharge process. With adequate staffing and patient counseling the time taken for billing completion can be reduced. Thus improving the time taken for discharge not only improves patient satisfaction but also helps in effective bed management for the hospital.

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REFERENCES


