

Analysis of Time Taken for the Discharge Process and its Determinants in a Tertiary Care Teaching Hospital

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Abstract

Background: The process of discharge is one of the important factors related to patient satisfaction. As the final step in the hospital experience, the discharge process is likely to be well remembered by the patient. Even if everything else goes satisfactorily, a slow, frustrating discharge process can result in low patient satisfaction.

Objectives: The present study was carried out with the aim to reduce the time taken in the discharge process. The objectives were to find the average duration in the process of discharge in major clinical wards and to find key steps affecting the duration of discharge.

Methods: A mixed methodology observational study involving Google forms for recording observations and focus group discussions of key stakeholders were used to carry out this study.

Results: The mean duration of discharge process was 372 minutes with the standard deviation of 68.5. The mean time of 248 minutes with a SD of 43.3 was taken for preparation of discharge summary. The mean time of completing files was 164 minutes with a SD of 37.

Conclusion: The biggest bottleneck in the process of discharge was the preparation of discharge summary, followed by the clearance of files from various departments. The common found reasons were overburdened junior residents, lack of planning of discharge, untrained nursing staff, incomplete documentation, patient counseling, lack of manpower, and lack of coordination among nursing staff and junior residents. It is recommended to plan the discharge better and hold regular workplace meetings of junior residents, nursing staff, billing department, and medical superintendent to manage the communication gaps and better coordination.

Keywords: Patient Discharge, Patient Satisfaction, Health Care Quality

1. Background

Hospital discharge process is defined as; the collective multidisciplinary process of shifting patients from hospitals to external environments.¹ Among various factors affecting the health care system, the discharge process is one of the important factors related to patient satisfaction. The process of discharge is the last step in a hospital stay and thus very well remembered by patients and attendants. Soon after the completion of treatment, the patient as well as his or her escorts expects to be relieved immediately. Any delay, complication or dissatisfaction in the discharge process may result in low patient satisfaction. The delay in the discharge process leads to dissatisfaction and affects the image of the hospital.²

Many studies have been carried out in India to find the duration of delay in discharge and its determinants.³⁻⁸ Most studies were done in corporate hospitals to improve patient satisfaction. The current study was done in a

tertiary care teaching hospital attached to a medical college. The aim was to reduce the time taken in the discharge process. The objectives were to find the average duration in the process of discharge in major clinical wards and to find key steps affecting the duration of discharge. The results of the study will help the medical colleges to streamline their discharge process and hence improve the patient satisfaction and hospital utilization.

2. Objectives

1. To find the average time taken in the discharge process in major wards of hospitals.
2. To find the factors effecting the discharge process.

3. Methods

3.1. Study Design

This was a mixed methodology observational study involving Focus Group Discussion (FGD) of key stakeholders.

The study was carried out in a tertiary-level teaching hospital in western Uttar Pradesh, India. Study Participants were all patients who were discharged from wards of general surgery, general medicine, orthopedics, pediatrics, and, gynecology and obstetrics from the 15th of April 2023 to the 15th of June 2023. Nursing In charge of wards posted junior residents and key staff (Laboratory, billing, Third Party Administrator (TPA)) involved in the process of discharge.

By reviewing the data of previous years we expected approximately 4500 patients to get discharged from major hospital departments between the 15th April 2023 and 15th of June 2023. Considering the limited resources available every third patient discharged was included in the study. Two month duration for data collection was done to rule out any abrupt short-term variation in the number and type of patients in the hospital. After data collection for two months, the next 15 days were used for analysis and after that the next month was used for Focus Group Discussion (FGD) of the nursing Incharge, junior

resident, and other key staff (Laboratory, billing, TPA) involved in the process of discharge. Figure 1 describes the whole plan of data collection.

The discharges were divided into different categories of patients based on their discharge process. General discharge, Leave Against Medical Advice (LAMA), Medico-Legal Case (MLC), Third Party Administrator (TPA), and Ayushman Bharat patients.

While general patients are discharged normally, their discharge duration depends fully on the functioning of the hospital itself. In other categories, discharge duration also depends on the completion of medicolegal documents by the police and the time taken in the approval of bills by the portal representing insurance authorities.

3.2. Data Collection

To understand the data collection by google forms recording observations and FGD, it is vital to review the routine steps involved in the discharge of patients in hospitals.

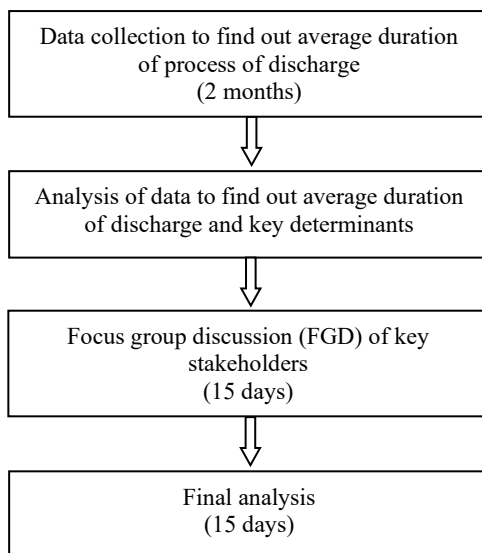


Figure 1. Data Collection Process

In the discharge of patients the following steps are involved:

- Step 1- Advice by the consultant to discharge the patient.
- Step 2- Completion of file / Bedhead Ticket (BHT) of the patient by the nursing staff. Completion of file included all paperwork, no dues from blood bank, central lab, radiology department, operation theatre, and pharmacy.
- Step 3- Preparation of discharge summary on Hospital Information System (HIS) by the junior residents.
- Step 4- Final billing of patients at bill section/pharmacy
- Step 5- Handing over the hard copy of discharge summary from bill section to patient attendant.
- Step 6- Signature and seal by consultant on discharge summary in ward.
- Step 7- Handing over discharge summary and reports to

patients and finally helping them shift out of the hospital.

In the data collection the following steps were involved:

The nurse in charge was key in data collection. To reduce observer, bias all the nurses in charge of the wards were sensitized that the study would involve only observation and there would be no effect on their appraisal based on the findings of the study. They were provided a Google form on which the following information was entered:

1. Time of advice of discharge by consultant.
2. Time of which discharge summary is made and uploaded by junior resident on HIS.
3. Time of which file is ready with all reports.
4. Time of billing at pharmacy and bill section.
5. Time of signature of discharge summary by consultant.
6. Time at which patient vacates the ward.

Twice a week the Google forms were reviewed and records were crosschecked with HIS.

3.3. Statistical Analysis

Quantitative analysis of google forms was done using SPSS version 20. The thematic network analysis was used as the framework for analysis. Interviewer and note-taker transcribed, translated, and cross-checked all FGD, immediately after data collection to ensure data credibility and enhanced the reliability of interpretations. Data was entered into WeftQDA0.9.4 qualitative software. Two co-authors coded each FGD independently using ad-hoc codes, which were repeatedly applied to the data set through continuous comparisons within and across the

transcripts. Eventually it led to the development of more selective, or inductive, codes. Inductive codes were grounded in the study narratives. Discrepancies in coding and re-coding were resolved by consensus.

4. Results

Total patients discharged during the data collection were 4978. A total of 1660 patients which were discharged were included in the data collection process.

Table 1 describes the distribution of patients. Maximum patients were discharged from department of general medicine followed by general surgery and gynecology respectively. Furthermore, 87.1% patients had general discharge and 9.5% had TPA.

Table 1. Distribution of Patients in Wards

| Sr no | Ward | General Discharge | LAMA | MLC | TPA/Ayushman Bharat | Total |
|-------|------------------|-------------------|---------|------------|---------------------|-------|
| 1 | General Medicine | 506(89.7%) | 3(0.5%) | 12 (2.2%) | 43(7.6%) | 564 |
| 2 | General Surgery | 355(86.6%) | 2(0.5%) | 17 (4.1%) | 36(8.8%) | 410 |
| 3 | Orthopedics | 62(52.1%) | 2(1.7%) | 19 (15.9%) | 36(30.3%) | 119 |
| 4 | Pediatrics | 178(89.0%) | 1(0.5%) | 0 (0.0%) | 21(10.5%) | 200 |
| 5 | Gynecology | 345(94.0%) | 0(0.0%) | 0 (0.0%) | 22(6.0%) | 367 |
| Total | | 1446 (87.1%) | 8(0.5) | 48 (2.9) | 158(9.5%) | 1660 |

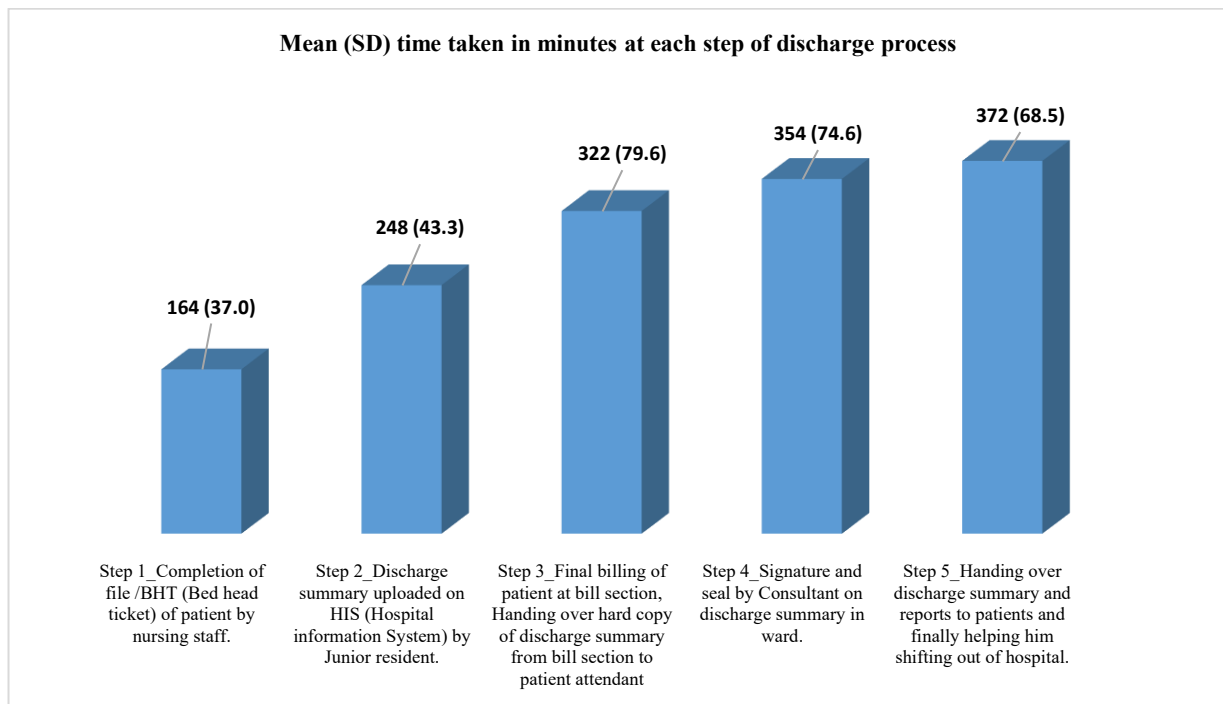


Figure 2. Average Time Taken in each Step of Discharge Process

Minimum time for discharge was taken by a general patient while the patients followed by LAMA patients. Maximum time was taken by patients who were admitted under TPA. A total of five FGDs were done. Table 3 shows the details of FGDs.

From the transcripts of FGDs three themes were identified: 1) Lack of staff, 2) Lack of coordination among nurses, doctors, pharmacist and clerical staff and 3) Lack of communication with attendants of patient.

Table 2. Distribution of Type of Patient and Mean Duration of Discharge

| Type of patient | Mean duration of discharge |
|-----------------|----------------------------|
| General patient | 332 ± 66.4 (136-490) |
| LAMA | 398 ± 48.7 (143-498) |
| MLC | 378 ± 42.5 (154-475) |
| Ayushman /TPA | 422 ± 31.4 (242-510) |

4.1. Lack of Staff

Nursing staff mentioned high attrition rate and absence of trained staff for slow work. Lack of ward attendants was also mentioned by many. One of the nursing Incharge said

Table 3. Details of Focus Group discussions

| Activity | Participants | Total participants |
|----------|--|--------------------|
| FGD 1 | Nursing Incharge of Medicine, Pediatrics and Gynecology | 11 |
| FGD 2 | Nursing Incharge of General Surgery and Orthopedics | 10 |
| FGD 3 | Resident doctors of Medicine and Pediatrics | 12 |
| FGD 4 | Resident doctors of General Surgery, Orthopedics and Gynecology | 12 |
| FGD 5 | Blood bank in-charge, billing section in-charge and managers of TPA and Aayushmanmitra of the hospital | 6 |

“If we have trained staff and an adequate number of ward attendants, all our problems will be solved”.

Resident doctors said second year residents were posted in district health posting. Due to morning seminars round were late. One of the residents said that *“we are overburdened and if we set our priority at particular points of time we have so many works related to admitted patients which are more important than a discharge of patient who is in comparative good health. This means the discharge process comes late in our priority of work”.* Few Resident doctors also mentioned that they tried making discharge summary one day prior to discharge but in almost 60% of cases, patient discharge was not planned and the summary also required so many corrections in it which eventually took much more time.

4.2. Lack of Coordination among Staff

The majority of nursing staff had issues with resident doctors, one of them narrated that *“For instance a first year resident takes round at 7am and at that time he assures a patient that you will be discharged today and doesn't let us know about this issue. Consultant rounds happens late between 11 to 12 afternoon and then we get confirmation of discharge and start preparing files for discharge. By that time, patient start arguing that they were advised discharge in the morning and it's been five to six hours and they have become exhausted and start verbal altercation”.*

Many of them also mentioned that junior doctors prepare discharge summary very late. All of them suggested that *“If doctors make discharge summary a night prior to discharge all the problems can be solved”.* Almost all of them said that problem in delay in delivery of medicines from pharmacy can be resolved if discharge summary is made earlier and sent to pharmacy. About diagnostics, they mentioned that all reports should be sent to wards on the same day which will help in daily updates of files. Coordinators of billing and TPA mentioned few points responsible for delay in processing: 1) incomplete files, 2) mismatch between entries in files and HIS, 3) pending blood donations, 4) pending discharge requests on HIS; and 5) bills of implants. In the words of one of the TPA coordinators incomplete files come from wards *“as we have to upload all documents, if incomplete files come we have to call doctor or nursing staff in our office to complete them which clearly takes time. This may take two to three hours as sometimes doctors are busy in OT or emergency. If we upload incomplete documents in TPA, approval is further delayed or may be denied.*

Usually files lack OT notes, stamps, signatures, advice etc. In TPA we have at least two hours TAT after uploading adequate documents from insurance companies for approval”.

In conclusion, one of them said that *“file should be updated every day and must be crosschecked with HIS to make process swift”.* One of the billing staff mentioned that *“If five patients get discharged from a ward, the staff comes with all the files together. Just imagine five files with two attendants etc”.*

4.3. Lack of Communication with Attendants of Patient

Few issues mentioned by nursing staff were 1) attendants keep on changing every day, so there is no particular person to communicate which creates confusion, 2) attendants sometimes denies for pending blood donations which they requested earlier, and 3) at the time of billing they want rebates and sometimes expresses inability to pay the charges causing further delay. One of the nursing staff said *“we always communicate on day-to-day basis and hope for better outcome”.* One of the billing in-charge mentioned that *“the patient should be made aware of the expected amount to be paid at the time of discharge so that he can be prepared”.*

5. Discussion

5.1. Mean Duration of Discharge

The present study was done in a tertiary care medical college. The mean duration of discharge was found to be 372 minutes with a SD of 53.6, of and range 136-510 minutes. A similar study in a tertiary care teaching hospital was done by Mundodan et al.³ in Kerela. They found the total duration of discharge five hours 41 minutes (341 minutes) with a range from 181 to 392 minutes. One more study in a teaching hospital was done by Hamid et al.,⁴ in Sher e Kashmir Medical College. The results revealed that the average time taken for the discharge process was 240 minutes for self-payment patients. This time was 255 minutes for those who discharged against medical advice (DAMA) while it was 270 minutes for below poverty line patients. A study carried out by Fatima et al.,⁵ revealed that 32% of patients discharge in 8-10 hours, 26% of patients in 6-8 hours, 20% of patients in 4-6 hours, 16% of patients in more than 10 hours and 6% of patients in 2-4 hours. A study done by Shobithasunil⁶ in a tertiary care hospital found that the average time taken for the discharge process was 218 minutes (three hours and 38 minutes). Arthi et al.,⁷ found that the average time taken for cash

patients was six hours and 90 minutes (450 minutes) and insurance patients was seven hours 20 minutes (440 minutes).

5.2. Time Taken Incompletion of Discharge Summary

In our study the longest time was taken in the process of completion of discharge summary by junior residents with a mean of 248 minutes. A similar type of finding was observed in many studies. Arthi et al.,⁷ concluded that one of the areas of delay is discharge summary preparation and signature by consultant. In the study of Mundodan,³ the time taken for discharge summary completion was four hours. He also recommended that 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. Revathi et al.,⁸ also found more time taken in discharge summary as the potential cause of delay. Omanwar et al.,⁹ found pending discharge summary as the third most common cause of delay. Suji et al.,¹⁰ suggested that a summary should be prepared earlier especially in the case of Insurance patients.

We also did Focus Group Discussion with junior residents in our study. This type of qualitative feedback was lacking in all the available studies. Few issues which were responsible for late preparation of discharge summary were believed to be more workload, less manpower, and overburdened residents as many of the residents were on rotatory district health posting. Daily morning seminars and discharge could not be planned due to impatient attendants and patients who always hurry for discharge. Few of the mentioned issues were noncooperation of nursing staff and less ward attendants.

5.3. Time Taken in Completion of File

In the present study, the mean time taken for completing the files was 164 minutes. One of the findings of FGD was the issue of trained staff and the ward attendant as the attrition rate was high among the nursing staff. A similar type of issue was documented by Revathi et al.,⁸ who found that one of the reasons of this fact is new nursing staff who were not formally trained for the discharge process. Few other solutions offered in FGD were almost matched with the recommendations offered by Jatinkumar¹¹ who found that most of the time was consumed in the process of bill preparation due to the delay in getting no dues from pharmacy, laboratory, and radiology department followed by finalization of discharge summary.

5.4. Time Taken in Completion in Billing

In our study, the mean time taken for billing was 74 minutes. The TPA/Ayushman patients took maximum

time in the billing process while the normal discharge patients took the minimum. Various reasons and suggestions came out from stakeholders in our FGD.

Similar issues and solutions were offered in many studies like Arthi et al.,⁷ who believed that cash patients are not informed about the bill amount in prior which causes delay in payment of cash. The manager should track the patient's bill and ask their attendants to pay all the bills from time to time. AnupamaSukumar et al.,¹² mentions that the mean duration in the billing process was 158 minutes. Fatima et al.⁵ mentions that the main factors for delay found in the credit and billing department, including waiting for TPA approval or for getting a CMRF letter and long waiting times for the billing as up to date uploads were not uploaded on the billing system. Revathi et al.,⁸ found too late approval from the companies as a major cause of delay in insurance patients. Mundodan³ found that the completion of billing took 60 minutes. He recommended that updating the patient file on a daily basis will ensure that the complete information is recorded, allowing a faster discharge summary dictation. Sukumar et al.,¹² found that 100% of delays were due to lack of coordination.

6. Conclusion

The biggest bottleneck in the process of discharge was the preparation of discharge summary by junior residents followed by the clearance of file from various departments. The reasons were untrained nursing staff, incomplete documentation, patient counseling, lack of manpower, and incoordination among nursing staff and junior residents. Maximum time at the billing counter was for TPA patients. Avoidable reasons were incomplete files, pharmacy, discrepancy in files, and HIS. The unavoidable reason was a minimum 2-hour Turn Around Time (TAT) from insurance companies. Causes of delay for non-TPA patients were incomplete files, discrepancies with HIS, and lack of information to patients and attendants about approximate billing charges.

The recommendations can be described in two headings:

6.1. Process Based

1. Discharge summary can be prepared before confirming the discharge to the patient.
2. Time for discharge process can be fixed for a time as, say, 3:00 PM.
3. Inpatients should be notified at least one day prior to discharge with pre requisites of billing.

6.2. Managerial

1. Time management and prioritization of work training of junior residents with stress on the importance of timely discharge process.
2. Periodic orientation of nursing staff about the completion of files and counseling of patients/attendants.

3. Periodic work place meetings of junior residents, nursing staff, billing department and medical superintendent to manage the communication gaps and better coordination.

Research Highlights

What Is Already Known?

The delay in the discharge process leads to patient dissatisfaction and affects the image of the hospital. Preparation of discharge summary, completion of files and lack of coordination among health care staff are the major reasons of delay in most of the hospitals.

What Does This Study Add?

The study emphasizes on challenges and solutions in the discharge process in a medical college setup where junior residents do the major work in documentation.

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Author Contributions

Authors contributed equally to this work.

Conflict of Interest Disclosures

All authors declared that they have no conflict of interest.

Ethical Approval

The current study was approved by the Swami Vivekanand Subharti University Ethics Committee with the code of SMC/UECM/2023/542A.

References

1. Goel SL, Kumar R. Hospital Administration and Planning, 1st edition, Jaypee Brothers, Medical

Publishers Pvt Ltd: New Delhi.

2. Kumari JV. A study on time management of discharge and billing process in tertiary care teaching hospital. *Elixir Int J Mgmt Arts*. 2012;52:11533-5.
3. Mundodan JM, Sarala KS, Narendranath V. A Study to Assess the Factors Contributing to Delay in Discharge Process in a Teaching Hospital. *Int J Res Foundation Hosp Healthc Adm*. 2019;7(2):63-6.
4. Hamid S, Jan FA, Rashid H, Jalali S. Study of hospital discharge process viz a viz prescribed NABH standards. *Int J Contemp Med Res*. 2018;5:H1-4.
5. Fatima S, M Rajiv, Satyanarayana N, Rao JN. To study the factors contributing to delay in discharges of inpatients and applying lean intervention to improve the discharge process in a tertiary care teaching hospital in south India. *Int J Curr Res*. 2021; 13(11):19679-83. doi:10.24941/ijcr.42646.11.2021
6. Shobitha Sunil SK, Shilpa RG. Analysis of time taken for the discharge process in a selected tertiary care hospital. *Int J Appl Manag Sci*. 2016;2(10):4-8.
7. Arthi S, Divya S. A study on causes of delay in discharge process in one of the Prominent hospitals in tamilnadu. *Int J Creat Res Thoughts*. 2020;8(4):88-92.
8. Revathi K, Suji U. A Study on Delay in Discharge Process, in One of Multispeciality Hospital in Tanjore. *IJTSRD*. 2020;4(4):222-4.
9. Omanwar S, Rakesh Kumar Agrawal S, Omanwar. Patient Centric Approach Reduces Delayed Discharge from Hospital Post Medical Advice: An Indian Perspective. *EC Pharmacol Toxicol*. 2020;8(10):14-8.
10. Suji U, Magalingam A. A study on delay in insurance patients discharge At a multispeciality hospital in kerala. *EPRA Int J Multidiscip Res*. 2023;9(5):1-5. doi:10.36713/epra2013
11. Kumar J. A study of the causes of delay in patient discharge process in a large multi-speciality hospital with recommendations to improve the turn around time. *QAI Journal for Healthcare Quality and Patient Safety*. 2022;3(1):13-20. doi:10.4103/QAIJ.QAIJ_14_22
12. Sukumar A, Kumar GS, Raj RJTN. Identification of causes of delay in in-patient discharge at a multispeciality hospital. *Eur Chem Bull*. 2023;12(Special Issue 12):790-9. doi:10.48047/ecb/2023.12.si12.069