

Study of Discharge Process

**Internship Training
At
Apollo BSR Hospital, Bhilai**

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**Under the guidance of
Dr. Nutan P. Jain**

**Post Graduate Diploma in Hospital & Health Management
2012–14**


**Institute of Health Management Research
Jaipur
2014**

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TO WHOMSOEVER MAY CONCERN

This is to certify that Dr Siddharth Mishra student of Post Graduate Diploma in Hospital and Health Management (PGDHM) from Institute of Health Management Research, Jaipur has undergone dissertation at Apollo BSR Hospital Bhilai from 10th February 2014 to 30th April 2014.

The candidate has successfully carried out the study designated to him during dissertation and his approach to the study has been sincere, scientific and analytical.

The internship is in fulfilment of the course requirements.

I wish him all success in all his future endeavours.



Dr. Ashok Kaushik

Dean, Academics and Student Affairs

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Dr. Nutan P. Jain

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DATE: 29.04.2014

CERTIFICATE OF DISSERTATION

To whom so ever it may concern

This is to certify that **Dr. Siddharth Mishra** student of “**Institute of Health Management & Research, Jaipur**” has completed 3 months project from **10th February 2014 to 30th April 2014** in Apollo BSR Hospitals, Bhilai on the topics “**A Study on Discharge Process**”.

He was punctual and found to be sincere during his project.

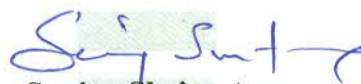
For Apollo BSR Hospital
(A Unit of BSR Superspeciality Hospitals Ltd.)

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CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled "Study on Discharge Process at Apollo BSR Hospital Bhilai" and submitted by Dr. Siddharth Mishra Enrollment No. IIHMR/PGDHM/2012-14/17-1379 Under the supervision of Dr. Nutan .P. Jain for award of Postgraduate Diploma in Hospital and Health Management of the Institute carried out during the period from 10th February 2014 to 30th April 2014 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar institution of higher learning.



Signature

DR. SIDDHARTH MISHRA
PGDHM 17

ABSTRACT:

Title: A study on Discharge process at Apollo BSR hospitals.

Name of author: Dr. Siddharth Mishra

Background: Discharge is referred to as when the patient is free to return to home after his/ her period of recovery at the hospital. It is the most significant moment for a patient as they are now free of the ailment which affected them and can return to their normal life and duties. It's also a crucial moment for the hospital as a hospital can make or break its reputation due to ill planned discharge process. A discharge focused bed strategy can increase inpatient volume without a subsequent increase in cost for the Hospital which can be a substantial improvement for the Hospital and it can also help hospitals better market themselves.

Objectives: The objectives of the study were:

- To review the discharge process in a hospital.
- To identify step/point of delays in the discharge process of hospital against the standard time
- To analyze the discharge process of the hospital and find out the challenges at each step of the process
- To suggest strategies to reduce time taken for processing discharge, if required.

Methodology: A time motion study was done and patients' records were followed and the existing process was reviewed. It was a cross sectional study as data was collected from all six units of the hospital. The study was conducted at Apollo BSR hospital during a period of 3 months from 10th February to 30th April, 2014. Study respondents were Nurse, discharge pool staff, duty doctors and administrative staff. A sample of 300 patients was selected randomly during a period of 2 months i.e. 11 February 2014 to 11 April 2014. The goal was to follow minimum 50% of discharges occurring in the hospital every day.

Results: The average discharge time for the hospital was found to be about four hours as compared to the standard time of two hours. The data was analyzed according to Cash patients, Credit Patients, unplanned Discharges and Planned discharges the discharge time was found to be 3.6 hrs. 4.2 hrs. 4.1 And 3.4 hrs respectively.

Suggestions: The main suggestions given were:

- Increasing planned discharges
- Including all the staff involved in the process to do preplanning of discharges
- Hiring a medical transcriptionist
- Starting process of discharge summary and billing alongside to save time.
- Daily updating of discharge summaries.

Keywords: discharge time, cash discharge, credit discharge, unplanned discharge, planned discharge, time motion study, strategies to reduce discharge time.

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I extend my sincere gratitude to **Mr Sanjay Shrivastav**, who has been my mentor for the Dissertation program & has been instrumental in helping me shape this study in a desirable way and for giving me the opportunity to do this study and undergo the process of learning at APOLLO BSR BHILAI. I thank him for all the trust and faith he posed in me and I only hope that I have been able to live up to his expectations. His guidance and support was helpful in enhancing my work.

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Last but not the least; I would like to thank the entire **staff of APOLLO BSR HOSPITALS BHILAI** for their support and guidance.

I would like to express my sincere thanks to **Dr. S.D. Gupta (Director IIHMR)**, Col. **Dr. Ashok Kaushik (Dean)**, **Dr. Nutan Jain (Guide)** and all the faculty members of IIHMR for the guidance and cooperation extended by them. I am also grateful to my parents, my family and my friends for giving me moral support. I would also like to extend special thanks to Dr. Arvind Mishra , Dr. Komal Pandit , Dr. Aditi Vaidya (PGDHM 18 IIHMR Jaipur) summer trainees at Apollo BSR hospital Bhilai for their support in this study.

However, I accept the sole responsibility for any possible error of omission and would be extremely grateful to the readers of this project report if they bring such mistakes to my notice.

Date – 19 may 2014

Dr. Siddharth Mishra
PGDHM 17

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ACRONYMS AND ABBREVIATIONS:

MR No.	Medical record no.
NRHM ward	National Rural Health Mission Ward
TPA	Third Party Assurance
OT	Operation theatre
LAMA	Left Against Medical Advice
HMIS	Hospital Management Information System
RMO	Resident Medical officer
N/A	Not Applicable
BHEL	Bharat heavy electrical limited
BSP	Bhilai Steel Plant
ESIC	Employee State insurance Corporation

A STUDY ON DISCHARGE PROCESS IN APOLLO BSR HOSPITAL

DISSERTATION

1. INTRODUCTION

Discharge is referred to as when the patient is free to return to home after his period of recovery at the hospital. It is the most significant moment for a patient as they are now free of the ailment which affected them and can return to their normal life and duties. It's also a crucial moment for the hospital as a hospital can make or break its reputation due to ill planned discharge process. For most people, the most significant moment of any hospital stay is when they are told they can leave and how carefully they prepare for this anticipated departure is in many ways as important as the treatment they receive while under a doctor's care. Referred to as discharge planning, hospitals understand the importance of developing a careful and appropriate agenda to address that which will inevitably occur outside the hospital walls. Whether the patient is headed to his or her own home, the home of a friend or loved one, or to a rehabilitation center or nursing home, knowing what to expect goes a long way toward reducing stress and ensuring the best outcome for everyone involved.

Discharge planners – who can be hospital administrators, social workers, doctors, or nurse case managers – often work closely with families to explain a patient's outlook, offer direction on continued care, and help identify the most appropriate facility to suit the patient's needs. Depending on the patient's condition, a good discharge plan may be as simple to execute as taking a few days off work to help at home or as complex as researching health care facilities and coordinating assistance among family members.

2. RESEARCH QUESTIONS:

1. Which step caused delays in the process of Discharge?
2. What improvements need to be done in the process of discharge to decrease its process time?

3. OBJECTIVES OF THE STUDY:

The objectives of the study are:

- To review the discharge process in a hospital
- To identify step/point of delays in the discharge process of hospital against the standard time
- To analyze the discharge process of the hospital and find out the challenges at each step of the process
- To suggest strategies to reduce time taken for processing discharge, if required.

4. JUSTIFICATION:

A discharge focused bed strategy can increase inpatient volume without a subsequent increase in cost for the Hospital which can be a substantial improvement for the Hospital and it can also help hospitals better market themselves. Long discharge times in hospital causes prolonged unnecessary bed occupancy in a hospital. If the hospital decreases its discharge time then it could substantially increase its patient turnaround time and revenue as well as it can better serve the community by providing treatment to more number of patients. This can be achieved through proper discharge planning of the patient

5. LITERATURE REVIEW:

a. Prevention of delay in patient discharge process- an Emphasis on Nurse's role:

In this study by Peter R, Jessica E, Zaltmann G, planning for a patients post discharge care does not begin on the day when decision is made to release the patient from hospital. It is generally accepted that discharge planning should start before admission or at the time of admission. A combination of various factors like age, multiple pathology and organizational factors like lack of alternative forms of care facilities put patient at risk of delayed discharge. In this article the author provides strategies to improve nurse's participation in discharge planning.

b. The Discharge planning process / Process Improvement:

In the study by Shepperd S. et al, discharge planning is critical to ensuring rapid, safe and smooth transition from hospital to another care environment; it involves social work functions of high risk screening, social work assessment, counseling, locating and arranging services, consultation/collaboration, patient and family education, patient advocacy and chart documentation. It is a complex activity requiring a wide range of clinical and organizational skills to address needs of patient, family, and health care systems and to promote optimum functioning of patients, families and support systems. Delay factors may be internal like waiting for discharge summaries, external like convalescence, palliative care and psychological like social isolation of patient, inadequate support at home, lack of medical aids etc.

c. Research review on tracking Delayed Discharge:

In the study by Zehner, R.B. Moffitt R, a combination of individual, medical and organizational factors interact to put people at risk of delayed discharge. The Literature review identifies that older people, those with multiple pathology and those with some specific conditions such as neurological deficit are most at risk. In other words it is not the clinical conditions that are causing delay but how the organization is managing services to care for these particular groups.

6. METHODOLOGY:

A time motion study was done and patients' records were followed and the existing process was reviewed. It was a cross sectional study as data was collected from all the units of the hospital.. The study was conducted at Apollo BSR hospital during a period of 3 months from 10th February to 30th April.

STUDY RESPONDENTS: Nurse, discharge pool staff, duty doctors and administrative staff.

SAMPLING AND SAMPLE SIZE:

To review the current discharge process a sample of 300 patients was selected randomly during a period of 2 months i.e. 11 February 2014 to 11 April 2014. The goal was to follow minimum 50% of discharges occurring in the hospital every day.

- Steps taken during data collection:

- During the study all the discharges occurring daily in the hospital were followed.
- The discharges generally occurred starting at 10 am in the morning after the doctor's round of the wards, so I started keeping track of the discharges ordered by the doctors after their rounds were finished by asking the nurses and duty staff and checking the patient records, the data was cross checked with the doctors if there was any confusion.
- Daily minimum 50% of discharges occurring in the hospital were taken up as they were ordered by the doctor after their morning rounds and followed till whole process of discharge was completed for the file and time was noted for file at each step. If there was any confusion then it was cross checked with the hospital records and duty staff of the department.

STUDY AREA:

Data collection was done from the following wards of the hospital:

- Discharge pool- where the discharge summaries were made for the patient and it was approved by the duty doctor.
- Billing department- made bills for the patients and carried out auditing of the bill if required.

- TPA/Cashless department- here the patients who were either TPA (insured) patients or form the corporate with which the hospital had tie-ups for cashless treatment submitted their claims for cashless treatment, the claims after getting all the necessary documentation were sent to the respective TPA/Corporate for approval of the amount.

Table 1: Ward wise distribution of beds and discharges of the sample: n=300

Wards	Number of Beds	No. of Discharge processes studied
General Ward (Male Female, Oncology)	36	140
Private wards	12	40
Semi Private wards	20	32
Gynecology ward	12	33
Deluxe ward/Executive suites	6	0
Day Care ward	12	40
NRHM ward	10	15
Total	108	300

METHODS OF DATA COLLECTION:

- Time motion study
- Observation
- Informal Interviews

TOOLS OF DATA COLLECTION:

- Datasheet for recording data.
- Format for recording the time and movement of patient file.
- Informal Interview sheet

ETHICAL CONSIDERATIONS:

- The data collected from the records is kept confidential and anonymous.
- The anonymity, privacy and confidentiality of the respondents was ensured
- The data collected will only be used for research purposes.

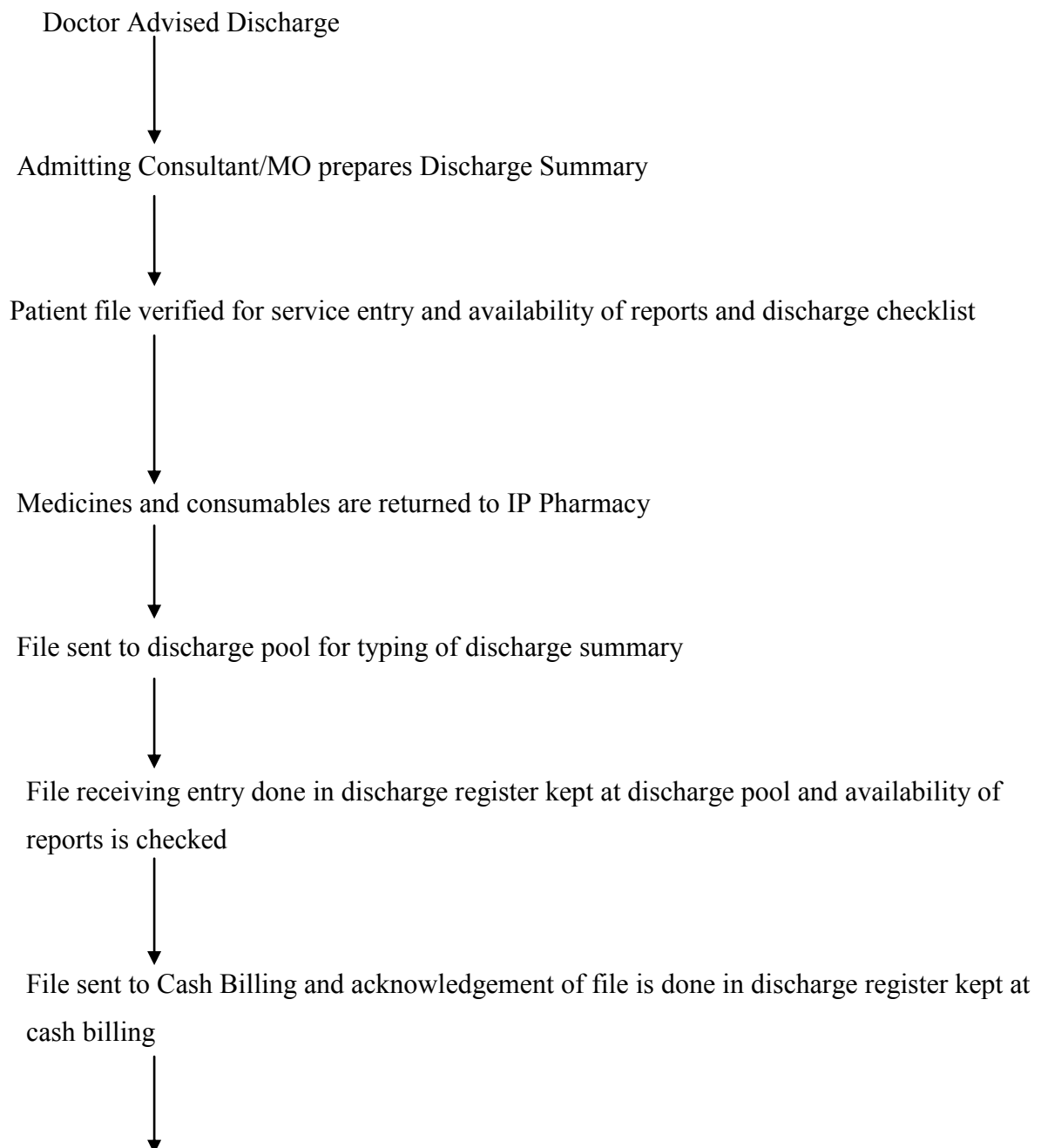
7. RESULTS:

As a first step of the study, normal discharge process of the hospital was studied from the SOP manual of the hospital and then the staff concerned was interviewed to get a better understanding of the process. The normal discharge process was:

DISCHARGE PROCESS AT APOLLO BSR HOSPITALS:

The normal discharge process at the hospital was studied from the SOP manual of the hospital and by interview with the admin staff which is as follows:

I. NORMAL DISCHARGE PROCESS:



Discharge summary typed in HMIS and provisionally sent to doctor for verification



If modification required then done in HMIS and final Summary printed and signed by consultant/ MO



Signed discharge summary sent to ward (If cash), Cash Billing (Corporate/TPA)

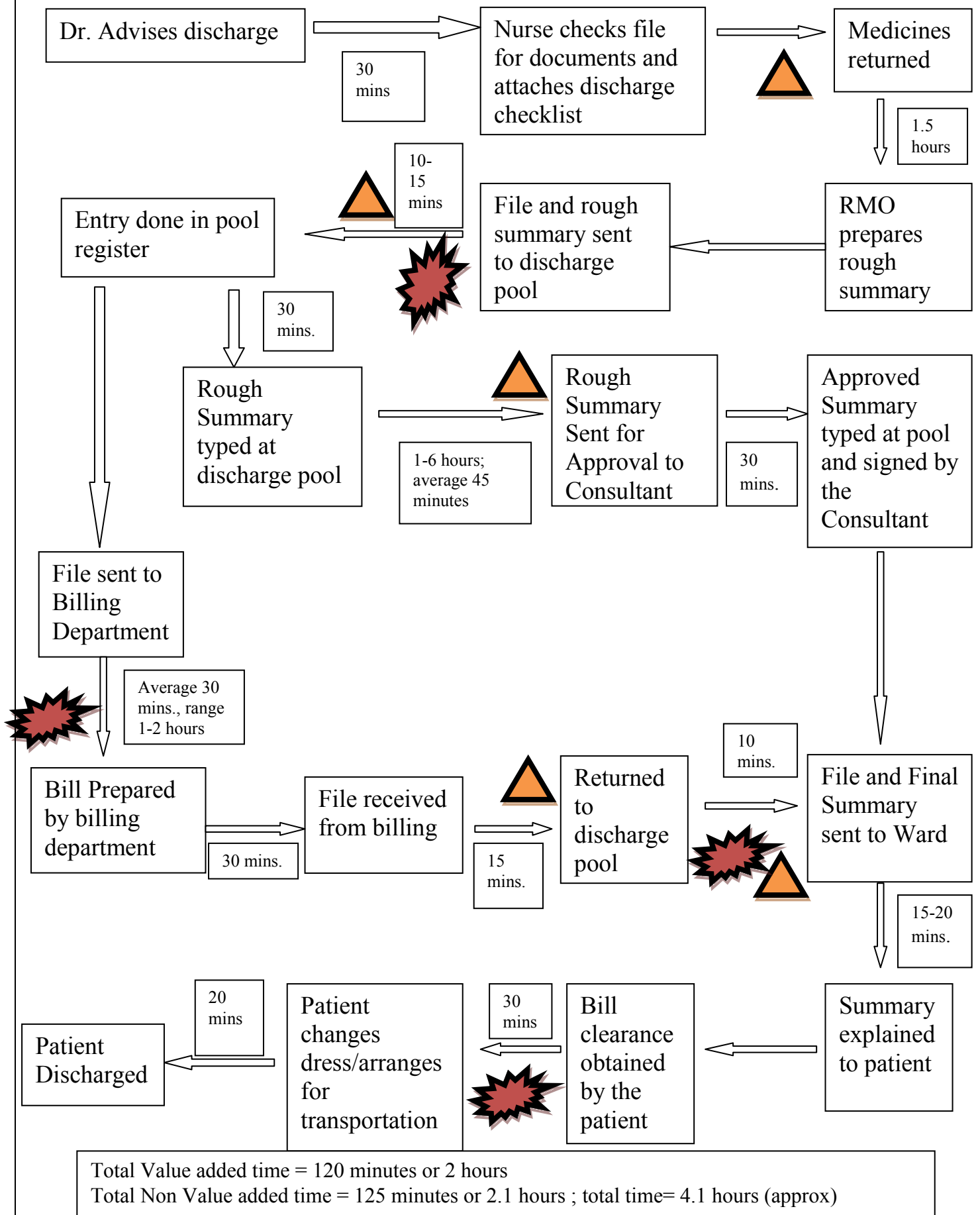
On the basis of the above processes we can derive the basic steps involved in discharge process which are:

- a. Consultant advises discharge.
- b. Consultant/ Mo prepares discharge summary
- c. File verified for entries and reports and discharge checklist prepared
- d. medicines returned
- e. file sent to discharge pool
- f. file receiving entry done in discharge register kept at discharge pool
- g. File sent to billing
- h. Summary typed in HMIS and provisionally sent to doctor for verification
- i. final discharge summary made after approval and signed
- j. Signed summary sent to ward or TPA/Corporate
- k. Patient discharged.

On the basis of the data collected we can draw a value stream map for the process to calculate the non value added and value added time in the process:

- On the basis of the value stream map constructed in fig.1 we can see that the value added time that is the time involved directly in the discharge process is about 2 hours in the current process. The value added time can be taken as for eg. The time needed in returning medications, time needed for generating bill, time needed for typing the discharge summary, bill clearance by patient and discharge summary explained to the patient.
- Non Value added time can be taken as the time in waiting or the time where the process or the file was stationary like when the attendant was waiting for the approval of the discharge summary by the consultant, or when the discharge summary was being finalized, or when patient is arranging for transportation and money or when RMO is writing rough discharge summary. It comes out to be around 125 minutes or 2.1 hours.
- The Triangles represent the steps where inventory is piling up in the process i.e. the files in this case are stationary and piling up at that step and if the step is improved then the process can be more stream lined
- The Banners represent “Kaizen bursts” which represent ideas for improvement of the process and which if applied at that step can lead to improvement in the overall process.
- This Value stream map gives us a fair idea about the average discharge time in the hospital for the complete sample of 300 patients along with the non value added and value added time in the process

Fig 1: Discharge process in the hospital



After getting an idea about the discharge process from the SOP of discharge process, the process was mapped and followed to get a thorough understanding of the discharge process and the staff involved in the process. After that a time motion study was carried out where the patient records were followed and time was noted at each step of the process for the study duration. The data was collected in a format given in the annexure and then analyzed on the basis of the general steps discussed above. Informal interviews with the staff were also carried out based on some points like time of the step on an average, functions of the staff in the process, average time of the discharge process according to them, what are the possible steps of delay in the process, which step causes biggest delay in the process and suggestion to improve the process and reduce discharge time.

- The hospital had set standard discharge time as 2 hours.
- The discharge time taken in the hospital was found to be about 4 hours on an average.

Table 2: Discharge time taken in the hospital and proportion of patients: (n=300)

Indicator	Time in hours	% patients	Difference as compared with the Standard discharge time
Average Discharge Time taken	4 Hours	16.3	2hr
Minimum discharge Time taken	2.25 Hours	3.1	0.25 hour
Maximum discharge Time taken	8.5 Hours	0.3	6.5 hours

For total sample of 300 patients, the Average discharge time comes out to be about 4 hours with a minimum time of 2.25 hours for 3.1% of cases and a maximum time of 8.5 hours for 0.3% of cases.

Table 3: Discharge time by wards (n=300)

Wards	Number of Beds	No. of Discharge processes studied	Average Discharge time
General Ward (Male Female, Oncology)	36	140	4 hours
Private wards	12	40	3.8 hours
Semi Private wards	20	32	3.87 hours
Gynecology ward	12	33	3.86 hours
Day Care ward	12	40	3.9 hours
NRHM ward	10	15	3.95 hours
Total Sample	102	300	

Even if we divide the discharge time between the wards to get a clearer picture, it can be seen from the above data in table 2 that no significant differences exist between different wards in the discharge time.

If we do an analysis of the discharge time for the proportions of individual discharge time we find a table as table 4.

Table 4: Percentage of individual discharge time in the sample n=300:

Discharge time	Percent of discharges of total sample n=300
2-2.9 hours	14.3%
3-3.9 hours	36.2%
4-4.9 hours	29.3%
5-5.9 hours	14.7%
6-6.9 hours	3.7%
7-7.9 hours	1.3%
8-8.9 hours	0.3%

When we see the breakup of discharge time for the sample according to time, we can see that maximum discharges are occurring in 3-3.9 hours (36.2%) followed by 4-4.9 hours (29.3%). Due to this distribution the average discharge time comes out to be about 4 hours.

For further Analysis the Discharge time of the patients were divided into:

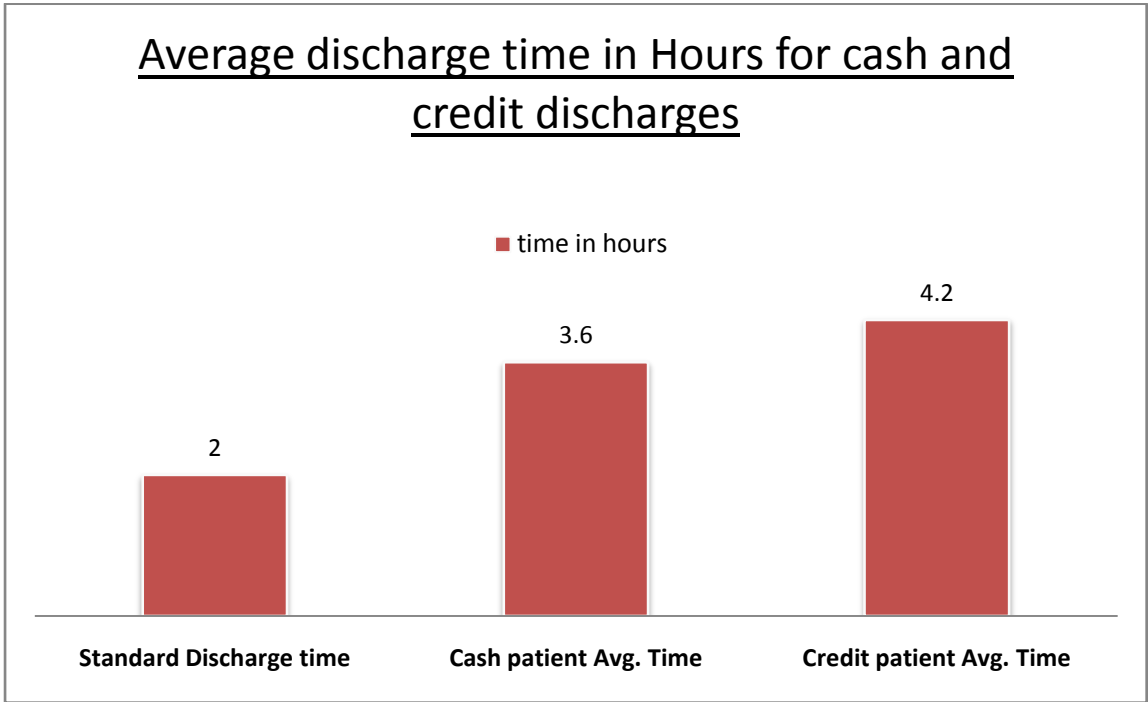
1. CASH PATIENT
2. CREDIT PATIENT

The discharges were also classified as:

- a. UNPLANNED DISCHARGE
- b. PLANNED DISCHARGE

We can see the average discharge time for the categories as:

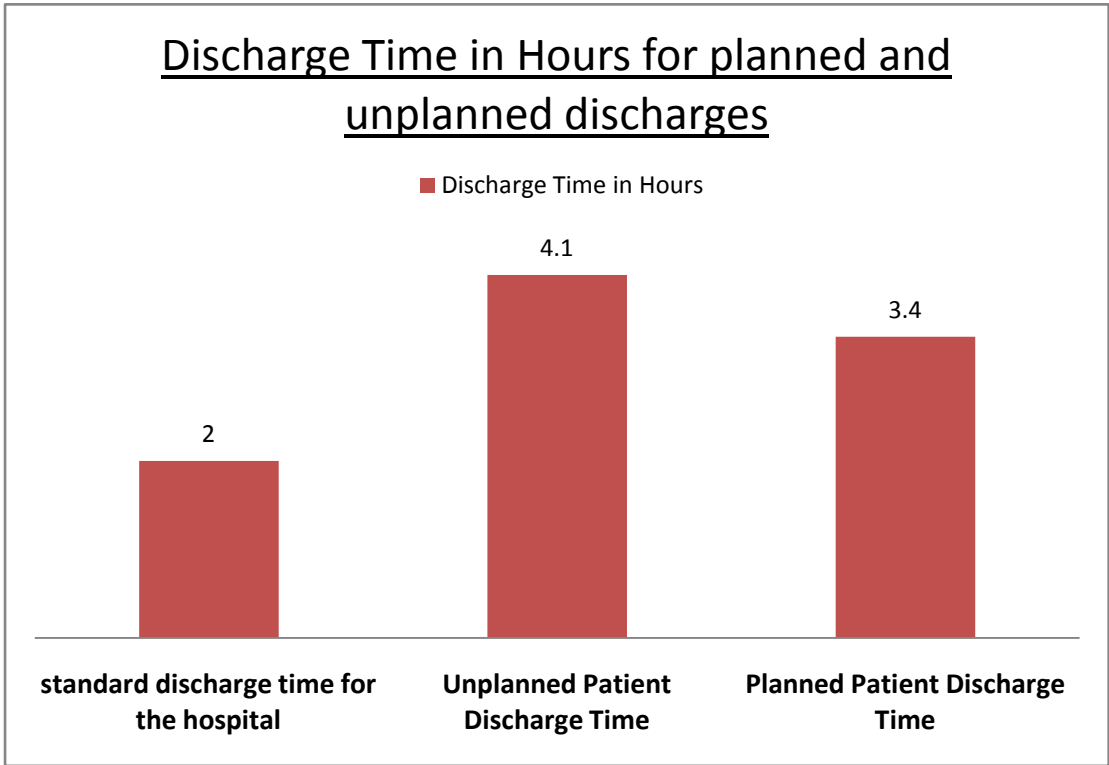
Fig 2: Discharge time by cash and credit:



- The discharge time of cash Patients was found to be 3.6 hours (there were about 145 cash patients) and for credit patients i.e. Cashless patients it was found to be about 4.2 hours (there were about 155 cashless patients) for total sample of 300 in the study duration.

The Discharge Time for Unplanned and planned discharges are:

Fig 3: Discharge time for planned and unplanned discharge patient:



- The Average discharge time for the sample was 4.2 hours
- The average discharge time for the patients with planned discharges was 3.4 hours, during the study there were about 62 patients with planned discharges.
- The Average Discharge Time for patients with unplanned discharge was 4.1 hours, during the study there were 238 patients with unplanned discharges.

The discharge time data was collected for a sample of 300 patients in the format provided (see annexure). The division of cash and credit was done only to give an idea about the difference in discharge time for the Cash patient and corporate patients. The Hospital also wanted to have an idea of planned and unplanned discharges occurring in the hospitals and their respective discharge times, so the data was also analyzed according to unplanned and planned discharge patient.

CASH PATIENTS:

Cash patients were those who paid the bills out of their own pocket, since they had no outer clearance or approval needed so their discharge time was lower. Out of a sample of 300, cash patients were about 145. For Cash Patient the findings from the discharge data were:

Table 5: Discharge time taken by the cash patients: (n=145)

Indicator	Time in hours	% Patients	Difference as compared with the Standard discharge time
Average Discharge time	3.6hours	N/A	1.6 hours
Minimum discharge Time	2.25 hours	5.6	0.25 hours
Maximum discharge Time	6.5 hours	3.4	4.5 hours

- For cash patient the Average discharge time came out to be about 3.6 hours for 16.1% of discharges with a minimum time of 2.25 hours for 5.6% of discharges and a maximum time of 6.5 hours for 3.4% of discharges.
- Many a times delay was caused by patient not having money or the hospital not informing the patient about the discharge beforehand so that he/she can arrange for money and transportation beforehand.
- On the day of discharge if the bill amount was large especially for chronically ill patient then it caused delay as the patient had to then arrange for the money and his/her transportation. This caused unnecessary delay and bed occupancy in hospital.

Table 6: Discharge time taken by Cash Patient by their Wards: (n=145)

Wards	Number of Beds	Average Discharge time
General Ward (Male Female, Oncology)	36	3.94 hours
Private wards	12	3.71 hours
Semi Private wards	20	3.95 hours
Gynecology ward	12	3.61 hours
Day Care ward	12	3.9 hours
NRHM ward	10	3.25 hours
Total Sample	102	

Table 7: Proportion of discharge time of the cash patients for the sample:

Discharge time	Percent of discharges of total sample n=145
2-2.9 hours	20.3%
3-3.9 hours	42.7%
4-4.9 hours	20.3%
5-5.9 hours	13.3 %
6-6.9 hours	3.4%

If we go ward- wise then also distribution of discharge time doesn't show much variation between the discharge times as evident from the following table 4.

If we see the percent wise distribution of the discharge time for cash patients, we can see that maximum discharges are occurring at 3-3.9 hour group which is almost 43 % of discharges. This implies that maximum no. of discharges are taking at least 3-3.9 hours time which is almost 2 hours above the standard discharge time of 2 hours which is set by the hospital.

CREDIT PATIENTS:

The Credit patients had to obtain approval from various organizations like TPA or corporate like ESIC, BHEL, BSP etc. which took around 2-2.25 hours on an average, this time was of significance as it was not in the control of the hospital and could not be decreased by hospital, any discharge planning for Credit patient must take into account 2-2.25 hours additional for the clearance from the TPA/Corporate. Credit patients were those who were having an insurance (TPA patient) or from the corporate with whom the hospital had tie-ups like ESIC, NSPCL, BHEL, BSP etc. for providing cashless treatment to their employees. Out of a sample size of 300 cashless patients were 155, the findings were:

Table 8: Discharge time taken by cashless patients; (n=155)

Indicator	Time in hours	% Patients	Difference as compared with the Standard discharge time
Average discharge time	4.2 hours	N/A	2.2 hours
Minimum discharge Time	2.5 hours	4.7	0.5 hours
Maximum discharge Time	8.5 hours	0.7	6.5 hours

- For Credit patients the average time for the discharge was about 4.2 for 20% of discharges hours with a minimum time of 2.5 hours for 4.7% and a maximum time of 9 hours for 0.7% of discharges.
- The average discharge time of credit patient was closer to average discharge time of the sample which may mean that the higher discharge time of credit patient was causing the overall higher discharge time of the sample.
- Delay in hospital side came normally from lack of discharge planning and interdepartmental co-ordination between the TPA and the nursing staff where the nursing staff didn't informed TPA about the impending discharge of a patient. If they were involved in planning discharge then the patient could have been informed beforehand about his/her discharge and necessary documents needed so that there is no delay for the need of documents from the patient side, also all the activities before sending the file for clearance and after getting clearance could have been made streamlined with increased co-ordination to decrease overall discharge time.

Discharge Process for Credit Patient Ward Wise is given in the following table 6; we can see that there is not much variation in the data when the time is analyzed ward wise for credit patient. For eg. There is not much variation in the data between General ward and Private ward which is 0.15 hours.

Table 9: Discharge time taken by Credit patient by their wards (n=155):

Wards	Number of Beds	Average Discharge time
General Ward (Male Female, Oncology)	36	3.90 hours
Private wards	12	3.75 hours
Semi Private wards	20	3.87 hours
Gynecology ward	12	3.73 hours
Day Care ward	12	3.93 hours
NRHM ward	10	3.15 hours
Total Sample	102	

If we see the discharge time of the sample of credit patients with their individual proportions, we can see that max. no. of discharges are occurring at 4-4.9 hrs almost 38% of total discharges followed by 3-3.9 hrs which is almost 30% of total discharges occurring in hospital. (see table 10)

Table 10: Proportion of discharge time for credit patient:

Discharge time	Proportion of the sample (n=155)
2.-2.9 hrs	6.6%
3-3.9 hrs.	30%
4-4.9 hrs.	38%
5-5.9 hrs.	16.7%
6-6.9 hrs.	6%
7-7.9 hrs.	2%
8-8.9 hrs.	0.7%

UNPLANNED DISCHARGE:

Here we took those patients as unplanned discharges that didn't had their discharge summaries made before hand and/or the nursing staffs was not informed prior to the day of discharge about the discharge of the patient by the doctor. We can see here that out of a sample of 300 patients almost 80% of the sample i.e. about 238 patients had unplanned discharges which signifies that there is much scope of reducing discharge time if discharge was planned by the doctor and care staff. For Patients with unplanned discharge the analysis is given below:

Table 11: Discharge time taken by unplanned discharge: (n=238)

Analysis of data	Time in hours	% Patients	Difference as compared with the Standard discharge time
Mean Discharge time	4.1 hours	N/A	2.1 hours
Minimum Time	2.25 hours	2.1	0.25 hours
Maximum Time	8.5 hours	0.4	6.5 hours

- For unplanned discharge the average discharge time comes out to be about 4.1 hours for 19% of discharges with a minimum time of 2.25 hours for 2.1% and a maximum time of 8.5 hours for 0.4% of discharges.
- Also the average discharge time of unplanned discharges came closer to average discharge time of the sample (i.e. 300 patients) of 4.2 hour which signifies that unplanned discharges were contributing more to the overall discharges in the hospital and if discharge planning was implemented then it could help decrease discharge time.

Table 12: Discharge time taken by unplanned discharges by their wards: (n=238):

Wards	Number of Beds	Average Discharge time
General Ward (Male Female, Oncology)	36	3.90 hours
Private wards	12	3.74 hours
Semi Private wards	20	4 hours
Gynecology ward	12	3.68 hours
Day Care ward	12	3.97 hours
NRHM ward	10	3 hours
Total Sample	102	

- When we distribute the data ward wise, we can see that there is not much variation in the data of discharge time between different wards and the data lies near the sample average time of 4 hours.

If we distribute the data for unplanned discharges to see the proportion of discharges according to each hr. we can see that maximum discharges are occurring at 3-3.9 hrs. (33.2%) followed by 4-4.9 hrs. (32.7%). It is evident that max. Proportion of discharge is occurring in 3-5 hrs which is far more than the standard of the hospital of 2 hr.

Table 13: Proportion of discharge time for unplanned patient:

Discharge time	Proportion of the sample (n=238)
2.-2.9 hrs	11.8 %
3-3.9 hrs.	33.2 %
4-4.9 hrs.	32.7 %
5-5.9 hrs.	15.5 %
6-6.9 hrs.	5 %
7-7.9 hrs.	1.2 %
8-8.9 hrs.	0.6%

PLANNED DISCHARGE:

We have taken those discharges as planned which had their discharge summaries made beforehand and/or the nursing staff was informed about the discharge of the patient; although making discharge summaries beforehand doesn't necessarily signified that the discharge was planned beforehand, since many a times even though the summary was made and approved previously, the doctor made another summary on the day of discharge or ordered modifications in the summary which lead to additional time for correction in the already made discharge summary or complete re-typing of the summary. Out of a total sample of 300 patients with planned discharges were 62, the analysis is as given below:

Table 14: Discharge time taken by planned discharges: (n=62)

Indicator	Time in hours	% Patients	Difference as compared with the Standard discharge time
Mean Discharge time	3.4 hours	N/A	1.4 hours
Minimum Time	2.25 hours	8.9	0.25 hours
Maximum Time	5 hours	7.1	3 hours

- The discharge time for planned discharges came out to be about 3.4 hours for 17.9% of discharges with a minimum of 2.25 hours for 8.9% and a maximum of 5 hours for 7.1% of discharges.
- The Average discharge time for the planned discharges was significantly lower than the average discharge time of sample of 300 patients i.e. 4.2 hours and it also had less variation as seen from the minimum and maximum discharge time values which signified that the discharge time could be improved with planned discharges and process improvement.

Table 15: Discharge time taken by Planned patients by their Ward: (n=62)

Wards	Number of Beds	Average Discharge time
General Ward (Male Female, Oncology)	36	3.96 hours
Private wards	12	3.65 hours
Semi Private wards	20	3.15 hours
Gynecology ward	12	3.45 hours
Day Care ward	12	2.5 hours
NRHM ward	10	3.15 hours
Total Sample	102	

We can see from the above table 10 that there is not much variation in the discharge time of different wards.

Table 16: Proportion of discharge time for planned discharge patient:

Discharge time	Proportion of the sample (n=62)
2.-2.9 hrs	28.5 %
3-3.9 hrs.	46.6 %
4-5 hrs.	24.9 %

If we see the proportion of discharge time for patients with planned discharge we can see that max. no of discharges are occurring in 3-3.9 hrs (almost 46% of the total planned discharges) which is significantly above the standard time of 2 hours for hospital which should be looked into since time for planned discharges should either be less or should be equal to standard time.

Discharge process step by step:

The discharge process was analyzed step by step as the hospital wanted to get a better understanding of the process and possible points of delay in the process. 5 major steps were chosen to analyze, which were:

1. discharge advised and file sent to discharge pool
2. File sent to billing from discharge pool.
3. File received from Billing
4. File received in ward
5. Final discharge summary approved and received in ward.

The discharge process stages are:

Stage One: The patient's mental and physical conditions are evaluated by the attending physician and nursing staff, with particular focus on whether or not the patient can safely return to his or her original living situation.

Stage Two: The discharge planner explains the doctor's evaluation to the patient and any available caregivers, focusing on future care, including whether to transfer the patient to his or her own home, that of a family member, a nursing home, or rehabilitation facility.

Stage Three: The discharge planner will now begin to personalize the patient's plan, discussing any necessary caregiver training, possible third party care, and whether any extra equipment (such as wheelchairs or breathing assistance devices) will be necessary.

Stage Four: The discharge planner may now recommend third-party facilities or home care services that are available to suit the patient's needs, taking into consideration geographic, religious, language, and/or cultural issues that might affect quality of care.

Stage Five: This final phase is designed to ensure that the appointed caregiver has all the information necessary to carry out the task at hand, including a summary of the hospital stay, a list of medications, and important contact information in case of questions or concerns. There may also be a discussion about potential warning signs in the event that a patient's condition should worsen.

These steps were chosen and then the available data of discharge time for 300 patients was analyzed to see which of these steps were causing the most delay in the process and how much time was needed at each step on an average. These gave a better understanding of the process and it came out that the steps of file sent to discharge pool then to billing, then file again received to discharge pool from billing and then sent to ward could be eliminated completely and file could be directly sent to billing form the ward and then received form billing to ward leading to a reduction of 1 hour in the discharge process. The hospital agreed to look into the process and improve the SOP of the process so the modifications can be made operational as soon as possible.

The analysis of these 5 major steps is as follows.

1. Discharge advised and file sent to discharge pool:

In this step after the discharge is advised by the doctor the file is sent to discharge pool but before sending the file to discharge pool duty nurse attaches a discharge checklist in the file and checks the file for service entries.

Table 17: Time taken between discharge advised and file sent by the ward to discharge pool:

Indicator	Time in hours	% Patients
Mean Discharge time	1.13 hours	N/A
Minimum Time	0.5 hour	5.8%
Maximum Time	3 hours	0.3%

- When Doctors advised discharge, the duty nurse checked the file for all the reports and documents and attached a discharge checklist with the file; she also returned the unused medicine through the HMIS to the pharmacy.
- After this the duty doctor prepared a rough Discharge summary based on the prescription of the patient and its reports. When all of this was completed the file was sent to discharge pool.
- Many a time the doctor advised discharge summary to be prepared before advising discharge, the biggest problem in this step was doctors not mentioning the discharge time which made it difficult to track the discharge of the patient and the time had to be estimated based on the feedback from Nurses and RMO.
- It was observed that nurses would call the RMOs after they finished their work of attaching discharge checklist to make rough summary, if the RMOs would have been present in the wards all the time then they could have prepared Rough summary side by side when Nurses were returning medicine and attaching Discharge checklist which would have reduce the time.
- Also during the study periods it was observed that sometimes the RMOs didn't prepare adequate discharge summary or left it blank which was then completed by discharge pool staff which were not qualified to do so, while informal interviews with the staff it was learnt that this happened many times and the discharge pool staff would then correct the rough summary from the information from HMIS, this should be looked into.

2. File Sent to Billing from Discharge Pool:

In this step the file is sent to billing department from the discharge pool by the discharge pool staff and time is noted in the records kept at discharge pool.

Table 18: Time taken between File Sent to Billing from Discharge Pool:

Indicator	Time in hours	% Patients
Mean Discharge time	0.14 hours	N/A
Minimum Time	.083 hours	4.4%
Maximum Time	1.45 hours	0.3%

- In this step the file was sent to billing department for constructing bill from the discharge pool. Entry was made in the discharge pool register about the time when file was received from nursing station.
- This step can be removed altogether to save time in the Discharge Process. During informal Interviews with the discharge Pool staff also it was suggested that this step can be removed and the file can be sent directly to Billing department as sending the file to discharge pool is of no any immediate advantage and it only adds to the no. of records kept at Pool; it also requires extra work for the attendants which are already busy in getting the summary approved from the Consultants; the attendants have to make extra round especially for the file from the pool to billing department along with the Consultants chamber. These extra rounds add to delays in getting the summary approved by the Consultant which is the core function of the Discharge pool staff.
- The Max. Time of 105 minutes was only in 1 case where 1 investigation report was missing from the file and it had to be searched before sending the file for billing.

3. File received from billing:

In this step file is received from billing department by discharge pool staff after bill is prepared by the billing department and time is mentioned at the register kept at discharge pool for record keeping of the hospital.

Table 19: Time taken in receiving File from billing:

Indicator	Time in hours	% Patients
Mean Discharge time	0.5 hours	N/A
Minimum Time	0.083 hours	0.3%
Maximum Time	2.25 hours	0.3%

- In this step the file was received from billing department after the bill was prepared and returned to the discharge pool. Entry was done in the discharge pool register of the time of receiving of file from the billing department.
- This step also can be removed along with the previous step and file can be directly sent to billing from the wards and received directly from the billing and returned to wards. Removing this step along with the previous one will help decrease discharge time and reduce workload on attendants of discharge pool.
- Problems in this step arise when the patient was admitted for a long time and when the patient was discharged the billing department had to calculate all the expenses from day 1 to day of discharge which could even be 1 month in some cases. This increased workload on billing department and increased probability of mistakes, which lead to time wastage in re-audit of bill and caused negative publicity for the hospital.
- Also if the billing amount was large and the patient had not been informed previously then the patient may not have had the whole of the amount prepared at the time of discharge which lead to delay in depositing the amount and delay in vacating the bed which in turn lead to high discharge time for the Hospital.
- This could be corrected by daily or twice/thrice weekly audit of bill for the patient so that there is not much workload and no errors on the day of discharge. The patient could also be informed beforehand about large amounts and can be instructed to deposit large amount in small installments from the day of admission, this would lead to reduced weight of

payment on patient and reduced discharge time and problems for the hospital on the day of discharge.

4. File sent to ward:

In this step the file is sent to ward from the discharge pool and the person receiving the file signs and mentions the time of receiving the file in the register kept at discharge pool for hospital records.

Table 20: Time taken in sending File to ward from pool:

Indicator	Time in hours	% Patients
Mean Discharge time	0.30 hours	N/A
Minimum Time	0.083 hours	3.4%
Maximum Time	2.90 hours	0.3%

- In this step the file was sent to ward from discharge pool after receiving from billing department and entry was done in the discharge pool register about the time of receiving of the file in the ward by the person who received the file from the discharge pool attendant.
- Files can be received directly by ward attendant from the billing department instead of going through the discharge pool attendant which can lead to more streamlined process and decreased discharge time.
- Maximum time of 2.90 hours (175 minutes) was found only in 1 case where there was shortage of attendants on the day with much workload on only 1 attendant.

5. Receiving of approved discharge Summary at the ward:

In this step the time is noted of the time required in the approval of discharge summary, from the time when the rough discharge summary is made by the duty doctor and handed over to discharge pool staff till the final approved discharge summary signed by consultant is received in the ward.

Table 21: Time taken in receiving of approved discharge Summary at the ward:

Indicator	Time in hours	% Patients
Mean Discharge time	2.1 Hours	NA
Minimum Time	5 minutes	0.4%
Maximum Time	6.5 hours	0.4%

- In this step the approved final discharge summary was sent to the ward after being approved by the Consultant.
- When consultants advised discharge, the duty doctors/RMO prepared a rough discharge summary which is then sent to the Discharge Pool along with the patient file where it was printed and sent for approval from the consultant. Once approved, it was then printed finally and then signed by the admitting Consultant and then sent to ward. Entry is made in the discharge Pool register about the summary timings.
- In this process the main delay was in getting summary approved by the Consultant, if the discharge is preplanned then the discharge summary could be prepared and printed beforehand and then it can be approved easily on the day of discharge which may lead to decreased approval time
- A medical transcriptionist can be hired for typing discharge summary; this may help in reducing the errors in discharge summary and may also decrease the no. of rough discharge summaries made to get approval from the Consultant, since the consultant would then sign on the 1st copy itself due to reduced errors.
- In addition to this daily updating of discharge summary can be done while the patient is admitted. This helps in reducing workload on the day of discharge and reducing the no. of errors in discharge summary. The consultant could directly sign on the completed summary along with the discharge orders on the day of discharge.
- The duty doctors should be encouraged to make complete discharge summary so that the discharge pool staff is not involved in making discharge summaries.

Suggestions:

- a. Documents for billing can be sent directly to billing department and file and summary document can be sent to discharge pool so that both the processes can be started simultaneously. Decreasing the time and distance travelled by the whole file.
- b. Consultants should be included in the discharge process and efforts should be taken to increase planned discharges.
- c. Supervision of Duty Doctors, so that they finish rough discharge summary on time and write complete discharge summary so that the discharge pool staff doesn't have to re-check the entries in the system, this saves time for the discharge pool staff when they are typing discharge summary.
- d. A medical Transcriptionist can be hired who can prepare and print discharge summary. This will lead to decreased errors in typing of discharge summaries and will reduce the no. of rough discharge summaries needed to get final approval from the Consultant.
- e. The discharge summary can be updated either daily or in every 2 days so that time can be saved on the day of discharge and the discharge summary can be approved by the consultant straightaway.
- f. Daily updating of bill can be done along with daily audit of the bill of the patient and patients can be asked to deposit small amounts every 2-3 days which will help reduce burden of bill on patients and reduce the time patient occupies bed while arranging money.
- g. Inter departmental co-ordination can be increased so that all the concerned departments (Duty Doctor, Consultant, TPA/Corporate Billing, Cash Billing, Nursing Staff and Discharge Pool) know about the discharge of the patient before hand and can be prepared with the formalities and documentation for the discharge.
- h. An assistant could be hired for Consultants who are very busy; this assistant would be from medical field and will co-ordinate with the consultants for the discharge process and could approve it on their behalf after getting their permission when Consultants are in OT or in lunch. The junior doctors can be attached to the senior consultants if assistants could not be hired, these junior doctors can use the signed rough discharge summary by the Consultant and can sign the Final discharge summary on the Consultant's behalf if the consultant is busy.
- i. Duty doctor can sign the rough summary along with its notes at the time of discharge. This can be used by the junior doctors and they can sign the final discharge summary.

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ANNEXURE

Format for recording data on file movement:

S.no	Ward	Type	Discharge Advised	Sent to discharge pool	Sent to billing	Received from billing	Sent to ward	Rough discharge summary made	Approved discharge summary received in ward	Final discharge	Remarks	Name of Doctor

- All the data was recorded in hh:mm format.

Checklist for the informal interviews:

1. Do you think that the existing discharge process is adequate?
2. What is the average discharge time of the hospital?
3. What is your role in the discharge process?
4. How much time on an average do you take in completing your function?
5. Are you satisfied with the process and/or your assigned duties?
6. What are the problems you face in completing your duties in the process of discharge?
7. What are the suggestions to correct these difficulties?
8. Which are the major causes and points of delay in the process of discharge?
9. What can be done to improve these problems in discharge process?
10. Suggestions, if any?