

Quantitative Study to Analyze the Discharge process among IP Patients in Sun Medical and Research Centre, Thrissur

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How to cite this article:

Shibilamol C Baby/Quantitative Study to Analyze the Discharge process among IP Patients in Sun Medical and Research Centre, Thrissur/RFP Journal of Hospital Administration. 2022;6(1):9-17.

Abstract

National Accreditation Board for Hospitals and Health Care Organizations (NABH) has set a standard of 180 minutes for the completion of the discharge process. Hence, maintaining an acceptable level of discharge time provides competitive edge to the organization. Hospital discharge process is one of the very lengthy procedures. Discharge time taken by hospitals is an important indicator of quality of care and patient satisfaction. The patient as well as his relatives is eager to resume their routine life immediately and any undue delay in the discharge process leads to patient dissatisfaction and takes a toll on image of the hospital, even after a successful and satisfactory treatment. The present study was undertaken to analyze the discharge procedure system in the institution. The main objectives of the study were to explore problems faced by patients and employees during the discharge procedure and to improve the quality of health care facility by reducing average discharge time. The design used for this was comparative design. The setting of the study was Sun Medical Research Centre, Thrissur. Convenient sampling was utilized to collect data from 69 subjects, who meet the inclusion criteria. The tool used for this study was discharge process time analyzing checklist. The study was conducted from 14/3/2022 to 18/3/2022. The collected data were analyzed on the tabular and graphical analysis. The findings of the study revealed that the total average time taken for unplanned discharge was 3:56 hr and the planned discharge was 4:10 hr. While comparing the insurance and non insurance patients, average discharge time was increased among non insurance patient's 4:01 hr and 3:17 hr in insurance patients. In planned discharge, total average time delay was 4:10 hr. Average discharge time was increased among non insurance patient's 4:38 hr and 3:41hr in insurance patients. The most average time delay was observed in discharge summary department (1.56 hr), insurance and bill settlement time (1.43 hr), (1.24 hr) pharmacy department. The study explored the problems faced by patients and employees during the discharge procedure. Findings of the study are useful for the HCO to improve the quality of the institution. The study results are helpful to the quality department to improve the quality, to identify the patient's, employee's problems and create an action plan to reduce the problems at the time of discharge. The action plan includes the all department included in discharge procedure.

Keywords: Discharge Process; NABH.

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Received on: 01.05.2022

Accepted on: 01.06.2022

INTRODUCTION

Background of the Study

NABH defines, discharge as 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.¹ National Accreditation Board for Hospitals (NABH) has set a standard of 180 minutes for the completion of the discharge process. Hence, maintaining an acceptable level of discharge time provides competitive edge to the organization.² Hospital discharge process is one of the very lengthy procedures. Discharge time taken by hospitals is an important indicator of quality of care and patient satisfaction. The patient as well as his relatives is eager to resume their routine life immediately and any undue delay in the discharge process leads to patient dissatisfaction and takes a toll on image of the hospital, even after a successful and satisfactory treatment. Delay in discharge of the patient also increases the pressure on beds of the hospital and 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. So, effective strategies must be in place to solve this issue.³

NEED AND SIGNIFICANCE OF THE STUDY

Inadequacy in discharge planning, preparation of readiness, and unplanned readmissions are closely linked and could cause misutilization of hospital services, creating higher costs to the health care system. The information given before discharge is vital and of great importance for the well being of the patient. Delays in the discharge of the hospital ward patients cause a backlog for new admissions from the Emergency Department, and transfers from the Intensive Care Units and wards.⁶ This bottleneck unnecessarily increases troubles in quality of institution and also negatively impacts patient care and satisfaction. Therefore, our internal quality department aimed through this quality improvement project, to decrease the time between discharge orders and patients leaving from each department with satisfaction. We conducted this study to analyze the discharge procedure system of the institution and find out the faults from each department in Sun Medical and Research Centre, Thrissur. The main purpose of the study was to identify barriers; to plan and implement an appropriate multidisciplinary initiative; to measure the impact of the intervention on efficiency of discharge process. The result can help to improve the quality of health care facility.

STATEMENT OF THE PROBLEM

Quantitative study to analyze the discharge process among IP patients in Sun Medical and Research Centre, Thrissur.

OBJECTIVES

- To analyze the discharge procedure system in the institution.
- To explore problems faced by patients and employees during the discharge procedure.
- To improve the quality of health care facility by reducing average discharge time.

ASSUMPTIONS

The average discharge time may negatively increase or positively decrease among the insurance and non insurance patients.

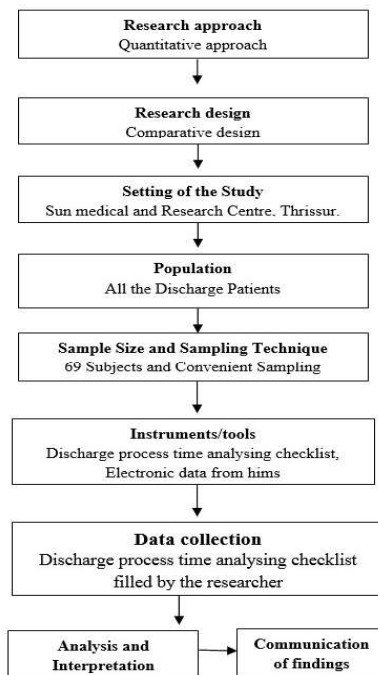
REVIEW OF LITERATURE

A study was carried out in General medicine and General Surgery wards of inpatient department of SKIMS. It was an observational type of study where in all the patients who got discharged in the said wards from 10am to 4pm daily (Except Sundays) were observed for Discharge process including average time taken and the existing Discharge Process in SKIMS was compared with National board of Hospitals and health care organization (NABH) standards and objective elements. The results shows that, A total of 710 Discharged patients were observed during the study period which includes 417 patients from General surgery department and 293 patients from General medicine side. The results shows that the average time taken for discharge process was 240 minutes for those who had a planned discharge and had to pay out of pocket (Self Payment). It was 255 minutes for those who had been discharged against medical advice (DAMA) while it was 270 minutes for below poverty line (BPL) patients who had to exempt hospital charges. The discharge time for all types of discharges was higher when compared to NABH criteria's. The results clearly indicate that average time taken for all types of discharges in SKIMS is more than prescribed NABH criteria. SKIMS as per the observations is following many objective elements of standards AAC 13 and 14 but discharge process and time needs to be defined and documented. The SKIMS should formulate a policy

regarding a discharge process of a hospital wherein steps and time taken should be clearly defined and all measures should be taken in order to adhere to NABH standards.²

A study was conducted in the period from January 2013 to July 2014, three process change initiatives were undertaken at a major UK hospital to improve the patient discharge process. These initiatives were inspired by the findings of a study of the discharge process using Soft Systems Methodology. The first initiative simplified time consuming paperwork and the second introduced more regular reviews of patient progress through daily multi disciplinary "Situation Reports". These two initiatives were undertaken in parallel across the hospital, and for the average patient they jointly led to a 41% reduction between a patient being declared medically stable and their being discharged from the hospital. The third initiative implemented more proactive alerting of Social Care Practitioners to patients with probable social care needs at the front door, and simplified capture of important patient information (using a "SPRING" form). This initiative saw a 20% reduction in total length of stay for 88 patients on three wards where the SPRING form was used, whilst 248 patients on five control wards saw no significant change in total length of stay in the same period. Taken together, these initiatives have reduced total length of stay by 67% from 55.8 days to 18.6 days for the patients studied.⁵

METHODOLOGY



Research Approach

Research approach adopted for the study depends on nature of the problem. A quantitative approach was used in this study

Research Design

Research design selected for this study was comparative design

Variables

Variables are considered for this study were health status, disease condition and financial status of the sample

Setting of the Study

The setting of the study was Sun Medical and Research Centre, Thrissur. It is 150 bedded hospital. The study was conducted at 3 wards (238,268,363) in the hospital.

Population

Populations of the study were all discharge patients.

Accessible Population

Accessible population was all discharge patients who are admitted in 3 wards (238,268,363) in Sun Medical And Research Centre, Thrissur.

SAMPLES

All patients who is fulfill the inclusion criteria

Inclusion criteria

- Samples who are admitted in 3 wards (238,268,363) in SMC
- Samples who are available during data collection period
- Samples who are discharged during this time period.

Exclusion criteria

- Samples Who are not available during data collection period

Tools and Technique

The tool of the study includes

Section-A, Basic information about the patient, Section-B Discharge process time analyzing checklist.

DATA COLLECTION PROCESS

The data collection was carried out for a period from 14/3/2022 to 18/3/2022. The formal permission to conduct the study was obtained from NABH coordinator, SMC thrissur. Discharge process time analyzing checklist was used to collect the data from various departments who is included in discharge process. Discharge process time analyzing checklist includes verbal order time of physician, summary documented time by doctor, final correction time from discharge summary dept, IP billing time entered by nurse, IP billing time, insurance clearance time, counter bill settlement time, discharge medicine settlement time from pharmacy, counseling time from CP department, vacate time of patient. The data was collected through the electronic data from HIMS. It helps to enhance the reliability and validity of data collections to reduce bias. Remaining data was collected from corresponding department. Each discharge was systematically analyzed during the date of discharge from the order of physician to

vacate time of patient.

PLAN FOR DATA ANALYSIS

The discharge process time analyzing checklist was reviewed by the researcher. The data's collected from the toolkit was analyzed and sort it into planned and unplanned discharge. Each discharge elements were compared to each other. The time delay between each element was separately calculated and average time was generated according to dates. The average discharge time was organized under two topics (insurance and non insurance discharge).

ANALYSIS AND INTERPRETATION

Organization of the Data

The data were analyzed and interpreted by using thematic analysis. Findings were organized under the following sections.

PLANNED DISCHARGE

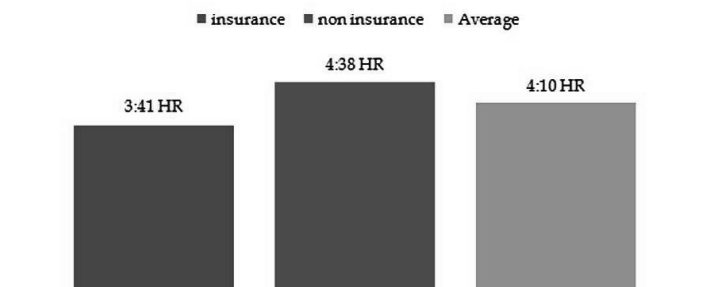
Average Time Delay B/N Verbal Order of Physician, Summary Documented By Doctor	
24 hr advance	3 HR
Delay on DOD	35 MIN
Advance on DOD	36.6666667 MIN

Average Time Delay B/N Summary Documented By Doctor, Final Correction From Discharge Summary Dept	Average Time Delay B/N Verbal Order By Doctor, Ip Billing Entered By Nurse
Delay 2:11HR	0:14MIN
Advance 1:30HR	2:06HR

Average Time Delay B/N Ip Billing Entered By Nurse, Ip Billing Time	Average Time Delay B/N Ip Billing Time, Insurance Clearance Time	Average Time Delay B/N Ip Billing Time/ Insurance Clearance Time, Counter Bill Settlement Time	Average Time Delay B/N Counter Bill Settlement Time, Discharge Medicine From Pharmacy	Average Time Delay B/N Discharge Medicine From Pharmacy, Counselling Time From Cp Department
1:22HR	1:48HR	0:59MIN	2:57HR	0:10MIN

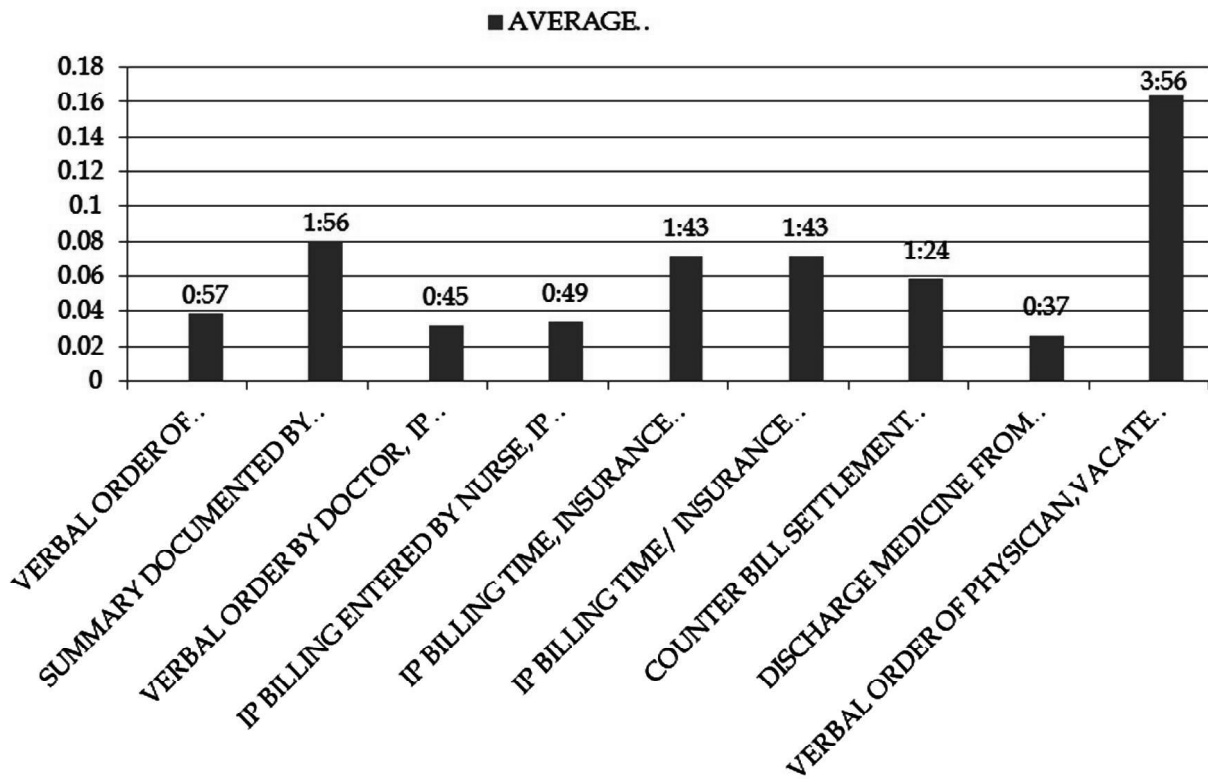
Average Time Delay B/N Verbal order of Physician, Vacate Time of Patient	
Insurance	3:41HR
Non insurance	4:38HR
Average	4:10HR

VERAGE TIME DELAY B/N VERBAL ORDER OF PHYSICIAN,VACATE TIME OF PATIENT



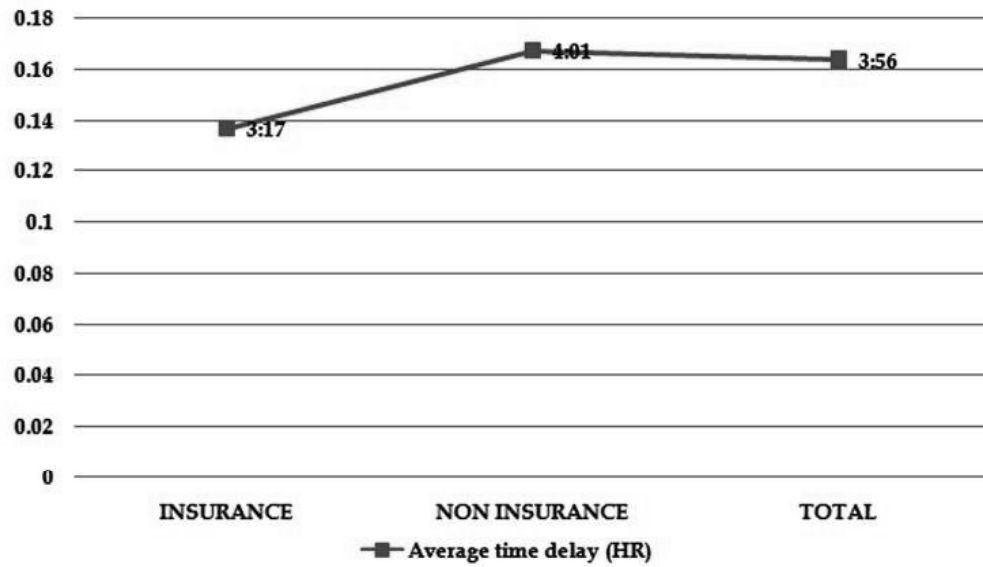
Unplanned Discharge

Date	Average Time Delay B/N Verbal Order of Physician, Summary Documented By Doctor	Average Time Delay B/N Summary Documented By Doctor, Final Correction From Discharge Summary Dept	Average Time Delay B/N Verbal Order By Doctor, Ip Billing Entered By Nurse	Average Time Delay B/N Ip Billing Entered By Nurse, Ip Billing Time	Average Time Delay B/N Ip Billing Time, Insurance Clearance Time	Average Time Delay B/N Ip Billing Time/ Insurance Clearance Time, Counter Bill Settlement Time	Average Time Delay B/N Counter Bill Discharge Medicine From Pharmacy	Average Time Delay B/N Discharge Medicine From Pharmacy, Counselling Time From Cp Department	Average Time Delay B/N Verbal Order of Physician, Vacate Time of Patient
14/03/2022	0:52	1:44	0:27	0:45	2:26	1:14	1:50	1:52	4:02
15/03/2022	1:10	2:20	1:04	1:02	1:18	1:44	1:50	0:15	3:44
16/03/2022	0:44	1:44	0:30	0:47	2:01	1:48	1:24		4:21
17/03/2022	1:09	1:58	1:09	0:58	2:09	1:42	1:21	0:09	4:06
18/03/2022	0:48	1:55	0:37	0:34	0:43	2:07	0:36	0:15	3:30
Total Average	0:57 MIN	1:56HR	0:45MIN	0:49MIN	1:43HR	1:43HR	1:24HR	0:37MIN	3:56HR



Date	Insurance	Non Insurance	Total
14/03/2022	4:07	4:00	4:02
15/03/2022	2:41	3:46	3:44
16/03/2022	2:58	4:19	4:21
17/03/2022	3:50	4:22	4:06
18/03/2022	2:51	3:38	3:30
Total	3:17HR	4:01HR	3:56HR

Un planned discharge



1 a. Association of average time delay b/n verbal order of physician and summary documented by doctor with summary documented by doctor and final correction from discharge summary dept

Day	1 and 2	2 and 3		
Day 1	0.52	1.44		
Day 2	1.1	2.2	DF	4
Day 3	0.44	1.44	P -Value	0.992803
Day 4	1.09	1.58		
Day 5	0.48	1.55		

Table 1 a. Shows that statistically, (P value 0.992803) there is no significant relation linking the average time delay b/n verbal order of physician and summary documented by doctor with summary documented by doctor and final correction from discharge summary dept

1 b. Association of average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n summary documented by doctor and final correction from discharge summary dept

Day	1 and 11	2 and 3		
Day 1	4.02	1.44		
Day 2	3.44	2.2	DF	4
Day 3	4.21	1.44	P -Value	0.988129
Day 4	4.06	1.58		
Day 5	3.3	1.55		

Table 1 b. Illustrates that, (P value 0.988129) there is no significant association connecting the average time delay b/n verbal order of physician and

vacate time of patient with average time delay b/n summary documented by doctor and final correction from discharge summary dept.

1 c. Association of average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n IP billing entered by nurse and IP billing time.

Day	1 and 11	4 and 5		
Day 1	4.02	0:45		
Day 2	3.44	1:02	DF	4
Day 3	4.21	0:47	P -Value	0.999993
Day 4	4.06	0:58		
Day 5	3.3	0:34		

Table 1 c. Shows that, (P value 0.999993) there is no associations bounded the average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n IP billing entered by nurse and IP billing time.

1 d. Association of average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n counter bill settlement time and discharge medicine from pharmacy.

Day	1 and 11	7 and 8		
Day 1	4.02	1:50		
Day 2	3.44	1:50	DF	4
Day 3	4.21	1:24	P -Value	0.999904
Day 4	4.06	1:21		
Day 5	3.3	0:36		

Table 1 d. Projects that, (P value 0.999904) there is no

association enclosed by the average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n counter bill settlement time and discharge medicine from pharmacy.

1 e. Association of average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n IP billing time and insurance clearance time.

Day	1 and 11	5 and 6		
Day 1	4.02	2:26		
Day 2	5.02	3:26	DF	4
Day 3	6.02	4:26	P -Value	0.999994
Day 4	7.02	5:26		
Day 5	8.02	6:26		

Table 1 e. Shows that, (P value 0.999994) there is no association linking the average time delay b/n verbal order of physician and vacate time of patient with average time delay b/n IP billing time and insurance clearance time.

RESULTS

Unplanned Discharge

- In accordance with the total average time taken for unplanned discharge was 3:56 hr and the planned discharge was 4:10 hr.
- The most average time delay was observed between summary documented time by doctor and final correction time from discharge summary dept that was 1:56 hr.
- There was an equal distribution of time delay 1:43hr among IP billing time and insurance clearance time. Similarly between IP billing time/insurance clearance time and counter bill settlement time.
- 1:24 hr time delay was displayed between counter bill settlement time and discharge medicine settlement time from pharmacy.
- Whereas the average time delay among verbal order time of physician and summary documented time by doctor was 0:57min, 0:49 min between IP billing time entered by nurse and IP billing time.
- Correspondently, average time delay between verbal order time by doctor and IP billing time entered by nurse was 0:45min.
- The least time delay was shown in between 2 elements, discharge medicine settlement time from pharmacy and counseling time from CP department that was 0:37 min.

- While comparing the insurance and non insurance patients from 14/03/2022 to 18/03/2022, average discharge time was increased among non insurance patient's 4:01 hr and 3:17 hr in insurance patients by comparing NABH policy.

Planned Discharge

- In the category of planned discharge, total average time delay was 4:10 hr. Discharge time was elevated among non insurance patient's 4:38 hr whereas 3:41hr in insurance patients.
- With the reference to the average time delay among verbal order time of physician and summary documented time by doctor. They documented the discharge summary 24 hr in advance for only 3 patients out of 7 planned discharges. 35 min advance on the day of discharge in some cases and 36.6 min delayed to document the summary in few cases.
- Average time delay was observed between last doctors rounds and final correction time from discharge summary dept, that was documented 1:30 hr in advance and delayed about 2:11hr.
- According to the average time delay between verbal order by doctor, IP billing entered time by nurse was 14 min and 2:06 hr in advance.
- The average time delay between IP billing entered time by nurse and IP billing time was 1:22 hr, whereas 1:48 hr time delays among IP billing time and insurance clearance time.
- 59 min was delayed between 2 departments that were IP billing time/insurance clearance time and counter bill settlement time. But the counter bill settlement time and discharge medicine settlement time from pharmacy was 2:57hr and the least 10 min time delay among pharmacy and CP department.

DISCUSSION

- Institution must implement the proper unidirectional plan for both planned and unplanned discharge.
- The communication among each department who is included in the

- discharge procedure must be improved.
- Proper documentation
 - ❖ Doctors verbal order of discharge by nurse
 - ❖ patient vacating time documented in nurse's progress note and handover report
 - ❖ IP bill documentation by nurses
 - Supervision and auditing must be improved by in charges to reduce wrong documentation and early identification of errors.
 - Proper plan of discharge from doctor's side is a helpful decision to improve the quality of discharge procedure.
 - Division of work must be implemented in pharmacy and discharge summary department.
 - Doctors initiates to give summary correction in between the OP patients consultation.
 - Doctors should cooperate with the discharge summary process by giving correction on time and make sure the finalization of summary.
 - Doctors must use the eligible handwriting and the medicine should write in capital letters.
 - Give preference to LAMA, insurance, death cases and should be communicated to other department.
 - Nurses make sure the clients are returning their medicine before 5 pm. It could reduce the rush in billing section after 5 pm.
 - Reduce the staff shortage of pharmacy is a good concern to manage the busy schedule in pharmacy.
 - One staff is appointed to give special attention to the discharge medicine settlement in afternoon section to smooth completion of discharge medicine billing.
 - Previous IP pharmacy slot can converted in to discharge medicine counter or the discharge medicine settlement process was shifted to IP pharmacy.
 - Proper staff management must be implemented in pharmacy.
 - Most important need of a pharmacist is rechecking and dispensing the medicines, so the other staff can concentrate the remaining duties.

- Nurse can communicated the proper information about purchase return, discharge medicines (which medicine, amount of medicines they purchase) to bystander. It can reduce the confusion of clients during purchasing and minimize the time in pharmacy.
- Most of the patients are didn't consult the CP department. Nurse must educate about the importance of CP counseling and the clients didn't get enough time to cover that department also because of the delayed discharge process.

SUMMARY

The present study was undertaken to analyze the discharge procedure system in the institution. The main objectives of the study were to explore problems faced by patients and employees during the discharge procedure and to improve the quality of health care facility by reducing average discharge time. The design used for this was comparative design. The setting of the study was Sun Medical Research Centre, Thrissur. Convenient sampling was utilized to collect data from 69 subjects, who meet the inclusion criteria. The tool used for this study was discharge process time analyzing checklist. The study was conducted from 14/3/2022 to 18/3/2022. The collected data were analyzed on the tabular and graphical analysis. The findings of the study revealed that the total average time taken for unplanned discharge was 3:56 hr and the planned discharge was 4:10 hr. While comparing the insurance and non insurance patients, average discharge time was increased among non insurance patient's 4:01 hr and 3:17 hr in insurance. In planned discharge, total average time delay was 4:10 hr. Average discharge time was increased among non insurance patient's 4:38 hr and 3:41hr in insurance patients. The most average time delay was observed in discharge summary department and pharmacy department.

CONCLUSION

The study explored the problems faced by patients and employees during the discharge procedure. Findings of the study are useful for the HCO to improve the quality of the institution. The study results are helpful to the quality department to improve the quality, to identify the patient's, employee's problems and create an action plan to reduce the problems at the time of discharge. The

action plan includes the all department included in discharge procedure.

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