

## SYMPOSIUM

## EVIDENCE BASED HOSPITAL ADMINISTRATION : DO THE ADMINISTRATORS NEED RESEARCH ?

## OUR GUEST EDITOR

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## Streamlining the Computerized HIS based Patient Discharge Process: A Problem Solving Technique

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**Abstract:** Following increased levels of competition and the emphasis on consumerism, patient satisfaction has become an important measurement for monitoring the health care performance. Hospital discharge process is one of the vital indicators of satisfaction among patients. The discharge process represents the final contact between the patient and the hospital health professionals, and the outcomes of all procedures undergone by the patient are recorded at this stage. Today, delay in discharge process has emerged as one of the major problems. Discharge delays create an upstream tidal wave of patient flow constraints. Similar problems were faced at Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, India, 868 bedded tertiary care hospital. This first public sector tertiary care hospital in India run by fully computerized HIS, intended to go for a problem solving process to increase patient satisfaction by minimizing problems related to discharge. This paper aims to find out the main reasons for delay in discharge and thereafter recommend the remedial measures. A prospective observational study through questionnaire based interview was done in April-May 2014. A sample size of doctor (30), nurse (30) and patients discharges (30) were taken for observation and interview in the hospital. The time taken and various steps involved during the discharge were observed and prioritized, Problems were identified and recommendation were made to solve the problem/improvement. It was observed that patient discharge took average 05 hours (range 3-8 hrs.) for patients to get complete discharge from the hospital. Main factors responsible for the delay were observed as: materials billing (HRF) (60%), HIS system (technical) directly affecting the billing (38%), Internal transport (approx 2%). Further analysis of the HRF revealed that 70% of delay was caused due to HIS itself and 30% other reasons (inadequate number of counters, less manpower, etc.). **Conclusion:** The state of the art Hospital Information System which was initially developed with the hope of accelerating the hospital process has emerged as one of the major delaying factors due to technically deficient in the discharge process. **Recommendations:** Improve the HIS in the hospital with possibly more billing counters and increased manpower at each level to decrease the waiting time of patients to increase patient satisfaction.

## INTRODUCTION

Patient satisfaction has been an important issue for health care managers. Following increased levels of competition and the emphasis on consumerism, patient satisfaction has become an important measurement for monitoring health care performance.

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Hospital discharge process is one of the vital indicators of satisfaction among patients. The discharge process represents the final contact between the patient and the hospital health professionals, and the outcomes of all procedures undergone by the patient are recorded at this stage. Today, delay in discharge process has emerged as one of the major problems. Discharge delays create an upstream tidal wave of patient flow constraints which negatively impacts patient satisfaction, safety, hospital capacity, and financial performance. Discharging patients from the hospital is a complex process that is fraught with challenges. Discharge from the hospital is the point at

which the patient leaves the hospital and either returns home or is transferred to another facility such as one for rehabilitation or to a nursing home. The hospital discharge is a handoff, ripe embedded structural risks and hazards that can result in passive or active failures among “sharp end” providers. The discharge process represents the final contact between the patient and the hospital health providers, and the outcomes of all procedures undergone by the patient are recorded at this stage. Improving the quality of the discharge process should therefore lead to an increase in patient satisfaction. Any complexity in the discharge process can lead to lot of inconvenience to the patients and their relatives. Similar situation was faced by Sanjay Gandhi Post Graduate Institute of medical Sciences Lucknow India (SGPGIMS ), a tertiary care institution where delay in discharge process , has emerged as one of the major issues creating lot of inconvenience to patients.

## METHOD

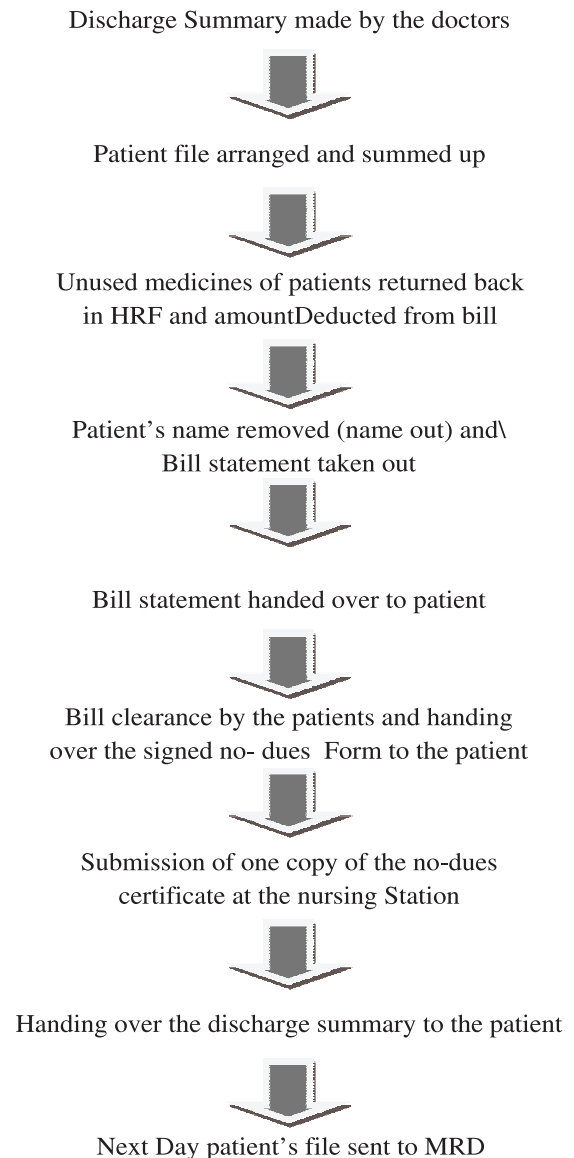
A prospective observation based study, through questionnaire based interview was performed in the month of March- April, 2014 to study various causes for delay in discharge procedure. The study was carried out in mainly five Departmental wards of the hospital: Neurology, Gastro- surgery, Nephrology, Urology and Cardiology. In order to enquire about various reasons for delay, pilot study of around 30 health care providers (Doctors, Nurses, patients) was performed. A sample size of 90 (30 Patients, 30 Nurses and 30 Senior Residents) was taken to carry out the present study. To perform this study, three different questionnaires were designed (one each for Senior Residents, Nurses, patients). The questionnaires identified the viewpoints and the attitudes of the hospital personnel and the patients regarding the factors effecting the discharge process, as well as their ideas on how to improve the discharge process in SGPGIMS and reduce the discharge process time. For time measurement, patients 45 patients were tracked by patient number and were selected after doctors had ordered their Discharge. The patients were followed throughout the process of discharge to measure their waiting time in each station. The average waiting time was calculated for each ward in the whole discharge process. The phases of discharge process were determined by interviewing the staff. Various O.R. methods were used to do the final analysis of the collected and the available data.

## OBSERVATIONS, RESULTS AND DISCUSSIONS

SGPGIMS, Lucknow is a 868 bed tertiary care superspecialty hospital. It is a premier public medical research institute in north India. The institute is dedicated to quality tertiary care at an affordable cost. Over the years, it has strived to become a robust centre of excellence for providing super specialty care, medical education and research facilities of highest order. The institute was established under an Act of state legislature of Uttar Pradesh in 1983, and functions as a university. The institute had catered approximately 42141+ 318627 outpatients and 35,188 inpatients per year. More than 2628112 investigations were done on these patients . On an average, in a year, about 8734 surgical procedures are performed including more than 134 renal transplants in 2013.

## TOTAL TIME TAKEN IN THE DISCHARGE PROCESS

In order to find total time taken, by the patients in the discharge



*Figure: Discharge Summary Process*

process, 30 patient discharges in the period of March-April 2014 were followed in SGPGIMS . On the basis of these, the average time calculated was based on the major factors causing delay in Discharge. The factors were: Total time taken in HRF, Total time taken in the accounts section for billing, Total waiting time for internal transport ( wheelchairs, stretchers etc.)On further analysis, it was found that average time taken in HRF was 4.8 hours(Time range varies from 4 hrs to 7 hours), average time taken in Billing (accounts)was 3.1 hours( Time range varies from 2hours to 6 hours), average waiting time in waiting for Internal Transport: 0.7 hours(Time Range varies from 0.5hour to 2 hours). The average time taken in the total discharge process is 5.6 hours ( range 3-8 hrs )

## VARIOUS PROBLEMS FACED DURING THE DISCHARGE PROCESS

The study was further categorized on the basis of problems faced by nursing staff, problems faced by senior residents and those faced by

the patients. On detailed analysis it was found that in appropriate Hospital Information system emerged as one of the major causes for the delayed discharge process. Besides this less manpower, lack of time to the staff, in appropriate and lesser number of internal transport facilities also emerged as major issues for concern.

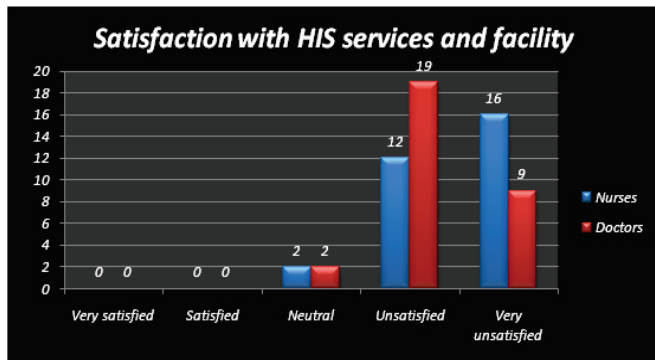


Fig.1 Satisfaction with HIS services

HIS was installed with an aim to streamline and automate the routine procedures of the hospital. It was found that 63% of the doctors and 40% of the nursing staff were not satisfied with present functioning of facility. 30% of the doctors and 53% of the nursing staff were thoroughly disappointed with this facility.

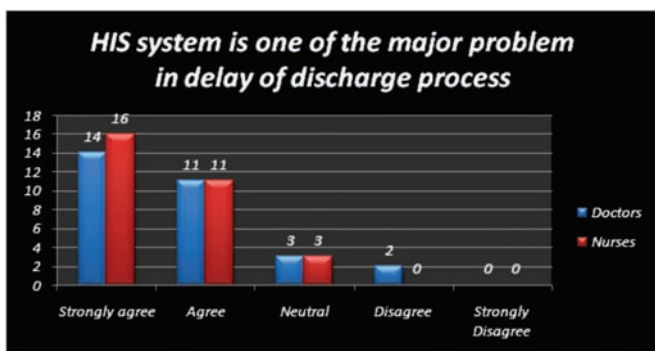


Fig.2 Represents HIS as major cause for delay

47% of the doctors and 53% of the nursing staff are convinced that HIS is the major player causing substantial delay in the discharge procedure. 37% of the doctors and nursing staff were of the view that HIS could well be a potent cause of delay in the discharge of the patients from hospital.

The study reveals that about 37% of the patients and 40% of the nursing staff are of the view that HRF process takes 4-6 hours whereas around 30% of the patient and nursing staff were of the opinion that HRF process consumes up to 6-8hours. Around 24% patients and nursing staff acknowledged a delay of 2-4 hours in HRF process.

The study shows 37% patients and 33% of the nursing staff claimed that clearance of bill can take up to 2 hours, however 30% of the patients and 37% of nursing staff were of the opinion that clearance of bill may take up to 4 hours. 20% of the patients also claimed that settlement of bills took more than 4 hours the fact was acknowledged by 23% of the nursing staff.

The study reveals that about 57% of the patients and 60% of the nursing staff attributed the delay of 1-2 hours in discharge procedures due to non-availability of facilities like wheel chair, 28% patients and 27% of the nursing staff claimed the delay upto 2-4 hours.

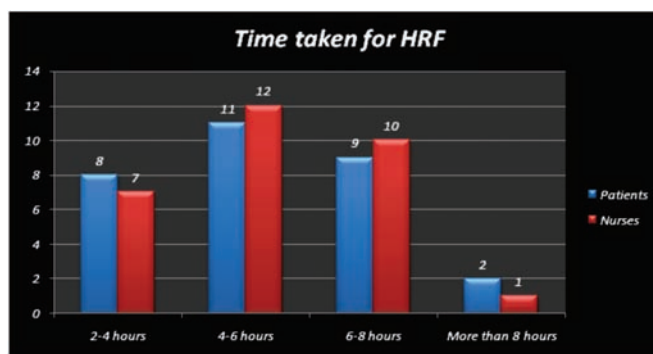


Fig.3: Total time taken in HRF

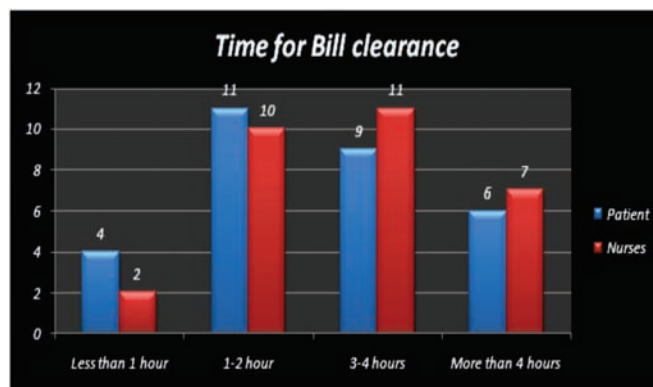


Fig.4: Time taken in bill clearance

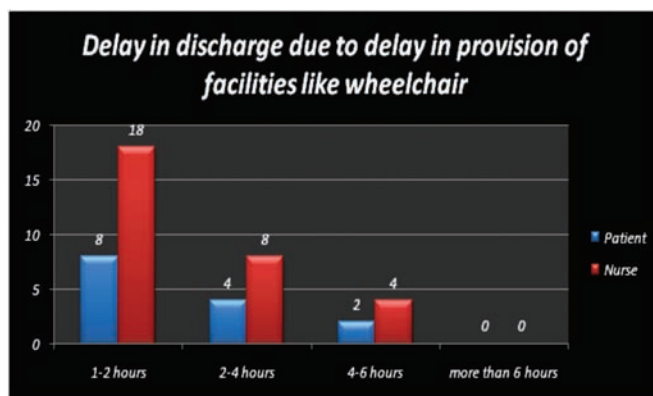


Fig.5: Delay caused due to Internal transport facilities

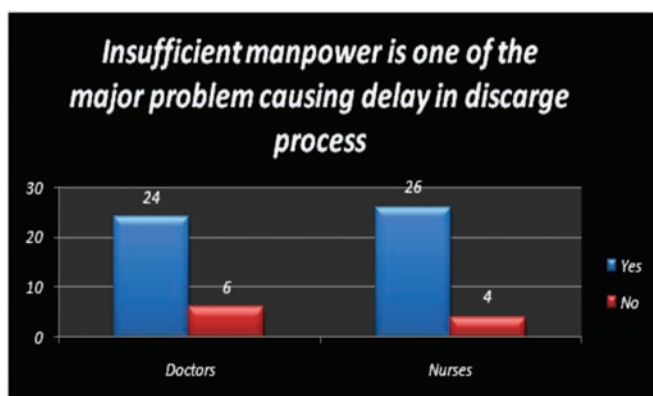


Fig.6: Graph showing insufficient manpower

80% of the doctors and 87% of the nursing staff are opinion that insufficient manpower in various departments is one of the primary reasons of delay in discharging the patients.

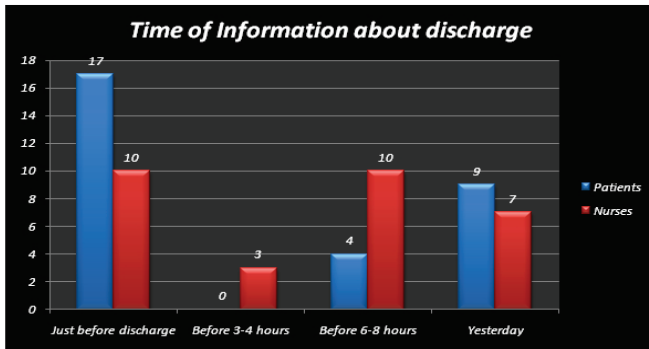


Fig.7: Information about discharge

The study reveals that about 56.7% of the patients were informed about their Discharge in advance, others at the last minute. The fact is corroborated by 33% of the nursing Staff. About 13% of the patients and 33% of the nursing staff agree that intimation about discharge was provided 6-8 hours prior whereas 30% patients and 23% of the nursing staff were affirmative that they had knowledge of the discharge a day prior.

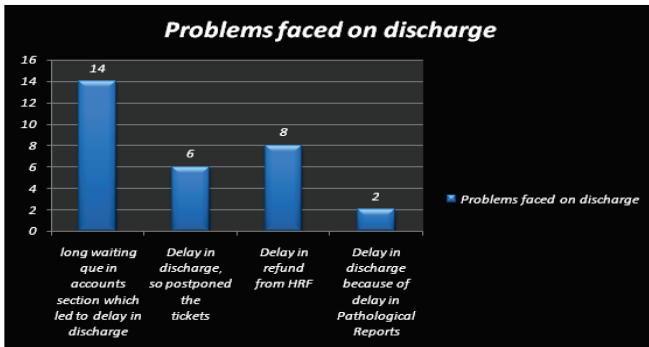


Fig. 8: Problems faced by the patients during discharge process

Long waiting queue in accounts for clearance of bill is the major contributor to the delay in discharge procedure in 47% of the cases, in 20% of the cases the patients had to get their tickets postponed due to avoidable delay in discharge procedure. The study also brought out that in 27% of the cases, the delay was attributed to refund procedure associated with HRF. In 7% of the cases delay in receipt of pathological reports resulted in delayed discharge.

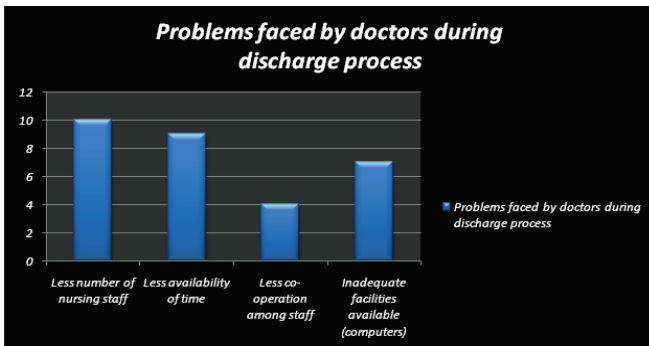


Fig.9: Problems faced by the doctors during discharge process

33% of the doctors felt that lesser number of nursing staff aggravates the discharge procedure. 30% of the doctors blame lesser time available to them which results in delayed discharge of the patients, 23% also attributed the delay to inadequate facilities like computers and related peripherals. 13% of the doctors are of the view that lack of co-operation amongst various department adds to the delay in discharge of the patients.

## CONCLUSION

HIS server has emerged as the primary cause of delay in discharge procedure, various technical procedures exist to overcome the same. Total quality management is the key for success of any hospital. Bench marking of various processes for their times costs are very important factors leading to patient satisfaction. The present study can help in Bench Marking the procedures/process time of Discharge, in SGPGIMS. This study is useful to determine the number of specialists required in order to provide optimum service, better usage of equipment, materials, human resource skills and technology. It should be kept in mind that reduction in time for various activities associated with Discharge is the key. Business Process Re-engineering (BPR) for various internal methods and procedures can bring strategic advantages to a hospital in future plans. Adoption of latest technology can make all the difference.

## RECOMMENDATIONS AND DISCUSSION

The hospital technical staff should aim at improving the uptime of HIS server through technical solutions like auditing the hospital network or installation of redundant servers. The hospital administration should explore the possibilities of a speedier bill clearance system to enhance patient satisfaction and reduce the overall Discharge cycle time.

Increase in number of counters in the accounts section is recommended to make billing process easier for patients. It is recommended that basic infrastructural inventory like wheel chairs, stretchers etc should be catered in sufficient number so as to escape the avoidable delay. SGPGI is one the premier medical institute of the country, recruitment of required manpower in each department would not only improve patient to nursing staff ratio but also but also enhance the patient satisfaction levels leading to an increased investment of faith in the institute and friction-less inter working of the various departments. It is recommended that the hospital administration should take constructive measures to promote synergy, harmony and better coordination among various departments. Ward rounds should be scheduled in a way that allows, at least daily, for a senior resident to review all patients. Information should be captured throughout the hospital stay, not just at the time of discharge or after the discharge order has been issued by the physician.

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