

Streamlining the Hospital Discharge Process in a Tertiary Care Hospital with a Holistic Approach

^[1]Dr. G.V. Khyathi ^[2]Ms. Aileen J ^[3]Dr. H S Srivatsa

^[1]Postgraduate Student, Department of Hospital Administration, M S Ramaiah University of Applied Sciences

^[2]Assistant Professor, Department of Hospital Administration, M S Ramaiah University of Applied Sciences

^[3]Head of the department, Faculty of Management and Commerce, M S Ramaiah University of Applied Sciences

^[1] khyathigadag@gmail.com ^[2] aileenj.ha.mc@msruas.ac.in ^[3] srivatsa.ms.mc@msruas.ac.in

Abstract— There is an enormous need to improve the efficiency of the health care services to the best possible extent such that they can reach near perfection in their administrative activities. One such area that needs to be streamlined is the hospital discharge process, which has many sub processes. The time taken for discharge has always been a major factor while assessing the patient satisfaction in a hospital. A hospital discharge demonstrates the trouble of inter-organizational activities within a multifaceted health care structure which can be best solved by using multi-method innovative approaches.

Key Words: Hospital Discharge Process, Streamlining, Turnaround Time, Patient Satisfaction

I. INTRODUCTION

The required volume of health care services is almost the same size of the human population, as the need of healthcare services start from the moment they are born and continues throughout their life time. A healthcare system can be defined as “A set of facilities and organizations that participate in providing services that relate to individuals’ health and well- being.” [1] The total hospital experience of any inpatient can be alienated in three distinct phases, namely admission, intervention, and discharge. Hospital discharge is considered as one of the multiple changeovers within the drive of patient’s care [2].

1.1 Challenges in Hospital Discharge Process

Exclusively, hospital discharge demonstrates the difficulties of inter-organisational procedures within a multifaceted health and care structure. National policies suggest that [3] Inappropriate or weakly planned discharge processes can result in patient risks, additional resource costs, delayed recovery and readmissions. Hospital discharge is as a result understood as a ‘vulnerable stage’ in the care trail that exemplifies the prospects for ensuring patient safety situated between care positions.

1.2 Hospital Discharge Planning

Discharge planning is defined as “An ongoing process that facilitates the discharge of the patient to the appropriate level of care. It involves a multidisciplinary

assessment of patient/family needs and coordination of care, services and referrals” [4]

The formation of a plan relies greatly on interaction between the physician, nurses, patient, family, and other healthcare experts and any essential long period care amenities. Discharge planning is afflicting from lack of information, poor contact and harmonization between sharp and long-lasting care [5].

1.3 Quality in Health Care

Hospital is a vital sector in the service industry. Today, everybody is anxious about the superiority of Health Care amenities and the term “Quality” becomes an indispensable element that is very much required in the health care atmosphere to keep the errors as minimal as possible. In the course of achieving Quality, each process in the Hospital wishes to be optimized to the fullest contentment of the patients [6].

There are numerous Quality tools, nevertheless, the most famous ones are “the seven basic quality tools” identified by Ishikawa (1976): “Histograms, Cause and Effect Diagrams, Check Sheets, Pareto Charts, Flow Charts, Control Charts and Scatter Diagrams”. These tools are sufficient for data compilation and scrutiny.

1.4 Patient Satisfaction - SERVQUAL

“SERVQUAL” was developed by Parasuraman et al. (1985; 1988), and has been widely accepted and made use of it as a common instrument that confines the multidimensionality of service excellence. The pragmatic testing which gave out five dimensions, which are:

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Tangibles, Reliability, Responsiveness, Empathy and Assurance

This study aims to identify the gaps in the hospital discharge process by studying the existing discharge process and analysing those gaps by using quality control tools to streamline the process and to assess patient satisfaction level during hospital discharge by using SERVQUAL model. Based on the analysis of these two parameters recommendations are given on how to streamline the entire discharge process such that the work flow is improved and turnaround time can be reduced and areas which need to be focused to elevate patient satisfaction.

II. METHODOLOGY

The research carried out was a cross sectional study which was exploratory and post facto in nature for a period of six months, from January 2016 to June 2016 in a tertiary care hospital in Bangalore. The process mapping was carried out for a period of two months with a sample of 185 patients for the entire discharge process for planned as well as unplanned hospital discharges which brought out the core problem areas. The entire discharge process was stratified into 5 main areas where in key processes of discharge takes place. With these stratified areas real time recording of the turnaround time (TAT) of the discharge process was carried out for a period of two months incorporating all the hospital discharges taking place from 8 AM to 6 PM, with a final population size of 185 patients. Secondly, patient satisfaction questionnaire which comprised of 13 questions in the form of 5 point likert scale, from strongly disagree (1) to strongly agree (5) was prepared. A pilot study was carried out to see the telephonic response for 30 samples, out of which 21 had responded. A factor analysis method, varimax (orthogonal rotation method) was carried out for the entire population in the SPSS where in 4 factors were eliminated to interpret the data better. Finally 9 variables were selected and the questionnaire (Appendix-1) was modified.

III. RESULTS AND ANALYSIS

The process mapping was done for a period of two months for 185 samples. The samples were followed throughout the process starting from the doctor's order for discharge till bill clearance. After mapping the core problem areas were identified and based on the process mapping and the hospital HIS software, the stratification of steps was done for recording hospital discharge TAT. The entire hospital discharge process was broken down into 5 major steps which run down serially as follows; mark patient for

discharge, discharge summary preparation time, return of medication, pharmacy clearance and bill clearance. The hospital discharge turnaround time has been segregated for self-pay and insurance patients; 136 patients for self-pay and 48 patients for insurance.

The total over all mean of TAT for insurance patients is 293 mins. By plotting a Pareto's chart it can be observed that most of the time for insurance patients is consumed at the bill clearance area which is about 61% of the overall time consumed. It is a known fact that there is an involvement of external factor for insurance patients, where there is involvement of a third party administrator involved. The hospital currently does not have a TPA desk in their billing area which needs to be there to minimize the time and complications in bill payment. The next two areas which are considered to be important are the discharge summary preparation time and the time taken to return the medication which take up about 11% and 12% respectively. The total over all mean of TAT for self-pay patients is 157 mins. In the Pareto's chart for the self-pay patients the major area which needs attention is the bill clearance area, which even includes the pharmacy clearance as well.

For getting a better output in the results only the departments having more than 10 cases have been taken into consideration of comparisons amongst the departments. All the departments selected for comparison and analysis are highlighted in green and the least time taken in violet and the most time taken in red. The average time taken to mark for discharge was least for general surgery cases which were 16 mins and the highest is for internal medicine which was 45 mins. The reason which can be attributed for taking such a long time is due to deficiency of the nurses in the internal medicine section. Due to excess load of work and more number of cases, the nurses delay the process of marking discharge in the HIS. Another reason is the lack of systems in the nursing station which delay the process. The discharge summary preparation time taken is the least for the OBG department which accounts to 9 mins and the highest for integrated liver care. Firstly, the reason why OBG department takes the least time is due to the planned discharges whether the discharge summary is kept ready well in advance by the doctors. Secondly, the consultants in the OBG department themselves do the discharge summary instead of the duty doctors. For return of medications the least time is taken by the OBG department which is about only 3 mins, the reason again being only planned discharges wherein the medicines are returned well in advance. On the other hand, the Gastroenterology cases take the most amount of time i.e, 41 mins. The least time taken for

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pharmacy clearance is by the General Surgery department and the most by OBG and for bill clearance is least by Internal Medicine and the most by OBG. Both pharmacy clearance and Bill clearance are noted to be highest of OBG as most of the cases are insurance covered which is the major reason for delay. After finding out the major gaps from the process maps and the TAT of the hospital discharge process, cause and effect diagrams were made to bring out all the problem areas leading to delay. Analyzing all five parameters, benchmarking was undertaken to appropriate least time taken during the discharge process.

Now coming to the Patient Satisfaction Assessment, factor analysis was carried out where in the variables were grouped under empathy, reliability and responsiveness for factors 1 2 and 3 respectively. The highest significance for empathy is given for patient ambience (.718), for reliability is timely discharge summary (.843) and response to queries (.765) for responsiveness. The other two individual variables under factor 4 and 5 have very high significance values .849 and .918 respectively, which can be grouped under reliability and assurance respectively. By this it can be said that Patient ambience, Timely discharge summary, Response to queries, Clarity in post discharge instructions and Intimation of discharge completion time plays a very important role in the patient satisfaction and is perceived very significant by the patients. Along with factor analysis the means of the results obtained was calculated as well.

IV. DISCUSSION

After the entire analysis it is clear that there are major problems in the processes are pertaining to pharmacy clearance, discharge summary preparations and bill clearance. The turnaround time for the average time for self-pay patients was calculated to be 157 mins (2 hours 37 mins) which definitely needs improvement. On the other hand average time for the insurance patients was calculated as 293 mins (4 hours 53 mins). Since the billing for insurance is not in the hands of the hospital the main focus should be to improve the internal processes. The next most crucial area which needs improvement is the hospital discharge summary preparation time. The paper "Reducing and optimizing the cycle time of patients discharge process in a hospital using six sigma DMAIC approach"[7] also brought out that one of the major reasons for delay is the discharge summary preparation. The mean TAT recorded in the study for the hospital was the mean 234.35 minutes and they kept the target of 135 minutes. In another study

"Improving Patients Discharge Process in Hospitals by using Six Sigma Approach" had a purpose to minimize the percentage of insured patients whose discharge time from hospital above 50 minutes [8].

While carrying out analysis department wise, the most TAT was observed in the OBG department and the least in the gastroenterology department. Though the OBG department has the least time taken for the discharge summary preparation and return of medications the overall TAT is very high because, firstly they were mostly insurance covered and secondly the new born baby celebrations are performed before discharging the patients. In the study "Improving the Hospital Discharge Process with Six Sigma Methods"[9], conducted in Ohio, Orthopedic surgery discharges took much longer on average than other discharges because of mandated physical therapy in the afternoon. This therapy was being used partly to assess whether the patients were ready for discharge. By comparing the departments the best practices of the departments can be adopted to improve the process in the lacking areas.

The hospital discharge patient satisfaction questionnaire which was attributed to reliability, responsiveness, assurance and empathy gave results where the hospital was very much lacking in responsiveness. Hence the hospital must focus on the improving the responsiveness. On the other hand patient friendliness of the nursing staff and the patient ambience which come under empathy, have a higher weightage on the agreeable side and showed positive patient satisfaction. Regarding reliability, timely discharge summary and clarity in post discharge instructions showed positive patient satisfaction, where as the transparency of hospital charges and bills was on the side of disagreeability. On the whole reliability of the hospital is under neutral.

V. RECOMMENDATIONS AND SUGGESTIONS

Below given are the recommendations for the hospital to streamline the hospital discharge process based on the analysis of the problem areas.

- Formulation of SOPs: One of the most crucial things that have to be started is the formulation of the standard operating protocol for the hospital discharge process, to give a clear idea for the staff to go about. A systematically detailed protocol will minimize the errors and the confusions in the process there by speeding up things.

•IT issues: By solving the IT issues, 50% of the delays can be minimized in the discharge process, since every single step is system based and the hospital is moving towards a paper free hospital. Hence the IT department needs to seek out all these issues as soon as possible.

•Pharmacy department improvements: There are a few mandatory things that need to be improved:

Preparation of a drug formulary for the hospital

Incorporation of a separate purchase department in the hospital

-Taking the list of most commonly prescribed medications from the consultants and adding them in the HIS well in advance instead of last minute delays due to it.

-Converting the entire medicine list into either generic name or brand names, to avoid confusions.

-Separating inpatient and outpatient pharmacy services.

•Eliminating duplication of work: The nurses are complicating their work by entering the work sheet in both systems as well as manually.

•Work load management for nurses: The nurses need to be taken classes on workload management and multi-tasking. Training of nurses in both professional level and personal level can prove to be of good importance.

•Training in HIS: Training in HIS for the newly appointed nurses and duty doctors.

•Radiology TAT: Since there are major delays in the radiology report, they can start recording TAT to monitor their time after bringing in necessary improvements like appointing attenders, addition of an extra printer and improving the communication with the IPD.

•Increase in the man power: The needs to be an increase in the ward boys/attenders, nurses and the duty doctors for smooth functioning of the discharge process as well for the entire hospital.

•Increase in the equipment: There is a major need for increasing in the systems in the hospital, mainly in the IPD and pharmacy. An extra printer needs to be placed in the radiology department. There is need for more lifts in the hospital as well.

These are certain recommendations which can be incorporated in the hospital for improvement in the process and minimizing the delays. After implementing these recommendations the hospital discharge TAT can have targets which are brought out from internal benchmarking like:

Mark for discharge: 1 minute; Discharge summary preparation: 9 minutes; Return of medication: 4 minutes; Pharmacy clearance: 10 minutes; Bill clearance for self-pay patients: 17 minutes.

These targets will help the hospital to check their level of streamlining and process improvement.

VI. CONCLUSION

The hospital discharge process is one of the major areas in the hospital which needs improvement and it is a multi functional process involving many process interlinked with various departments. It is one of the most time consuming process in a hospital and a major reason for patient dissatisfaction and also affects the hospital revenue when not done in time. The main areas which need improvement are the discharge summary preparations, pharmacy clearances and to minimize the errors by the nurses. Other important improvements which are needed for minimizing the cycle time are eliminating duplication of work by the nurses, increasing the manpower, proper training of HIS to the hospital personnel using it and increase in equipments. There will a lot of improvement and reduction in the turnaround time and the smooth flow of the processes by eliminating these gaps.

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APPENDIX

Appendix 1

S no	Questions	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1	The nursing staff was patient friendly and understanding					
2	Hospital's response to queries was quick					
3	Billing and the charges were explained correctly					
4	The discharge summary was given on time					
5	The doctor/duty doctor explained the Post discharge instructions					
6	The ward nurses were responsive and available when needed					
7	The patient was explained about the time taken for discharge completion					
8	The discharge was completed in the said time					

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9	The patient was taken till the exit by hospital attenders (in wheel chair, stretcher)					
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