

SMOOTHING THE PATIENT FLOW WITHIN HEALTHCARE SYSTEM

Ji Hyon Mun, Ph.D., Old Dominion University
Ghaith Rabadi, Ph.D., Old Dominion University
David Levin, M.D., Sentara Leigh Hospital
Virginia Bogue, R.N., Sentara Leigh Hospital
Terry McKenna, R.N., Sentara Leigh Hospital
Jay Vergara, R.N., Sentara Leigh Hospital

Abstract

Recently, the healthcare systems in the United States have experienced a realization that obstacles in the patient flow are not attributed to the Emergency Department alone, but they are caused by the system itself. There are collaborative efforts underway to improve or smooth out the flow of patients throughout the system. However, one of the major challenges faced by the healthcare system is to instill a different mode of thinking, a paradigm shift. The need for change in providing healthcare has to be recognized, and be embraced by all medical professionals and not only the administrators leading the effort. The objective of this paper is to provide an insight into the healthcare system as it exists today and to explore the process for improvement in the overall quality of the patient care. This includes discussion on some of the initial steps that are currently being taken and the consequent challenges that need to be overcome as part of this process.

Introduction

Waits, delays, and cancellations have been chronic symptoms within the healthcare system as long as it has existed. Patients have accepted, although reluctantly, that they are simply an inherent part of the medical procedure that they must endure in order to complete their visits to a hospital. Physicians and care givers alike have accepted them as part of their service as well. These non-value adding activities of the clinical procedure have been perceived as intractable in the healthcare system by both the medical profession and patients.

It has been reported numerously that waiting times – both for appointments and on-site at the time of appointment – are too long and they are a major reason for complaints and dissatisfaction (Berwick, 1999, Institute for Healthcare System, 2003, Gandhi et al., 2003). these delays are often caused by incomplete communication, impersonal encounters, and lapses in continuity of care provided (Berwick and Bisognano, 1999). Thus, these waiting times and delays constitute to a major quality flaw in the healthcare system.

Delays, especially in the Emergency Department (ED), have most prominently been noticed. According to the Centers for Disease Control and Prevention (2003), there has been a 20% increase in the ED visits within the last decade and, subsequently, an increase in the waiting times. Studies conducted by the Centers for Disease Control and Prevention (2002) also indicated that the average waiting time or non-urgent visits to the ED increased from 51 minutes in 1997 to 68 minutes in 2000. Exacerbating the ED's capacity to provide care for patients is the diversion of ambulances. A government study (2003) on ambulance diversion indicated that the diverting ambulances "impeded access to emergency services in metropolitan areas in at least 22 states since January 1, 2001", and are affecting more than 75 million Americans that reside in these areas. According to the Lewin Group (2002), overcrowding in ED is mainly due to lack of available critical care beds. This indicates the urgency in improving the capacity management.

It would not be unreasonable to indicate that ED delays have initiated the effort that led to a realization that delays and waiting times, which ultimately result in patient dissatisfaction and long length of stay in hospitals, are not unique symptoms of the ED. In reality, they are symptoms of a disease that plague the entire healthcare system, from patient's admission to discharge. It is no longer considered an "ED problem". As patients are transferred from ED to a next level in clinical procedures, clinical requirements such as beds, physicians, nurses, and staff are also transferred. These requirements impose on the already constrained capacity in essentially every unit within the system. Therefore, what has been perceived as an "ED problem" is a problem for the entire healthcare system.

Providing a quality healthcare has been always the focus in healthcare industry. But this focus had been limited to the clinical care of providing care for patients with disease and injury. In recent years, focus in quality healthcare has expanded beyond its clinical efforts. Healthcare industry in the United States has recently experienced tremendous changes in its structure, focus, and process (Berwick, 1999).

Realizing that quality of healthcare system in the United States is not received with satisfaction and should be further investigated. Survey results indicate that Americans are satisfied with their own physicians, but are not satisfied with the overall quality of healthcare (Berwick, 1999).

The focus of this paper is to provide an insight into the concerns that must be dealt with in the healthcare system. This effort involved initial analysis of the current healthcare system with focus on one of the major bottlenecks, namely the patient discharge process.

Assessment of Patient Flow

Recognizing that problems in healthcare system are not unique only to the ED initiated an effort to explore and understand the system as it has existed for so long. It is reported that many of the problems are related to the organizational features of care provided (McLoughlin, 2003). Challenging these issues requires a new way of thinking, that is, to focus on the systemic impact of these issues on the entire hospital rather than to isolate them to ED only. Longer delays result in longer length of stay in the system and, therefore, utilizing system's critical resources such as bed capacity as holding areas for patients.

In collaboration with one of the several local hospitals, an analysis of a healthcare system was conducted to identify (i) where the obstacles or bottlenecks were located, (ii) how the bottlenecks were formed, and (iii) how to remove these bottlenecks. This collaboration was an initial attempt at understanding the flow of patients in the healthcare system in order to provide an improved service to patients as well as to improve the professional working environment.

Analysis of Patient Flow Before embarking on an effort to implement changes for improvement, it was necessary to first understand the patient flow from admission to discharge and to identify the impediment or bottleneck within the flow. Patients can enter the patient flow from multiple points in the system. Patients can be admitted through the ED, doctors' orders, and scheduled appointments. Depending on the clinical need, patients will follow various flow patterns throughout the system. However, these patients will most likely require a bed in the general medicine unit, which provides care services to return stability to patients before being discharged from the hospital.

Based on the initial assessment by those who have a good understanding of the system and are proficient in the patient flow process such as administrators, physicians, case managers, and nurses, it was not very difficult to identify the major bottleneck in the patient

flow. The most significant impediment in the patient flow was the lack of care beds for patients in the general medicine unit. This unit is perhaps the largest unit in the hospital with understandably the greatest demand for care beds. A further investigation into the unit resulted in two critical activities: (1) patient admission and (2) patient discharge. The latter activity was focused throughout this effort to ensure that a proper procedure can be in place to ensure bed availability. However, in order to provide a smooth flow of patients, the patient admission activity cannot be ignored.

Identification of the Contributing Factors to Unsmooth Patient Flow

The most critical factor contributing to then bottlenecks in the patient flow was in the management of the discharge process. There was no consistent approach to conducting patient discharge. Consequently, patients were admitted without proper planning and on short notices. Often, patients were delayed from being discharged due to various reasons. Some of the most common factors in discharge delays or cancellations were identified to be due to inadequate planning in transportation arrangement with patients' families, changes in clinical stability of patients, and patient transfer arrangement with the hospital's transportation unit. In certain isolated instances, it was the patients' desire to prolong the stay for lunch.

One of the most significant impeding factors was the hospital's internal transportation. Patients are required to be transferred from the patient room to the vehicle bound for patient's destination by the transportation staff via a wheelchair or stretcher. Often, there was lack of communication and coordination between the designated nursing staff and the transportation unit. Consequently, this resulted in a bed occupied by a patient who no longer required it and kept another from acquiring it.

Plan for Change Based on the initial analysis of the system and the findings in the bottleneck process and its inhibiting factors, it was apparent that a discharge schedule should be in place to improve the patient flow. It was necessary to design a patient discharge process to be consistent with predictability of discharge. Predictability in patient discharge with respect to date and time would prove to be substantial in planning for discharge preparation and patient admission. Although it is difficult to accurately predict the discharge date and time, it has been reported that physicians, nurses, and other health care providers can usually predict the patients' potential discharge at least one day in advance with 80% accuracy (IHI, 2003).

The planned process for discharge schedule was to (1) have the physician to predict the date and time of discharge with 24 hours in advance, (2) have the case manager inform the transportation unit with the predicted date and time, (3) notify the transportation unit with confirmation on patient discharge at least 30 minutes prior to the scheduled discharge, and (4) transfer patient to discharge. Upon implementation, data were collected on the actual discharged date and time to make assessment on the progress of the plan, and reasons for failure in discharging patients according to the predicted discharge schedule.

Discharge was considered a failure if patient was discharged either after or before the predicted date and time. Intuitively, being discharged after the predicted date and time is easily understood. However, being discharged before the predicted date and time is also considered a failure. Bottlenecks in the patient flow are not caused only by patients being delayed or cancelled from leaving the hospital and, therefore, utilizing the capacity. Patients being discharged before their predicted date and time also contributed to the bottleneck formation since they have disrupted the flow of patients.

Analysis of Predicted Discharge Implementation

Implementing a change has been very successful with respect to the initial results in patient discharge according to predicted schedule. Change has been also successful in empowering the medical professionals to participate in this effort. As illustrated in Exhibit 1, discharge has been conducted according to the predicted date for six consecutive days in the medicine unit with 14 beds. Successful patient discharge on the predicted date ranged from 63% to 93%. Exhibit 2 provides successful discharge of patients according to the predicted time, ranging from 42% to 79%. These two results indicate clearly that it was more difficult to discharge patients at the predicted time than date. Inconsistent results indicate variations in patient discharge that may be due to various factors ranging from incorrect prediction to delays caused by clinical issues.

Analysis of Variations Failure to conform to the predicted discharge schedule was further investigated to identify the factors responsible for variations in the patient discharge performance. Two sets of variations were observed. The first set of variations was due to the inevitable changes in the patients' clinical conditions. The second set was attributed to those that should have been accounted for by the medical professionals involved in the discharge process. Most commonly observed factors were caused by physicians and transportation unit.

Physicians provided inadequate support with respect to providing predicted discharge schedule. Trying to gain attention and support from physicians has been reported to be very difficult. Implementing new procedures, although they may seem to be trivial in some extent, have been difficult to convey to physicians. For example, an "expected discharge date" sheet was added onto patient's medical chart to request for physician's prediction on the patient's discharge. However, this trial was perceived and practiced with very little success.

Exhibit 1. Successful Discharge on Predicted Date.

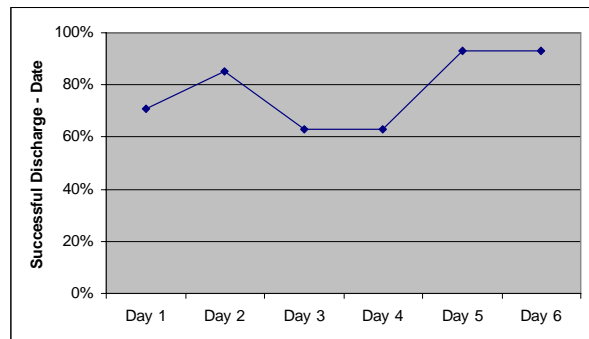
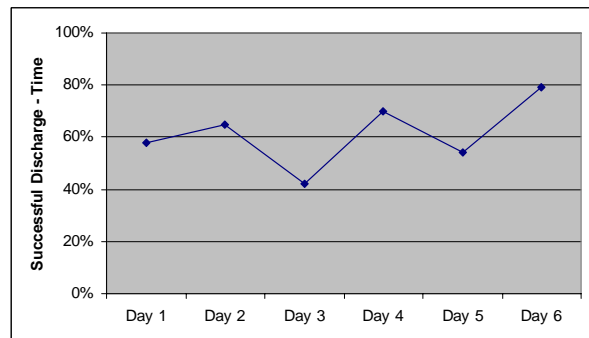


Exhibit 2. Actual Discharge on Predicted Time.

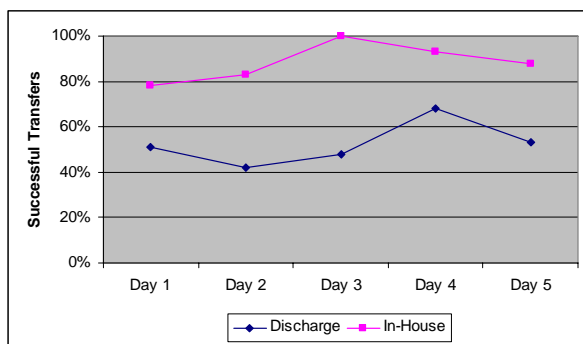


Delays in patient discharge were repeatedly caused by the transportation unit's failure to provide transfers on time. Although implementing changes was met with much reluctance initially, the transportation unit's active participation and role proved to be very successful. Through collaborative effort between the bed unit and transportation unit, involving various participants ranging from case managers to transfer staff, the two units were able to design a process to smooth out the patient flow in the discharge process. Some of the changes included placing the transfer requests in the morning of the predicted discharge schedule and confirming the discharge time at least 30 minutes in advance. These changes require a simple task of making a phone call by a case manager of the

bed unit, which then provides adequate time for the transportation unit to coordinate the transfer routes and staff.

Exhibit 3 provides successful transfers – both for in-house transfers such as to and from the ancillary unit and for discharge from the hospital – for five consecutive days. Not surprisingly, in-house transfers were performed with higher success than for the discharge transfers. The in-house transfers are not scheduled with predictions. They are conducted as needs arise. Lower success rates observed for the patient discharge transfers implicate the variations in the discharge date and time.

Exhibit 3. Successful Transfers by Transport Unit.



Paradigm Shift It is always a challenge to impose a new mode of thinking, that is, to initiate a paradigm, especially in an organization where each unit or group has its own method of processing. However, the transportation unit was a success due to their effort in understanding a bigger picture, or systemic view, of the hospital in which they have an active role in improving the patient flow. Unless everyone involved in the patient care understands the goal of the effort in smoothing the patient flow, organizational and/or process changes will not be easily made to achieve improvement. There is yet to be further effort in engaging physicians to share in this world view.

Patients also have a role in improving the patient flow as well. In order to incorporate the patient participation in improving a smoother discharge at the end of their stay, a checklist was prepared. This was to ensure that a patient is also a part of the process. The checklist was simple and succinct to remind patients with a set of items to be performed and be checked off before they can consider a successful discharge. This checklist is now posted in every patient room and is provided in Exhibit 4.

Exhibit 4. Checklist for Patient Discharge.

✓	1. Make sure that you have received your discharge instructions and signed off from your nurse. Note: This may or may not include prescriptions.)
✓	2. All medical devices have been discontinued. Note: You do not take home the telemetry (heart) monitor.
✓	3. Be dressed and your personal belongings are accounted for.
✓	4. Your ride is in the room.

Summary

Currently, the healthcare system is faced with a challenge to accommodate an increasing demand for “more” capacity. Most likely, this challenge will be exacerbated by the growth in the aging population, increasing public expectations, continuing gaps between demand and capacity (Kanavos, 1999), and the complexity and scale of the health services (Aiken, 2001). The current challenge of meeting demand in capacity requires a different perspective, that is, a systemic world view.

There has been a great learning curve for every member of the medical profession involved in this effort. Through the learning process of understanding the systemic problems, especially identified in the discharge procedure, has resulted in improved collaboration among various units. Most notably, collaboration was observed to have improved among the nursing staff and case management in the medicine unit, patient and family, and the transportation unit. Successful implementation of initial set of changes was largely due to frequent communication between the units and associated members, and the dedicated and empowered members about the improvement efforts. One of the greatest challenges was in fact having the “buy-in” from everyone involved in the discharge process.

Although this effort was successful in terms of initiating the process toward understanding the complexity and challenges of the healthcare system, there is yet much more effort to be devoted. Having capability to predict is an essential part of the discharge process, but attention should be given to providing capability to accommodate changes or variations that arise during the procedure. In particular to the current effort in patient flow improvement, there should be an effort to eradicate the process-related factors that cause delays in discharge of patients. In order to attain a better control of the process, variations in discharge predictions need to be further investigated as well.

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About the Author(s)

Ji Hyon Mun is an Assistant Professor at the Department of Engineering Management and Systems Engineering at Old Dominion University. She received her Ph.D. in Systems Science, M.S. in Industrial Engineering, and B.A. in Mathematics from State University of New York at Binghamton. Her research interests are in Systems Engineering and System of Systems Engineering.

Ghaith Rabadi is an Assistant Professor at the Department of Engineering Management and Systems Engineering at Old Dominion University. He received his Ph.D., and M.S. degrees in Industrial Engineering

from the University of Central Florida in 1999 and 1996 respectively. He received his B.S. degree in Industrial Engineering from the University of Jordan in 1992. His major research interest is in the areas of scheduling, mathematical programming, simulation and optimization. He has been involved with NASA projects since year 2000.

David Levin, M.D. is the Vice President of Medical Affairs at Sentara Leigh Hospital in Norfolk, VA.

Virginia Bogue, R.N. is the Vice President of Nursing at Sentara Leigh Hospital in Norfolk, VA.

Terry McKenna, R.N. is the Project Director of Reinventing at Sentara Leigh Hospital in Norfolk, VA.

Jay Vergara, R.N. is the Manager of Case Management at Sentara Leigh Hospital in Norfolk, VA.

