Throughput in the emergency department: a concept analysis essay sample

Health & Medicine, Hospital

A visit to the emergency department (ED) is usually associated with negative thoughts by most people. It creates preconceived images of overcrowded waiting rooms and routine long waits for treatment (Jarousse, 2011). From 1996 to 2006, ED visits increased annually from 90. 3 million to 119. 2 million (32% increase). During this same time period, the number of EDs has declined by 186 facilities creating the age old lower supply and greater demand concept (Crane & Noon, 2011). There are many contributing factors that have led to an increase in ED visits. A few of these key drivers include lack of primary care access, rising of the uninsured population, dwindling mental health services, and the growing elderly population (Clinical Advisory Board, 2008). In response to these issues, hospital administrators are challenged to evaluate patient flow and identify opportunities to improve process strategies within the ED. This is where throughput evolved in healthcare and became the new buzzword for patient flow. In healthcare, throughput refers to the ED process that impacts patient flow (Jarousse 2011). The purpose of this concept analysis will be to explore throughput and discuss how it is critical for survival in the ED and beneficial to the overall financial success of the hospital. Significance of the Concept

In today’s consumer driven healthcare, quality patient outcomes and high scores in customer satisfaction define a successful hospital. EDs must deliver excellent and efficient care to achieve these outcomes. Throughput is the basic concept to meet these categories. Weak patient flow models create dissatisfied patients, poor patient outcomes due to slow service, frustrated staff, and diminished bottom lines (Jensen & Crane, 2008). Clinical quality is at risk by delay in time sensitive treatment and wait times extended so long

that a growing number of patients leave without being seen (LWBS). Suboptimal throughput can also have devastating outcomes on hospital finances by decreasing the number of inpatient admissions coming from the ED, diversion to other facilities, and again increase in LWBS.

Low customer satisfaction scores can affect the entire organization financially by the consumer choosing another hospital for their services long term (Clinical Advisory Board, 2008). The ED is the hospital's " front door." It is imperative that the ED gives the patient the first and most lasting impression of the quality the organization has to offer (Jensen & Crane, 2008). ED throughput remains a hot topic for all acute care hospitals in 2011. Excellent throughput times in ED will increase patient satisfaction scores, reduce malpractice risk, and increase hospital revenue through higher patient volumes and charge capturing (Phoenix Physicians, n. d.). Literature Review

During the 1990's, reducing inpatient stays had become a major focus for hospitals in the United States. Medicare's prospective payment system drove home to nursing the reality of financial limitations to quality patient care (Farren, 1991). Many hospitals were challenged with the need to decrease length of stay (LOS) and total cost to maintain a positive operating margin under a diagnostic related group based reimbursement system (Rachoin, Skaf, Cerceo, Fitzpatrick, Milcarek, Kupersmith, & Scheuer, 2012). As overcrowding and wait times increased in the ED, so did the focus on LOS of visits of ED patients. The word throughput was utilized out of necessity through attempts of decreasing LOS in ED. During the literature review, this

author identified five definitions of throughput from at least three different disciplines. The origin of the word is defined from 1920-25; from the phrase put through modeled on output (Throughput, n. d.).

Computer science defines throughput a couple of different ways. One is the rate at which a processor can work expressed in instructions per second or jobs per hour. A second example is the measure of a computer system's overall performance in sending data through all its components (Throughput, 2010). The manufacturing definition is defined as the user measured processing speed of a machine expressed as total output in a unit period under normal operating conditions (Throughput, 2010). The World English dictionary defines throughput as the quantity of raw material on information processed or communicated in a given period (throughput, n. d).

In healthcare, throughput refers to the ED process that impacts patient flow (Jarousse 2011). Process and flow began to be scrutinized for opportunities to improve the overcrowding by becoming more efficient. Due to this new process focus, throughput was born. This is also the point where lean flow or lean thinking became prevalent into healthcare from a manufacturing stand point to improve throughput. Lean principles revolve around removing non value added steps and standardizing work flow and processes. When applied aggressively hospital wide, lean principles can have a dramatic effect on productivity, cost, and quality. Numerous books concerning lean healthcare have been published in recent years (Crane & Noon 2011). Defining Attributes

Determining which attributes are most frequently associated with ED throughput will allow insight into the concept. The antecedents will be described in the following paragraphs. Clear focused vision; The ED should be viewed as a key customer of the ancillary departments. If the mission is to provide quality compassionate healthcare, then all staff need to work hard towards achieving this vision. All staff should be aware of desired goals and metrics set by the department administration to achieve the vision. Communication and Collaboration; Communication with all departments and staff that will come into contact with the patient to provide treatment and optimal care. It takes all staff to effectively discuss the care and report findings in a timely manner to the appropriate people. Clear discussions by ED staff, lab, radiology, respiratory, customer service, or any other person who comes into contact with the patient becomes a key piece to collaborating with each other to expedite care. The organization will need buy in from all hospital departments. ED throughput is not just an ED problem but a house wide concern. Efficient and competent; all hospital staff must have exceptional prioritization, clinical skills, and effectively use time management skills. ED staff must excel at completing tasks in the ED.

For example, venipuncture can be done by majority of staff. If this takes the staff member multiple attempts, then this will increase LOS. The staff has to be competent in venipuncture to achieve efficiency. Standardization; processes need to be reviewed and adjusted to have a consistent streamlined approach to have sustainability. If a patient comes in with complaints of ankle pain and is non-weight bearing, the nurse knows to order

and ankle x-ray based on chief of complaint and symptoms without the physician order. This is a standardized protocol. ED has many of these based solely on the chief of complaint. Other examples include: triage, registration, and radiology workflows; all three should be standardized for every patient. Staffing; by means of matching resources to service demand. By having adequate staff at the right time of the day is essential for ED throughput.

This falls back on administration for adjusting nursing staff, to volume, by hour of the day. Critical thinking; this is defined by means of identifying and prioritizing patient care. ED nurses must make quick decisions to recognize which patients need a bed right away and then for how long. This is the key for bed management and throughput in the ED. Consequences are outcomes produced by occurrence of the concept. Successful ED throughput consequences will result in a positive effect for all parties involved. The patient will have satisfaction with their visit related to timely care. Staff will be satisfied due to a happy productive work environment and the ability to provide quality patient care. The hospital will see an increase in revenue due to an increase in volume, decrease in LWBS, and overall improved reputation of the hospital as a whole, which will in turn increase inpatient admissions. ED throughput will be a win win for everyone. Exemplar Case

A local high school football player sustains an injured ankle during his Friday night game. The amount of pain, bruising, and swelling suggest maybe it is fractured. He is taken to his local ED for further evaluation. Upon entering the front door, he is greeted by a triage RN who places him in a wheelchair per standardized protocol. She then efficiently communicates to the charge

RN for room assignment. The RN utilizes critical thinking skills to identify if this patient needs immediate physician evaluation. The patient is placed in a room and adequate staffing allows the primary RN to evaluate the injury and places the standardized protocol order for this type of injury based off a nursing protocol related to symptoms. The RN collaborates with the physician who evaluates the patient immediately. Before the physician is done, the radiology tech efficiently arrives with the portable x-ray machine to obtain images.

Physician communicates the plan of care and nursing completes orders for pain medication and splinting. Images are completed in collaboration with the radiologist and read as negative. This information is efficiently communicated to the physician. A competent nurse begins applying a splint and sizing for crutches while the physician writes and communicates discharge instructions to the patient and nursing staff. A hardcopy of prescriptions and instructions are provided and all questions are answered by the discharge nurse. The care is complete and the patient is escorted to their vehicle via crutches. Clear communication and adequate staffing allowed for this process to be completed efficiently. All parties involved were focused on the clear vision to achieve metrics of door to discharge in less than 60 minutes. This patient was treated and released within 45 minutes.
Borderline Case

This author will use the same patient scenario as above and keep all the pieces the same except one communication failure. For the purpose of this example, the author will say a communication factor broke down with

radiology causing a 45 minute delay in reading of the x-ray. This one factor disrupts the throughput and doubles the LOS for this patient. The patient's LOS is quickly extended to 90 minutes. Collaboration and communication are essential to successful throughput. Related Case

Again, using the same patient scenario, all the things are the identical except this time the lobby is full of patients and the ED is very busy. If the ED has an excellent throughput process this patient will still be seen, examined, and discharged efficiently. The patient will not be bedded immediately due to lack of space. However, the triage RN will place protocol orders, utilize critical thinking skills, collaborate with radiology staff, and communicates with the charge RN and physician when the x-ray is obtained. The patient will return to the lobby waiting for a room and disposition. Patient is then escorted to radiology and then roomed in a hallway bed, where he is examined, medicated, splinted, and discharged. This scenario may cause a slight delay however, when the ED is full there is still a standardized process in place to keep things moving. This is a key function of throughput to have a standardized process that can handle slow or busy times. Contrary Case

Take that same patient scenario and change majority of the process. Upon arrival the patient is not greeted immediately. The ED lobby is full of people and it takes 15 minutes to be triaged by the nurse. The nurse fails to take the patient to a bed right away because he is non-emergent and there are other patients who are sicker. The RN does not order an x-ray per protocol. The physician is not efficient due to the busyness of the department and

does not see the patient until 60 minutes after arrival. Now the patient is roomed and order is placed by the physician. Radiology unable to complete x-ray for an additional 30 minutes after order is placed due to a lapse in communication. The new radiology tech forgot to send the films to the radiologist and delays the reading by an additional 30 minutes.

Radiologist finally reads report but does not collaborate with the ED physician. This causes an additional breakdown in the process. The physician finally stops to disposition the patient and does not communicate to the patient the plan of care. The discharge is delayed because once splinting is done mom has some home care questions. The physician has to be found and interrupted to come back in and speak with the patient. The patient is now given a hardcopy of discharge instructions, prescriptions, and pointed towards the exit. This visit turns into a 3 hour and 45 minute LOS causing the patient and mom to be extremely unhappy due to lack of communication and long wait. They in turn will tell everyone associated with the football team about their negative experience and further affect the hospital in the future for potential loss of business. Conclusion

Throughput is the key to having a robust process driven ED to meet the ever changing demands of today’s healthcare market. Effective ED throughput is multifaceted and dependent on multiple hospital departments and competent efficient staff. This author has clearly defined the attributes it takes to be successful with throughput and provided scenarios of when throughput

works and how it can easily be derailed by the simple oversight of just one

attribute. The hospital’s ED waiting room maybe the most dangerous place in the entire organization. When busy, the lobby contains sick patients who are often unmonitored. Avoiding back up in the lobby relies on throughput. When throughput is running smoothly, EDs can treat more patients, improve patient outcomes, and excel in patient satisfaction.

References

Clinical Advisory Board. (2008). The high performance ED: optimizing capacity and throughput to meet ever-growing demand. Washington, DC: The Advisory Board Company.

Crane, J., & Noon, C. (2011). The definitive guide to emergency department operational improvement. New York, NY: Taylor & Francis Group.

Farren, E. A. (1991). Effects of Early Discharge Planning on Length of Hospital Stay. Nursing Economics, 9(1), 25-30, 63. Jarousse, L. (2011). Emergency department throughput: a key to patient safety. Hospital and Healthcare Network Magazine. Retrieved on October 4, 2012 from http://hhnmag. com

Jensen, K., & Crane, J. (2008). Improving patient flow in the emergency department. Healthcare Financial Management, 104-108.

McHugh, M., Van Dyke, K., Yonek, J., & Moss, D. (2012). Time and expenses associated with the implementation of strategies to reduce emergency department crowding. Journal of Emergency Nursing, 38(5), 420-428.

Phoenix Physicians. (n. d.). Throughput in the emergency department: what is the responsibility of your ER physician group. Fort Lauderdale, FL: Phoenix Physicians LLC.

Rachoin, J., Skaf, J., Cerceo, E., Fitzpatrick, E., Milcarek, B., Kupersmith, E., Scheuer, D. (2012). The impact of hospitalists on length of stay and costs: systematic review and meta-analysis. American Journal of Managed Care, 18(1), 23-30. ED THROUGHPUT 10

Throughput. (2010). In BusinessDictionary. com. Retrieved on October 7, 2012 from http://www. businessdictionary. com/definition/throughput. html.

Throughput. (n. d.). In Dictionary. com. Retrieved on October 7, 2012 from http://dictionary. reference. com/browse/throughput.