**EMERGENCY DEPARTMENT PATIENT FLOW**

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**ABSTRACT**

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Public health is the health status of a population and uses different approaches to maintain the health of the population. Emergency departments play a key role in public health. They are complex and difficult due to many different factors. ABC Memorial Hospital had an emergency department that was inefficient and consistently failed to meet the time requirements they had set for themselves. The author was given opportunity to observe ABC Memorial’s ED and present the findings to the hospital’s Nurse Executive Forum. The purpose of this essay is to explore the overall importance of patient flow and patient satisfaction in the emergency department of a hospital. Throughout the essay the author will research and explore best practices, how to improve patient flow and satisfaction, and technology that helps improve the emergency department. The author will also provide the observations and recommendations given to ABC Memorial Hospital.

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TABLE OF CONTENTS

1.0 Introduction 1

1.1 PUBLIC HEALTH IMPACT 3

1.2 BACKGROUND 4

1.3 DEFINITION OF AN EMERGENCY DEPARTMENT 4

1.4 PATIENT FLOW AND PATIENT SATISFACTION 6

1.4.1 PATIENT FLOW 6

1.4.2 PATIENT SATISFACTION 6

2.0 ED EVALUATION AT ABC MEMORIAL 7

2.1.1 AVERAGE LENGTH OF STAY 7

2.1.2 OBSERVATIONS OF THE ED 8

3.0 BEST PRACTICES 11

3.1.1 POST WAIT TIMES ONLINE 11

3.1.2 TEAM TRIAGE AT BEDSIDE 12

3.1.3 RAPID ASSESSMENT TOOLS 12

3.1.4 STREAMING 13

3.1.5 PRIMARY CARE CO-LOCATED IN THE ED 13

3.1.6 POINT-OF-CARE-TESTING 14

4.0 RECOMMENDATIONS 15

4.1.1 TEAM TRIAGE AT THE BEDSIDE 15

4.1.2 ED EDUCATION FOR FLOOR NURSES 16

4.1.3 ASSIGN BED BEFORE PATIENT IS ACCEPTED 16

4.1.4 MONITOR TRANSPORT STATUS 17

4.1.5 STANDARDIZE MEASURMENT REPORTS 17

4.1.6 USE SOCIAL MEDIA 18

4.1.7 IMPLEMENT STREAMING 18

4.1.8 PROVIDE POINT-OF-CARE-TESTING 19

4.1.9 PROVIDE PATIENTS WITH INFORMATION REGARDING VISIT 19

5.0 Conclusion 20

BIBLIOGRAPHY 22

List of figures

Figure 1. ABC Memorial ED (Median ALOS) 8

Figure 2. ED Flow: Goal Times 10

Figure 3. ED Flow: Actual (Median) Times 10

Figure 4. Comparison of Author's Recommendations vs. Literature Review 20

# Introduction

Hospital leaders are responsible for a plethora of departments and functions. However, emergency departments (EDs) are the patient’s main point of entrance in today’s hospitals. This can lead to frequent overcrowding, which demands the increased attention of hospital management in order to provide better quality service for patients. The ED should be at the forefront of any organizations list of improvements, especially ED crowding (Executive Summary, 2014):

1. ED crowding compromises care quality.
   1. EDs environments are risky and stressful environments. When the amount of patients exceeds the capacity of the ED, opportunities for error increase. Quality can be measured by safety, effectiveness, patient centeredness, efficiency, and timeliness. Long waits and ambulances being diverted to another hospital affect all aspects of quality (Agency for Healthcare Research and Quality, 2014).
2. ED crowding is costly.
   1. In 2007, 1.9 million people left the ED before being seen due to long wait times. Patients that leave the ED before being seen cost the hospitals a significant amount of revenue. The same can be said of ambulance diversions. A 2006 study of a large academic medical center showed that each hour of diversion was associated with $1,086 in foregone hospital revenues (Agency for Healthcare Research and Quality, 2014).
3. ED crowding compromises community trust.
   1. EDs play a critical role within the community. The public expects EDs to provide timely care and that they will be able to protect and care for the community in their time of need. Many physicians and clinics will refer patients to the ED for different reasons such as convenience or testing. When crowding becomes the norm, the community may lose confidence in their EDs ability to care for their needs (Agency for Healthcare Research and Quality, 2014).
4. Improving patient flow throughout the hospital can mitigate ED crowding.
   1. Much effort and devotion have been poured into investigating the reasons for ED crowding. Many studies have formed a variety of solutions to address the problem. There is agreement that improving patient flow within the ED and throughout the hospital will help improve patient flow. Many hospitals have implemented patient flow improvement strategies and have seen reductions in ED crowding. As a result, the Institute for Healthcare Improvement, the Joint Commission, and the Institute of Medicine have stressed the importance of adopting patient flow improvements to hospital leaders (Agency for Healthcare Research and Quality, 2014).

A project was undertaken in July of 2016 to help improve patient flow and patient satisfaction in a large teaching hospital located in northeastern United States. The author has been asked not disclose this particular hospital’s name. For the purpose of this paper the hospital will be referred to as ABC Memorial. The project was intended to provide constructive criticism and establish new practices to help improve patient flow. The author had the opportunity to shadow patients, nurses, and doctors. With little instruction and knowledge of how ABC Memorial’s ED functioned, the author was able to see the process with a fresh perspective. After four weeks of study and research, the author presented the findings to the Nurse Executive Committee and work began to implement changes to improve patient flow and satisfaction within the emergency department.

“As healthcare continues to transform itself, EDs are transforming too. A smooth workflow in the ED sets the tone for the rest of the patient experience as more than two-thirds of inpatients arrive via the ED” (Ebenshade *et al.* 2015). As EDs improve their efficiency and patient satisfaction they can expect to increase patient loyalty throughout their community and in turn boost their revenues. The objective and purpose of this paper is to provide an understanding of the importance of patient flow and patient satisfaction within a hospital’s emergency department. This paper hopes to bring an understanding of the impact that overcrowded EDs have on a hospital and how to better the flow and satisfaction of the patient. The patient’s journey is a critical piece to consider when looking to increase effectiveness and efficiency of patient care. This essay will explore best practices, how to improve flow and satisfaction, and technology that helps improve the emergency department.

## PUBLIC HEALTH IMPACT

This project has a significant public health impact for the patients of ABC Memorial and the local residents of the area surrounding the hospital. ABC Memorial plays a significant role within the community because it provides the area with emergency medicine in case an outbreak or disaster strikes. The ED is readily available for anyone that is in need of medical care. When EDs become overcrowded it means that ambulances are turned away, resources are stretched thin, and quality of care deteriorates. In a time of disaster the ED will be unable to provide the care necessary to help the community and its patients.

## BACKGROUND

ABC Memorial is part of a large healthcare system located in the northeastern United States. It is a non-profit hospital and was founded in the mid 1800s. The hospital is a tertiary hospital, which offers primary medical care; physician and nursing education; and a broad range of specialties that include cardiology, oncology, orthopedics, geriatrics, vascular medicine, endocrinology, emergency medicine, and more. The emergency department is very busy and is in newly renovated area.

## DEFINITION OF AN EMERGENCY DEPARTMENT

An emergency department is a medical treatment area usually found in a hospital or other primary care center. It specializes in emergency medicine and acute care for patients without an appointment. Patient visits are unplanned; therefore, the ED provides initial treatment for a wide spectrum of injuries and illnesses. These episodes can be life threatening, requiring immediate attention for the patient. However, the ED can also serve minor injuries or illnesses such as ankle sprains or the common cold.

ED visits increased nationally by 38 percent between 1997 and 2007 (Tang *et al.* 2010). The increase in ED patient volume has caused strain on both hospital facilities and budgets. Increasing staff and spending capital to expand is not a plausible option for many hospitals, meaning EDs must improve effectiveness and efficiency by implementing low-cost improvements, such as (Johnson *et al.* 2012):

1. Improved patient satisfaction: Less waiting and better service lead to satisfied patients (Johnson *et al.* 2012).
2. Improved quality of care: Standard work and improved flow reduces staff stress and minimizes the risk of patients decompensating or having patients leave before they receive treatment (Johnson *et al.* 2012).
3. Reduced total cost through higher utilization: More patients can be serviced within the same physical space and without an increase in staff (Johnson *et al.* 2012).

Patient satisfaction has been a major challenge for emergency departments for many years. Brief encounters for the patient with a new provider, crowded conditions, uncertainty, and extended wait times all negatively affect a patient’s experience and satisfaction.

## PATIENT FLOW AND PATIENT SATISFACTION

### PATIENT FLOW

According to the Institute for Healthcare Improvement (IHI), Patient Flow is defined as an individual’s movement through the health care continuum. Improved patient flow will help improve the quality of patient care, shorten length of stay, decrease wait times for patients in the ED, and minimize the number of cancelled surgeries/procedures. This will result in a better experience for the patient because their visit will be more efficient and safer, while limiting wasted time and effort. Patient flow plays a vital role in helping increase the satisfaction of the patient while in the care of their provider.

### PATIENT SATISFACTION

Patient satisfaction is a commonly used measure within healthcare. It can affect clinical outcomes, retention, and medical malpractice claims. Patient satisfaction serves as an effective indicator to measure the success of both doctors and hospitals (Prakash, 2017). A patient’s satisfaction can depend on an array of different experiences while in the care of their healthcare provider. It can be based on their relationship with the doctor, the cleanliness of the facility, the friendliness of nurses and other staff members, waiting time, patient education, and clinical outcomes (Prakash, 2017). All of these examples play a key role in a patient’s experience and will affect the satisfaction of the patient.

# ED EVALUATION AT ABC MEMORIAL

### AVERAGE LENGTH OF STAY

One of the major problems of the ED at ABC Memorial was the average length of stay (ALOS). This measures the length of time it takes for a patient to walk through the doors of the emergency room until they are discharged or admitted as a patient to the hospital. The goal for all of the hospital system’s emergency departments was to have a ALOS less than 210 minutes. However, the EDs throughout the system continued to increase and it was even more glaring at ABC Memorial. Within their ED, they possessed a median time of 251 minutes; from the time the patient entered the door until the patient was admitted to the hospital. This was 41 minutes above the goal time for the system.

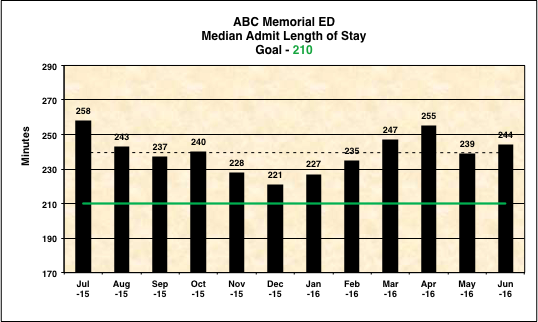


Figure . ABC Memorial ED (Median ALOS)

### OBSERVATIONS OF THE ED

After the author observed the emergency department from the patient’s, nurse’s, and doctor’s perspective, there were several contributing factors that played a major role in the inefficiency of the ED. As a patient these factors included the severity of the visit, the testing required, day of visit, time of day, floor required, and medications that were needed. The ED had some issues with flow. These issues consisted of staffing levels, daily census, no capitation, shift changes, delayed discharges, communication between the ED and floor nurses, and bottlenecking of patients. There were many delays after the decision was made to admit the patient to the hospital due to problems on the hospitals end. Some of these problems included a high census, transportation, staffing levels, clean beds, operating room schedule, delayed discharges, shift changes, floor reports, and rounds scheduled.

A few other key observations included statements made by two different patients and a nurse that worked in the ED. One patient said, “Sometimes they are fast, sometimes they are slow. It really just depends on how busy they are.”

Another patient stated, “I like to remind the nurses that I am still here. I know that they are busy and sometimes I think they forget me.”

One nurse noted multiple problems that they have dealt with, “I don’t like confrontation with the floor nurses. It seems like other floors ignore us. We are always understaffed and running around looking for answers.”

Perhaps the biggest problem was the communication between the nurses from the ED and the nurses working on the floor of the hospital. For example, when a doctor decides to admit a patient to stay at the hospital, the ED nurse must call up to the floor and let the nurses know that a patient will be admitted. The ED nurse then relays the patient’s information to the floor nurse prior to admittance before a bed can be prepared for the patient. Many times the ED nurse would call up to the floor, leave a message or call back because the floor nurse was too busy to talk. Many times this would lead to a heated conversation and wasted minutes. Sometimes, after leaving a message the floor would not return the call in a timely fashion, leaving the patient to stay in the ED for another half hour or more.

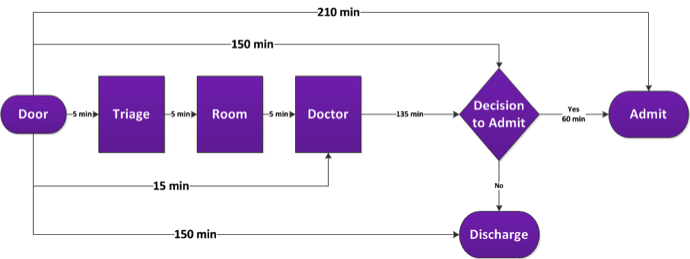


Figure . ED Flow: Goal Times

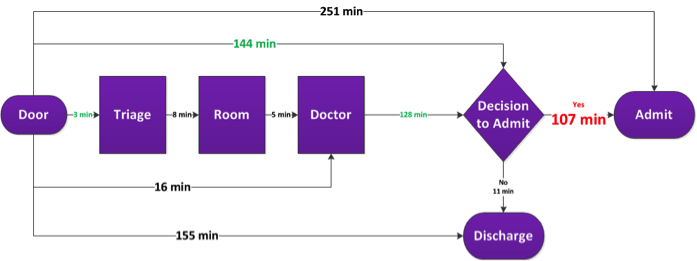


Figure . ED Flow: Actual (Median) Times

# BEST PRACTICES

After seeing the problems that persisted within ABC Memorial’s ED it was necessary to research and find some of the best practices to improve both patient flow and patient satisfaction within the ED. The following six were identified:

* Post Wait Times Online
* Team Triage at Bedside
* Rapid Assessment Tools
* Streaming
* Primary Care Co-located in the ED
* Point-of-care-testing

### POST WAIT TIMES ONLINE

Posting wait times online can help reduce unnecessary patient volumes, avoid over capacity, and level out ED wait times across the system (Healthcare Financial Management Association, 2012). Intermountain Healthcare displays ER wait times on billboards around major highways to let potential patients know which hospital’s ER has the shortest wait. Central Connecticut Hospital began posting wait times of each ED on it’s website. The study showed that over 3,000 people per week were accessing wait times and wait times across their EDs leveled out (Healthcare Financial Management Association, 2012).

### TEAM TRIAGE AT BEDSIDE

It has been shown that team triage at the patient bedside can have a positive impact on patient flow. Team triage consists of the triage nurse and/or registration, primary nurse, and physician working together at the same time to help admit the patient (Healthcare Financial Management Association, 2012). The benefits of team triage make it worth the culture change that will need to take place:

1. Decreases time patient has to explain reason for visit.
2. Increases efficiency and communication between care providers.

### RAPID ASSESSMENT TOOLS

Rapid assessment is the assessment, investigation, and first treatment of a patient as soon as they arrived in the ED (Jarvis, 2016). This tool uses the idea of a single piece flow that is found in the automotive manufacturing industry. What this aims for is an early assessment and investigation with prompt initiation of treatment, which will reduce the amount of waiting time that would typically occur between each step in a traditional model. Usually these patients do not need a resuscitation room or high dependency unit treatment (Jarvis, 2016).

One article gave an example that utilizing a rapid assessment model reduces the total time that a patient spends in the ED. This same article also showed a patients wait to see the doctor is dramatically reduced if this rapid assessment model is used (Jarvis, 2016).

### STREAMING

Streaming is the process of aligning similar patients to a specific work stream. Usually, patients in each work stream are assessed by a dedicated staff in a specific area of the ED. “See and treat” is a type of streaming where less severe illnesses are distributed to a devoted clinical area and receive assessment and treatment from a clinical team only seeing “see and treat” patients. Streaming ensures less urgent patients will still receive treatment in a timely and satisfying manner (Jarvis, 2016).

Evidence has shown that dividing ED patients into streams results in shorter wait time and ED journey times when compared to a non-streamed ED model (Jarvis, 2016). The effectiveness is solely dependent on how patients are assigned to different streams in the ED and if the appropriate staffing levels and space is adequate to meet the specific work stream.

### PRIMARY CARE CO-LOCATED IN THE ED

Two different reviews have assessed the effectiveness of using primary care clinicians in the ED for patients with less serious clinical problems. There was insufficient evidence when safety of care provided by general practitioners in the ED compared with emergency physicians. There is evidence showing potential for cost savings. This is the case because general practitioners often order fewer tests and admissions, while patient satisfaction increased. The study also showed that waiting times for ED patients in hospitals with a collocated general practitioner service was 19% less than patients attending EDs without a primary care service (Jarvis, 2016).

### POINT-OF-CARE-TESTING

Point-of-care testing gives clinicians’ rapid results for commonly ordered tests. Studies have shown moving laboratory standard testing into the ED could drastically increase the speed of diagnosis, thus reducing turnaround times. When used effectively POCT has shown to reduce delays in disposition decisions being made and increase timely patient discharge rates with an associated reduction in the overall total patient journey time (Jarvis, 2016).

# RECOMMENDATIONS

After reviewing some of the best practices used by other healthcare organizations and leaders it was time to decide which practices the ED at ABC Memorial should adopt. The author recommended the following best practices, as well as some new ideas to improve ED patient flow and patient satisfaction:

1. Team Triage at Bedside
2. ED Presentation for Floor Nurses
3. Assign Bed Before Patient is Accepted
4. Monitor Transport Status
5. Standardize Measurement Reports
6. Use Social Media
7. Implement Streaming
8. Provide Point-Of-Care-Testing
9. Provide Patients With Information Regarding Visit

### TEAM TRIAGE AT THE BEDSIDE

Poor communication at ABC Memorial lead to wasted time. Implementing team triage at the patient bedside with the Triage Nurse and/or Registration, Primary Nurse, and Physician will decrease the time explaining the reason for visit and in turn increase patient safety. It also has been shown to increase efficiency and communication between care providers.

### ED EDUCATION FOR FLOOR NURSES

Many ED nurses at ABC Memorial are timid to call the floor to give report up the chain of command. It is vital to educate floor nurses of the process in place to receive calls for admission from the ED. You can educate the floor nurses at the ED council meetings and have EDs present it to floor nurses on a monthly basis. This type of education will let floor nurses know the importance of this communication between them and the ED nurses which would allow a better relationship between the staffs. The benefits of education are endless and include:

1. Increases patient safety with better communication and use of the EDs electronic forms.
2. Reconfirms report process with both ED and floor nurses.
3. Decreases time spent waiting for nurses to give report.

### ASSIGN BED BEFORE PATIENT IS ACCEPTED

ABC Memorial spends an excess amount of time waiting for the ED Doctor to give report to the admitting MD. This is an unnecessary waste of valuable time. It is recommended that ED Doctors request a bed first in order to maximize time for the Administrator on Duty to assign the bed. While/after bed is being assigned; communication begins for ED Doctor to give report to admitting doctor. Three important benefits include:

1. Maximizes time allotted for AOD to assign bed.
2. Increases patient safety, as report is given closer to when patient is actually admitted.
3. Decreases waiting time for bed to be cleaned and transport to arrive.

### MONITOR TRANSPORT STATUS

Generally transport arrives and will wait 15 minutes for an RN or MD to meet and give report for the patient at ABC Memorial. It is recommended that the HUC monitor the tracking system in place for transport dispatch. The HUC then can notify the nurse when transport is dispatched, and the nurse can then meet transport at the patient’s door. The benefits of this recommendation are:

1. Decrease time for patient to be taken out of ED by transport.
2. Decreases chance that transport leaves if ED does not meet him.
3. Easy for HUC to monitor transport tracking system.

### STANDARDIZE MEASURMENT REPORTS

ABC Memorial’s ED and other EDs times are usually tracked and reported in terms of median times. Therefore, not all time is being allotted for. It is recommended to analyze all scores in terms of mean and standard deviation. The added benefits include:

1. Times can be tracked and analyzed to make instant changes.
2. Outliers will not vary entire reported time.

### USE SOCIAL MEDIA

Social media is being used in all facets of society and now in the world of medicine. Some hospital EDs have just started to display ED wait times online and on billboards to notify the public of which ED they should go to if they want to minimize their waiting time. However, why stop there? Virtually everyone uses Facebook, Twitter, or Instagram to connect with others. Hospital EDs could do the same thing by posting wait times of their hospitals to their own accounts. The ED at ABC Memorial does not post wait times online, so this could help them become more accessible and appear up to date with technology. Added benefits include:

1. Allow for easier access for patients to know where to go for their emergent needs.
2. Appear mainstream and connected to the world.

### IMPLEMENT STREAMING

Streaming allows for patients to be assigned to a dedicated area of service for the type of care that they need. Many EDs, like ABC Memorial, may not stream at all and this will cause log jams and unnecessary wait times for those patients who do not need as much treatment. The added benefits of streaming include:

1. Faster and more efficient care.
2. Staff has a general idea of what type of patient they will be treating.
3. Eliminate log jams that come from complex cases.
4. Streaming ensures less urgent patients will still receive treatment in a timely and satisfying manner.

### PROVIDE POINT-OF-CARE-TESTING

Tests are often needed when providing care in the ED. It is recommended that Point-Of-Care-Testing (POCT) is provided in the ED. Benefits of POCT are:

1. Rapid results.
2. Speedy diagnosis.
3. Less down time for patients and staff.

### PROVIDE PATIENTS WITH INFORMATION REGARDING VISIT

During the author’s observation at ABC Memorial, many patients did not know what an ED visit would entail. Patients may not understand that their visit could cause them to be admitted to the hospital for an extended period of time. Patients may not understand that their visit could take hours until they are discharged. Some patients may be uncomfortable, hungry, or thirsty. It is important to put yourself in the patient’s shoes. Therefore, it is a good idea to provide information to the patient about the process that occurs in the ER. Some examples include:

1. The ED staff should provide a waiting room video or information sheet to incoming patients.
2. Nurse/Doctor should explain each procedure that is given to the patient.
3. The doctor should explain the importance of being admitted.

# Conclusion

After all of the observations, research, and discussion amongst staff members. The author’s recommendations were presented to ABC Memorial’s Nurse Executive Forum. The recommendations lead to much discussion and provided the realization by the hospital’s leaders that ABC Memorial’s ED needed to adopt these important practices to enhance their efficiency within their ED. The practices that were currently implemented were out of date and in some cases slowed down the process.

|  |  |
| --- | --- |
| **Best Practices vs. Recommendations** | |
| **Best Practices** | **Recommendations** |
| Post wait times online | Use social media |
| Team triage at bedside | side |
| Rapid assessment tools | Assign bed before patient is accepted |
| Streaming | Implement streaming |
| Primary care co-located in the ED | Standardize measurement reports |
| Point-of-care-testing | Provide point-of-care-testing |
|  | ED education for floor nurses |
|  | Monitor transport status |
|  | Provide patients information regarding visit |

Figure . Comparison of Author's Recommendations vs. Literature Review

Emergency departments are complex and difficult due to many different factors. However, hospital leadership seemed the most concerned with the tepidness of their staff within the ED. Leadership could not believe that their ED nurses were afraid of confrontation with the floor nurses. What concerned them even more was the valuable time wasted in relaying this information to the floor. Their first priority was to reeducate both ED nurses and floor nurses on how to report patient admissions. They did this in hope of reducing the median time of decision to admit to admit, from 107 minutes to 60 minutes. By reducing this time, not only will it help them reach their time goals, but also will help free up bed space within the ED so they can see more patients, provide better care, and generate more revenue. After reeducating nurses on the admittance process they saw a reduction from 251 minutes to 230 minutes.

Most recently the hospital has been working on implementing the use of social media to display ED wait times. There were also discussions of reeducating ED staff on the use of team triage.

Overall, the observational study and reeducation given to the nursing staff has helped ABC Memorial find success within their ED.

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