



CLINICAL COMMUNICATION & COLLABORATION IN THE EMERGENCY DEPARTMENT

Improving Patient Throughput

By Eric Chetwynd, Healthcare General Manager



Clinical Communication and Collaboration in the Emergency Department

Increasing Use of the ED

Emergency departments and emergency care teams play an increasingly important role in our healthcare system. Overall, U.S. emergency department visits rise annually by about 4.5% overall; some areas, such as urban ED's saw a 22% increase¹. With increasing use, comes an increasing focus on challenges facing emergency care teams. These specialty teams focus on quick, efficient diagnosis and stabilization of the most emergent clinical issues which includes strokes, heart attacks, and injuries (trauma)^{2,3,4}.

In each of these cases, every minute of delayed patient care can have a significant impact on outcome and recovery. For example, for patients suffering an ST-Segment Elevation Myocardial Infarction (STEMI), studies show a delay in stabilization (door-to-balloon) can more than double a patient's likelihood of dying (a mortality rate of 3.0% to 7.4%⁵). With over 735,000 heart attacks⁶ every year, rapid clinical intervention can save thousands of lives annually.

In addition to emergent healthcare issues, emergency departments now are often called on to handle non-emergent cases. Over 32% of cases were classified as non-urgent from 2006-2009⁷. These are typically cases which could be managed in a lower acuity setting or where treatment could be delayed.

The rising demand leaves over half of all Emergency Departments regularly over capacity. EDs, on average divert emergent cases at 242 hours per hospital per year. In addition, patients who leave without being seen by a clinician is 2% nationally, primarily due to long wait times.

Streamlining Care and Challenges

Emergency Departments seek to improve response time and efficiency at managing patients through triage, diagnosis, and stabilization. Many processes now exist including:

- fast tracking
- bedside registration
- electronic dashboards
- alternate treatment areas
- full capacity protocol

While many of these techniques help emergency care teams better manage the increasing volume of cases, a number of additional challenges continue to impact their ability to manage patients.

Locating on-call physicians quickly is one of the key areas impacting emergency departments. For example, over 30% of ED's report difficulty consulting on-call neurologists -- critical to assessing stroke patients. This impacts the emergency department's ability to manage both emergent and non-emergent cases.

Another challenge is early triage and routing of patients to the best facility for care. For example, if a patient on an ambulance is assessed for possible stroke, it might be better for that patient to route them directly to the regional stroke center.

Whether the emergency care team is implementing a new patient flow or trying to triage patients earlier. Finally, the ability to coordinate across the care team to rapidly respond to patient needs is always a challenge for Emergency Departments. This can include coordinating with radiology, cath lab, off-site physicians, EMT, etc.

Opportunities to Improve the Process

Emergency Departments can improve the management of these challenges with a combination of workflow and technology. In the following example, a modified triage and workflow process leverages technologies to improve the team's ability to manage a stroke patient. If you prefer, you can [watch a video demonstration](#) of the patient throughput.

In this scenario, a patient is on his way to the hospital via ambulance for possible stroke at 11:30 PM. Our paramedic Mark contacts the Triage nurse at Memorial Medical with a single click on his mobile device. Gina, the triage nurse responds to Mark's alert by calling for a Stroke code. This code can then automatically assess who the Neurologist on-call is tonight. Dr. Adams, working out of his home, responds to the code and immediately joins the electronic conversation with both Mark and Gina. He asks Mark to conduct a stroke assessment with him of the patient using the NIH Stroke Scale. This requires Dr. Adams to be able to visually see the patient which Mark enables via a video chat. After completing the assessment,



Dr. Adams confirms the suspected stroke and calls to fast track the patient directly to radiology for a CT Scan. A fast track notification is sent directly to both the scheduled radiologist and the scheduled ED nurse working that night. They both confirm their readiness for the patient. As the ambulance arrives, the ED nurse escorts the patient to radiology where the CT Scan is performed. The technician then posts

the scan back to the conversation which Dr. Adams is still on. Dr. Adams reads the scan, diagnoses an ischemic stroke and calls for tPA to be administered.

This example highlights the many challenges in coordinating rapid response to care needed in the emergency department including:

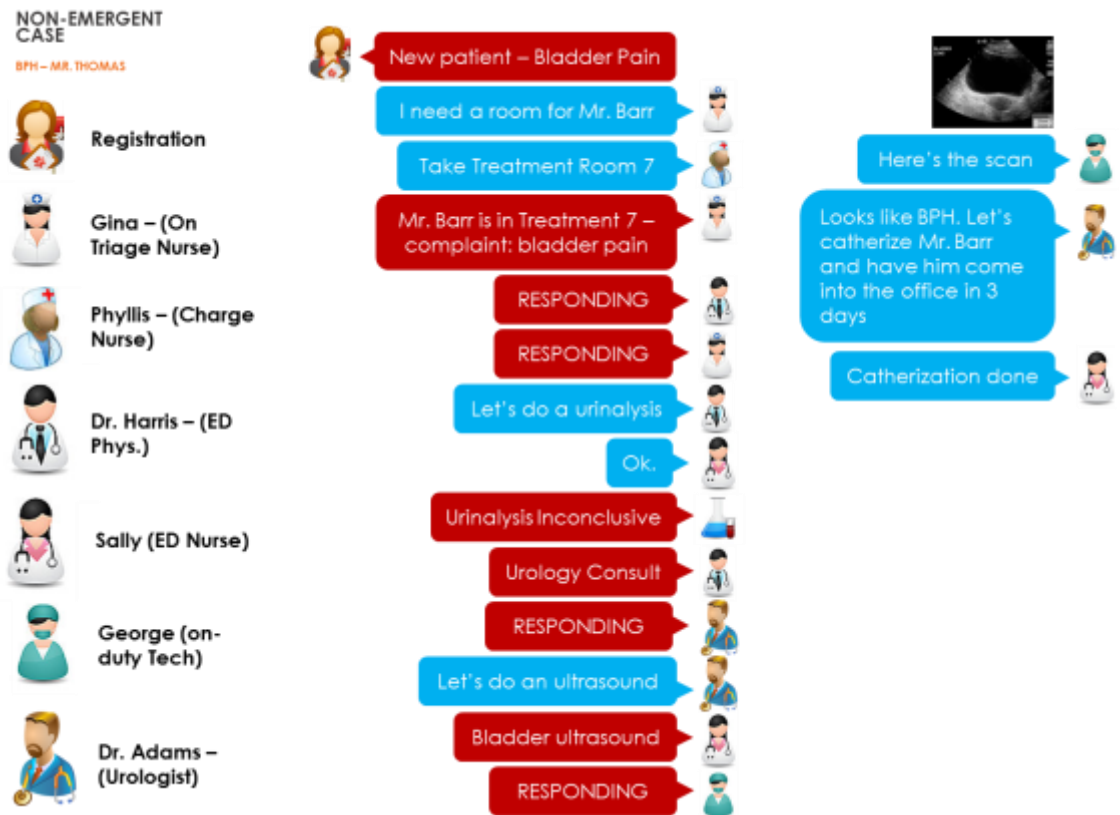
- How can we assess patients earlier?
- How do I quickly identify and confirm participation of on-call specialists?
- How do I coordinate with distributed, remote teams?

In a recent study with the Mayo Clinic, a workflow very similar to this was employed for assessing stroke patients during transit and an average of 7 minutes was saved per stroke patient. Since stroke patients lose 1.9 M neurons per minute while in stroke, the average impact was .42 brain years (the amount of neurons which would normally have dies in 1/3 of year).

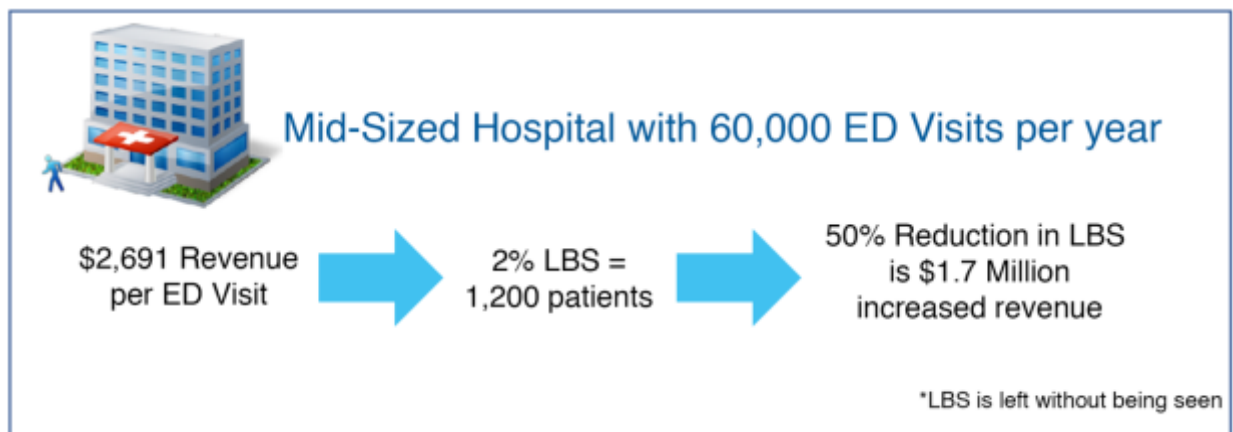
This patient throughput also led to observed lessening of necessary recovery time in acuity settings. One patient was observed with a reduction of 13 inpatient days. With each inpatient day over the GLOS costing the hospital \$2,300, even a couple of days saved can have a big impact (over \$4,500 per patient). There are also likely impacts on post-acute care service needs which are of increasing importance in value-based care.

Workflow for Non-Emergent Cases

Many of the same challenges observed in managing an emergent case also exist for non-emergent cases. For example, in diagnosing a patient complaining of bladder pain, the emergency care team might have to coordinate and communicate with the lab, radiology, and even pull in a tele-consult from an on-call urologist.



While the challenges are similar in coordinating the team, the impact is a bit different. A delay in care for these patients may not have a significant impact on their prognosis, but it can have a significant impact on the throughput of the ED. With wait times regularly advertised as a competitive advantage and longer lengths of stay meaning few patients coming the hospital, this impact can be significant. For an ED with 60,000 visits per year and a left without being seen percentage of 2%, a 5-minute savings on ALOS in the ED could mean nearly as many as an additional 1,200 patients per year for about \$1.7 M in revenue. In addition, to the clinical and financial impacts of these processes, patient satisfaction can be highly impacted by better communication throughout the process⁸.



What can you do?

1. Review your current ED metrics for critical patients. Are your door-to-needle and door-to-balloon times within current clinical practice? If you transfer most of those cases to a specialized center, what is your average time to transfer?
2. Review your current ED metrics for non-urgent patients. What are your annual diversion hours? What is your left-without-being seen rate? What is your door-to-physician time?
3. Review potential workflow improvements, could fast tracking non-urgent cases improve throughput? Would bedside registration help?
4. Review opportunities for communication and collaboration solutions to play a role. Could you leverage video capabilities to assess critical patients before they arrive in the ED? Could you use communication solutions to better collaborate with specialists for consults?



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Resources

¹[Emergency Departments saw a 22% increase](#)

²[Trauma statistics](#)

³[Brain injuries](#)

⁴[Coma statistics](#)

⁵[Door-to-balloon study](#) (download the study)

⁶[735,000 heart attacks](#) per year

⁷[Non-urgent cases](#)

⁸Hospitals, communication, and [patient satisfaction](#)

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