Emergency Department Throughput: The Cambridge Health Alliance Experience

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Sr. V.P. & Chief Medical Officer
President, CHA Physician Organization

IHI 2016
Overview of Cambridge Health Alliance:

Hospital:

- 3 campuses with 24-hour Emergency Services:
  - The Cambridge Hospital
  - Somerville Hospital (7/1/96)
  - Whidden Memorial Hospital (7/1/01)

- Community-based Primary Care and Mental Health Services:
  - services at hospital campuses
  - 12 neighborhood health centers, 4 school-based health centers

- Academics:
  - Teaching affiliations with:
    Harvard Medical School
    Tufts Univ. School of Medicine
    Harvard School of Public Health Teaching Affiliate
Regional Safety Net Provider

- Largest proportional provider of care to low income individuals in the State. (64% State Payment sources; 19% Medicare; 17% Insurance/HMO)
- Care for uninsured patients from over 230 MA communities
- Leading state-wide acute hospital provider of inpatient psychiatry
  - 10% of all statewide inpatient mental health stays
  - 27% of all statewide mental health stays for the uninsured.
  - greater than 30% of our patients and 53% of our mental health patients come from outside our 7-town primary service area
Why Change at CHA?

- Change in Healthcare environment
- Change in Healthcare reimbursement
- No Growth
- Poor patient satisfaction
- Inefficiencies
- Facility Challenges
FY07 Projected represents the first 5 months annualized

- Annual visit volume has averaged ~28.5k visits per year
- Through 5 mos, volume is down 2% from the PY

### Historical State

#### CH Registered ED Visits

<table>
<thead>
<tr>
<th>Year</th>
<th>FY02</th>
<th>FY03</th>
<th>FY04</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
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<tbody>
<tr>
<td>Value</td>
<td>28,979</td>
<td>28,800</td>
<td>27,983</td>
<td>29,100</td>
<td>28,510</td>
<td>28,155</td>
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</table>

#### Cambridge Hospital 7/1/06-9/30/06

- Waiting time before noticed arrival: 3, 2, 1
- Helpfulness of first person: 3, 1, 1
- Personal/Insurance Info: 3, 1, 1

#### Somerville Hospital 7/1/06-9/30/06

- Waiting time before noticed arrival: 27, 17, 34
- Helpfulness of first person: 43, 28, 53
- Personal/Insurance Info: 42, 29, 59
Historical State

- Time on diversion: 8.5%
- LWBS: 4.04%
- Median door to provider time: over 60 minutes
- Median total length of stay: over 200 minutes
- Poor core measure compliance
Essential Elements

- Leadership Team
  - Constitution
  - Alignment
  - Commitment
  - Communication

- Administration Support
ED Vision for the Future

Current State

Process
- Patient Flow Project
  - ED Flow
  - Inpt. Discharges
  - MD & RN communication between ED and Inpt. Unit
  - Triage/Registration
  - Laboratory TAT
- Transfer Leakage

Staffing
- MD Staffing/Productivity
- Nursing
- Clinical Support
- Administrative
- Registration

Capital Investment
- ED Information System
  - Tracking Board
  - Electronic Medical Record
- ED Front End Redesign
- Wireless Bedside Registration

Future State (2-3 yrs)
- Best Practice Patient Satisfaction
- Door to Doc (30 mins / 90%)
- Increased volume and capacity
Patient Flow Project

System Project Teams
Patient Flow is a Hospital-Wide Concern

- Every hospital unit has a part to play—the ED cannot solve the flow problem alone.
Patient Flow Project Goals

- Improve patient flow on all 3 campuses
- Do so in a timely, safe, effective, efficient, and patient-centered manner
- Implement best practices
- Utilize improvement methodologies, tools, and measures
- Utilize a multi-disciplinary, multi-campus single solution approach
- Engage hospital staff
Focus is Across the Continuum

Cambridge Health Alliance

Patient Flow Project
Team Focus Areas Relative to Patient Care Timeline

Physician Admitting Orders Team
No Delay Nurse Report Team

ED Patient Flow Team
Inpatient Discharge Team

Laboratory Team
Focus includes specimen ordering, collection, labeling/bar coding, transport, lab processing, and verification/results reporting

The sequence of events on the timeline do not occur necessarily as shown or apply to each patient.

David Arthur
3/06/07
<table>
<thead>
<tr>
<th>Team</th>
<th>Mission</th>
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</thead>
<tbody>
<tr>
<td><strong>ED Patient Flow</strong></td>
<td>Minimize time patients spend in the ED through the application of “best practices”</td>
</tr>
<tr>
<td><strong>Laboratory Turnaround Time</strong></td>
<td>Manage the ordering, collecting, testing, and verification of lab work through improved and standardized procedures</td>
</tr>
<tr>
<td><strong>No Delay Nurse Report</strong></td>
<td>Transport admitted patients to inpatient unit within 30 minutes of ED nurse giving report</td>
</tr>
<tr>
<td><strong>Physician Admitting Orders</strong></td>
<td>Expedite completion of admitting orders for admitted ED patients</td>
</tr>
<tr>
<td><strong>Inpatient Discharges</strong></td>
<td>Decrease length of stay through effective discharge planning activities</td>
</tr>
</tbody>
</table>
Patient Flow Project Methodology
(Plan – Do – Study – Act)

- Execute Plan
- Report Progress
- Assess Outcomes
- Reconfigure Using Planning Process as Needed

Planning Process Identifies
- Goals
- Scope
- Objectives
- Metrics
- Deliverables
- Hurdles & Solutions

Cambridge Health Alliance
Recommendations

● Input Reengineering / Rapid Assessment
  - Patient partner
  - Establish Mini Registration
  - 100 % Bedside Registration
  - Elimination of triage
  - Maximization of bed utilization

● Engage patients in the improvement project (Press-Ganey comments reviewed monthly with staff and posted in ED)
ED Patient Partner

- ED Patient Access Representative
  - Ambassador to patients in the waiting area
  - Mini registration to facilitate patient flow
- Part of a response to deficiencies in Press Ganey patient satisfaction scores related to arrival and personal issues

Press Ganey Percentile Rank

<table>
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<tr>
<th></th>
<th>All Hosp DB N=961</th>
<th>20K-30K N=205</th>
<th>MA State N=33</th>
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</thead>
<tbody>
<tr>
<td>Cambridge Hospital 7/1/06-9/30/06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waiting time before noticed arrival</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Helpfulness of first person</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Personal/Insurance Info</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Somerville Hospital 7/1/06-9/30/06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waiting time before noticed arrival</td>
<td>27</td>
<td>17</td>
<td>34</td>
</tr>
<tr>
<td>Helpfulness of first person</td>
<td>43</td>
<td>28</td>
<td>53</td>
</tr>
<tr>
<td>Personal/Insurance Info</td>
<td>42</td>
<td>29</td>
<td>59</td>
</tr>
</tbody>
</table>
The purpose of the unit is to facilitate rapid assessment and treatment at the point of arrival in the Emergency Department.

Eliminate traditional Express Care, Triage and Registration and utilize the space for Rapid Assessment (RA).

Combine nursing resources from Express Care and Triage – offers the ability to care for multiple patients at once.

Physician Assistant in RA.

- The role of the PA is to rapidly assess and when applicable, treat and release the patient without entering the Acute ED.
- May also play a role in the initial assessment and ordering of diagnostics for acute patients.
Space Utilization

- “A room is a room is a room”: Eliminate specialty rooms
- Avoid pooling
- Centrally locate high-risk patients
Redefining roles of staff

- RNs and PAR IIs draw labs
- Charge Nurse Role
- RN’s discharging patients
- Create MD Order Sets
  - This has streamlined order entry
- Create RN Order Sets (MD Standing Orders)
Recommendations

- **IT:**
  - EPIC / ASAP
  - PACS
  - MUSE

- **System Integration:**
  - PCP Initial notification
  - Heads up from PCP and EMS
  - Medical record access
  - Access to ED workup
  - Referral

- **Standardization of:**
  - P &P, Guidelines
  - ED documents
  - Equipment
  - Material
Recommendations

- **Process to improve quality of care**
- **Throughput:**
  - Early identification of admissions
  - Maximize utilization of all inpatient capacity
  - Early assignment of inpatient beds
  - Early handoff to the admitting service
  - Passive nursing report for admitted patients
  - Early transport to the floors
  - Escalation process
    - Back up
    - Code Help
Practice #2: Escalating Housewide-Capacity Protocol

Stepping Away from the Panic Button

Making Boarding Prevention Everyone’s Responsibility

Stepwise Process to Preempt ED Overcrowding

Level of Capacity Constraint

- Improve ED Efficiencies
  - Move patients to the hallway
  - Discussed strategies with ED physicians to expedite patient discharges
  - Transfer discharged patients out of rooms more quickly

- Involve ED Leadership, Inpatient Units
  - Discharge patients earlier
  - Transfer discharged patients to holding area
  - Add technicians to radiology, laboratory to improve turnaround time

- Activate Code Help
  - All staff contribute to the solution
  - Admitted patients transferred from ED to inpatient units within 30 minutes

Level of Leadership Engagement

Staff Involved
- ED Charge Nurse
- ED Attending Physician
- Off-Site IP Manager
- ED Nurse Manager
- ED Site Chief
- Chief of Emergency Medicine
- System Nursing Director
- System Leadership

Source: Cambridge Health Alliance, Cambridge, MA; Clinical Advisory Board Interviews and analysis.
Outcomes

● Results are overwhelming
  – ED TAT reduced
  – A 70% reduction in the number of patients leaving without being seen
  – Patients have noticed a difference
  – The reception area has remained empty during peak times
  – “This was the quickest emergency room visit I've ever had”

● ED Staff feels like the ED is “calmer” – less chaotic

● 100% of patients are registered at bedside

● Budget neutral
  – Reallocated existing staff and space
  – Zero up front capital costs
Historical Volume Trends

• Annual visit volume has averaged ~28.5k visits per year
• Through 5 mos, volume is down 2% from the PY

FY07 Projected represents the first 5 months annualized
Cambridge ED Press Ganey Patient Satisfaction Overall Mean Score

Cambridge ED Patient Satisfaction: Overall Quarterly Means & Percentiles

Mean Score Goal 20-30K %ile Rank
Rapid Assessment started 4/1/08
Peer Group Changed 7/1/08 to 30K-40K visits/yr
- AMI (ASA on arrival, B Blocker on arrival)
- CAP (Abx within 4 hours, BC prior to Abx)
Why a New ED at Whidden?

- The oldest facility
- Small (18 patient care spaces)
- No privacy/ Open ward (Same at SH)
- No Growth (Same in all three EDs)
- Most potential for growth
The New Whidden ED

- Design follows function
ED Visits & Admissions

- Registered Visits
- ED Admissions

**Visits**
- CY05: 30,126
- CY06: 31,953
- CY07: 33,530
- CY08: 35,644
- CY09: 38,424
- CY10: 41,232
- CY11: 43,010
- CY12: 45,459

**ED Admissions**
- CY05: 3,512
- CY06: 3,802
- CY07: 4,131
- CY08: 4,270
- CY09: 4,504
- CY10: 5,243
- CY11: 5,578
- CY12: 6,000

**Key Points**
- New ED Partially Open
- New ED Fully Open
- Patient Partner
- Rapid Assessment
Median Door to Provider Time (min)

- New ED Partially Open
- New ED Fully Open
- Patient Partner
- Rapid Assessment
This can be your billboard too!

24-HOUR EMERGENCY CARE
Shortest wait times in Greater Boston.*
CHA Cambridge Hospital
CHA Somerville Hospital
CHA Whidden Hospital

* 5/1/2015 www.medicare.gov/hospitalcompare

CHA Cambridge Health Alliance

AFFILIATED WITH

Beth Israel Deaconess Medical Center
Mass General Hospital for Children
Harvard Medical School Teaching Hospital
EMERGENCY Care within 5 minutes LEARN MORE

FAST-ER >> EMERGENCY WAIT TIMES*

Cambridge Hospital Campus 1 min
Somerville Hospital Campus 1 min
Whidden Hospital Campus 1 min

* Average wait time during past four (4) hours as of 2/22/2011 12:16:56 PM

CHA NEWS

> 02/07/11 - CHA clinicians featured in WBUR/NPR series on children's mental health
> 01/26/11 - CHA completes reconfiguration
> 01/13/11 - CHA's online ED wait times noted in CNN.com story
> 01/12/11 - CHA psychologist discusses lucid dreaming with CNN.com
> 12/19/10 - CHA highlighted in Boston Globe story about Mass. Patient-Centered Medical Home Initiative
> 11/18/10 - CHA's Haitian Mental Health Team earns Schwartz Center Compassionate Caregiver Award

YOUR HEALTH

- Looking for a new primary care provider? Our PCPs are now accepting new adult patients and new child patients.
- More gain, Less pain: Sports Medicine services for athletes of all ages.
- Online Access to Your Medical Information: MYChart is a secure internet connection to your provider’s office.

Meet Our Staff

Assaad Sayah, MD
Our Chief of Emergency Medicine shares CHA’s ED successes with hospitals throughout the U.S.
text message "ertime" to 41411
CAMBRIDGE, SOMERVILLE

Check online for hospital emergency room wait times in Cambridge, Somerville, Everett

Posted by Brock Parker February 18, 2011 11:13 AM  E-mail | Print | Comments (2)

By Brock Parker, Town Correspondent

The Cambridge Health Alliance announced today that patients can now check online to see how long the wait will be in the emergency rooms at the Cambridge, Somerville and Whidden hospitals.

Patients can also check the times via text messaging, according to the Cambridge Health Alliance.
Working together to change the culture

Adding a “partner”

In terms of new process changes “up front,” one of the most notable was the creation of the position of “patient partner.” This is a non-clinical individual who Sayyah listens to the host/hostess who first greets you when you enter a restaurant. “They are helpful PR people who can answer your questions in more than one language,” notes Sayyah. On two of the campuses, that position is staffed 12 hours a day, and on the third that position is staffed 18 hours a day, he says.

“When the patient comes to the door, the first person that meets them is the patient partner,” says Sayyah. “He speaks to them in their language. If they cannot, we have a translation phone that answers immediately.” (For more on telephone translation services, see “Translation technology fills important niche,” ED Management, June 2007, p. 65.)

The patient partner asks the patient three questions — name, date of birth (or social security number), and chief complaint. “They do a mini-reg” which takes 30 seconds, after which that information is accessible by computer to all of us, so we can order tests and produce a chart,” Sayyah explains. “The patient partner creates the initial chart, puts the bracelet on the patient, and brings them to the ED immediately so there is no sitting involved.”

There is no waiting room. In fact, Sayyah adds, the reception area ultimately might be converted to clinical use. Lebom says, “The most important principal involved here is that the patient comes to the ED to see a physician. They do not come to watch TV, or see a triage nurse, or talk to registration about insurance. They want a physician, and that’s what we give them.”

Most of the patients (those requiring sub-acute care) are taken to the rapid assessment area.

“Historically this area was occupied by express care, [ED] administration, and triage,” says Sayyah. “We merged the space together and the staff together.”

For example, notes Sayyah, the department previously had one triage nurse and two express care nurses. Now it has three rapid assessment nurses.

“There is no bottleneck,” he says. “Two EDs have five rapid assessment rooms, and one campus has nine, all of which have nurses and PAs; the doctors have been moved to the acute side.”

Sayyah says that 40% of patients never move out of the rapid assessment area. Registration personnel will perform a bedside registration.

Secret to making a culture change

The dramatic improvements achieved in patient flow at Cambridge (MA) Health Alliance could not have been possible without culture change, says Assad Sayyah, MD, PACER, chief of emergency medicine for the system.

“Culture change starts from the leadership setting the expectations for everyone else and being available and willing to support the ED,” Sayyah says. “It’s easy to dictate to people what to do, but you really have to lead by example and work harder than anyone else, and be available 24/7 and help the staff whenever they need it.”

Such change also requires teamwork, Sayyah says. “We work hand in hand with nursing leadership and the ED administration; we look at leadership of the department as a tripod,” he notes. “All three of us work hand in hand to be on the same page, making it possible for everyone across disciplines to sing the same song before implementation of new processes begins.”

Expectations for tPA is pathway to litigation

“I’d be sad someone didn’t give you thrombolysis, because you probably wouldn’t be paralyzed now.” When it’s a nurse, doctor, or someone else making that statement to a stroke patient cared for in your ED, you could end up named in a lawsuit.
Emergency Medicine News:
May 2011 - Volume 33 - Issue 5 - pp 1,25
doi: 10.1097/01.EEM.0000398218.18297.9e

Article

Tracking System Reduces ED Waits to Mere Minutes
Benton, Emilia

Faced with five percent of their patients leaving without being seen and quality measures in the 60th percentile, emergency physicians at the Cambridge Health Alliance outside Boston knew something had to give. ED visits had soared, patient satisfaction scores were just average, boarding was common, and a typical wait had climbed to 90 minutes.

Image...
Case Study | Cambridge Health Alliance

The Efficiency Experts

If you want a quick look at how Cambridge Health Alliance (CHA) runs its emergency department, just take a look at the home page of the organization's website. There you'll find wait times for each of its three EDs, updated every 10 minutes. The posted wait time at the Cambridge location—the busiest of the three—is rarely more than five minutes. Wait times at the other two campuses are routinely just two or three minutes.

Those numbers are even more impressive when viewed in combination with the rest of CHA's stats. The system hasn't gone on diversions for years. Fewer than 1% of patients leave without being seen. Patient satisfaction scores are up. Volume is up. Staffing, which by all accounts weren't working particularly well. There was a culture of inefficiency—and no real incentives for clinicians and staff to do better.

In response, the organization set “ambitious and sometimes even shocking goals,” says Gerald Steinberg, MD, CHA's chief medical officer.

One of the first was to eliminate ED diversions. “If you're diverting patients because your emergency room can't process the volume, you're actually diverting business to other organizations unless you're always running at full capacity, which very few hospitals are,”
Seven tips for slashing ED wait times with limited resources

As anyone who works in an ED knows, long wait times are not an ED-specific issue. Most of the time, long wait times in the ED aren’t due to the numbers of patients being seen in the ED, but rather to the patients who have been admitted to the hospital through the ED and are waiting for a bed to become available, otherwise known as “patient boarding.”

With more hospitals posting their low wait times on billboards and websites in an effort to draw in business, how can EDs without a lot of resources even compete?

Cambridge (MA) Health Alliance (CHA) was able to reduce its wait times while simultaneously treating more patients without adding any resources, says Assaad Sayah, MD, president of the medical staff and chief of emergency medicine. CHA is a single institution with three EDs. In 2005, its EDs treated 78,000 patients and went on diversion 8% of the time. Its wait time was almost two hours, and 5% of patients left without being seen.

“Last year we saw almost 100,000 patients; that is 25% growth. We have not gone on diversion for five years. Ninety-seven percent of our patients were in a room in less than five minutes from arrival, and 93% were discharged within five minutes of diagnosis. Place yourself in the hospital’s shoes and determine if you are adding value. It is not just about competing with another ED, but also for the finances of the ED,” he says.

A second hospital, which will remain anonymous, reduced its ED wait time from 11 to five minutes. Steven H. Goldstein, MD, MEd, chief of emergency medicine, says that the hospital achieved this result by training the ED’s physicians and nurses in the use of standard flow time and working to streamline the resuscitation process.

A third hospital, Loma Linda University Medical Center in California, has implemented a comprehensive set of practices to reduce ED wait times. These include the use of a standardized room access plan, which helps to reduce the time it takes for patients to be admitted to an inpatient bed after being seen in the ED. By implementing these practices, the hospital has been able to reduce its ED wait time from 12 to six minutes.

A fourth hospital, which will remain anonymous, has implemented a system to track the number of patients in the ED, as well as the number of patients who have been admitted to the hospital through the ED. By using this system, the hospital has been able to reduce its ED wait time from 14 to eight minutes.

A fifth hospital, which will remain anonymous, has implemented a system to track the number of patients who have been discharged from the ED, as well as the number of patients who have been admitted to the hospital through the ED. By using this system, the hospital has been able to reduce its ED wait time from 15 to nine minutes.

A sixth hospital, which will remain anonymous, has implemented a system to track the number of patients who have been treated in the ED, as well as the number of patients who have been admitted to the hospital through the ED. By using this system, the hospital has been able to reduce its ED wait time from 17 to 10 minutes.

A seventh hospital, which will remain anonymous, has implemented a system to track the number of patients who have been discharged from the ED, as well as the number of patients who have been admitted to the hospital through the ED. By using this system, the hospital has been able to reduce its ED wait time from 19 to 12 minutes.

2. Conduct a walkthrough

Once hospital administration has committed to improving ED throughput, administrative leaders should walk through the ED in the patients’ shoes, says Harvey Castro, MD, emergency physician at Quest Care Partners in Dallas/Fort Worth. “You pretend you are a patient and walk through each step. Does it take a long time for a patient to sign in? Do patients have to jump through many hoops? Do x-rays come back right away or does it take 30 minutes?”
Rounds

Create Your High-Performance, Patient-Centered Emergency Department

Proven Methods to Improve Patient Flow, Communication, and Physician Performance

Featuring a live event on March 29, 2012 | Cambridge Health Alliance | Cambridge, MA
System-wide flow initiative slashes patient wait times in the ED, boosts volume by 25%

Patient-centric care at the heart of new approach

Process improvements typically take center stage whenever hospital administrators decide that patient throughput and patient satisfaction are not where they need to be. But moving the needle in a positive direction will be slow-going, if not impossible, if there are larger problems in the work environment. That, at least, is what Assaad Sayah, MD, chief of Emergency Medicine at Cambridge Health Alliance (CHA) in Cambridge, MA, discovered.

EXECUTIVE SUMMARY

Emergency department administrators at Cambridge Health Alliance, a three-hospital health care organization in Cambridge, MA, implemented a system-wide flow initiative that has reduced the average length-of-stay for...
HealthLeaders Media LIVE From Cambridge Health Alliance

The Efficient ED
Reducing Triage Delays and Forging the Link Between ED and Primary Care

 Featuring a live event on February 4, 2014
12:00-3:00 p.m. ET (11:00 a.m.-2:00 p.m. CT)
Cambridge Health Alliance | Cambridge, Mass.

4 Lesson 1:  
   Break Through Triage Delays With Bedside Rapid Assessment

8 Lesson 2:  
   Reinforce Links Between ED and Primary Care to Close Care Continuum Gaps
Challenges

- ACO /PCMH collaboration
- Sustain and continue improvements
- Keep the staff engaged
- Output output output....
Questions

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