Creating a “No Wait” ED

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Case Study: Kaiser South Sacramento
Our Past: Impending Disaster!

Kaiser South Sacramento ED
*The County Hospital for Sacramento*

- Busiest ED In Sacramento
- Kaiser Facility
- Serves mixed payer/socioeconomic population (almost 40% Medi-Cal/Uninsured)
- Level 2 Trauma Center
- UC Davis ED residency teaching
- On pace for 130,000 visits this year
- Up 20% in volume in 2015, continued increases in 2016-17
Space Constrained

- 41 official ED bays
- Lose 3 for Trauma
- 4 dedicated to psych
- Over 3200 patients per ED bay!

Our Past State

[Image of a crowded emergency room]

[Image of a crowded emergency room]
Prior Baseline Data

- 450 hours of diversion annually
- LWOT rates 6.6% on average, but over 12% some months
- Average door to doctor: 55 minutes
- Total time in ED on average
  - 4 ½ hours for discharged patients
  - 8 hours for admitted patients
- But…wide variability day to day with much longer times some days

MD perspective

- May work a 12 hour shift and only see 8 patients with 30 or more patients in the waiting room
- Poor flow made it impossible to see patients
- Doctors were frustrated, complaining to administration about ED function
- Patients angry, staff angry, chaos!
- Unnecessary tests ordered
For our patients

- Waits of 5-6 hours to see a doctor
- 30-40 patients in the waiting room every night at 11pm
- Calls to “see if I could get them in quicker”

We saw the crisis coming…

- Volume going up from 67,000 in 2008 to 130,000 in 2016
- Trauma started Aug 2009
- County psychiatric failures
- Hospital space constraints: 180 IP beds
Worried it could have been us…

Sacramento girl needed amputations after 5-hour wait at emergency room

By Cynthia Hubert
chuber@sacbee.com

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Mahia Jeffers, 2, has Streptococcus A, which has led to the amputation of both feet and a hand. She is now

Our Current State
Our Current State

- Time to Physician 19 minutes

- LWOT: 0.4% all of last year

- Diversion hours: **Zero!**

- Length of Stay Down
  - ESI Level 4,5: 43 minutes
  - Discharged patients: 2 hours 9 minutes
  - Rare inpatient holds in the ED until this year…

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Always chasing a moving train…
Current State: Patient Side

- March, 2011: our ED

- 3 year old girl, brought in by mom…vomiting and diarrhea for 3 days, no fever

- Quickly evaluated by MD who said she “just doesn’t look right”

- LP showed >7000 white cells, culture grows out meningococcus
Recap

<table>
<thead>
<tr>
<th>Measure</th>
<th>Before</th>
<th>After</th>
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<tbody>
<tr>
<td>Hours on Divert per year</td>
<td>450</td>
<td>0</td>
</tr>
<tr>
<td>Percent LWOBS</td>
<td>6.6%</td>
<td>0.4%</td>
</tr>
<tr>
<td>Door-to-Doc (minutes)</td>
<td>55</td>
<td>19</td>
</tr>
<tr>
<td>LOS – Treat &amp; Release (hours)</td>
<td>4.5</td>
<td>2.4</td>
</tr>
<tr>
<td>LOS – Treat &amp; Admit (hours)</td>
<td>8.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

A little about Kaiser…

- Prepaid integrated health system
- No financial incentive to admit patients
- Similar acuity to other ED’s, but good follow-up and available testing allows discharge of many patients
- Examples: stable chest pain, atrial fibrillation, TIA, deep vein thrombosis, diverticulitis
- So, not only do we diagnose our patients, we treat as many as possible to send them home

*But remember almost half of our patients are non-Kaiser…*
Acuity

- In a comparison study, had the same acuity as most Level 2 Trauma Centers
- Because of systems that are in place we only admit 11% of patients vs 18% typically
- As an example, only 10% of chest pain patients are admitted, 75% of GI bleeds are scoped and sent home- a different mindset
- Best clinical outcomes- nationally recognized

How to even get started?

- Two key elements:
  - Process
  - Culture
How does this relate to us in EM?

How to create the cultural change

“The best way to predict the future is to create it”
Think differently!

What is the next Google Healthcare discovery in Emergency Medicine?

Lean for Healthcare Vision

• Started with the vision: “Our patients don’t wait”
• Lean Healthcare training for all staff - doesn’t have to be formal
• Create systems with continuous improvement that made it “better for patients, easier for people doing the work”
Amazing cultural change over time…

- Worked to empower all employees to own the change and think about process improvement in their everyday life
- Told all new hires… “if you don’t like change you probably don’t want to work here”
- Gave all physicians leadership books and challenged them to do projects that would help the department
- Is precedent- Toyota got over 80,000 suggestions from employees and implemented 99% of them
- Easier said then done!

What we discovered:

**Key Principles:**

- Small reductions in service time can really make an impact in times of high utilization

- Decreasing length of stay is the most key metric for dramatic improvement quickly
We live on the high end of the curve…

Building Blocks to Improve Flow:

- Rapid Care
- Team Assignment System
- Hospital Partnership
- Vertical 3 Area
- Clinical Decision Area
- Open Data
- Staffing for Volumes
Lets start at the beginning…

Leadership & Perseverance

- Set a Vision
- Look at every process critically
- Goal: better for patients, easier for staff
- Involve the frontline staff
- Continuous improvement
- Open data with clear metrics
- Have fun!
Pearls

- Set a vision with the staff “our patients do not wait”, “we want to be the best emergency department in America”
- Take risks: ask forgiveness later… a few hours of time for the staff in a Kaizen event will pay off in spades later
- Small tests of change…everyone is willing to try something for a day, week, month especially if their voice is heard when making changes

Improving Flow in the ED

- High volume ED: different patient streams based on acuity
  - Low
  - Medium
  - High

*All with very clear & different workflows with the goal of decreasing length of stay to create capacity.*
Flow Prior To Changes

Flow was controlled by the IT RN. Same MD could own patients on opposite sides of the ED!

Often 30 or more patients in the waiting room at 11pm.

Triage

- Remember, a “non-value added” necessity in many cases
- Eliminate when possible
- Directly pull into an area: if you guessed wrong just shift the patient!
- 90% of the time, first impression is the right one
Process Improvement
Doesn’t need to be fancy to work…

Rapid Care

- Our first project
- Low acuity patients were “triaged to home”
- 30% of our patients fit in this category after healthcare reform
Rapid Care: Low Acuity Flow
Started us thinking in a new way…

- Think *triage to home*…
- Small constrained area
- Well defined teams that work well together
- “One Contact” as much as possible
- Minimize movement
- Uniform work stations & stocking

That was our first project-
Many failures along the way
Immediate Results

% LWBS

Months Pre-PIT: August-September-October-November-December
Months Post-PIT: March-April-May-June-July-August

Low Acuity Flow

Patient Arrives

Triage only if delays

Low Acuity Treatment Area
Streamlined Low Acuity (Video)
No repeat work…
Goal arrival to discharge in under one hour

Patient

MD

RN

All sitting in close proximity and working toward rapid discharge—minimal movement by everyone!
Consider every step
Minimize movement for everyone

The System Makes It Easy

Before Process Change
After Process Change

(c) Murrell 2015
Mid-Acuity Flow

- Area to treat healthy patients who need more testing
- Goal to save high acuity beds in the main ED
- Patients like it better, improves the system

Key Points:

- KEEP VERTICAL PATIENTS VERTICAL!
- PO meds instead of IV meds: patients like it better!
- Never change your diagnostics
  - Partner with radiology to eliminate contrast
  - Have a phlebotomist if possible
- Results waiting room for patients who need testing
- Partner with the Main ED if more treatment or admission is needed
Mid Acuity Flow

- MD/RN team in the front eliminates waste
- Immediate communication between the team members

Mid Acuity Patients: no one in extremis!

- Abdominal pain
- Back pain- <40 years
- Chest pain-< 30 years
- DVT rule out
- Flank pain-<40 years
- Headache with migraine history
- Pelvic pain (stable r/o ectopic)
- Pediatric fever over 6 months
- Gastroenteritis
What you need to start

- Streamlined area for intake similar to low acuity area
- Pelvic Room
- Phlebotomist
- Partner nurse & treatment nurse
- Results waiting room

Our Intake Results

- Patients with the same chief complaint had an hour cut off of their length of stay
- Abdominal pain diagnosed in under 2 hours
Main ED

Need to make the main ED more manageable…
Team Assignment System

- Patients are assigned to a color coded team in the main ED **on arrival!**
- This created ownership for patients and decreased our time to MD dramatically
- Started at 55 minutes: now average 19 minutes arrival to MD start (over 350 patients a day)
- MD’s like it because they are front loaded with patients, then tapered at the end of their shift
Not just the assignments: Team Work!

- Team composed of a doctor and two RN’s
- Each team gets six rooms in the main ED with 2 flex beds when needed
- Manage your own area
- Code rooms flexible for any team
- Two hours to wrap up at the end to create capacity for the next team
- See many more patients than a traditional system

Team Assignment System

- Looking for a way to fairly distribute the workload
- Goal always “do this hours work this hour”
- What is the “workload” of each patient
- Better scheduling to demand based on workload instead of arrivals

*More to come...*
Well oiled machine

• Keep processes in place even when it gets tough... everyone knows their roles
• If things fall apart (500 patient day last year), everyone comes together and makes a plan together

Other ED best practices

• Portal System: Front end rooms where MD’s meet their patients and order testing with a dedicated phlebotomist (decrease order turnaround time)

  “Merry-go-round”: when capacity a problem—patients enter an area and meet the MD or provider who ultimately cares for them, have EKG’s, labs, radiology done—when room available in main ED, testing complete
  
  “The only order that matters is the last order!”
Open Data

- First we met together as a group and decided goals
- Then, worked on systems so MD's could reach goals without heroics
- Staff meeting discussed efficiency tips and shared our best practices
- Efficiency balanced with quality, patient satisfaction

Open data

- Metrics are not random: chosen to CREATE THE CAPACITY we need to see our patients and eliminate waiting times
Results:
standard deviation narrowed, length of stay decreased

Open Data Impact Studied

Public Relative Performance Feedback in Complex Service Systems: Improving Productivity through the Adoption of Best Practices

Hamy Song, Harvard University
Anita Tucker, Economics Department, Brandeis University
Karen L. Murrell & David R. Fineman, Kaiser Permanente
ED & Hospital:
only 3 ways to create capacity

- Decrease length of stay
- Decrease arrivals
- Increase capacity
Many Hospitals: War between ED & Inpatient

What we want…

Teamwork  Smooth Flow
For us...started at the front Observation Unit

- Decreases arrivals to the hospital
- Standardizes care
- Procedure Room: better for patients, easier for doctors (MD’s can scope twice as many patients- no down time)

Observation Unit Example

- Eight Rooms
- Staffed with ED MD’s/RN’s with a focus on flow- allows for Trauma, Pediatrics, Gyne
- A Flexible Unit
  - Observation with more testing: GI bleed, chest pain, TIA/minor CVA, syncope, pyelonephritis, stable asthma, minor trauma,
  - Kids, adults, all services
GI Bleed: a case study for flow

- Elderly patient arrives in ED with lower GI bleed complaint
- Vital signs checked, iStat hemoglobin done, other labs drawn and sent
- Immediate transfer to CDA
- Message left on the “GUT phone” if afterhours
- Standardized bowel prep begun, transfused if needed, serial labs
- Scope in the AM in a procedure room IN THE CDA (minimal movement)
- 75% are discharged home after recovery

Happy Doctor/Happy Patient
Is it working for us?

- Trial was done with observation unit closed for three months then reopened
- When the unit was closed admission percentage rapidly climbed
- Hospital became impacted
- Need to reopen was clear

Solution:
ED presence to improve hospital flow

- Found a partner on the floor who wanted to make things better
- Wanted to go beyond the traditional meetings without many results
- The two of us decided to sponsor a series of Kaizen events with ED/Floor participation
Bed Hub

- An assigned person who focused on placement of patients

Same Vision: Patients Do Not Wait

- Daily bed huddle with ED and Floor Nursing leadership
- MD participation when beds are tight
- Use a predictive model to anticipate admissions: “we know they are coming, we just don’t know their names”
- RN/PCC’s predict the discharges
- Main result: ownership for the patients waiting in the ED
Look at Every Step

*Improving the report to the floor…*

- Kaizen event to standardize the reporting process and prevent repeat calls…
- Frontline staff helping to drive the process

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**Example of Improvement**
Rapid Surgical Unit

- Created in six weeks after a winter summit
- Same principles: standardize care, decrease length of stay
- But... better for patients, easier for staff
What to do when there is just not enough room

We don’t have to be surprised…
The Unexpected Will Always Happen

Standardized Overcrowding Score
Visible to all employees…

Linked to a “surge plan”
Technology

- Now linked to a phone app
- Automatically sends updates
- Monitors if actions are completed
- Creates transparency & accountability

Our Final Truths!

- The **longer** they stay… the more work they are
- The **deeper** they get… the longer they stay
Most of all…
a culture of patient centered innovation and flow