Streamlining Emergency Department Flow Los Angeles and West Los Angeles

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Recommended Citation
Streamlining Emergency Department Flow
Los Angeles and West Los Angeles
Spring 2015

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Objectives

- Customer and Value
- Background
- Current State Map
- Ideal State Map
- Future State Map
- Implementation Methods
- Benefits of Lean
Goal

- Review all operations in the Emergency Departments (ED) at Los Angeles and West Los Angeles in order to identify the most efficient and medically effective care for ED patients throughout the KP enterprise.

Customer and Value

- **Customer**
  - Patient
  - Kaiser Permanente enterprise

- **Value**
  - Provide best possible medical care to patient
  - Maximize utilization of expensive ED facility by eliminating wasted time in the ED
ED BACKGROUND

ED Background

- What is EMTALA (Emergency Medical Treatment and Active Labor Act)?
  - Any patient who "comes to the emergency department" requesting "examination or treatment for a medical condition" must be provided with "an appropriate medical screening examination" by MD
  
  - Determine if patient is suffering from an "emergency medical condition"

  - If yes, then the ED is obligated to either provide patient with treatment until stable or to transfer to another hospital

  - Violation is up to $50,000
ED Background (cont.)

- Maximum Allowable Nursing Ratios
  - 3:1 (can go 4:1 for low acuity patients) per Union agreement

- ESI (Emergency Severity Index)
  - Triage tool based on patient acuity and resource needs (e.g., lab, radiology tests)
    - ESI 1: actively performing CPR
    - ESI 2: psych or stroke
    - ESI 3: abdominal pain
    - ESI 4: cold
    - ESI 5: prescription refill only

ED Data (cont.)

West LA ESI % 2014

<table>
<thead>
<tr>
<th>ESI</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
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<tbody>
<tr>
<td>1</td>
<td>0.22%</td>
<td>0.25%</td>
<td>0.27%</td>
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<td>11.28%</td>
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<td>12.81%</td>
<td>13.40%</td>
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<td>3</td>
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<tr>
<td>4 &amp; 5</td>
<td>59.07%</td>
<td>60.56%</td>
<td>62.16%</td>
<td>63.89%</td>
<td>65.76%</td>
<td>67.78%</td>
<td>69.92%</td>
<td>72.22%</td>
<td>74.66%</td>
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<tr>
<td>3.5</td>
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<td>0.36%</td>
<td>0.39%</td>
<td>0.43%</td>
<td>0.48%</td>
<td>0.54%</td>
<td>0.61%</td>
<td>0.68%</td>
<td>0.76%</td>
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LA ESI % 2014

<table>
<thead>
<tr>
<th>ESI</th>
<th>0%</th>
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<tr>
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<td>0.04%</td>
<td>0.08%</td>
<td>0.12%</td>
<td>0.16%</td>
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<td>4.74%</td>
<td>5.11%</td>
<td>5.49%</td>
<td>5.88%</td>
<td>6.28%</td>
<td>6.69%</td>
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<td>25.22%</td>
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<td>28.37%</td>
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<td>4 &amp; 5</td>
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<td>71.17%</td>
<td>71.84%</td>
<td>72.53%</td>
<td>73.24%</td>
<td>73.97%</td>
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<td>2.30%</td>
<td>2.52%</td>
<td>2.76%</td>
<td>3.02%</td>
<td>3.30%</td>
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</tbody>
</table>
Approximate Costs of ED Patient

<table>
<thead>
<tr>
<th>ESI Level</th>
<th>Current Cost/ Patient</th>
<th>Current Cost per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>$186</td>
<td>$126,926</td>
</tr>
<tr>
<td>4</td>
<td>$849</td>
<td>$14,449,432</td>
</tr>
<tr>
<td>3</td>
<td>$2,751</td>
<td>$121,778,053</td>
</tr>
<tr>
<td>2</td>
<td>$4,585</td>
<td>$24,978,521</td>
</tr>
<tr>
<td>1</td>
<td>$6,239</td>
<td>$2,124,434</td>
</tr>
<tr>
<td>TOTAL</td>
<td>--</td>
<td>$163,455,366</td>
</tr>
</tbody>
</table>

*Approximate costs based on relative resource usage, length of stay, radiology, lab, capital, and overhead.

Arrivals to ED by Hour

- **Patients wait until morning to come in**
- **Patients come in after work. Anticipate if not feeling better**
- **Urgent Care closing around 9-10pm**

Urgent Care Hours
- LA: 8a-10p, 7 days a week
- WLA: 9a-9p weekdays, 8a-9p weekends
## ED Data

<table>
<thead>
<tr>
<th>Metric</th>
<th>LA</th>
<th>WLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Visits (monthly avg)</td>
<td>5,572</td>
<td>5,777</td>
</tr>
<tr>
<td>% Admits to hospital</td>
<td>18%</td>
<td>12%</td>
</tr>
<tr>
<td>% Fast Track (ESI 4 &amp;5)</td>
<td>25%</td>
<td>29%</td>
</tr>
<tr>
<td>% Non-members</td>
<td>29%</td>
<td>31%</td>
</tr>
<tr>
<td>Divert hours</td>
<td>279 hrs</td>
<td>50 hrs</td>
</tr>
<tr>
<td>% Left without being seen and Against Medical Advice</td>
<td>2% (1,337 pts)</td>
<td>4.4% (3050 pts)</td>
</tr>
<tr>
<td># ED beds</td>
<td>45 + 34 hallway beds</td>
<td>35 - 43 used/ budgeted (53 total – 10 not used)</td>
</tr>
</tbody>
</table>

*Based on 2014 year-end dashboard data

## ED Average Length of Stay

<table>
<thead>
<tr>
<th>ALOS ESI Level 4&amp;5</th>
<th>ALOS Non-hospital admits</th>
<th>ALOS Admits from ED to hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA</td>
<td>1:30</td>
<td>3:37</td>
</tr>
<tr>
<td>WLA</td>
<td>1:57</td>
<td>3:49</td>
</tr>
</tbody>
</table>

- Due to Lean, the average length of stay (ALOS) is expected to decrease by approximately 20% for admits to the hospital and 6% for non-hospital admits.

*Based on 2014 year-end dashboard data
Top Wastes

- Waiting
- Transportation
- Defective Tests
- Mura (unpredictable)
- Muri (overburden)

EMERGENCY ROOM WAITING
SALA DE EMERGENCIA URGIDA

Mura Example – Preparing for Ebola!

HEALTH ADVISORY: EBOLA
Recently in West Africa?

If you get sick, call a doctor.
Talk to the doctor about your recent travel.

Watch for fever, headaches, and body aches in the next 3 weeks.

For more information:
www.cdc.gov/ebola
or call 1-800-CDC-INFO

Watch for fever, headache, and body aches for the next 3 weeks.

Talk to the doctor about your recent travel.

For more information:
www.cdc.gov/ebola
or call 1-800-CDC-INFO
Scope

- This will be a review of the entire ED flow:
  - Front-end
    - Triage
  - Middle
    - Assessment
    - Testing (e.g., lab and radiology)
    - Treatment and Stabilization
  - Back-end
    - Admit process (to inpatient/hospital bed)
    - Discharge process (to home)

LA Map

- Pt Status: Status
  - Triage Completed
  - Secondary Assess
  - Ready To Be Seen
  - Treatment In Progress
  - Ready For Transfer
  - Ready For Discharge
  - Nurse Discharge
  - Inpatient Census
  - MD Reassessment Needed
  - Discharge To Outside Facility
  - Transitional Patient
  - Discharge To Psych Facility
  - Bed Hold
Current State – Visual Cues

LAB ORDERS SHOW UP ON HANDHELD DEVICE

LAB LABELS

Current State – Supply sub-stations

KAISER PERMANENTE.
Patient Scenario

- A 56 y/o female tripped and fell while out for her morning walk.
- She arrives with a 3cm laceration and a large hematoma near the scalp on the left side of her forehead. She is also complaining of pain in her right wrist. It is swollen and tender to palpation.
- This patient will need a CT Scan of her head, x-ray of her wrist, and laceration repair.

Ideal State Map – Middle (Detailed)
### Hospital Admits from ED Data

<table>
<thead>
<tr>
<th>Metrics*</th>
<th>LA</th>
<th>WLA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average time from arrival in ED to leaving the ED (for admitted pts)</td>
<td>14:00</td>
<td>7:00</td>
</tr>
<tr>
<td>Hospital Consult TAT (waiting for consult)</td>
<td>2:11 (1 - 12 hrs)</td>
<td>1:58 (1.6 - 12 hrs)</td>
</tr>
<tr>
<td>Average time from hospital admit order to leaving ED</td>
<td>9:00</td>
<td>2:00</td>
</tr>
<tr>
<td>Avg daily boarding hrs (for all patients)</td>
<td>270 hrs</td>
<td>25 hrs</td>
</tr>
<tr>
<td>Value added-time</td>
<td>1:20</td>
<td>1:20</td>
</tr>
</tbody>
</table>

*Based on 2014 year-end data.
Boarding starts one hour after the admit order is placed.
REQUEST FOR CONSULT

Note: Request is also placed in HealthConnect, however no visual cue for Hospitalists
BACK - DISCHARGES

Summary of Today's Visit

Discharge Capers

Prescription

Recommended Wellness and Prevention Guidelines
You are due for:

5/5/2015
Summary - How to get to ideal State

- Use physician in triage
- Expand Urgent Care hours 24/7 with minimum staffing at night
  - Move level 4 and 5 patients to Urgent Care
- Increase number of transporters
- Develop just in time visual cues for transporters
- Kaizen event with ED MDs, RNs, techs, Lab and Radiology services to remove waste from testing processes
- Alert family when patient will be ready for discharge in a few hours to reduce waiting on back-end (eg, when MD places discharge order)
Summary - How to get to Ideal State (cont.)

- Develop just in time visual cues for Admits
  - Electronic visual control showing time lapsed
  - Periodic check (every 15 min) to check for possible admits
- Admission Process
  - ESI 1 should be direct admits after stabilization
  - ESI 2 and 3 - Hospitalists to promptly review record and make decision for admission remotely if applicable
- Kaizen event with ED, Inpatient, and Ancillary staff to improve hospital discharge process and increase hospital bed capacity to match demand
  - Real time monitoring of inpatient bed availability
- Reduce MD time on computer
  - Use scribes
  - Voice recognition/dictation program

Summary - How to get to Future State

- Flow forward—patient only moves forward (not back and forth to waiting room)
- Vastly reduce wasted time by utilizing more transporters/techs instead of RNs to move patients
  - Urgent Care
  - Triage to ED treatment area (avoid batching)
  - Radiology tests
  - Discharge
  - Hospital
- Techs should fully re-stock all rooms rather than RNs
- Pharmacy to ensure meds are stocked appropriately in all pods
Summary - How to get to Future State (cont.)

- Visual Cues (flags)
  - When patient needs transport
  - For hospitalists when consult is needed
  - For EVS when room is ready to be cleaned (after MD places discharge order)

- Hospitalists to process consults remotely
  - Decision by medical records only when applicable unless medically justified to assess patient in ED (avoid batching patients)
    - Requires senior leadership support to change physician culture

Value Added Time vs Waste (Admit to Hospital)

Note: Data are based on Gemba walk discussions with staff and providers.
### Value Added Time vs Waste (Discharges)

**Current State - Discharges**
- 55%
- 21%
- 16%

**Future State - Discharges**
- 56%
- 21%

**Ideal State - Discharges**
- 48%
- 20%

*Note: Data are based on Gemba walk discussions with staff and providers.*

---

### Comparison of Current, Future, and Ideal States

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Future</th>
<th>Ideal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Time (admits to hosp)</td>
<td>Baseline</td>
<td>↓ 20%</td>
<td>↓ 30%</td>
</tr>
<tr>
<td>Total Time (discharges)</td>
<td>Baseline</td>
<td>↓ 6%</td>
<td>↓ 16%</td>
</tr>
<tr>
<td>Capacity</td>
<td>All in ED</td>
<td>20% - 25% to UC (ESI 4&amp;5, 8am-10pm)</td>
<td>25-30% to UC (ESI 4&amp;5, 24/7)</td>
</tr>
<tr>
<td>Access</td>
<td>Baseline</td>
<td>Reduce diversion and LWBS (outside medical)</td>
<td></td>
</tr>
<tr>
<td>Frustration of patients, staff, providers</td>
<td>Med to High</td>
<td>Low to Medium</td>
<td>Low</td>
</tr>
</tbody>
</table>

*56*
Benefits of Lean

- "Go to the Gemba"
  - Direct observation combined with data is very powerful
  - Visibility with staff improves collaboration and engagement
  - Respect for people
- Question your assumptions
- Evaluate the entire flow and beware of sub-optimizing part of the process at the risk of sacrificing quality/cost on the grander scale
- Continuous improvement mindset

Acknowledgements

Brooke Ball
Pat Ballengee, RN
Tonya Fleeks, RN
Abigail Evangelista, RN
Laurie Naitio, MD
Jay Lee, MD
Ryan Barbato
ED Nurses (LA and WLA)
ED Physicians (LA and WLA)
ED Techs (WLA)
Radiology Techs (LA and WLA)

Elizabeth Dimick, RN
Matthew Smith, MD
Fariborz Kashef
Joy Pumar, RN
Adam Bernier
Vance Furukawa
Kathy Lee
Bohdan Oppenheim
Lean Class
KP Leadership/Sponsors
Questions and Discussion