Smoothie: Strategies to Improve Door-to-Provider Time
“Fixing The Front End”

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Today’s Travels

➤ Background Information
➤ The Case for “Door to Doc” Improvement
➤ Improving Door to Doc Times at Two Community Hospitals
➤ New Intake Models
➤ New Technology
Background Information

► The Volumes
► The Beds
► The Nurses
► The Patients

How Many ED Visits?

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Visits (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>80,000</td>
</tr>
<tr>
<td>1993</td>
<td>95,000</td>
</tr>
<tr>
<td>1994</td>
<td>85,000</td>
</tr>
<tr>
<td>1995</td>
<td>90,000</td>
</tr>
<tr>
<td>1996</td>
<td>95,000</td>
</tr>
<tr>
<td>1997</td>
<td>100,000</td>
</tr>
<tr>
<td>1998</td>
<td>105,000</td>
</tr>
<tr>
<td>1999</td>
<td>110,000</td>
</tr>
<tr>
<td>2000</td>
<td>115,000</td>
</tr>
</tbody>
</table>

Source: National Center for Health Statistics, National Hospital Ambulatory Medical Care Survey, 1992-2000
Courtesy: Robin M. Weinick, Ph.D. - AHRQ

20% increase
How Many Hospital Beds?

Source: American Hospital Association, Hospital Statistics
Courtesy: Robin M. Weinick, Ph.D. - AHRQ

How Are Hospitals Staffed?

Source: American Hospital Association, Hospital Statistics
Courtesy: Robin M. Weinick, Ph.D. - AHRQ
Age and Complexity of Acute Care

![Graph showing the relationship between age and proportion of complex patients.]

**Longer LOS**

- Older ➔ More Tests & Treatments
- More Tests & Treatments ➔ Longer LOS

*Courtesy: Peter Sprivulis MBBS PhD*  
Adult Admissions Through E.D.

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1983</td>
<td>32%</td>
</tr>
<tr>
<td>1993</td>
<td>53%</td>
</tr>
<tr>
<td>2008</td>
<td>64%</td>
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</tbody>
</table>

We are the Front Door to the Hospital!
Why Does it Matter?
The Case for Door to Doc Improvement

The Case for “Door to Doc”

► Crowding, Capacity and Flow
► Metrics
► Regulatory: Joint Commission, CMS
► Dirty Capitalist Pig$
► Patient Satisfaction
► The Public Eye
Overcrowding

Patient safety is always a concern

Crowding is associated with:

► Higher adverse event rates
► Higher morbidity and mortality
The dialogue has changed

It is all about Flow!

Metric Driven Management

Cycle Time Management
- Door to doctor
- Doctor to data
- Data to decision
- Decision to disposition
Regulatory

- Joint Commission Flow Standards
- National Quality Forum Endorsed Performance Measures

NQF Endorsed Measures

- Door to Departure Discharged
- Door to Departure Admitted
- Decision to Departure Admitted Patients
- Door to Provider
- Left Without Being Seen
Let’s Be Dirty Capitalist Pigs

► $250 – 500 for discharged patients
► $7000 admitted patients

“Show me the money Jerry!”

► 3% LWBS
► 40K a year visits
► 1,200 patients a year walk
► Admission rate 20%
► $300 discharged patients, $7k admitted

Almost $$$ 2 million!
Why Door to Doc Focus?

Short Times Correlate With...

► Better Patient Satisfaction
► With Lower LWBS
► With Improved Throughput

The Public Eye

► Death in Kings County Psychiatric ED Waiting Room
► Chest Pain Death in Vista Medical Center became a Homicide Case
► Bowel Perforation Death in LA as woman calls for Ambulance to Another ED
Improving Door to Doc Times at Two Community Hospitals

Two Tales

► The Data
► The People

“You can get a lot farther with a kind word and a gun than with a kind word alone.”

Al Capone
Intermountain Healthcare

- The Technologic Infrastructure
- Thirty Years of Investment in IT
- Homegrown Technology
Integrated Tracking System

Dashboards
### Door to Doc Times

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Time (Minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDS Hospital</td>
<td>23</td>
</tr>
<tr>
<td>CW Hospital</td>
<td>51</td>
</tr>
<tr>
<td>AV Hospital</td>
<td>47</td>
</tr>
</tbody>
</table>

(Time in Minutes)

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### Biggest Constraint:

- “Culture eats Process Improvement for Lunch”

--- Kirk Jensen, MD
IHI ED Collaborative
Stretch Goals

► Bring Door to Doc Time to Under 30 minutes at each site

► See 80% of patients in under 30 minutes

The Team

► Medical Director
► Nurse Manager
► Head Registration Clerk
► Head Technician

Because Process Improvement is a Team
QI Strategies & Tools

► Improve Process (Remove Waste)
► Prompts, Reminders
► Education
► Feedback Loop

Remove Waste

Traditional Flow Map of Intake

1. Patient presents for evaluation
2. Name Entered
3. Back to Waiting Room
4. Initial Assessment
5. Back to Waiting Room
6. Registration Calls Patient
7. Back to Waiting Room
8. Patient Brought to Room
9. Placed in Bed
10. Primary Care Nurse Assessment
11. Physician Notified Patient Ready
12. MD SEES

AMBULANCE presents for evaluation
**Intake Process Before**

- Inefficient
- Processes in Series
- Long Door to Doc time
- Repetitive for Patient

**LDS Intake Process After**

1. Patient Presents To Triage
2. Patient to Treatment Room
3. MD to Patient's Room
4. Labs Sent
5. X-Rays Ordered
6. Registration
7. Nurse Intake
8. Treatment Begun
Remove Waste

Traditional Flow Map of Intake

Prompts and Reminders

► Signage
► Tracking System Prompts
► Posters
► Staff became the drivers for change
Education

► Inservice Training for the Staff
► Packet of Articles for Physicians

New Concepts

► Think Processes not Places
► Think Parallel not Sequential
► Almost every thing you think “has to” happen, doesn’t
► Think the Most Important Event of an ED Encounter
The Psychology of Waiting

► Unoccupied time feels longer than occupied time
► Pre-process waits feel longer than in process waits
► Anxiety makes waits seem longer
► Uncertain waits are longer than known waits
► Unexplained waits are longer than explained waits

THE FEEDBACK LOOP
Feedback Loop

► Physicians are Moved by Data
► Physicians are Performance Driven

Education

► Inservice Training
► Email Notices
► Articles mailed to Physicians
► Individual Data Mailed to Physicians
Door to Doc Results

► CW
  51 to 31 minutes

► AV
  47 to 27 minutes

Results

► CW
  LWBS: 2.0 % to .8%

► AV
  LWBS: 1.2% to .4%
Results:

► CW LOS : No change
► AV LOS : No Change
The Other Story

Salt Lake Emergency Physicians: Strong QI History

Utah Emergency Physicians: No QI culture
The Other Story

“It is great that you love quality improvement Shari, but for me the importance is down here…”

Benjamin Jowett
1817-1893

“The way to get things done is not to mind who gets the credit for doing them.”

Benjamin Jowett
1817-1893
The Other Story

“I have this idea for a QI Project.

Can you help me?”
New Processes

► Traditional Triage Staffing
► Midlevel Triage
► Doc in Triage
► Team Triage
► No Triage, “Pull to Full”
► Pivot Nurse/ Abbreviated Triage
► Triage to the Diagnostic Waiting Room

Triage Staffing Based on Volume

► <20,000  0-12 hours nurse triage/ day
► 20-40k  12-24 nurse triage hours a day
greeter 12 hours
► 40-60k  24-36 hours a day
greeter + tech 12-24 a day
► 60-80k  36-44 nurse triage hours a day
greeter  24 hours, tech 24-36 hours**

**From VHA
The ED Volume Curve

ED Hourly Census And Arrivals

Traditional Triage Circa 1985

- 18,000 ER Visits, 2 patients per hour
- Dedicated rooms
- 12 to 20 Minute Triage
- Lengthy sorting process
Triage 2009

- Today 40,000 ER Visits
- Arriving in Surges that Mimic Mass Casualty
- A Bottleneck of our Own Design

Midlevel Provider in Triage

- Reduced Waits
- Reduced Throughputs
- Reduced LWOBS

Physician in Triage

► TRIAD Study: Triage Rapid Initial Assessment by Doctor. Decreased Throughput by 38% With No Additional Staff

► Taylor and Bennett, Emerg Med Journal 2004
  Physician in Triage decreased LOS, reduced LWOBS, increased staff satisfaction.

► A third to 45% of patients treated and released from triage area.

A True Story

► Arrowhead Memorial Hospital

► Part of California ED Diversion Project

► Astounding Census Growth over 5 Years
Annual Statistics

Annual Census
2002  58,000 seen and treated
2004  70,000
2006  96,000
2007  110,000

Arrowhead Memorial 2002

Performance Data
► Door to Doc 4 Hours
► LWBS  20%
► Unhappy Staff
Intake Redesign

**Physician/ Midlevel Initial Evaluation**

- **50%** Low Acuity Problem: Discharge home After Complete Registration
- **30%** Radiology or Lab Phlebotomist and/or Escort to Radiology
- **20%** Send to bed for higher acuity treatment or physical exam
Statistics Arrowhead Memorial

Door to Doc time
2002  over 4 hours
2004  120 minutes
2007  50-60 minutes
2008  March 31 minutes
(97% under 120 minutes)
LWBS Arrowhead Memorial

- 2002: 20%
- 2004: 9%
- 2006: 2%
- 2007: 1.5 to 3.5%
- 2008: March under 1%

Team Triage

- Team Triage and Treatment (T3)
  Thom Mayer, Fairfax Inova Hospital in Virginia
  Unpublished data: 34% discharged from triage, decreased LOS, improved patient satisfaction, decreased time to pain management
No Triage: “Pull ‘til Full”

- UCSD Ted Chan and Jim Killeen
- REACT: Rapid Entry and Accelerated Care at Triage
- Reduced LOS
- Reduced LWOBS

Abbreviated Triage

- Taking less than 6 minutes
- Fast Documentation
- May get Vitals on the Back End
- Pivot Nurse Concept
Case Study: Mary Washington

► 100,000 visits a year
► 14 letters to the editor in local paper
► 5 Hour LOS
► COMPLAINTS!!!
► 1/3rd of staff quit

Mary Washington Hospital

► Can intake new patients at a rate of 20 an hour
► Double triage 24/7
► 3 Service Lines
Abbreviated Triage

- Single Phrase Chief Complaint
- Allergies
- Pain Scale
- Vital Signs
- ESI Level

Mary Washington Hospital

SUCCESS!

- Throughputs down from 5 hours to 3
- Patient Satisfaction Up
- LWBS Down
Triage to the Diagnostic Waiting Room

- Keeping Patients Vertical
- Creating Different Spaces
- Being More Selective About Bed Placement

The Diagnostic Waiting Room, Bannock
Bed Minutes

Your Most Precious Commodity!!!

► For Diagnosis
► For Treatment

New Technology

► Bio Identification Techniques
► Intake Kiosks
► Medical ID Cards/ Smart Cards and Computerized Self Check-In
Computerized Self Triage

- University of Western Ontario/ New London Health Sciences Center
- Self Check-In using computer
- Took Five Minutes 32 seconds for first time users in pilot study
- Outperformed Physician in terms of data elements for abdominal pain
- 92% would use again!
Bio Identification

PASS
Patient Access Secured System

- Near-infrared camera
- Palm vein image
- Match name, DOB, MR
- Quick ID
  - < 15 seconds
- Prevents duplicate MR

The Point is ...

This Has to Go!
Change

“You can get a lot farther with a kind word and some data than with a kind word alone.”

Shari Welch