REDESIGNING THE ED’S CARE PROCESSES
SUN HEALTH DEL E. WEBB MEMORIAL HOSPITAL

Publication Year: 2006

Summary:
Replacement of triage with a redesigned ED care process to move patients through the ED swiftly and efficiently to avoid delays.

Hospital: Sun Health Del E. Webb Memorial Hospital
Location: 14502 West Meeker Boulevard
Sun City West, AZ 85375

Category:
- A: Arrival
- B: Bed Placement

Key Words:
- Communication
- Crowding
- Door-to-Doc
- Patient Satisfaction
- Patient Volume
- Queuing
- Rapid Intake
- Registration
- Wait Times

Hospital Metrics:
(Taken from FY2005 AHA Annual Survey)
- Annual ED Volume: 10,693
- Hospital Beds: 274
- Ownership: Not-for-profit
- Trauma Level: None
- Teaching Status: No

Tools Provided:
- Redesign Efforts Article Abstract
  A two-page article abstract outlining the efforts undertaken to redesign the ED care process, from the problem diagnosis through the implementation and results.
- Redesign Efforts Board Presentation
  A 39-slide presentation on the one-year progress report of the ED care redesign process.

Clinical Areas Affected:
- Emergency Department
- Registration
- Triage

Staff Involved:
- Administrators
- ED Staff
- Nurses
- Physicians
- Registration Staff
Innovation
A population boom throughout the region that Sun Health serves pushed administrators to rethink the hospital’s care processes after the ED became increasingly strained from all of the growth. The number of patients visiting Sun Health’s ED grew from about 19,000 in 2002 to nearly 50,000 in 2005. This year the ED is on track to serve a projected 60,000 patients. Before the redesign, this higher patient volume overwhelmed the ED. Rates of patients who left without being seen (LWBS) climbed to a high of 14% in April 2005. Waiting times were typically six to eight hours, stretching to 10 hours during peak times. In October 2005 administrators hired a consulting firm to reorganize the delivery of care throughout the ED. (See Redesign Efforts Article Abstract)

Long wait times in the Emergency Department (ED) at Del E. Webb Memorial Hospital inspired administrators and staff to map out their patients’ journey through the ED from the time they entered the door to the time they were either discharged or moved to an in-patient bed. It became clear very quickly that the hospital’s triage process was the main cause of gridlock in the ED. The ED eliminated triage altogether and replaced the antiquated system with a redesigned ED care process to move patients through the ED more swiftly and efficiently to avoid delays. “The greatest risk we had was our full lobby,” said Noreen Vanca, R.N., B.S.N., Director of Emergency Services. “We didn’t want our patients to wait.” The new model of care includes:

- A “quick look” technician to check patients’ vital signs and then send patients to a treatment area where an immediate assessment is performed by a physician and nurse.
- Patients are moved to either Side A or Side B of the ED, depending on the nature of care needed. Side A is dedicated to emergency care such as heart attacks and strokes. Side B is geared toward non-life-threatening care such as broken arms and cuts.
- Patients are no longer assigned to permanent beds and are moved within the ED.
- Patient care functions such as physical exams, data collection and procedures are performed in different rooms of the ED to promote better patient flow.
- If patients are in pain, they are moved to beds until they are able to tolerate sitting on a recliner. The use of recliners takes up less space and promotes waiting on the back end of the ED visit rather than on the front end.

Results
The redesigned system has enabled the ED to overcome gridlock and better serve patients. It has also had some unexpected positive effects on staff turnover and morale. The average length of stay in the ED waiting room was five hours before triage was eliminated with some patients waiting as long as 12 hours. The average length of stay is now 3.30 hours. Before the redesign, the LWBS rate climbed as high as 14%. Currently the LWBS rate is .01%. Additionally, the ED has had no ambulance diversions for the past two years.

Patient satisfaction scores on the Press Ganey survey had been 9% before the redesign Seventy-five percent (75%) of patients now say they are satisfied with care. The patient satisfaction score had been slightly higher six months after the redesign with 85% of patients reporting satisfaction with care. Vanca attributes the decrease in patient satisfaction scores to the redesign’s success. “Our efficiency has replaced some of the compassion,” Vanca said. “Sometimes you lose some of that. We’re working on getting it back.”

Before the care processes were redesigned staff turnover in the ED was high and morale was low, particularly among Registered Nurses (RNs). The turnover rate among RNs was 36 percent and there was a 32 percent vacancy rate as well. “We didn’t have staff engagement before,” Vanca said. “Immediately it started to improve.” Currently the RN team is 100 percent staffed and there’s even a three-person waiting list to join the ED. Sick calls are down from 96 hours a week to eight hours a month.

Innovation Implementation
While the hospital sought an outside firm to help overhaul the ED care model, it was a multidisciplinary team of ED
physicians, nurses, and technicians that was critical in obtaining buy-in from the entire staff. Rather than the outside firm or even management developing the new model of care, the team used its collective experience to design a better system for the ED. In creating a new model of care, the steering committee of doctors, nurses and other team members first adopted the following principals to guide them:

- Patients come to the ED because they want to see a physician;
- Performing the traditional triage process creates delays in diagnosis and treatment;
- Not every patient needs to own a bed; and
- The greatest risk to ED patients is the waiting room.

Because the changes were staff-driven, it allowed the team to engage their co-workers when it was time to implement the new care processes. “It is very tough pushing through change,” Vanca said. “The members of the steering committee were the ones who were able to go to their peers and push through it.” Administrative buy-in was equally important, Vanca added. At the kick-off of the redesign, the hospital’s CEO told the staff she would support any initiatives the staff wanted to implement as long as they refrained from one thing: the staff couldn’t request additional fulltime employees to accomplish their goals. (See Redesign Efforts Board Presentation)

**Advice and Lessons Learned**

Because the redesign was such a major undertaking and there was bound to be growing pains, Vanca said administrators made a conscious decision to prohibit anyone from making any changes to the new care processes model during the first 30 days after it was implemented. “If everybody changed the process you wouldn’t know if the original process would work,” Vanca said. “We were really strict about it but I’m glad we were.” Administrators celebrated staff success when big milestones were reached. For example, ED physicians cooked omelets for the ED staff when the LWBS rate dropped to .01%. The hospital also brought an ice cream cart around the ED to celebrate one year of no ambulance diversions. While these morale boosters were good for the staff, Vanca said she wishes she had done a better job earlier on to celebrate the successes of individual staffers. She now hangs up banners and hands out candy to celebrate the contributions of staff members who stand out.

**Tools to Download**

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  A two-page article abstract outlining the efforts undertaken to redesign the ED care process, from the problem diagnosis through the implementation and results.

- Redesign Efforts Board Presentation
  A 39-slide presentation on the one-year progress report of the ED care redesign process.
Introduction: Sun Health Del E. Webb Hospital has experienced growth rates of greater than 20% per year since 2001. In 2002, Sun Health Del E. Webb Emergency Department had a volume of slightly over 19,000 visits annually. By 2004 the volume had grown to over 36,000 visits and by the first half of 2005, the projected annual volume was up to 46,000 visits. Patients Left Without Being Seen (LWBS) climbed to a high of 14% in April 2005, and Length of Stay (LOS) for treated and released patients soared to almost 6 hours. Wait times to treatment were typically 6-8 hours in length, with peak wait times greater than 10 hours.

It was clear that the Emergency Department (E.D.) throughput processes in place were insufficient to handle higher volumes. The Administration Team at Sun Health Del E. Webb engaged Insight Strategies, a consulting firm specializing in rapid cycle improvement in healthcare based on Daimler-Chrysler methodology, to assist the team in “reengineering” the patient flow process in the E.D.

Hypothesis: If the group identified the essential provider functions needed upon patient presentation to the E.D. at Sun Health Del E. Webb, and redesigned a new process around this identifiable need, then both LOS and LWBS would decrease. Sun Health Del E. Webb E.D. would be able to handle increased volumes through improved efficiency, and patient satisfaction would increase.

Methods: In October 2005, using Simulation Analysis of the E.D.‘s existing flow process, the group was clearly able to see the effect that early queuing up of patients in triage and variability of arrival times had on throughput. It became clear that using the current methodology patients would consistently queue to overcrowding by 1000, and E.D. saturation would continue until 0300 or 0400. It was evident that triage time, registration time, and wait times constituted the majority of the E.D. visit, ultimately causing significant delays in treatment.

The reengineering group was made up of a multidisciplinary team representing the majority of the key departments that affect throughput in the E.D. The members of each of these departments were employees who perform direct patient care or worked directly with the current process. There was a strong commitment from administration that any changes the group came up with would be fully supported as long as the vision was focused on the patient experience. Using the Daimler-Chrysler vernacular, the group was charged with “building a new car,” not an “oil change.”

Results: Working under the assumption that the primary reason patients come to the E.D. is to see a physician, the group’s aim was to expedite that process. A redesign was performed in which the traditional comprehensive nursing triage assessment is replaced
by a brief evaluation by a “Quick-Look Tech.” The patient is then brought to a treatment area, where an immediate assessment can be performed by the physician and nurse simultaneously. In addition, patients are no longer assigned to permanent beds. Different patient care functions, from physical exam to data collection and procedures may be performed in various parts of the E.D., thus maximizing the efficient use of limited space.

In six months, LOS has decreased from 5:____ to 3:13. In June 2006, LWBS were .001% (10 patients out of 3200 visits), down from a high of 14%. The Sun Health Del E. Webb has continued to handle a 12% growth in volume from 2005 to June 2006. Patient Satisfaction scores using the Press Ganey survey have climbed from 9% to 85% in the six months since the redesign.

**Conclusion:** By focusing on customer needs, E.D. throughput was reengineered by a collaborative process involving actual hospital staff, and resulted in best practice based on the data following the redesign.
Emergency Services

Process Redesign Report Card

One Year Later….
Big Growth

- 2002 ED Volume: 19,000 visits
- 2006 projection: 46,000 visits
- EMS volume increased 50% from 2002
- Diversion Hours increased 150%
- ED Hold Hours increased 25 fold
  - 100 hours per month in 2002
  - 2500 hours per month in 2005-2006

Del E. Webb ED Patient Volumes 2004 – 2006
(Includes Patients Who Left Without Being Seen)
Del E. Webb ED EMS Volumes 2004 - 2006

Del E. Webb ED Diversion Hours 2004 - 2005
Del E. Webb ED Hold Hours 2004 - 2006

Growth Impacted Performance

- LWBS climbed to high of 14% (468) in April 2005
- Length of Stay increased to an average of 4:55 in 2005
- 2005 wait times to a treatment area often exceeded 6-8 hours
- Patient Satisfaction down to 8% December 2004 / January 2005
Del E. Webb ED Patients Who Left Without Being Seen 2004 - 2005

Del E. Webb ED Length of Stay 2004 - 2005
Patient Satisfaction Scorecard

- 2005 1st Quarter
  - Mean 79.2
  - 23%
- 2005 2nd Quarter
  - Mean 77.0
  - 15%
- 2005 3rd Quarter
  - Mean 81.7
  - 39%
- 2005 4th Quarter
  - Mean 79.9
  - 20%

- 2006 1st Quarter
  - Mean 77.2
  - 8%

Growth Impacted Staffing

- May 2005 RN Vacancies climbed to 32%
- 2004-2005 staff turnover rate was 35%
- Registry use was high
- Sick calls by existing staff significantly increased in 2004
Redesign

- October 2005: Insight Strategies was engaged to redesign the process
- Utilized Daimler/Chrysler method of Rapid-Cycle Process Improvement
- Staff driven, using the bedside experts
- Simulation Analysis of the ED’s existing flow process showed areas of concern

Process Redesign Assumptions

- Patients come to ED for only one reason-to see a physician
- Triage means there is already a delay
- Not every patient needs to own a bed
- Greatest risk to patients and hospital is a full lobby
New Process

- Triage eliminated
- Intake Process established where patients are immediately taken to exam room or bed
- Physician sees patient within 15 minutes of arrival
- Patient moves within ED depending upon condition and workup
- Flexible

Results

One Year Later…
Patient Satisfaction Scorecard

- 2005 1st Quarter
  - Mean 79.2
  - 23%
- 2005 2nd Quarter
  - Mean 77.0
  - 15%
- 2005 3rd Quarter
  - Mean 81.7
  - 39%
- 2005 4th Quarter
  - Mean 79.9
  - 20%

- 2006 1st Quarter
  - Mean 77.2
  - 8%
- 2006 2nd Quarter
  - Mean 81.7
  - 50%
- 2006 3rd Quarter
  - Mean 81.8
  - 71%

CORE MEASURES – Door to Balloon for Acute MI

Fourth Quarter 2005

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<tr>
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CORE MEASURES – Door to Balloon for Acute MI

January and February 2006

Time in Minutes

- Actual Time
- Goal=120

CORE MEASURES – AMI Treated with Aspirin within 24 hours - 4th Quarter 2005

- Took at Home (100% = 4/4)
- Emergency Dept (100% = 28/28)
- Unit 2A (100% = 2/2)
- Unit 5C
- Unit 4B (100% = 1/1)
- Unit 3B (100% = 2/2)
## Solucient Data

### Hours worked per patient visit

**Benchmark: 35% or below**

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Results

- 100% filled positions
- Marked decrease in registry use
- Staff sick time has decreased from average of 96 to 8 hours per pay period
- Great relationships with local EMS
- WAITING ROOM IS EMPTY!!!

Unexpected Result: Staff Engagement

- Shared leadership with active participation at every level
- Staff engaged in creative problem solving
- No longer bound by staffing ratios—greater workload with greater job satisfaction!
- Staff passing the excitement onto other departments: “Build a Bridge” program
The Final Piece...

- Spring 2006 CEP awarded the Sun Health ED contract and AEP is founded
- Large democratic partnership staffing 55 California hospitals
- National recognition for best practices in patient care, customer satisfaction and ED management
- Recruiting Success
  - Residency trained, Board Certified/Board Eligible
  - 8 new physicians, 2 Chief Residents
Arizona Emergency Physicians

- Local emergency physicians committed to the community
- Ideal Emergency Medicine Practice: local autonomy with access to large network of management expertise
- Nursing/Physician partnership to continuously energize and improve the process

Rising to Future Challenges
RN Vacancies – Grow Your Own

- Emergency Department CCT’s are pursuing RN degrees
- Many new graduate nurses want to work in the ED but lack formal training
  - Untapped resource: Mesa/Boswell School of Nursing
  - ED residency program implemented

ED Residency Program

- Began in May 2005
- 13 week program
- Formal curriculum combines didactic and clinical experience
- Has grown to include Grand Canyon and Ethel Bauer students
- Graduated 15 students
- Waiting list currently
EMS Results

- 2 actual community disasters 2006
  - Voluntary EMS response with several 7-man battalions
- Multiple new Fire Stations planned
  - 5 additional stations in Surprise by 2008
  - 3 new Fire Stations in Buckeye 2007
- Cultivate Staff/EMS Relations
  - Green Chile cook off, baseball games, EMS appreciation week - huge staff involvement

Regulatory Changes
2006 EMTALA Changes

- Off-load of ambulances within “reasonable” time: 15 minutes in Phoenix area
- Delays in off-loads can result in fines under the EMTALA umbrella

Response to EMTALA Changes

- Staging concept based on disaster protocols
- Physicians go to staging area
- “Pit Crew” concept
Rising to Other Challenges …

- No Diversion
- Disaster Management
- Chest Pain Center
- Bed Placement Process – Right Patient, Right Bed
- PICIS – IT project

Rising to Other Challenges…

- Patient Satisfaction
- Thank you cards
- Nurse Council
- STEMI Project
Thank You for your support!

Any Questions?