

Reducing Costs in the Emergency Department

Advancing Healthcare Quality Research

May 29, 2015

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Objectives

- Describe the Scope of Emergency Care
- Describe Cost of Emergency Care
- Describe Current Efforts
- Identify Research Collaborations

The Scope of Emergency Care

- 136 million ED visits in 2009, and rising.
- Expenditures for ED care represent 2% of the national healthcare budget.
 - Approximately \$1,000 total expenses per visit.
 - 20% physician costs
 - 80% hospital costs
- The cost of emergency care varies by the severity of a patient's illness or injury.
- Because of the range of patients needs in emergency services, ED's must provide full hospital diagnostic and treatment services 24/7/365.

The Cost of Emergency Care

- The mean cost of medical care in the U.S. is rising at an unsustainable rate.
- The average ED cost rose 240% between 2003 and 2011 from \$560 to \$1354.

The Cost of Emergency Care

Owning the Cost of Emergency Medicine: Beyond 2%

Michael H. Lee, MD, MS; Jeremiah D. Schuur, MD, MHS; Brian J. Zink, MD

- Prior reporting methodologies are inconclusive.
- National healthcare expenditures for emergency care range from 5-6% possibly as high as 10%.
- Overuse of the ED may account for as much as \$38 billion per year in wasteful spending.

*Ann Emerg Med 2013; 62:498-505.

The Cost of Emergency Care

- In general, emergency care is viewed as a costly alternative to non-emergency care.
- The “worst first” mindset that leads ED providers to focus on maximizing sensitivity for true life threatening diseases leads to high resource utilization.

| | The Truth | | |
|------------|-----------|----------------|----------------|
| | Sick | Not Sick | |
| The Belief | Sick | True Positive | False Positive |
| | Not Sick | False Negative | True Negative |

Strategies for Reducing Costs

- Reduce ED Length of Stay
- Implement Observation Units
- Reduce non-urgent visits
 - Utilize urgent care and APPs for non-urgent visits
 - Frequent Fliers
 - Drug Policy for "Frequent Fliers"
- HIE's
- Reduce test utilization

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Reducing Costs in the ED: Time=Money



Value Axiom

- Value = Quality/Cost
- Quality: the primary determinant of the quality of emergency care is the timeliness of emergency care (inverse relationship).
- Cost: the primary determinant of the cost of emergency care is the timeliness of emergency care (direct relationship).

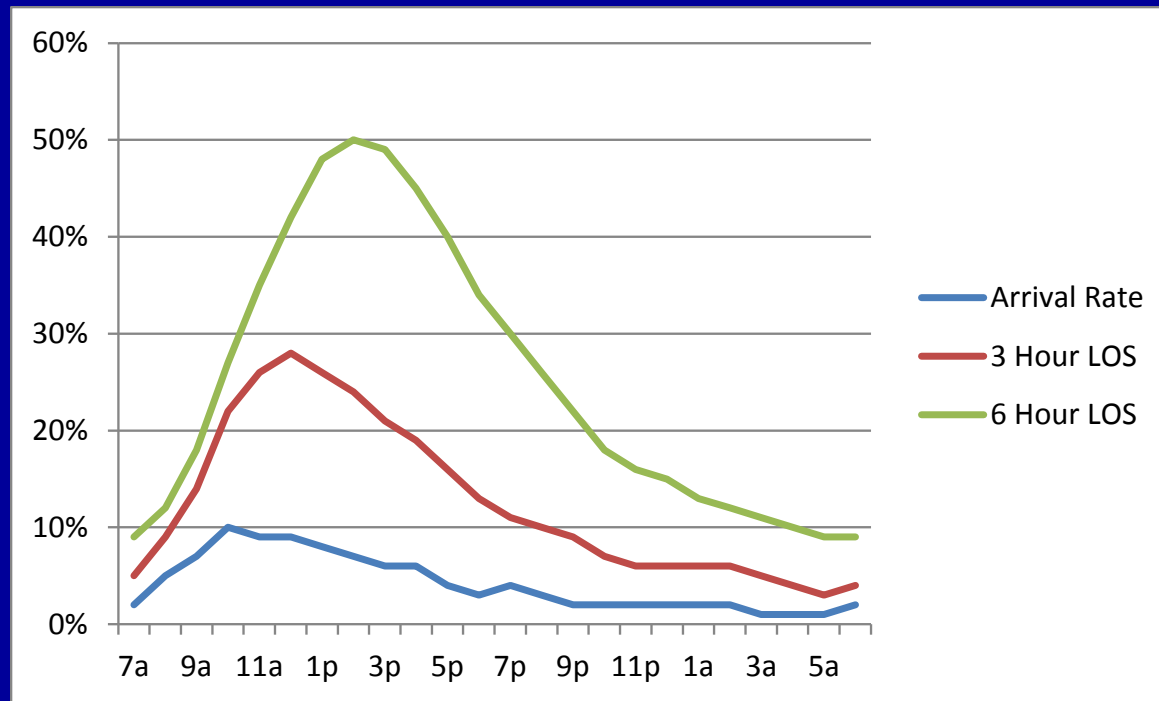
Value

- $\text{Value} = \text{Quality} / \text{Cost}$
- $\text{Quality} \approx 1/\text{timeliness}$
- $\text{Cost} \approx \text{timeliness}$
- $\text{Value} \approx (1/\text{timeliness}) / (\text{timeliness})$
- $\text{Value} \approx 1/\text{timeliness}^2$

LOS and Ambulance Diversion

- Ambulance Diversion: Each hour on diversion costs \$1,086 in lost revenues (McConnell KJ, Richards CF, Daya M, et al. Ann Emerg Med (2006); 48:702-710).

LOS and Staffing



- Majority of cost of emergency care is staffing.
- Staffing for emergency care must not only account for arrivals, but for census.
- Increased length of stay leads to added staffing expense.

LOS and Quality

- Multiple studies show that crowded EDs and prolonged LOS reduce quality outcomes for CAP, NSTEMI, pain control, patient satisfaction, and likely cause a modest increase in hospital LOS.
- ED LOS are publicly reported measures.

Strategies for Reducing Costs

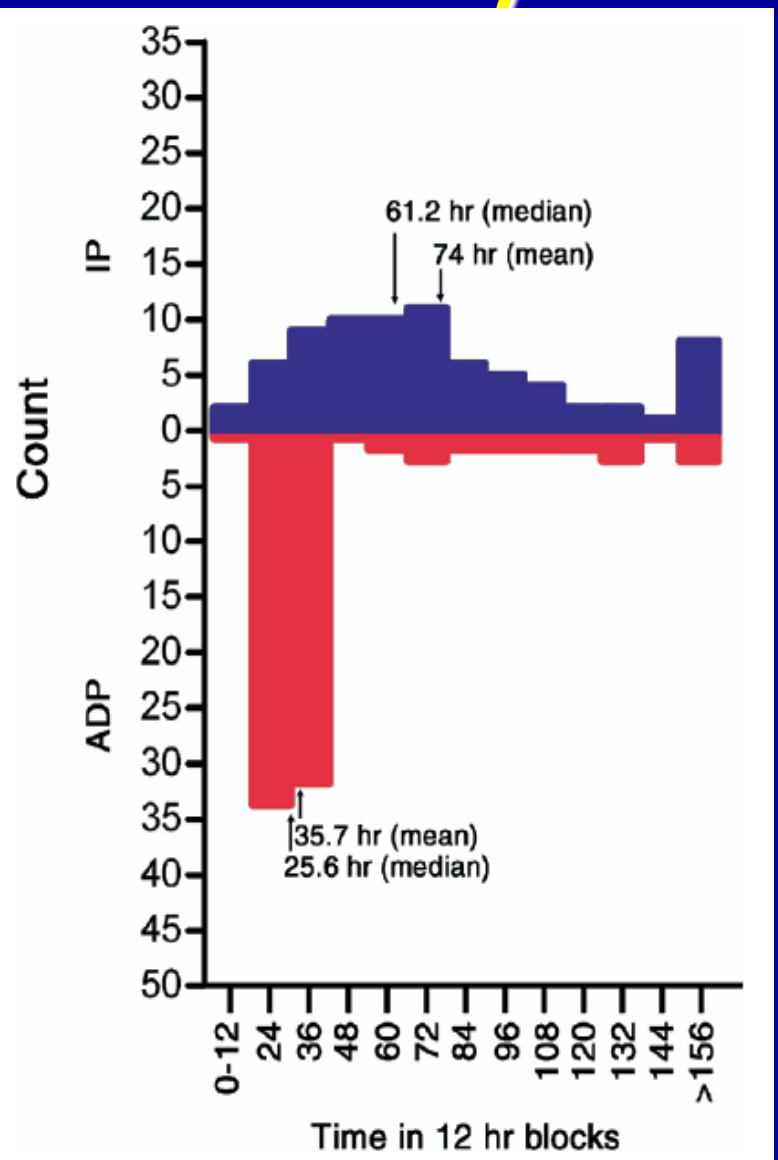
- Reduce ED Length of Stay
- **Implement Observation Units**
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State of the Art: Emergency
Department Observation Units

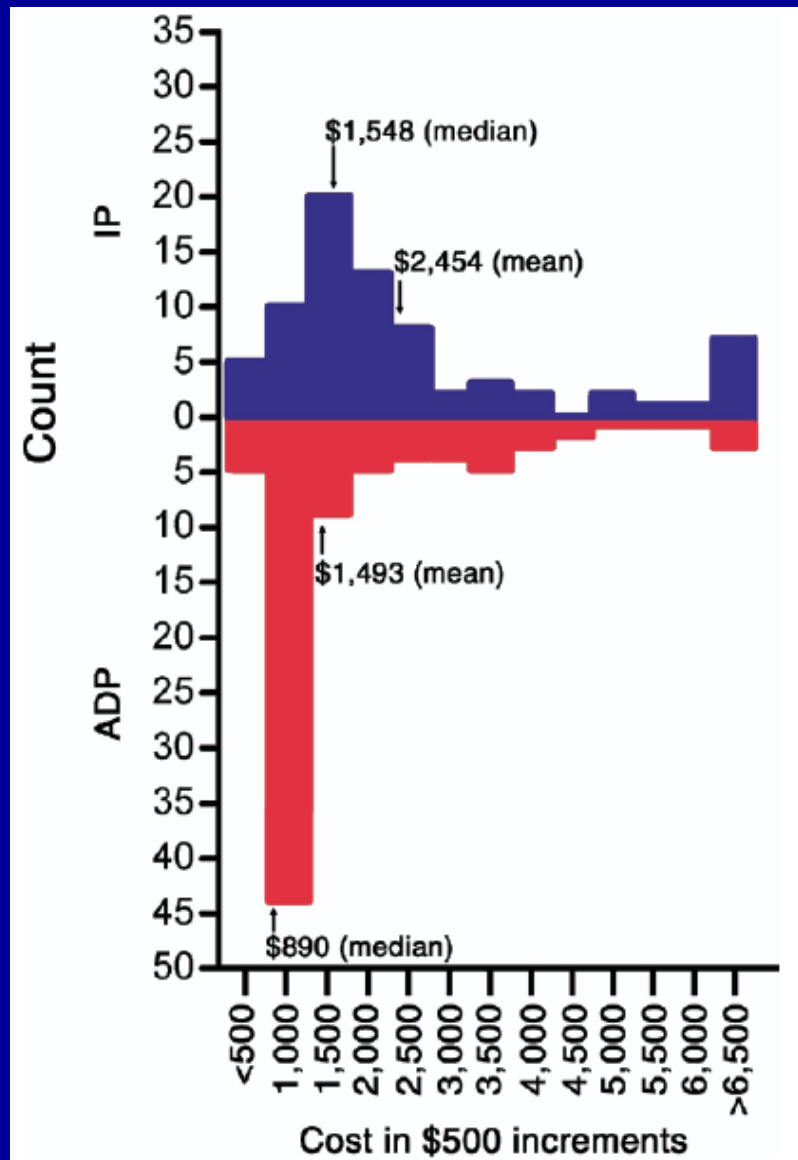
Michael A. Ross, MD,* Taruna Aurora, MD,† Louis Graff, MD,‡ Pawan Suri, MD,†
Rachel O'Malley, MD,§ Aderonke Ojo, MD,¶ Steve Bohan, MD, and Carol Clark, MD**

| <u>Condition / Year / Author</u> | <u>N</u> | <u>Primary Outcome</u> |
|--------------------------------------|----------|---------------------------------------|
| 1. Syncope / 14 / Sun * | 124 | ↓ admissions and LOS |
| 2. Chest Pain / 10 / Miller * | 110 | ↓ Cost (stress MRI) |
| 3. Atrial Fib / 08 / Decker | 153 | ↑ conversion to sinus |
| 4. TIA / 07 / Ross | 149 | ↓ LOS and cost |
| 5. Syncope / 04 / Shen | 103 | ↑ established diagnosis, ↓ admissions |
| 6. Asthma / 97 / McDermot | 222 | ↓ admissions, no relapse ↑ |
| 7. Chest Pain / 98 / Farkouh | 424 | No difference cardiac events |
| 8. Chest Pain / 97 / Roberts | 165 | ↓ LOS and cost |
| 9. Chest Pain / 96 / Gomez | 100 | ↓ LOS and cost |

Length of Stay



90 - day Costs



Strategies for Reducing Costs

- Reduce ED Length of Stay
- Implement Observation Units
- Reduce non-urgent visits
 - Reduce or Utilize urgent care and APPs for non-urgent visits
 - "Frequent Fliers"
 - Drug Policy for "Frequent Fliers"
- HIE's
- Reduce test utilization

Frequent Fliers

- A heterogeneous population
- 4.5-8% of all patients
- 21-28% of ED visits
- White, insured (public insurance)
- Age is bimodal (25-44, >65)
- Higher acuity, greater risk for hospitalization
- Higher utilizers of other parts of system.
- Highest utilizers tend to be lower acuity.
- Drug Policies reduce recidivism among a small population of frequent fliers.

**LaCalle E and Rabin E. Ann Emerg Med (2010); 56: 42-48.

Lower Acuity Recidivists

Marginal Cost of Emergency Department Outpatient Visits

An Update Using California Data

Anil Bamezai, PhD, and Glenn Melnick, PhD

- What is the marginal cost of an ED visit:
- Marginal costs estimated at:
 - \$314 in 1998 dollars.

*Bamezai A and Melnick G. Med Care 2006; 44:835-841.

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 - Frequent Fliers
 - Drug Policy for "Frequent Fliers"
- **Health Information Exchanges**
- Reduce test utilization

HIEs

- Reduction in repeat imaging
- 20,139 repeat CTs (representing 14.7% of those cases with CT in the index visit)
- 13,060 repeat ultrasounds (20.7% of ultrasound cases)
- 29,703 repeat chest x-rays (19.5% of x-ray cases).
- HIE was associated with reduced probability of repeat ED imaging in all 3 modalities (~10%).

*Lammers EJ, Adler-Milstein J, and Kocher K. Medical Care: 2014; 52:227-234.

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Reduce Test Utilization

A Top-Five List for Emergency Medicine

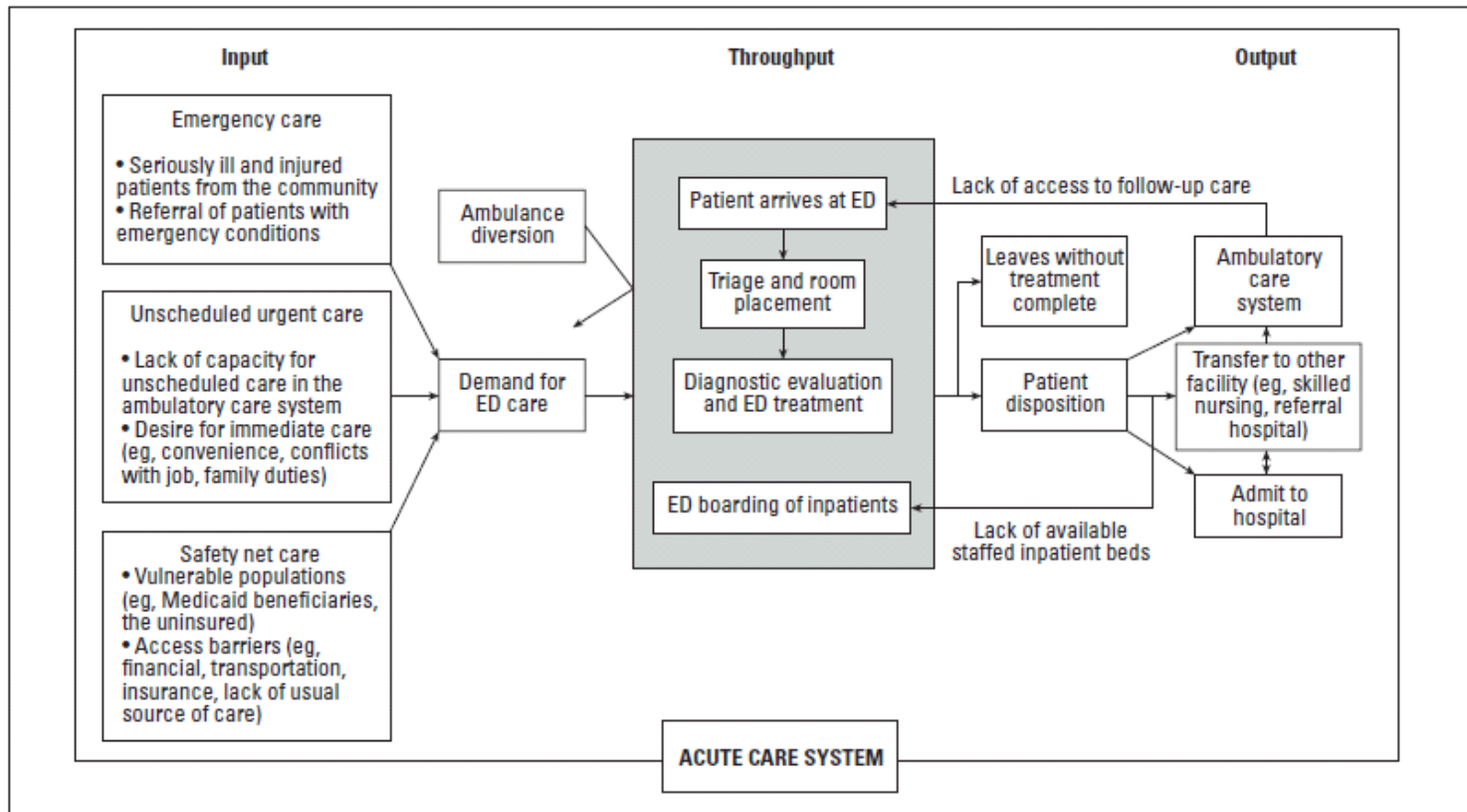
A Pilot Project to Improve the Value of Emergency Care

Jeremiah D. Schuur, MD, MHS; Dylan P. Carney, MS; Everett T. Lyn, MD; Ali S. Raja, MD, MBA, MPH;
John A. Michael, MD, FRCPC; Nicholas G. Ross, MD, MS; Arjun K. Venkatesh, MD, MBA

1. No CT C-spine based on NEXUS or CCSR.
2. No CT PE without risk stratification.
3. No MRI for lumbar spine without high risk features.
4. No CT Head for mild TBI who do not meet New Orleans or Canadian CT Head Rule
5. No coagulation studies without hemorrhage or suspected coagulopathy.

Research Collaborations

Figure 2.
The input-throughput-output conceptual model of ED crowding.



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