Hospitalists in the Emergency Department:
Active Bed Management and Care for Boarded Admitted Patients

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Objectives

- Background
- Prior Solutions
- Denver Health Intervention
- Outcomes of Intervention
- Limitations of Intervention
- Future of Intervention
90% of Emergency Departments (ED) are crowded beyond their capacity

ED crowding leads to ambulance diversion

Ambulance diversion can delay care and lead to increased mortality rates

- UK study found that for every 10 km increase in straight line distance = 1% increase in absolute mortality
One of the main causes of ED crowding is boarding admitted patients.

Boarded admitted patients have

- ↓ satisfaction
- ↓ quality of care.
Retrospective cohort study in an inner city ED: non treatment of pain was associated with ED occupancy rate

Retrospective cohort study in an urban academic ED: delay of antibiotics for pneumonia predicted by ED crowding

Cross sectional analytical study: critically ill patients with > 6 hour delay in transfer from ED to ICU increased ICU and hospital mortality
Prior Solutions

- ED triage
  - Triage liaison physicians: ED length of stay (LOS) decreased but diversion didn’t change

- Bed side registration
  - Initially was successful but at one year the effect was only seen in the morning

- Physical expansion of the ED
  - An ED went from 28 to 53 beds: ED diversion and LOS actually increased
Prior Solutions cont.

- **Admission units**
  - 14 bed acute care unit as extension of ED: diversion decreased by 40%

- **Increasing hospital capacity**
  - Naturally occurring increased in ICU beds: decrease in ambulance diversion and ED LOS

- **Regional programs**
  - Sacramento ambulance reduction program: 74% reduction of diversion
  - Boarding of admitted patients limited effect of program
Prior Solutions Cont.

- Hospitalists have been involved in active bed management
- The intervention
  - Assessed bed availability in real time
  - Pre diversion rounds in ICU
  - Triage decisions
  - Bed director
Prior Solutions cont.

- Results of active bed management
  - ↑ hospital throughput
  - ↓ divert times
  - clinical outcomes remained the same
Denver Health Intervention: Background

Rapid Improvement Experiment identified lack of house capacity due to:

- Occupied beds
- Inefficiencies of work flow
- Lack of incentive to admit and discharge patients
- Low bed assignment priority

Increased ED wait times for a floor bed
Denver Health Intervention

- On August 3, 2009 the medicine department at Denver Health instituted:
  - Geographic rounds
  - Hospitalist Led Medicine ED Team
Denver Health Intervention:
Medicine ED Team

- Hospitalist Led Medicine ED Team consists of:
  - 7AM to 5 PM: Physician, midlevel and intern
  - 5 PM to 11 PM: Physician and 2 midlevels*
  - 11 PM to 7 AM: Physician and midlevel*

* Hospitalist ED team duties are absorbed into existing swing and night duties
Denver Health Intervention: Medicine ED Team

- Duties include
  - Active bed management
  - On going care for admitted medicine patients boarding the ED
Denver Health Intervention: Active Bed Management

- Bed Board
  - constant knowledge of hospital census status
- Nursing Supervisor
  - Frequent communication with MD level details
- Floor Team Leads
  - Liaison between ED, Nursing supervisor and the medical floor
Denver Health Intervention: Active Bed Management

- Bed Board
  - constant knowledge of hospital census status
- Nursing Supervisor
  - Frequent communication with MD level details
- Floor Team Leads
  - Liaison among ED, Nursing supervisor and the medical floor
Assess Bed Board
- number of open beds
- number of bed requests

Bed request placed
- ED, Clinic, ICU

Discussion with the Nursing Supervisor

Discussion with Floor Teams

Beds Available

Assigned a floor team
Assess Bed Board

Bed request placed

Discussion with the Nursing Supervisor ↔ Discussion with Floor Teams

Beds not available

Assigned to the Medicine ED Team

Beds open up

Discussion with the Nursing Supervisor

Assigned a floor team
Denver Health Intervention: Care for Boarded Patients

- **Existing Patients** - patients admitted to Medicine ED Team as of 7 AM
  - On going care provided

- **New Patients** - new admissions to Medicine ED Team
  - Care initiated
  - On going care provided

Care is provided until discharge from the ED or transfer to a medical floor.
Existing Patients (Admitted to Medicine ED Team as of 7AM)

New bed request placed

No beds available

New Patients Admitted to Medicine ED team

Care is initiated
-H&P
-orders
-call consults

On going care continued
-follow up on studies
-follow up on consults

Discharge from the ED

Transfer to medical floor
Denver Health Intervention: Outcomes*

- Number of patients admitted to a medical floor only to be discharged within 8 hours
  - Marker of bed utilization
- Number of patients admitted to and discharged from the ED
  - Marker of bed utilization

*Compared from Aug to Dec 2008 to Aug to Oct 2009
Denver Health Intervention:

**Outcomes**

- Length of stay (LOS) for patients managed by this team
  - Measure effect of introducing a handoff
- ED diversion

*Compared from Aug to Dec 2008 to Aug to Oct 2009*
Denver Health Intervention: Outcomes cont.

- LOS for patients managed by this system as of 7 AM did not increase
  - Despite the introduction of a handoff
- Divert was not reduced overall
  - Aug and Sept 2009: divert due to lack of capacity decreased
  - October 2009: H1N1
Denver Health Intervention: Clinical Limitations

- Attending level physician being used
- Monthly resident turnover
- Manpower varies through the day
  - 7AM to 5 PM dedicated team
  - 5 PM to 7AM work absorbed by swing and night shift
- Work flow is hard to predict
Existing Patients (Admitted to Medicine ED Team as of 7AM)

- On going care provided
  - Round
  - Order tests
  - Call consults

New bed request placed

- No beds available

New Patients Admitted to Medicine ED team

- Care is initiated
  - H&P
  - Orders
  - Call consults

On going care continued
- Follow up on studies
- Follow up on consults

Discharge from the ED

Transfer to medical floor
Denver Health Intervention: Research Limitations

- Extremely preliminary data
- Not a randomized trail
- October = H1N1
- Divert data effected
Denver Health Intervention: Future Clinical Goals

- Web based admission criteria curriculum
- Chest pain observation unit
- Short stay unit
- Transition of some duties to midlevel
Denver Health Intervention: Future Research Avenues

- Time to admission order
- Outcomes of patients discharged from the ED
- Outcomes of patients provided ongoing care
- Divert status
- LOS of patients provided ongoing care
Summary

- Hospital throughput is a serious issue
- Numerous interventions have been tried to address this
- Denver Health Intervention shows that hospitalists actively managing beds and providing care for boarded patients can improve bed efficiency
References


