Increasing Wait Times predict increasing mortality for Emergency Medical Admissions
The rule of ignorance: a polemic on medicine, English health service policy, and history

A good health service needs evidence based policy making as well as evidence based medicine, says John Pickstone

Over the past two centuries dogmatism and quackery have been substantially reduced to clinical the dogmatists. But neither approach was reliable; it was hard to know which cases were similar, and experts had barely existed in the 18th century, but by the end of the 19th we had national organisations and engineers that were developing programmes, formal qualifications, of ethics; keeping lists of the qualified, ening miscreants with exclusion. If you thased and informed judgents, the

"Health professionals are honour bound to respect patients, but governments regularly disregard the judgments of these same professionals about, for instance, their best modes of work"

Quackery in practice has declined in the past two centuries, but quackery in policy making is still commonplace
No Patient should spend more than 4 hours in an emergency department waiting for admission/transfer or discharge.....
The Effect of Hospital Occupancy on Emergency Department Length of Stay and Patient Disposition

Alan J. Forster, MD, MSc, Ian Stiell, MD, MSc, George Wells, PhD, Alexander J. Lee, BSc, Carl van Walraven, MD, MSc

Abstract

Emergency department (ED) overcrowding is a common problem. Despite a widespread belief that low hospital bed availability contributes to ED overcrowding, there are few data demonstrating this effect. Objectives: To identify the effect of hospital occupancy on ED length of stay for admitted patients and patient disposition. Methods: This visited the ED daily; 21% were referred to hospital physicians and 19% were admitted. The median ED length of stay for admitted patients was 5 hours 54 minutes (interquartile range 5 hr 12 min to 6 hr 42 min). Daily ED length of stay for admitted patients increased 18 minutes (95% CI = 12 to 24) when there was an absolute increase
USA 2003-2006

Critically ill emergency department patients with a >6-hr delay in intensive care unit transfer had increased hospital length of stay and higher intensive care unit and hospital mortality.

Chalfin DB, Trzeciak S, Likourezos A, Baumann BM, Dellinger P

Crit Care Med 2007 Vol. 35, No. 6
Medic slams health bosses in row over emergency plan

By Eilish O'Regan Health Correspondent
Tuesday February 10 2004

A TOP emergency consultant yesterday clashed with hospital authorities and a public relations company over their public denials that he had to invoke a major incident plan to cope with dangerous overcrowding at a Dublin hospital last week. Patrick Plunkett, accident and emergency consultant at St James's Hospital in Dublin, repeated his statement that he had to call on the action plan last Thursday morning after 41 casualty patients created a “terrible and horrible” situation.
Measuring Overcrowding in Emergency Departments: A Call for Standardization

Issues and Methods
Although there is a growing concern about ED overcrowding, there is currently no consistent standard for measuring this phenomenon. It is also unclear what measures are important to Canadian administrators, ED providers, and researchers. A systematic review of published literature and a modified Delphi study (a consensus method) with 38 Canadian ED experts were conducted to examine these areas.

The importance of some measures may vary according to local criteria, and even change over time. For instance, the extent of ambulance diversion may be a useful measure in a large, inner-city institution, but of no value to a regional hospital that is the only choice for ambulance personnel.

- The least important measure is perceived to relate to staffing. The number of ED nurses, attending emergency physicians, and
Increase in patient mortality at 10 days associated with emergency department overcrowding

Drew B Richardson

ABSTRACT

Objective: To quantify any relationship between emergency department (ED) overcrowding and 10-day patient mortality.

Design and setting: Retrospective stratified cohort analysis of three 48-week periods in a tertiary mixed ED in 2002–2004. Mean “occupancy” (a measure of overcrowding based on number of patients receiving treatment) was calculated for 8-hour shifts and for 12-week periods. The shifts of each type in the highest quartile of occupancy were classified as overcrowded.

Participants: All presentations of patients (except those arriving by interstate ambulance) during “overcrowded” (OC) shifts and during an equivalent number of “not overcrowded” (NOC) shifts (same shift, weekday and period).

Main outcome measure: In-hospital death of a patient recorded within 10 days of the most recent ED presentation.

Results: There were 34,377 OC and 32,231 NOC presentations (736 shifts each); the presenting patients were well matched for age and sex. Mean occupancy was 21.6 on
CEM 2008

The College of Emergency Medicine

The Way Ahead 2008-2012
Strategy and guidance for Emergency Medicine in the United Kingdom and the Republic of Ireland

December 2008
Achieving a target of 6-hours or less wait time from decision to admit

At the end of 2006, the Task Force has identified three hospitals as capable of delivering – during 2007 - on a target of 6-hours or less patient wait time after decision to admit: St James’s, Sligo, Galway. A further group of hospitals namely: CUH, Limerick, Connolly, Wexford and St Columcille’s could with structural supports and strengthened internal management controls deliver on the target of 6 hour less wait time from decision to admit. The remaining hospitals mainly Mater, St Vincent’s, AMiNCH Tallaght, Naas, Mercy, Letterkenny and Cavan will require targeted initiatives in line with the recommendations with this report if the target of 6 hours or less wait time from decision to admit is to be achieved. The four key factors in this context are:

- Enhanced Senior Decision-Making within the ED and within admitting teams to enable faster decision-making. This is vital in the Mater. Vincent’s Hospital.
“Patients spending prolonged periods on trolleys awaiting admission (access block) represent a poorer quality of patient care, with some evidence of increased mortality and morbidity.”

Medical mortality 2002 - 2009

Acute Medicine – all cause (n=29069)

*RRR 2009 vs 2002 = 0.55; NNT = 13.2
First episode only

Acute Medicine – First episode only (n=29069)

*RRR 2009 vs 2002 = 0.45; NNT = 31.2
<table>
<thead>
<tr>
<th>Variable</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>11,130 (48.2%)</td>
</tr>
<tr>
<td>Female</td>
<td>11,984 (51.8%)</td>
</tr>
<tr>
<td>Total</td>
<td>23,114 (100%)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
</tr>
<tr>
<td>Median (IQ range)</td>
<td>58.3 (37.6 – 75.4)</td>
</tr>
<tr>
<td>Length stay (days)</td>
<td></td>
</tr>
<tr>
<td>Median (IQ range)</td>
<td>4.6 (1.8 – 9.2)</td>
</tr>
<tr>
<td>Charlson Co-morbidity Index</td>
<td></td>
</tr>
<tr>
<td>&gt; 0</td>
<td>41.2 %</td>
</tr>
<tr>
<td>&gt; 1</td>
<td>17.1 %</td>
</tr>
<tr>
<td>Readmissions</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>16,843 = 72.9%</td>
</tr>
<tr>
<td>One</td>
<td>3,465 = 15.0%</td>
</tr>
<tr>
<td>Two</td>
<td>1,241 = 5.4%</td>
</tr>
<tr>
<td>Three</td>
<td>621 = 2.7%</td>
</tr>
<tr>
<td>Four</td>
<td>328 = 1.4%</td>
</tr>
<tr>
<td>Five or more</td>
<td>616 = 2.7%</td>
</tr>
</tbody>
</table>
## Triage Category

<table>
<thead>
<tr>
<th>Triage Category</th>
<th>Percentage</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.8%</td>
<td>46%</td>
</tr>
<tr>
<td>2</td>
<td>33.8%</td>
<td>12.9%</td>
</tr>
<tr>
<td>3</td>
<td>62.2%</td>
<td>5.7%</td>
</tr>
<tr>
<td>4</td>
<td>1.6%</td>
<td>3.3%</td>
</tr>
<tr>
<td>5</td>
<td>0.6%</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

Unadjusted OR 2.84 (95% CI 2.61; 3.08)  
Adjusted OR 1.53 (95% CI 1.35- 1.73)
“Door to Team”

- Medical only
  - 2002 – 2008
- N = 20,911
30-day mortality ‘door to team’ – (n=20911)

P < 0.0001

<table>
<thead>
<tr>
<th>Time (hr)</th>
<th>30-day Hospital Mortality (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2.5</td>
<td>5.3</td>
</tr>
<tr>
<td>&lt; 4</td>
<td>6.8</td>
</tr>
<tr>
<td>&lt; 6</td>
<td>8.6</td>
</tr>
<tr>
<td>&lt; 9</td>
<td>11.8</td>
</tr>
<tr>
<td>&gt; 9</td>
<td>17.7</td>
</tr>
</tbody>
</table>
Independent of other confounders

<table>
<thead>
<tr>
<th>Parameter</th>
<th>OR (95% CI)</th>
<th>P &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICU Admission</td>
<td>9.04 (7.31, 11.2)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Troponin +</td>
<td>3.74 (3.13, 4.47)</td>
<td>0.0001</td>
</tr>
<tr>
<td>MDC 1 (Nervous)</td>
<td>2.57 (2.07, 3.18)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Acute Illness Severity</td>
<td>1.81 (1.74, 1.88)</td>
<td>0.0001</td>
</tr>
<tr>
<td>MDC 4 (Respiratory)</td>
<td>1.70 (1.44, 2.01)</td>
<td>0.0001</td>
</tr>
<tr>
<td>MDC 5 (Circulatory)</td>
<td>1.65 (1.36, 2.0)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Triage Category</td>
<td>1.49 (1.32, 1.68)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Door to Team time</td>
<td>1.13 (1.07, 1.19)</td>
<td>0.0001</td>
</tr>
<tr>
<td>Team to Ward time</td>
<td>1.07 (1.02, 1.13)</td>
<td>0.01</td>
</tr>
</tbody>
</table>
“Door to Team”

- Medical only
  - 2002 – 2008
- N = 20,911
Wait times and Illness Severity

The graph illustrates the relationship between 30-day death probability and acute illness severity score, grouped by wait time categories: 

- **> 6 hr**
- **2.5 - 6 hr**
- **< 2.5 hr**

As the acute illness severity score increases, the probability of death also increases across all wait time categories.
Magnitude of effect

• Survivalship
  – Canberra
    • 13 deaths per annum
  – St James’s
    • 100 deaths per annum
Magnitude of effect

• Canberra
  – 13 deaths per annum
• St James’s
  – 100 deaths per annum

• ? Whole cohort Vs Medical only
What to do?

- Reduce waits
  - Front door
    - Extra medical staff at times of peak demand
The Referral And Complete Evaluation Time Study
Peadar Gilligan\textsuperscript{a}, Stephen Winder\textsuperscript{b}, Navin Ramphul\textsuperscript{a} and Patrick O’Kelly\textsuperscript{c}

\textit{Introduction} It has been suggested that inefficiency in the delivery of care in emergency departments (EDs) may contribute to their overcrowding. Specifically the duplication of work by the on take teams of the assessment already performed by the ED doctor has been identified as a possible contributor to prolonged waits for a hospital bed for those requiring admission. Anything that prolongs an individual patient’s processing time will contribute to overcrowding.

\textit{Methods} This observational study was performed using a database of all patient attendances to examine the timeliness of the delivery of care to patients requiring admission through the ED and specifically to examine (standard deviation 10h 46 min) for the 2852 (40.9\%) surgical admissions ($P<0.001$). The referral process accounted for an average of 16.6\% of the patient journey through the ED while access block accounted for an average of 59.6\%.

\textit{Conclusion} The overwhelming reason for prolonged waits and overcrowding in Irish EDs is not the duplication of work inherent in the referral process but it is because of a lack of acute hospital capacity. European Journal of Emergency Medicine 00:000–000 © 2010 Wolters Kluwer Health | Lippincott Williams & Wilkins.

European Journal of Emergency Medicine 2010, 00:000–000
What to do?

• Reduce waits
  – Front door
    • Extra medical staff at times of peak demand
  – Back door
The Referral And Complete Evaluation Time Study
Peadar Gilligan\textsuperscript{a}, Stephen Winder\textsuperscript{b}, Navin Ramphul\textsuperscript{a} and Patrick O'Kelly\textsuperscript{c}

\textit{Introduction} It has been suggested that inefficiency in the delivery of care in emergency departments (EDs) may contribute to their overall duplication of work by the hospital. An assessment already performed has been identified as a possible area for error. Anything that prolongs an already inefficient processing time will contribute to increasing hospital costs.

\textit{Methods} This observational study used a database of all patient admissions to the ED over a period of a year. The aim was to examine the timeliness of the delivery of surgical admissions. (standard deviation 10 h 46 min) for the 2852 (40.9\%) surgical admissions ($P<0.001$). The referral process accounted for an average of 16.6\% of the patient journey through the ED while access block accounted for an average of 59.6\%.

## Team to Ward

<table>
<thead>
<tr>
<th>Team to Ward Time (Hours)</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.1%</td>
</tr>
<tr>
<td>2</td>
<td>8.7%</td>
</tr>
<tr>
<td>5</td>
<td>11.1%</td>
</tr>
<tr>
<td>6</td>
<td>11.6%</td>
</tr>
<tr>
<td>14</td>
<td>14.8%</td>
</tr>
</tbody>
</table>

Unadjusted OR 1.17 (95% CI 1.12-1.22)  
Adjusted OR 1.07 (95% CI 1.02; 1.13)
Approximately 300 patients per annum discharged to LTC; median LoS 9 months; median survival 30 months
What to do?

• Reduce waits
  – Front door
    • Extra medical staff at times of peak demand
  – Back door

• Decisions
  – Front door and back door
    • Decisions
What to do?

• Reduce waits

• Decisions

• Focus
  – All patients seen by Senior Medical Team member within 4 hours of presentation
  – All patients deemed requiring admission to be transferred to ward within 6 hours of medical review

• Personal excellence
30-day mortality – (n=20913)

P < 0.0001
Emergency Department Delays and Adverse Outcomes

PROTOGONOS- ‘the first born of a world of experience’

WAITING KILLS!