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The Hospital SCOPE Study

Matthias Traub

Throughput Capacity

- Predicting hospital capacity to care for non-critical casualties (66%):

Non-critical casualties/h ~ Nr. of Xray machines x 6 pat/h

(US Centers for Disease Control and Prevention)

Throughput Capacity

- Number of ICU/ventilation beds

- Represent a resource ceiling on treatment capacity

SURGE CAPACITY QUESTIONNAIRE *continued*

Details of person filling in questionnaire:

Your name:	
Position:	
Contact Phone No:	
Email address:	

If you have any questions do not hesitate to contact us:

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AUSTRALASIA TRAUMA SOCIETY (INC)

The Hospital SCOPE Study

Surge Capacity of Patients in Emergencies

A Validation Study in Australasia

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On behalf of the Research Committee:

AUSTRALASIA TRAUMA SOCIETY (INC)

SURGE CAPACITY QUESTIONNAIRE

We kindly ask you to complete this questionnaire by the **29 October 2004** and return in the enclosed envelope.

Name of hospital

State/Territory/Country: NSW VIC NT SA ACT QLD TAS WA NZ

ACEM Classification:

- ☐ Major referral
- ☐ Major regional/rural base
- ☐ Urban district

ED Census and Demographics

1. How many people attended your ED in 2003? (Attendance means patients triaged in your Emergency Department)

Staff Stretch Capacity

2. On a hypothetical Monday morning at 10am your Emergency Department is overwhelmed with 200 severely injured patients likely to need surgical intervention after a major explosion close by. How many complete trauma teams is your hospital able to mobilise within the fist hour?
   Each team should include, as a minimum, a surgeon (either general or specialist surgeon), an anesthesist and two nursing staff.
   No. of teams

SURGE CAPACITY QUESTIONNAIRE *continued*

Holding Capacity

3. What is your total hospital bed capacity? Exclude any beds or units that are currently closed

4. What is your Emergency Department bed capacity?

5. How many resuscitation bays/beds do you have in your Emergency Department?

6. What is your current Intensive Care and High Dependency Unit bed capacity?

7. How many functioning ventilators exist in your hospital at the moment (include ventilators in operating theatres, recovery, Emergency Department, etc.)?

Throughput Capacity

8. How many operating theatres do you have?

9. How many fixed and portable X-ray machines are available to your patients?

Target Group

- ED Directors of every ACEM accredited hospital in Australasia

Outcomes

- Hospital technological resources
- Dispersion
- Comparison with international benchmarks

Response

- 88 of 94 ACEM accredited hospitals replied (94%)
- 7 of 7 non-ACEM hospital in metropolitan Sydney replied (100%)

Results

- 3.2 x-ray machines/100,000 population
- 2.9 operating theatres/100,000 population
- 4.9 ICU beds/100,000 population

Results Sydney

- 5.3 x-ray machines/100,000 population
- 4.8 operating theatres/100,000 population
- 4.9 ICU beds/100,000 population

International benchmarks

- International best practice and casualty estimate models ➡

  Critical benchmarks

- Health Resources and Services Administration:

  500 patients/1 Million population

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The Hospital SCOPE Study

Aim:

Apply epidemiologically-derived measures of hospital surge capacity to Australasian hospitals in order to quantify current clinical disaster preparedness

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Resource requirements for Sydney:

500 / Million (HRSA benchmark)

x 3.8 Million:

1,900 patients

633 severely injured (1/3)

Data Analysis Metro Sydney

- Nr. ICU beds: 351
- Nr. of operating theatres: 184
- Nr. of x-ray: 202

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What does it mean?

- Accepted/acceptable level of care
- Exponential drop of level of care with increasing patient load

Conclusions

- Compared with international benchmarks, the Australian hospital system would fail to provide technical resources to many of its most critical injured patients

Conclusions

- Lack of appropriate resources in Australian acute care hospitals (45-70%)

Conclusions

- Population-based quantitative measures of hospital surge capacity coupled with consensus on preparedness benchmarks will enable informed monitoring of future disaster preparedness activities

Design: cross-sectional survey

Partners: Trauma Research Group of ATS, The George Institute

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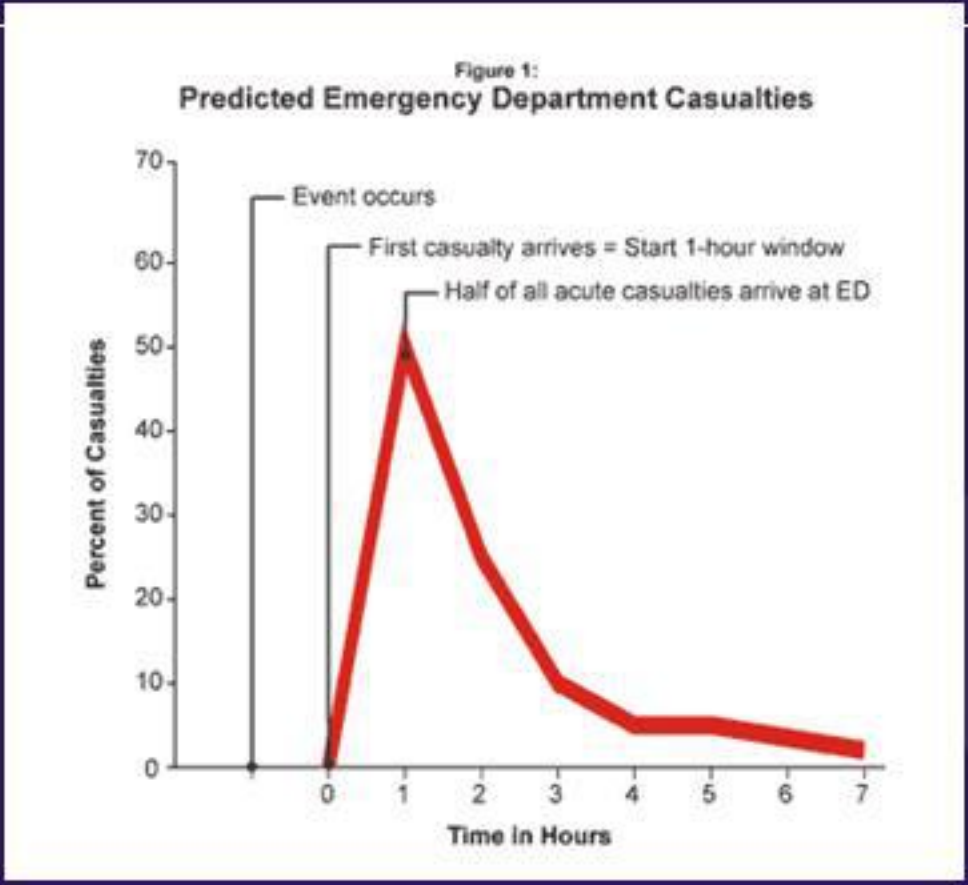
Disaster Preparedness

- Most data based on personal experience and perception
- Fundamental KPI's of emergency care for disaster victims are undefined and un-benchmarked

Surge Capacity

- Ability to provide acute care to critical and non-critical mass casualties simultaneously

Casualty predictor



(US Centers for Disease Control and Prevention)

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Surge Capacity

- Staff stretch capacity
- Holding capacity
- Throughput capacity

Throughput capacity

- How quickly can we process patients in ED and OT?

Throughput Capacity

- Predicting hospital capacity to care for critical casualties (33%):

Number of available operating rooms

(US Centers for Disease Control and Prevention)