Is Trauma Really a Surgical Disease?

Tony Joseph

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Gordon Trinca 1970

- Goal to "ensure adequate numbers of qualified staff available to CARE for and treat ..trauma patients"
  - Trauma Team approach
- Trauma Care implies longitudinal involvement and "laying" of hands
  - Rather than Horizontal

Preventable deaths
A study of 2 counties (1974)

- MVA deaths after arrival at hospital Orange (90) and San Francisco County(92)
- Orange County-Preventable
  - 2/3 Non –CNS related deaths (30)
  - 1/3 CNS-related deaths (60)
- San Francisco- 1 death (Missed TAI)
- This comparison "emphasises benefits of aggressive, experienced management of Trauma victims … in trauma centres".

Why the need for Trauma Surgeons?

- Well documented improved chance of survival for patients with major trauma treated in specialised trauma centre within a regionalised system of Trauma care

West et al Arch Surgery 1983

McDermott at al Aust NZ J Surg 1997

What does the data show?

	RNSH (04)	NSW (03)	NTR (02)
ISS > 15	269	2034	5438
Craniotomy	36 (13%)	223 (11%)	635
Laparotomy	13 (5%)	163 (8%)	405
ORIF	13 (5%)	85 (4%)	

How many Australasian Trauma Centres have a Trauma Admitting Bed card ?

Who takes responsibility?

Surgical involvement in Trauma

- Resuscitation
- Operation / Non-operation
- Post-operation
- Intensive care
- Rehabilitation
- Prevention
- Education
- Research

24 Yr male

- MBA V Car at 1800 Hrs
- Chest Injuries / unconscious / shocked at scene
- Arrives Trauma Centre 1900 Hrs
- Intubated / L ICC –2 L blood
- FAST positive haemo-pericardium / haemo-peritoneum
- S/B Gen Surg Reg and Cardiothoracic Reg
- Cardiothoracic Surgical Consultant notified
- Transfer to OT: T= 70 mins
- Commenced Thoracotomy: T= 95 mins
- Lacerated heart x 2 / repaired
- Unable to restart heart
- Died 2130 hrs

Issues

- Would presence of Experienced Surgeon on site have altered outcome?
- Does need for Immediate Surgery require in-house Surgical expertise ?
- Is this cost-effective?
- Are the numbers too small to justify the cost (or are they?)

Trauma can be an attractive career Option (or not)

- Low Operative case load : Admissions
- Heavy after – hours workload
- Less Senior Surgical interest / Increased sub-specialisation
- (Re) Defining training and career development
- Increasing non-surgical management
- Poor Remuneration

Wong and Levy. ANZ J Surg 2004

Reflections of a Non - surgeon

Surgery is one part of the definitive care for victims of Trauma

Survey of Trauma Fellows Aust / NZ July 2005

- 25 Major Trauma Centres (Adult and Paediatric)
- 7 Positions filled (28%)

Survey of Advanced Surgical Trainees 2001

- Evaluate attitudes and experience
- 272 / 587 (46%) response
  - 85% consider future in Trauma care
- 48% attended > 5 Trauma resuscitations in last 6/12
- 22% Team leader at > 5 resuscitations last 6/12
- 4% Yr 1 Adv Trainees had Surgical Consultant supervision > 5 resuscitations last 6/12

B Thomson and I Civil. ANZ J Surg 2001

Survey of Advanced Surgical Trainees 2001

- Final yr Gen Surgery Training (4th year) total Trauma operations = 36.6 (10.4 cases / yr)
  - 22.2 laparotomies
  - 2.9 Thoracotomies
  - 1.7 craniotomies

Survey of Advanced Surgical Trainees 2001

- Average no Trauma operations / Yr
  - General Surgery: 12.3 (7 laparotomies)
  - Cardiothoracic: 20.3 (1.8 thoracotomies)
  - Neurosurgery: 40.6 (35.7 craniotomies)
  - Orthopaedics: 223 (221 orthopaedic)

What did they think re training?

- Adequacy of exposure to Operations
  - General surgery 32%
  - Neurosurgery 72%
  - Orthopaedic 86%
- Adequacy of Operating supervision
  - General Surgery 70%
  - Neurosurgery 59%
  - Orthopaedic 46%

How much operative Experience is necessary?

- US Trauma Fellowship guidelines
  - > 50 patients with major torso / vascular injury
  - Require laparotomy, thoracotomy, vascular repair
  - Or care in ICU > 48 hrs
- RACS trauma committee
  - Minimum 30 trauma laparotomies during advanced training

Conclusions from survey

- Increased consultant supervision at Trauma resuscitations
- Surgical rotations need to be planned to cater for Trauma Training
- Further assessment in changing climate of trauma management

Thomson, Civil, Danne, Deane, McGrath
ANZ J Surg 2001

What does the future hold?

L D Britt 2002

- The Emergency Surgeon?
- One stop shopping
  - ALL Emergency Surgical Care including trauma
- Very few General Surgeons in current practice

What is optimal Trauma experience for Surgeons?

- Improved survival for seriously injured patients in high volume centres
- Management of
  - < 35 seriously injured patients / yr unlikely to have unexpected survivors
  - > 125 patients / yr should be at least 2 unexpected survivors

Konvolinka et al Am J Surg 1995

What is the answer?

- Keep Trauma surgery and general surgery together
- Need to train general surgeons in acute torso surgery as well as neurosurgery and orthopaedic surgery
  - Rural advantages / European model
- ***Trauma surgery and emergency surgery*** should co-exist
- Non-trauma surgery should also be part of the repetoire (exit strategy)


It is in the Family

Acute Care Surgery (USA Model)

- **Trauma, Critical Care and Emergency Surgery**
- Post graduate Trauma Training Fellowship should be built on General Surgery Foundation
- Future of Trauma Surgery Committee (AAST)

D Spain. Am J Surg 2005, 190 (2)

Acute Care Surgery Fellowship Training (USA)

- Surgical Critical Care (min 6 months)
- Hepatobiliary
- Neurosurgery
- Thoracic
- Vascular
- Orthopaedic
- ENT

How to do it ?

- **Paradigm shift in Training**
  - Undergraduate and post graduate level
- **Concentrate resources**
  - Surgery, Emergency, Intensive Care, Radiology, Step down wards, Rehabilitation, Research and Prevention
- **Remuneration**
  - Relative value

Canadian Model

S Hamilton: Fraser Gurd Lecture Trauma 2005 Whistler

- Develop the interdisciplinary Trauma Team
- Streamline the "Emergency Surgical Training" program for Surgical Trainees
- Develop Surgical Critical Care programs across disciplines
- Vertical rather than horizontal integration of the Trauma Team

Challenge?

- Integration of disciplines to provide comprehensive care
- Minimal cross specialty exposure in surgery, emergency medicine and medicine
- Is there a role for an emergency physician that extends into the trauma unit/critical care unit…a vertically integrated acute "medicine" stream?
- What is the role of clinical assistants, advanced nurse practitioners and related disciplines?

The Trauma Team:
The Question is..

- Why is it that in both postgraduate medical education and the education of the other health science disciplines, training occurs in isolation:
  - Minimal cross specialty exposure in surgery, emergency medicine and medicine;
  - There is virtually no interdisciplinary education, other than the important 'on the job training' that is a part of every institution;

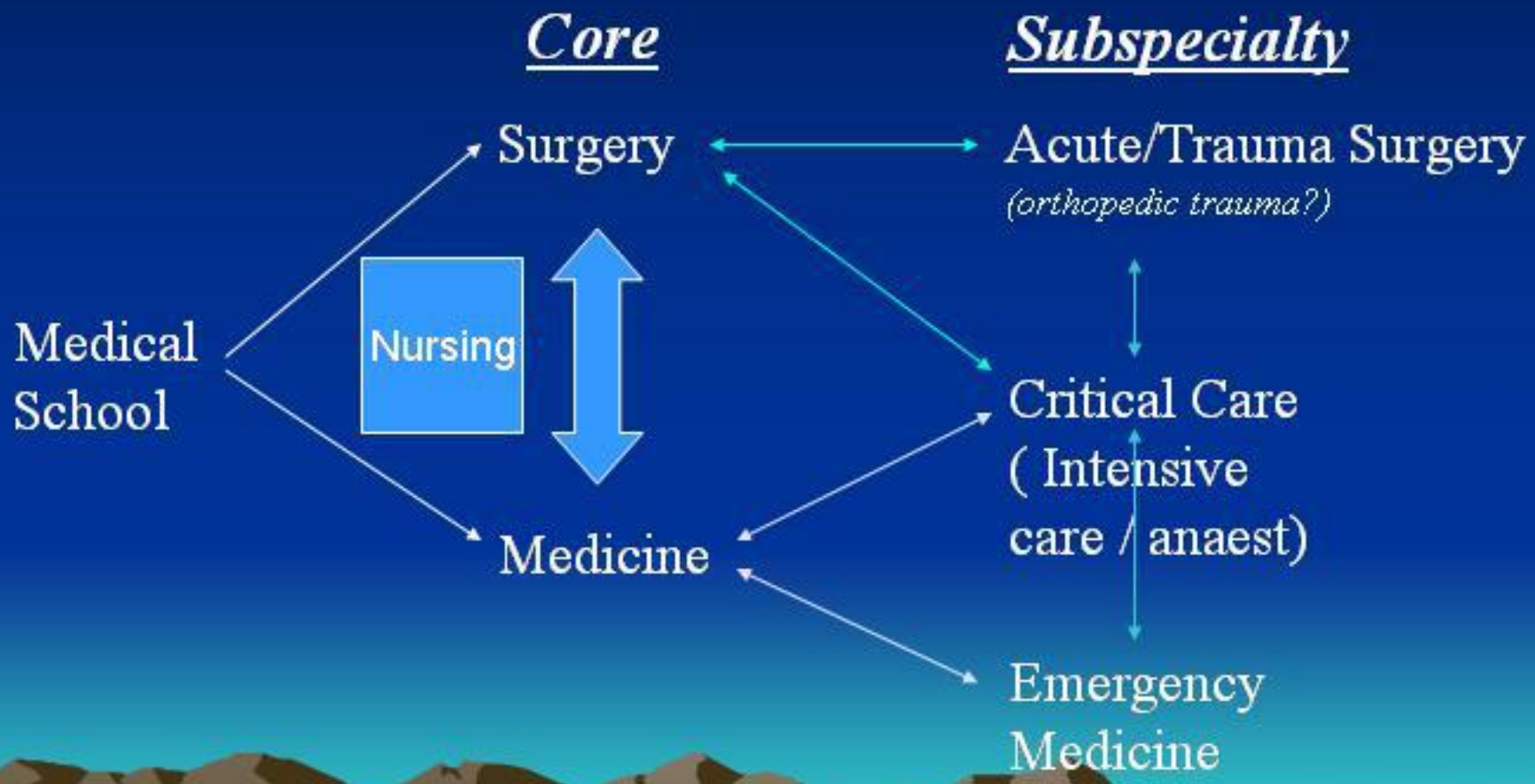
- What is it about the health care disciplines that they have not recognized the importance of cross functional training in solving complex problems?

A new Paradigm

- Evolution of the ***interdisciplinary*** team:
  - Acute Care Specialist (s)
    - Generalist surgeon / Emergency Physician
    - Intensivist / Anaesthetist
  - Clinical assistant
  - Trauma nurse
  - Advanced nurse practitioner
  - Physiotherapist
  - Clinical psychologist

One of the Models

(S Hamilton)



Appeal of Trauma is a Horizontal Sub-specialty with Components from both Medicine and Surgery

A proposed course of action?

- Political acknowledgement re the problem
- Introduce cross- and inter-disciplinary training concepts at undergraduate level
- Interdisciplinary training and career choice at Postgraduate and College level
- Less Pressure to sub-specialise and allow more general training in early years
- Develop "Trauma and Acute Surgical Centres"
  - With "acute medical centres"
- Appropriate remuneration and "lifestyle" opportunity (Generations X, Y and Z)

Escaping Trauma?

Recognition of Trauma as a Public Health Issue

- Along with cardiovascular disease and Cancer
- Train adequate numbers clinicians
  - Medical / nursing / allied health
- Resource the areas where they work
- Make it sustainable

What is the ideal?

- Min > 400 major trauma patients
- Trauma Service has admitting "bed" card
- In-house
  - Trauma / Acute care Surgeon (ALL Trauma Surgery)
  - Trauma Critical care Specialist
  - Emergency Physicians / Anaesthetics
  - Dedicated Trauma Nurses / advanced practitioners
- Need for active buy-in from all other Subspecialty units eg Orthopaedics
- Out patient and F/U clinic

Local Interdisciplinary Training

International Interdisciplinary Training


Trauma Surgeon

Thank You

Trauma in evolution ?

What do I mean?

- Are Surgeons still the leaders in Australasian Trauma Management?
- Do they want to be?
- Is there enough Surgical interest in trauma at postgraduate level?
- Is Trauma training / exposure adequate?
- Are Trauma victims requiring less operative intervention?
- Is Trauma decreasing in incidence ?

Australasian Initiatives

- Trauma Verification
- EMST
- CCrISP
- DSTC
- Trauma Fellowships
- Is this enough?

Question?

- Are you comfortable with your PGY3 registrar starting the surgery on a Whipple's procedure at 0800 hrs ?
- Are you comfortable with the same person operating on a Trauma patient with a major Liver injury at 0300 hrs?
- Is there a difference in the level of seniority required for each operation?

Is there less trauma?

- USA –decrease in violent crime parallels decrease in surgical cases
- Decrease in surgical involvement in blunt trauma
  - Non-operative?
  - Injury prevention
  - Increase in Neuro and spinal-orthopaedic Trauma