

Trauma: Who cares?

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Executive Director

The Trauma *Audit & Research* Network



Trauma: Who cares?

- Background
- Trauma audit in action
- Publication of standards of care
- Research informing clinical care



Working Party on the Management of Patients with Major Injury

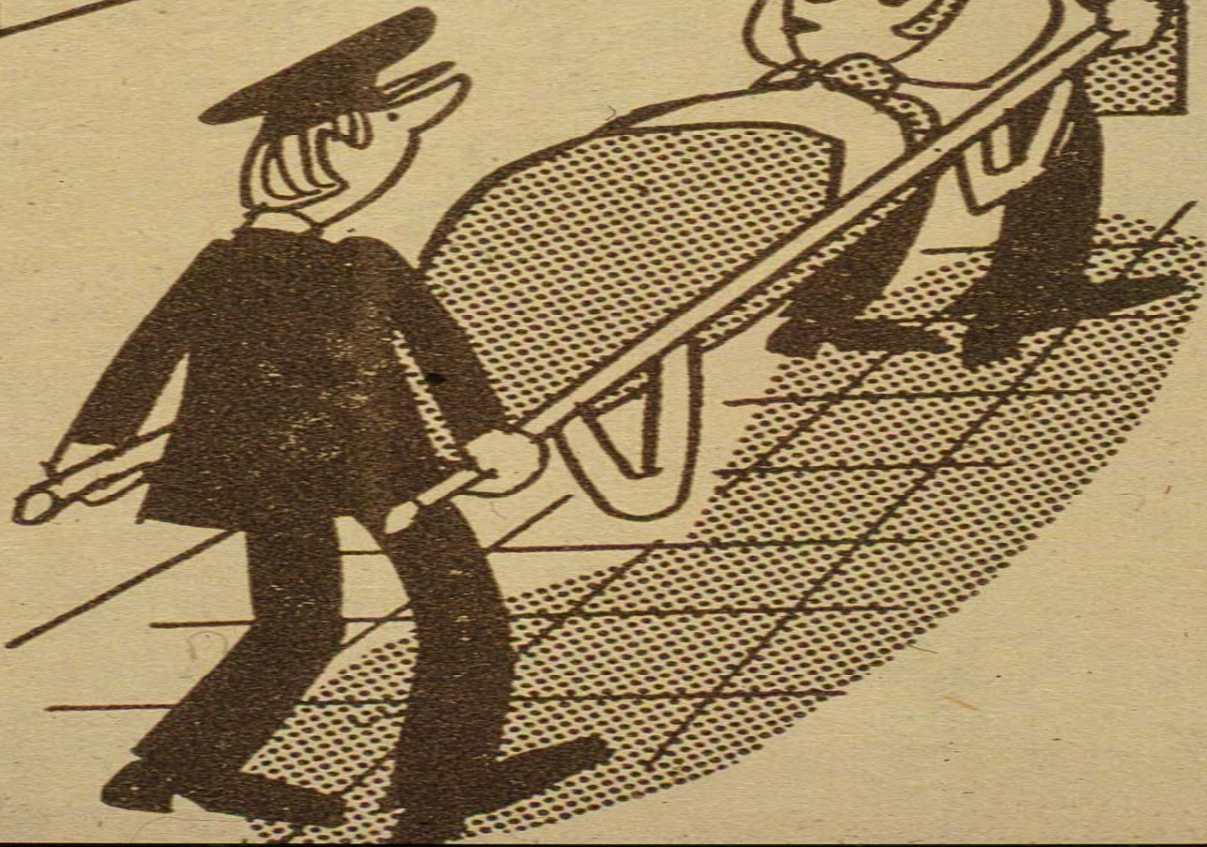
“...this report reveals significant deficiencies in the management of seriously injured patients..... up to one third of trauma deaths potentially avoidable.”

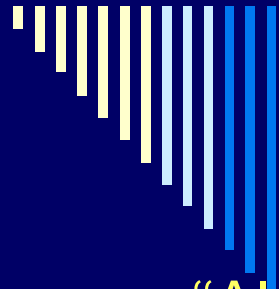
- Improve **pre-hospital care**
- Introduce **ATLS principles** to improve resuscitation, especially shock control
- Integrate **trauma services**
- Invest in **rehabilitation services**
- **Clinical audit & research** to review efficacy of care



Royal College of Surgeons 1988

CASUALTY

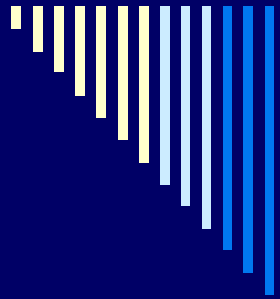
A rectangular sign with a thick black border. Inside, the word "CASUALTY" is written in a bold, sans-serif font. Below the text is a simple line drawing of a hand with the index finger pointing to the right. The hand is wearing a dark suit sleeve with a white cuff.



Trauma: Who Cares?

“Almost 60% of the patients in this study received a standard of care that was less than good practice.”

- Pre-hospital care – airway management
- ATLS/APLS principles to improve early resuscitation, especially shock control
- Integrate trauma services to speed delivery
- Clinical audit & research to review efficacy of care
- Improve local clinical networks – paediatric and NS care
- Enhance trauma teams and senior experienced staff
- Designation, verification & clinical governance

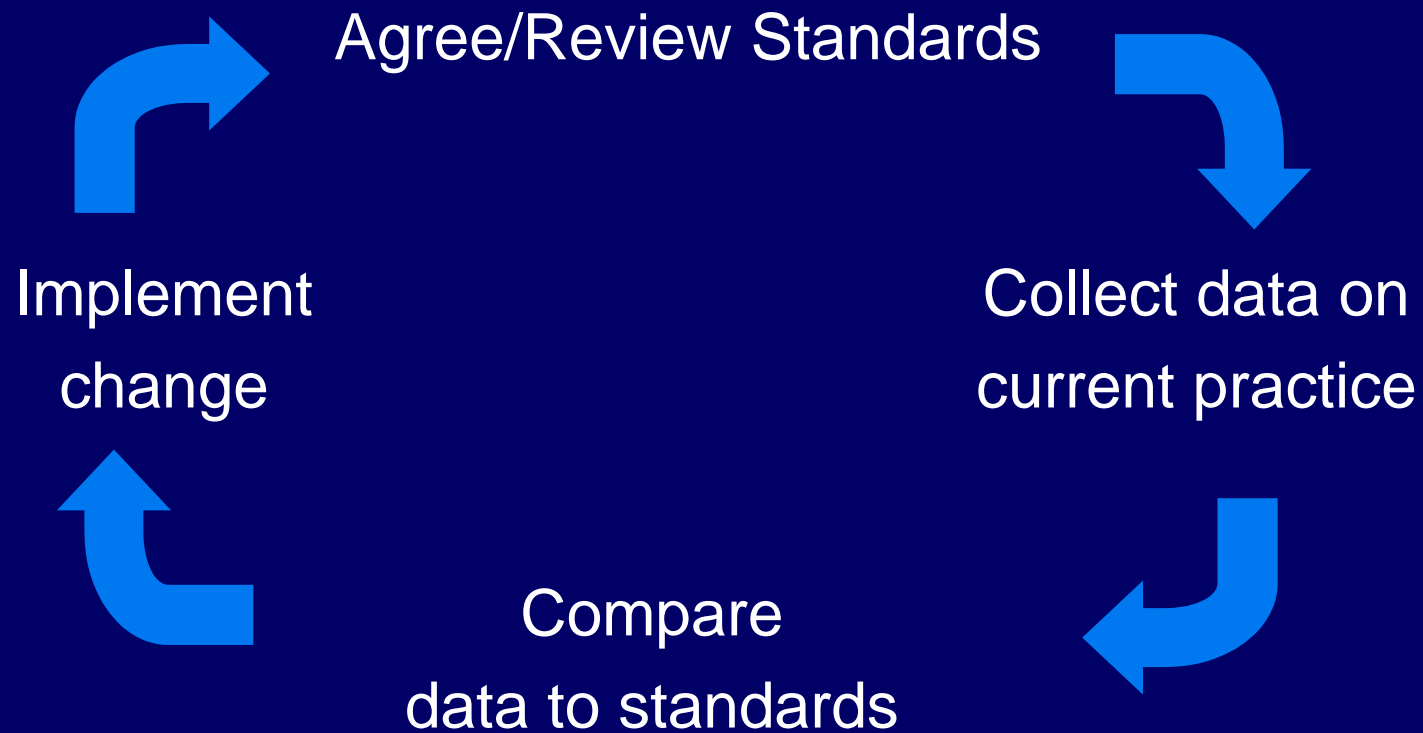


Trauma: Who cares?

“Given the importance of evaluation of processes and outcomes in the trauma patient, all units providing treatment for the severely injured patients should contribute to the Trauma Audit & Research Network.”



Trauma audit cycle



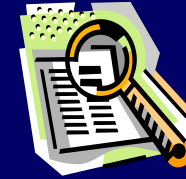


Trauma Audit Essentials I

- **Identify unexpected deaths and survivors**
 - injury scoring systems
 - process of care analyses
 - Multi-speciality meetings
 - individual patients
 - systems of care
 - Focussed discussions
 - Be positive
 - Learn lessons
-



Highlight patients for multi-speciality audit



- Injury Severity Score > 15
 - Glasgow Coma Score < 9
 - Probability of survival < 75% and survived
> 75% and died
 - Outcome – all deaths
 - Critical care admissions
 - Standards of care
-



‘developing effective care
for injured patients through
process and outcome analysis’



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Welcome to the Trauma Audit & Research Network

Every year across England and Wales, 10,000 people die after injury. It is the leading cause of death among children and young adults of 44 years and under. In addition, there are many thousands who are left severely disabled for life.

Our foundation in research and our highly skilled team ensures that we provide accurate and relevant information to help Doctors, Nurses and Managers improve their services.



Links to the 'Standards of Care'

View the standards of trauma care across
England and Wales

EDCR Log-In

Please log in here to
access the 'EDCR System'

Username

Password

[Forgotten my password?](#)

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and feel you should have one,
then please contact us at
support@tarn.ac.uk

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TARN Research Groups:



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Open Limb Injuries

Injuries to the Limbs & Pelvis

Soft Tissue & Skeletal Injuries - Open Limb Injuries

A full excision should be performed by the consultant surgeon within six hours of injury.

Reduction and stabilisation of the fracture with internal or external fixation (as appropriate) should be achieved at that primary procedure.

RCS/BOA Standard 13.5

Hospital:

Number of patients with open limb injuries: 53
admitted between January 2003 and December 2006

Time to Theatre



National Database
5.67 hrs.

Grade of Orthopaedic Surgeon

treating patients with Open Limb injuries

Grade of Doctor	Number of patients seen	National Database
Consultant	49 (92 %)	1442 (41 %)
SpR	4 (8 %)	1238 (35 %)
SHO/Other	0 (0 %)	356 (10 %)
Grade not recorded	0 (0 %)	514 (14 %)

SpR* = Includes Specialist Registrar, Registrar, Staff Grade, Associate Specialist and Research Fellow
SHO/Other** = Senior House Officer, Foundation Grades, House Officer and Clinical Assistant

Open Limb Injuries

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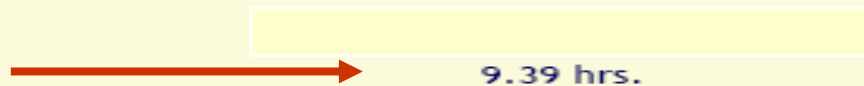
Reduction and stabilisation of the fracture with internal or external fixation (as appropriate) should be achieved at that primary procedure.

RCS/BOA Standard 13.5

Hospital:

Number of patients with open limb injuries: 100
admitted between January 2003 and December 2006

Time to Theatre



National Database
5.67 hrs.

Grade of Orthopaedic Surgeon

treating patients with Open Limb injuries

Grade of Doctor	Number of patients seen	National Database
Consultant	35 (35 %)	1442 (41 %)
SpR	35 (35 %)	1238 (35 %)
SHO/Other	23 (23 %)	356 (10 %)
Grade not recorded	7 (7 %)	514 (14 %)

SpR* = Includes Specialist Registrar, Registrar, Staff Grade, Associate Specialist and Research Fellow
SHO/Other** = Senior House Officer, Foundation Grades, House Officer and Clinical Assistant



Trauma Audit Essentials II

- Identify unexpected deaths and survivors
 - injury scoring systems
 - process of care analyses
 - **Multi-speciality meetings**
 - individual patients
 - systems of care
 - Focussed discussions
 - Be positive
 - Learn lessons
-



Themed Reports

Produced at end of:-

February

Thoracic

May

Orthopaedic

August

Abdomen & Spine

November

Head

Monitor the RCS/BOA Standards



Head Injuries

CT Imaging of the head should be performed within 1 hour of arrival for patients with GCS <13 OR suspected open/depressed skull fracture OR basal skull fracture
NICE Head Injury Guidelines

Hospital I

65 patients were admitted directly from the scene of the injury to this hospital between January 2003 and December 2006 and fulfilled these specific head injury criteria

48 patients (74%) had a CT scan

37 of the CT scans had a full date and time recorded

Time to CT scan

Median Time to receiving a CT Scan (hrs)

Hospital I	National Database	National Range
0.72 hrs	1.33 hrs	0.49 - 3.26 hrs

Head Injuries

CT Imaging of the head should be performed within 1 hour of arrival for patients with GCS <13 OR suspected open/depressed skull fracture OR basal skull fracture

NICE Head Injury Guidelines

Hospital M

157 patients were admitted directly from the scene of the injury to this hospital between January 2003 and December 2006 and fulfilled these specific head injury criteria

127 patients (74%) had a CT scan

118 of the CT scans had a full date and time recorded

Time to CT scan

Median Time to receiving a CT Scan (hrs)

Hospital M	National Database	National Range
1.66 hrs	1.33 hrs	0.49 - 3.26 hrs

Head Injuries

Patients with severe head injuries or focal signs should be transferred to the care of neurosurgical units regardless of whether they need surgical intervention

RCS/BOA Standard 13.2

Hospital L

28 patients with severe head injuries were admitted between January 03 and December 06
3 (11%) of these patients were transferred to a neurosurgical unit

25 (89%) patients with severe head injuries remained at this Hospital
11 of the 25 patients (44%) who remained at this hospital survived up to 30 days or until discharge

13 patients (52%) did not survive their injuries

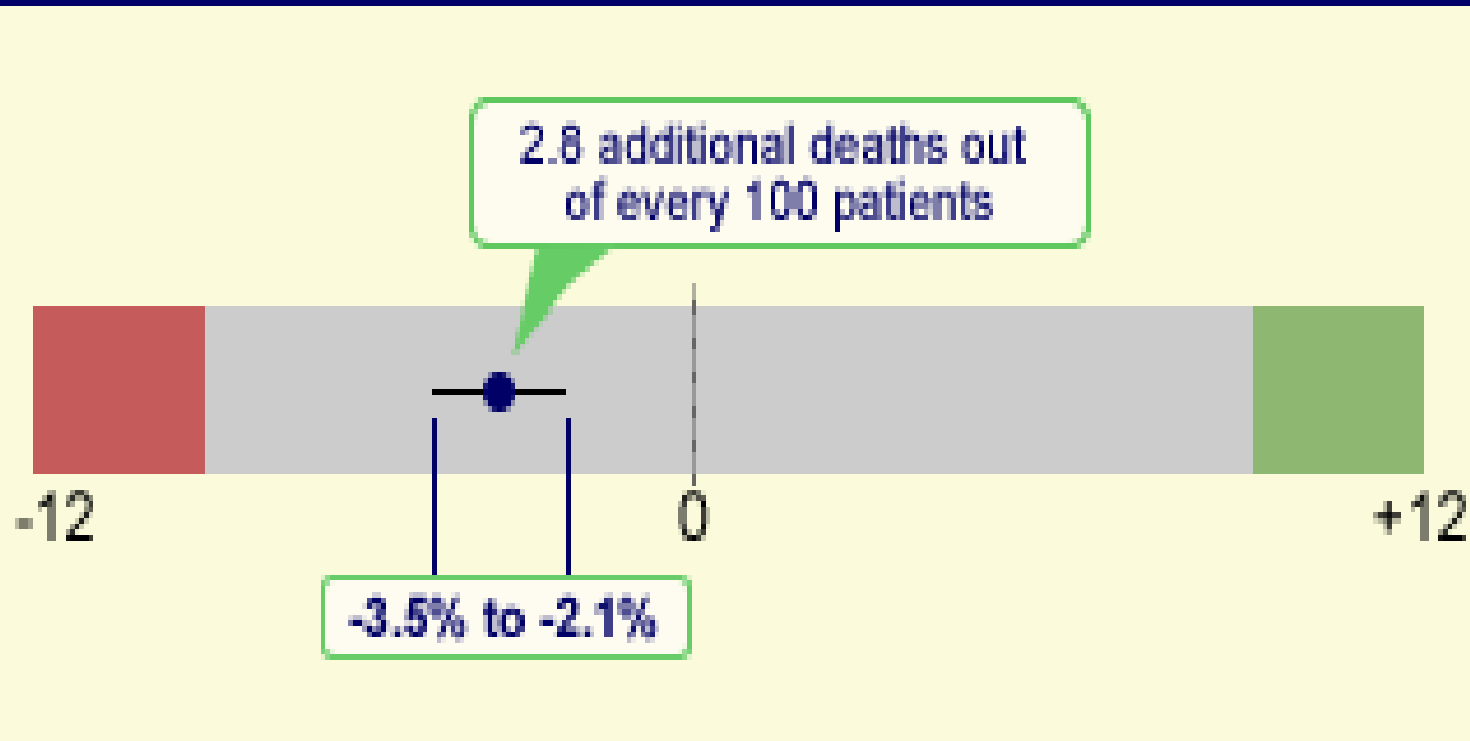
2 patients died within 2 hours of arrival



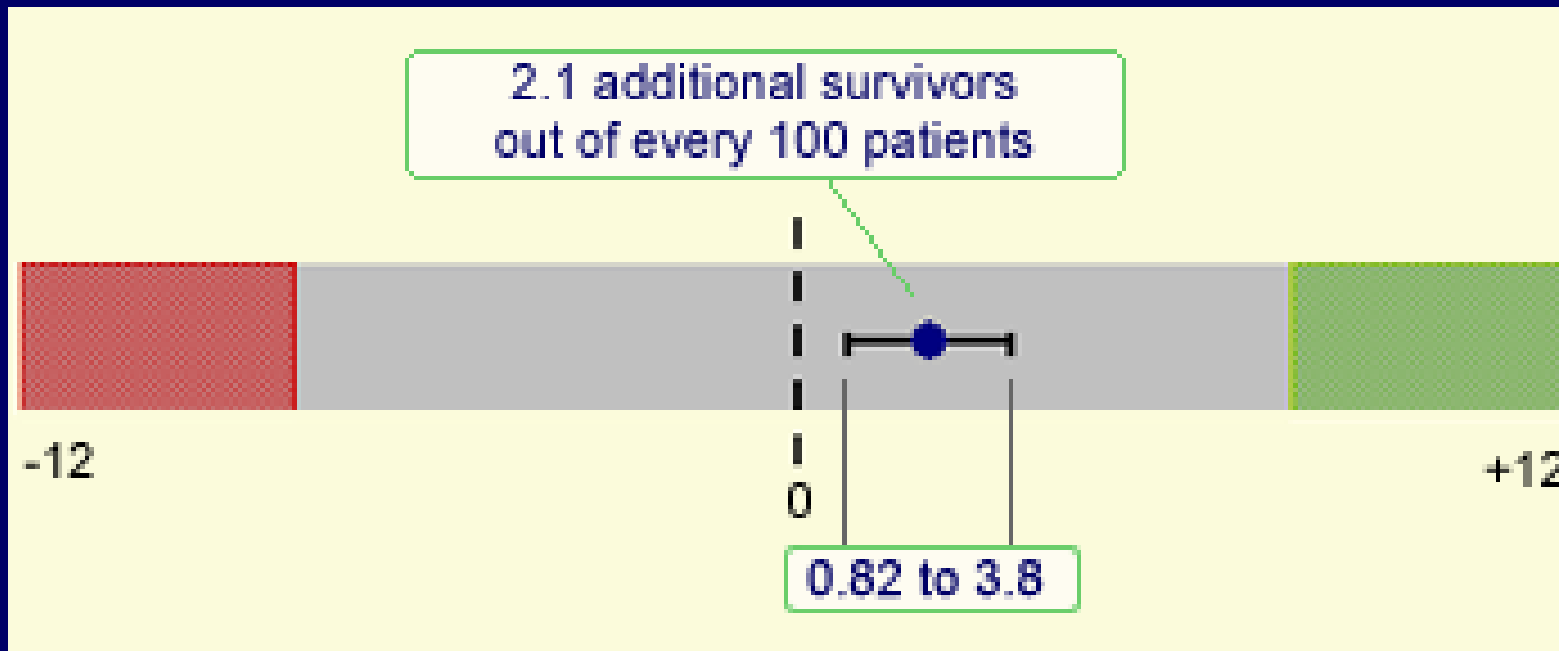
Trauma Audit Essentials III

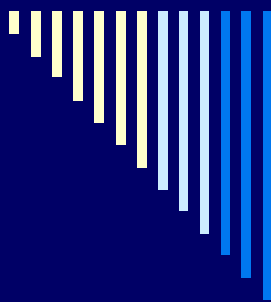
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 - **Learn lessons**
-

TRAUMA OUTCOME ANALYSES – Hospital W 2002 - 2006



TRAUMA OUTCOME ANALYSES – Hospital R 2002 - 2006





Trauma Audit - closing the loop

Changing practice through:

- Close inter-disciplinary cooperation and clinical improvement at a senior level.
- Application of protocols to provide continuity of care from the scene of the injury through to the hospital ward.
- Frequent statistical analysis of performance at audit meetings to 'close the loop' is an essential part of the strategy to improve trauma care.

Improvement over time



printer friendly

Completeness of Data



Data Accreditation Demographics

100%

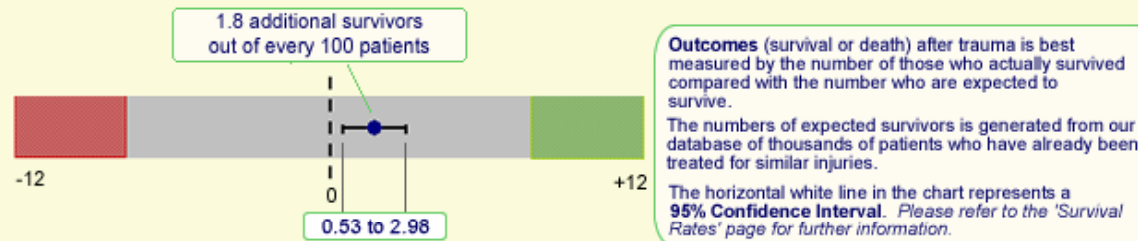
Data Accreditation Clinical

93.2%

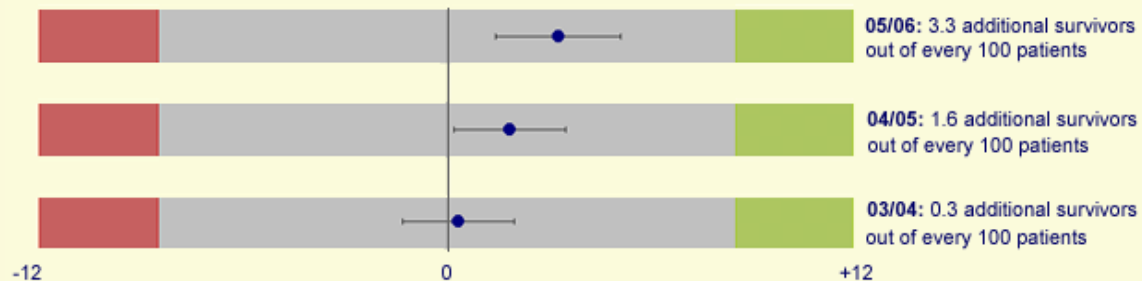
All expected injured patients between January 2004 to December 2005 have been submitted by this Trust

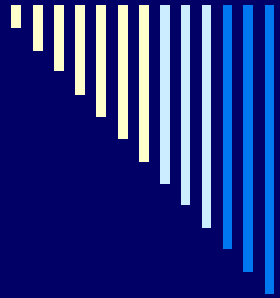
Rate of Survival at this Hospital

Between January 1st 2003 and December 31st 2006:



Rate of Survival at this Hospital: Yearly Figures





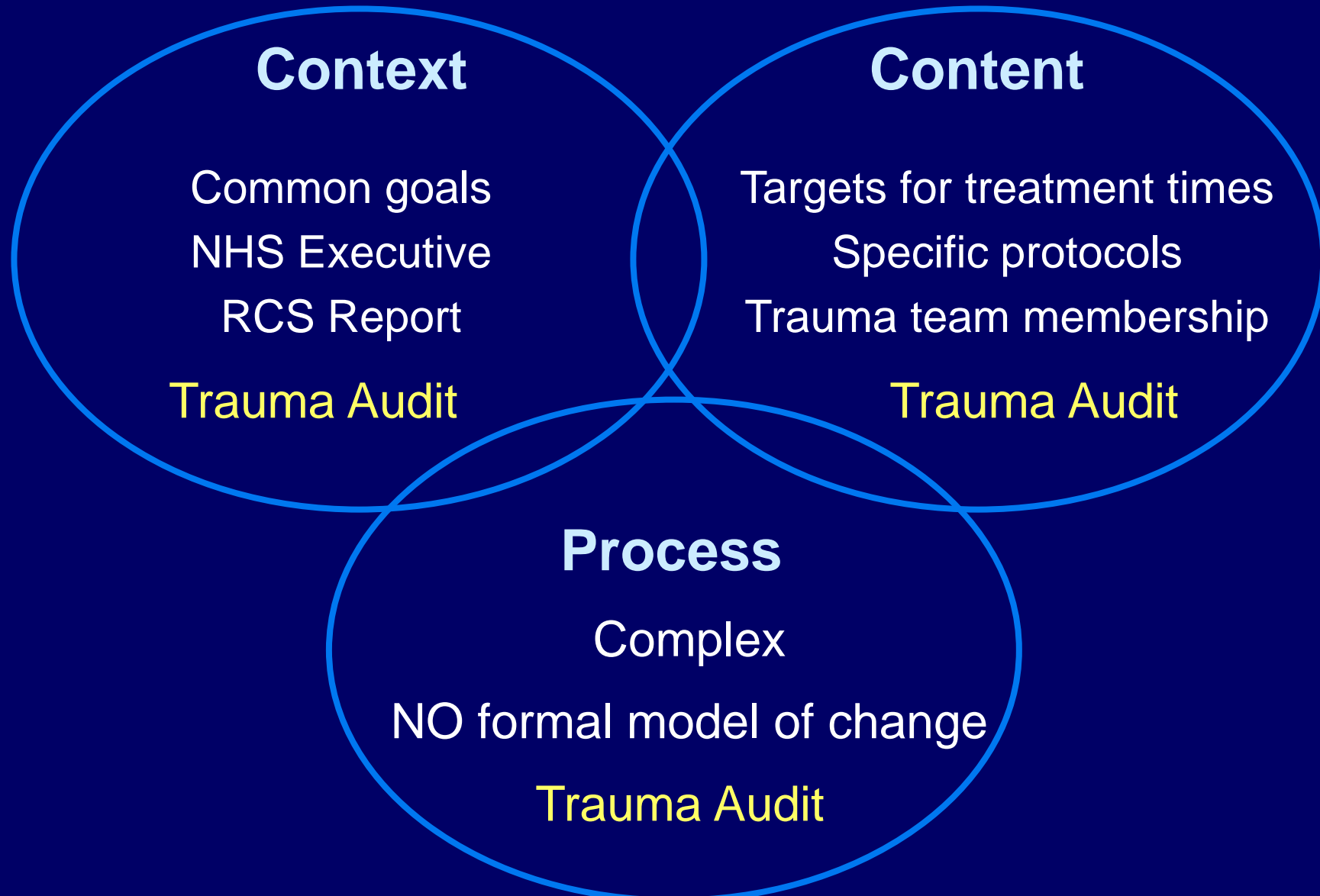
THE REGIONAL PICTURE

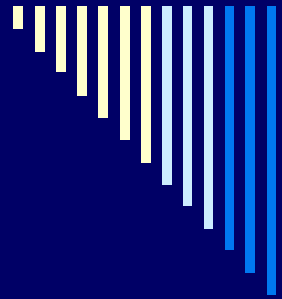
Management of major trauma: changes required for improvement

Improvement in mortality



Strategic mixture of change

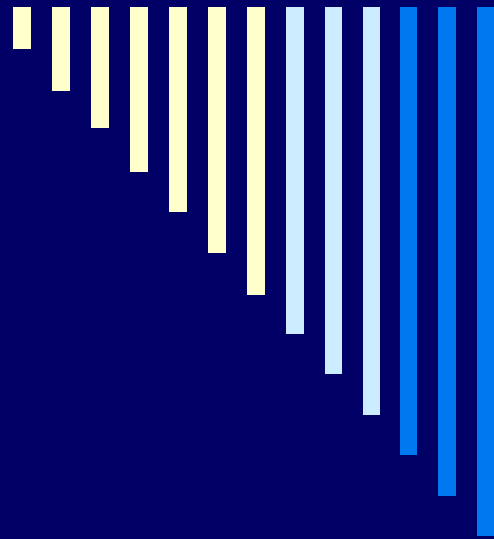




Factors contributing to the success of trauma audit

- Multidisciplinary, professionally led
- Defined by clinicians
- Interpreted by clinicians
- Management support
- Clear standards to measure quality of care
- Well developed audit methodology
 - recruitment of sites
 - data capture
 - data quality
 - data analysis

Not “who” but “how, why & what”



Research

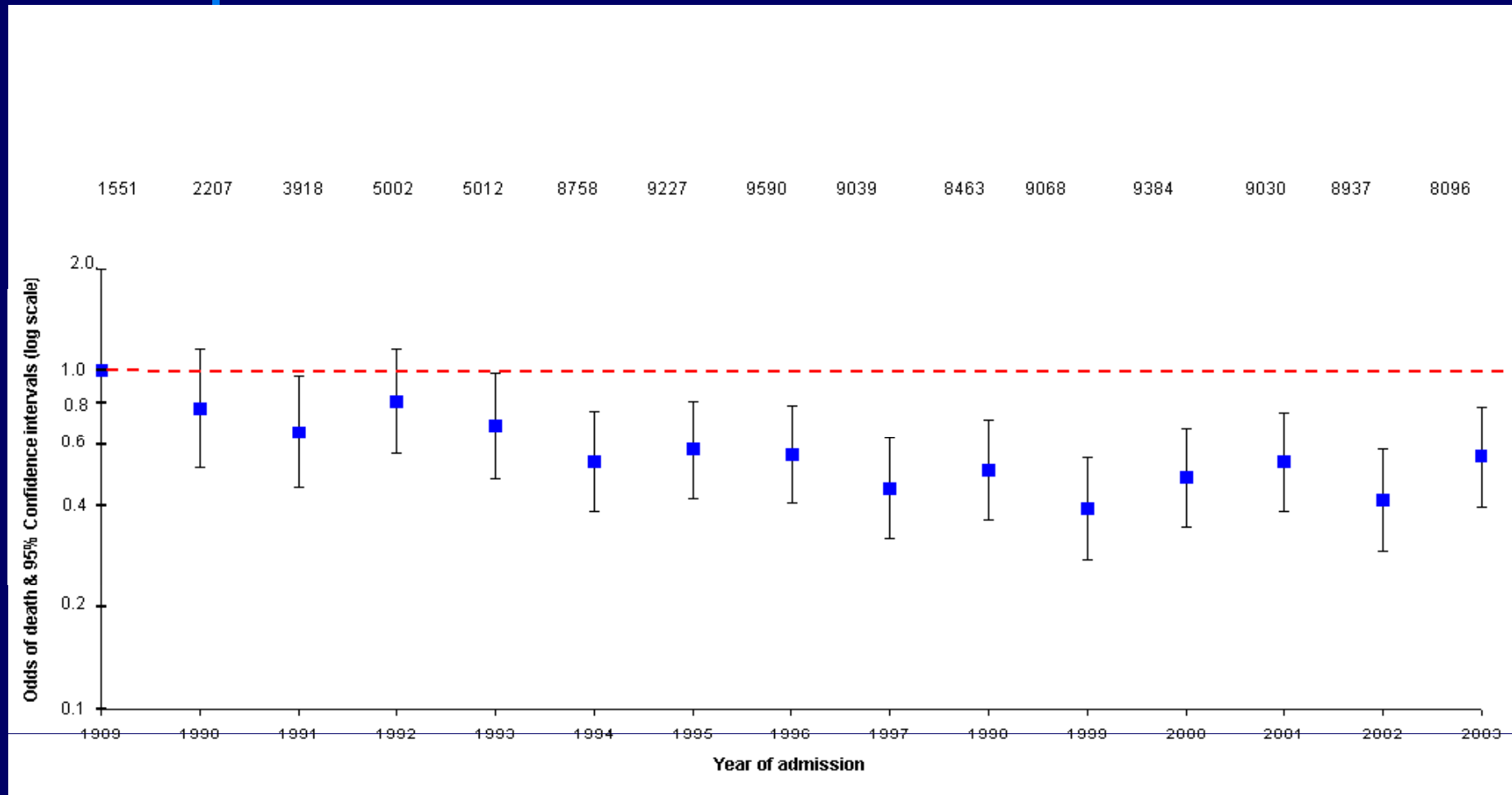
Trends in trauma outcome

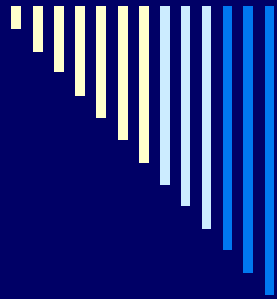
Epidemiology of Trauma

Systems of care

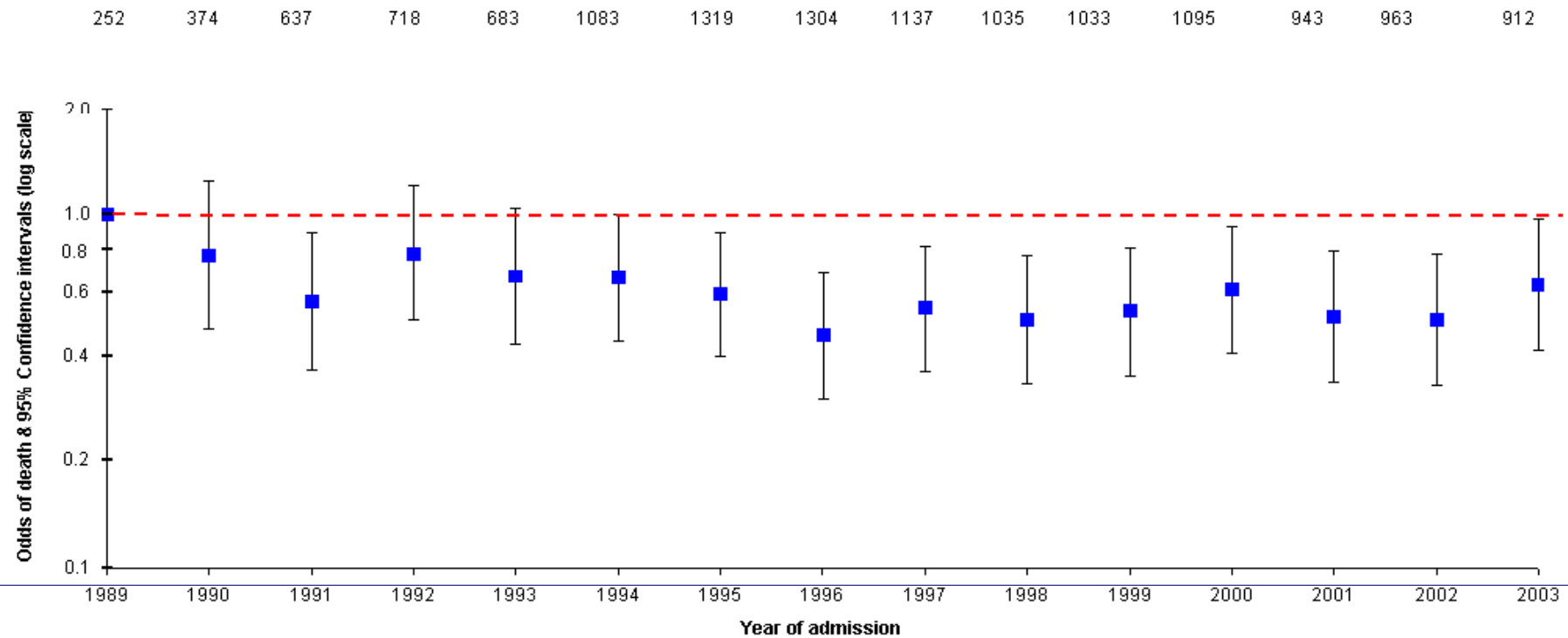
European comparisons

Annual Odds of death compared to 1989 baseline adjusted for Age, ISS and RTS; No Head injuries (n = 107282)





Annual Odds of death compared to 1989 baseline adjusted for Age, ISS and RTS; Head injuries (n=13490)



Casemix adjusted odds of death for patients with SHI
treated in a Non-neuroscience centre (NNC)
versus a neuroscience centre (NC)

Number of patients	Group	Adjusted Odds Ratio (95% CI) for predicting death when treated in NNC versus NC
3069	SHI with complete RTS	2.29 (1.89-2.76)
6921	All SHI patients	2.65 (2.35-2.99)
456	Isolated, non-surgical SHI (Age 16-65) with complete RTS	2.11 (1.21-3.67)
894	All isolated, non-surgical SHI (Age 16-65) patients	1.56 (1.12-2.18)



Epidemiology: the TARN experience

Systems of Care

- Care at neurosurgical centre appears pivotal in management of severe head injury
 - Similar patterns observed in unstable pelvic fracture where not managed in pelvic reconstruction centre
-

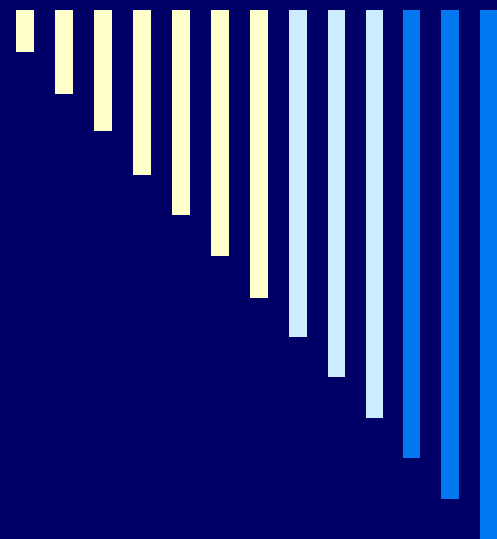
Improving patient care through national trauma audit

- Information alone is not enough to change outcome
- Locally, information needs to be used to make trauma high profile
- Governance and public accountability for participating trusts - ahead of the game
- High Achievers Workshops
- Demonstration of effective systems of care.
- NICE 2007 – “Essential for continuous neurosurgical input into the management of severely head injured patients”
- Huge research resource to inform clinical evidence.



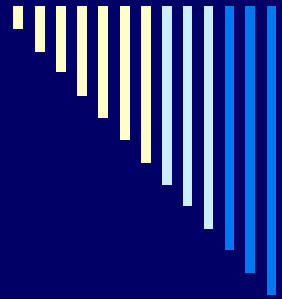
Trauma: Who cares?

- No-one?
 - Everyone?
 - Who (should) care?
 - ✓ organisation & communication
 - ✓ senior staff
 - ✓ experienced & skilled
 - ✓ within a system that is open & routinely reviews outcomes and processes of care through trauma audit!
-



“The NCEPOD report has studied how well we do and where we sometimes fail. It is by sympathetically and analytically studying where things go wrong that we can learn most.”

Professor T. Treasure, Chairman



Acknowledgements

- Clinicians and Data co-ordinators at TARN participating hospitals
 - University of Manchester, Hope Hospital
 - TARN Executive Committee and Board
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