NEW ZEALAND NATIONAL TRAUMA DATABASE
RoTES Report

- Delays in ambulance response
- Delays at accident scene
- Delays in transport
- Inadequate medical escort
- Inadequate management in Emergency Departments by junior staff
- Delayed investigation
- Delayed surgery
- Complications
Management Deficiencies and Death Preventability of Road Traffic Fatalities Before and After a New Trauma Care System in Victoria, Australia

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Background: The Consultative Committee’s findings that preventable or potentially preventable (P/PP) death rates (survival prospects ≥25%) of road crash fatalities who received treatment were unaltered between 1992 and 1998 led to a Ministerial Taskforce on Trauma and the gradual introduction of a new Victorian trauma care system. The present study compares outcomes before (1997–1998) and after (2002–2004) the new system.

Methods: The emergency and clinical management and death preventability of 245 consecutive fatalities in the ‘before’ period and 193 in the ‘after’ period was assessed by the committee’s multidisciplinary panels using the complete hospital, ambulance, and autopsy findings.

Results: Emergency department admissions to expanded Major Trauma Services (MTS) increased from 34% to 62% (p < 0.05). More patients were attended by Advanced Trauma Life Support paramedics (p < 0.05) and scene times increased (p < 0.05). Patients admitted within 1 hour decreased from 70% to 45% (p < 0.05). The mean number of deficiencies per patient including those contributing to death was decreased (p < 0.05). The combined P/PP death rates decreased from 36% to 28% (22% relative risk reduction). The P/PP death rates for MTS, Metropolitan Trauma Services, Rural Trauma Services, and Urgent Care Centers for 2002 to 2004 were 25%, 33%, 50%, and 83%, respectively, and did not differ significantly from those of 1997 to 1998 (23%, 49%, 36%, 75%, respectively). The P/PP death rates in MTS were less than those of the other hospital groups.

Conclusions: The new Victorian trauma care system has resulted in a significant decrease in deficiencies including those contributing to death and a decrease in P/PP deaths rates. The improvement has been largely consequent to a marked increase in admissions to MTS.

Key Words: Trauma systems, Preventable deaths, Management, Evaluation studies, Traffic crashes.
Victorian State Trauma System

- Preventable/Potentially Preventable Deaths
  36 → 28%
- 22% relative risk reduction
- ↑ admissions to Major Trauma Centre
A Trauma Plan for Queensland
National Trauma Registry Consortium
(Australia & New Zealand)

Road Traffic Crash External Cause

- MV Driver
- MV Passenger
- MB Driver
- MB Pillion
- Pedal cyclists
- Pedestrians

Patient Deaths
% Deaths

CONROD
Centre of National Research on Disability and Rehabilitation Medicine
Royal Australasian College of Surgeons

Australasian Trauma Society
Auckland Hospital Trauma Services

![Bar chart showing annual trauma services from 1995 to 2005](chart.png)
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Accident Compensation Commission

- 1995
- Hawkes Bay and Wellington
- 3-year Trauma Care Pilot
- Collector® Registry software
1989
Collaborative group
600 US Trauma Centres
>2 million cases
Emergency Care Coordination Teams (ECCT)

- 2003
- Francis Group Consultants
- Feasibility of a National Trauma Database
The case for a New Zealand National Trauma Database

**Purpose**

For over 10 years, the New Zealand Trauma Committee of the Royal Australasian College of Surgeons (RACS) has been trying to get sponsorship for a New Zealand National Trauma Database. ACC has been intermittently involved during that time but has more recently identified that there was potential benefit to the Corporation if such a system were established.
Issues

- Ministry of Health
- ACC operational needs
- Research capacity
- Ownership (ACC)
- Governance body
- Dataset
- Data collection FTEs (12 for NZ)
- Collector® recommended
MIDLANDS TRAUMA SYSTEM

- Project Manager
- Regional Clinical Director
- Trauma Consultant 0.1-0.2/DHB
- Trauma Nurse Coordinator 0.5/DHB
- Data Manager
- Data Entry
- Admin.
Why have a NTD?

- Benchmarking
- Quality Improvement
- Injury Prevention
What data is available?

- Health Information Service (NZHIS)
  - MOH
- Statistics NZ
- Injury Severity Score ✗
What do we need?

- National Trauma System
- DHBs to employ trauma services
- ACC to require quality from DHBs
- Public and political will
What are the goals and objectives of the NTDB?

- To improve the quality of patient care
- To provide an established information system for the evaluation of injury care and preparedness
- To develop better injury scoring and outcome measures
- To provide a rich source of data for clinical benchmarking, process improvement, and patient safety
Where to now?

- Midlands Trauma System
- ACC review of funding to MOH
- Statistics NZ review of Trauma Data
Number of Deaths by Mechanism of Injury

Number of Deaths by Mechanism of Injury

- Motor vehicle traffic
- Fall
- Struck by, against
- Transport, other
- Firearm
- Cut/pierce
- Pedal cycle, other
- Other specified
- Fire/Burn

Legend:
- Age 0–14
- Age 15–19
RESULTS
After adjustment for differences in the case mix, the in-hospital mortality rate was significantly lower at trauma centers than at non-trauma centers (7.6 percent vs. 9.5 percent; relative risk, 0.80; 95 percent confidence interval, 0.66 to 0.98), as was the one-year mortality rate (10.4 percent vs. 13.8 percent; relative risk, 0.75; 95 percent confidence interval, 0.60 to 0.95). The effects of treatment at a trauma center varied according to the severity of injury, with evidence to suggest that differences in mortality rates were primarily confined to patients with more severe injuries.

CONCLUSIONS
Our findings show that the risk of death is significantly lower when care is provided in a trauma center than in a non-trauma center and argue for continued efforts at regionalization.
Quality assessment of the management of road traffic fatalities at a level I trauma center compared with other hospitals in Victoria, Australia. Consultative Committee on Road Traffic Fatalities in Victoria.

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OBJECTIVES: Since 1992, the Consultative Committee on Road Traffic Fatalities in Victoria, Australia, has identified problems including those contributing to death and the potential preventability of deaths in road fatalities who survived until at least the arrival of ambulance services. The present analysis examines the outcomes at a Level I trauma center compared with other hospital groups in Victoria. METHODS: Between 1992 and 1994, 257 consecutive eligible fatalities were evaluated. Problems in management and preventable deaths were identified at the trauma center (TC) and in pooled data from other hospital groups, i.e., specialist teaching (Level II), other metropolitan (Level III), large regional (Level III), and small regional hospitals. RESULTS: Mean problems identified and those contributing to death (controlled for the number of areas of care), were less frequent at TC (1.7 and 0.6) than at other hospital groups (specialist teaching, 1.9 and 1.1; metropolitan, 3.1* and 1.6*; large regional, 3.8* and 1.8*; small regional, 5.1* and 2.6*) (*p < 0.05 compared with TC). Preventable and potentially preventable deaths were also less common at TC (20%) than at the other hospital groups (specialist teaching, 40% *; metropolitan, 41%; large regional, 53%; small regional, 62%*) (*p < 0.05 compared with TC). When a Trauma and Injury Severity Score of 75% or more was used to define preventable death, a similar trend was identified. CONCLUSION: Management of patients with major trauma at a Level I trauma center was associated with fewer problems contributing to death and fewer preventable and potentially preventable deaths than at the different hospital groups. A trauma system in Victoria, including bypass of major trauma patients to designated hospitals with 24-hour trauma services, is likely to decrease the frequency of problems, including the preventable death rates.

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Victoria

- Fewer deaths at major trauma centres
- Trauma System recommended
Review of Trauma and Emergency Services Victoria 1999

REPORT OF THE MINISTERIAL TASKFORCE ON TRAUMA AND EMERGENCY SERVICES AND THE DEPARTMENT OF HUMAN SERVICES WORKING PARTY ON EMERGENCY AND TRAUMA SERVICES