AusTQIP

AUSTRALIAN TRAUMA QUALITY IMPROVEMENT PROGRAM

Progress Report 2011–2012

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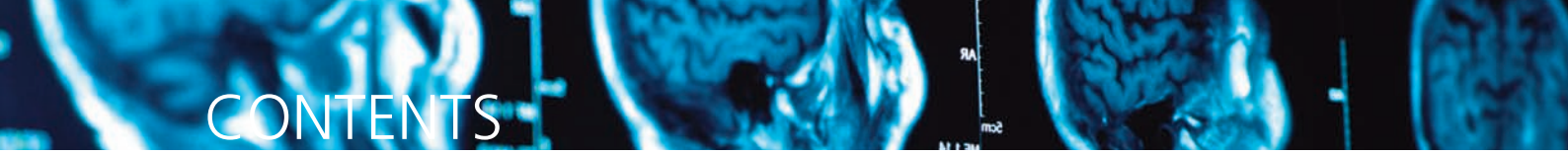

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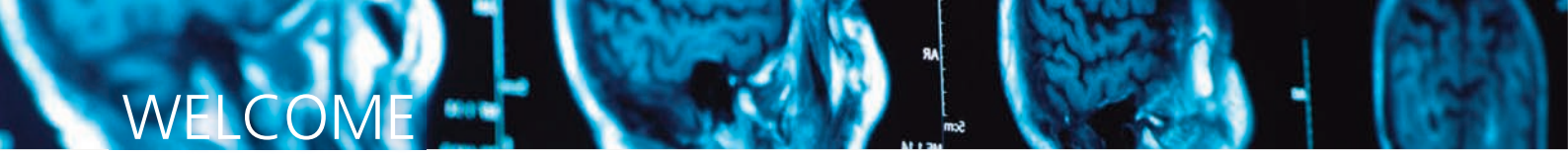

Welcome

On behalf of the AusTQIP Steering Committee, I welcome you to the first progress report of the Australian Trauma Quality Improvement Program.

You might be wondering what there is to be gained from a national trauma quality improvement program. After all, each state and territory has an established trauma system, the 26 major trauma centres are doing their best, along with their colleagues in ambulance and rehabilitation services, to manage the most severely injured patients, and there has long been a spirit of camaraderie and cooperation between us all. So what more could we achieve?

In fact, there is a great deal more that can and needs to be achieved. Injury remains a major national concern – it is the leading cause of death under the age of 45, it is a major cause of disability and lost productivity,[1] it is second only to cardiovascular disease for hospital-related expenditure,[3] and it costs the Australian economy an estimated $18 billion every year.[2] Of course severely injured patients don't have the luxury of navigating and negotiating their preferred health care services, instead each one depends entirely on the available emergency, critical care and rehabilitation services. Ensuring every injured patient receives high quality care is very challenging, as patients present unpredictably, at inconvenient times, usually far from specialist trauma hospitals, often needing life-saving interventions for multiple injuries, and often ending up with long complicated stays in hospital and extensive periods of rehabilitation.

Injury remains a major national concern – it is the leading cause of death under the age of 45, it is a major cause of disability and lost productivity, it is second only to cardiovascular disease for hospital-related expenditure, and it costs the Australian economy an estimated $18 billion every year

Although injury is a National Health Priority Area, the states and territories have had the responsibility of providing these services. But as the National Disability Insurance Scheme evolves and the cost of injury to the national economy is better understood, and as the potential is recognised for patients to have good outcomes after even the most horrific trauma, there is an urgent need for effective ways of improving patient care and lessening Australia's overall burden of injury.

The Australian trauma care community believes this is possible through application, on a national scale, of modern quality improvement techniques. At their core, these techniques capitalise on *learning from experience*, and *learning from each other*, to continually improve the care that injured patients receive everywhere. Within any one state or territory there are too few trauma centres to do this meaningfully. Across Australia, however, we have much to share, and much to learn from each other. The role of a national quality improvement program

WELCOME

is to provide the infrastructure, techniques and guidance to enable this to happen efficiently and effectively. Our established trauma systems and existing collaborations make a world-class national trauma quality improvement program truly possible. With this, we will ensure future patients get closer to the best possible care, and the greatest chance of recovery.

The genesis of an Australian Trauma Quality Improvement Program lay in decades of leadership to improve trauma care shown by many Australians and New Zealanders, by a few visionary health services, and by professional organisations, especially the Royal Australasian College of Surgeons' Trauma Committee and the Australasian Trauma Society. In 2000 a National Trauma Registry Consortium aimed to develop a Bi-National Trauma Registry. They achieved a great deal, but without sufficient support, they fell short of their goal. With generous funding for 2011 and 2012 from Alfred Health through the National Trauma Research Institute, and the National Critical Care and Trauma Response Centre, a renewed vision for a national program was created and is now being realised.

AusTQIP is very different to what went before it. Our vision is of a sustained national collaborative program that supports health services to most efficiently provide the best possible care to every injured Australian, giving each and every one the best chance of recovery. AusTQIP is a sophisticated world-class program that incorporates contemporary understanding about quality improvement, innovative use of information, and sharing of ideas and experiences. A national trauma registry will provide high-quality data to underpin quality improvement activities.

AusTQIP is very much a national, collaborative program. A steering committee, representing each state and territory and other key stakeholders, guides program planning and development. Busy doctors, nurses and other trauma program staff from all over Australia have devoted their time and expertise through the Data and Quality Systems Working Groups, and an expert management committee oversees the day-to-day activities of the AusTQIP team. Without these contributions of people who are already giving of themselves to improve the care of injured people, AusTQIP would not be possible.

Much of AusTQIP's success, however, is due to the remarkable expert program team – Nathan Farrow, Meng Tuck Mok, and Sarah Lensen – who have tirelessly committed themselves to bringing to fruition a program that meets the needs of providers and patients around the country. Through their road-trips to meet and listen to views of providers at each trauma centre, their thoughtful and responsive system design, and their unwavering commitment to fair, reasonable and transparent processes, they are creating an exemplary world-class program.

This Progress Report reveals the complexities and challenges involved in developing AusTQIP. The report shows us that we are well on the way to enjoying its benefits. I trust you'll find this report interesting. Perhaps you'll also find it useful. And hopefully you'll find it inspiring.

Professor Russell Gruen
Chair, AusTQIP Steering Committee

APPRECIATION

Thank you from the AusTQIP team

The vision of AusTQIP – of a national collaborative program that supports health services to most efficiently provide the best possible care to every injured Australian, giving each and every one the best chance of recovery – is both innovative and challenging. The state and territory-based nature of our health systems, including trauma, means that there are inherent barriers to sharing information and realising the benefits of working together. Until such time that there are legislative, policy or operational structures to support national partnerships, collaboration is the key method of overcoming such barriers.

In AusTQIP, collaboration means we work together towards agreed common goals, we understand and agree how we work together, and we all have an opportunity to have a say and be heard.

Collaboration requires strong working relationships and a formal collaboration framework and agreement has been developed to cover the many complexities of data and information sharing, governance, reporting, research and data use. The AusTQIP team has had the privilege of building on the relationships among the Australian trauma community and developing the collaboration framework and agreement. We would not have been able to navigate the necessary administrative requirements to achieve this without the active support of so many across the country.

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There are many individuals and organisations that have made AusTQIP, and the AusTQIP team's job, possible and to whom we express sincere thanks:

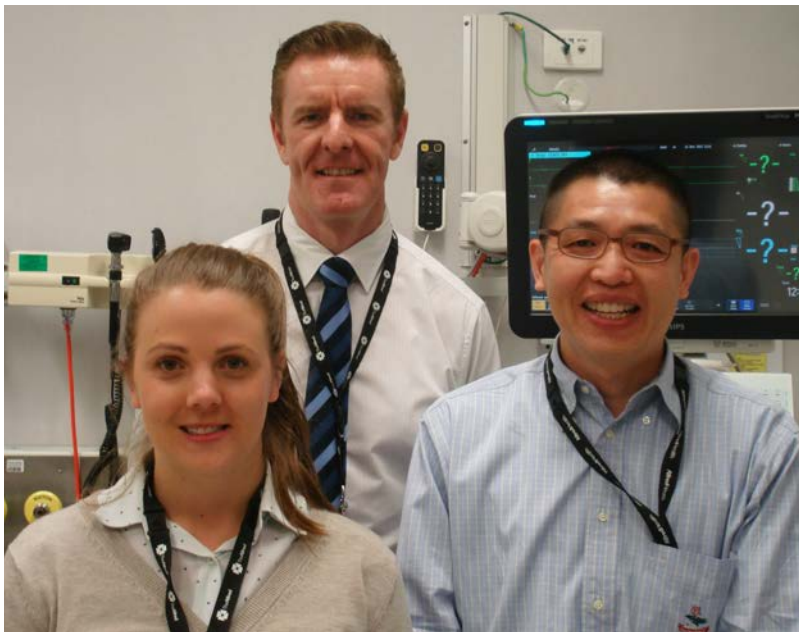
- The ***National Critical Care and Trauma Response Centre*** and ***Alfred Health***, through the National Trauma Research Institute, for providing funding and support to establish AusTQIP.
- The ***Steering Committee*** founding members for their time, expert knowledge and guidance: Russell Gruen (Chair), Heather Buchan, Ann-Marie Baker, Peter Cameron, Grant Christey, Peter Clark, Kate Curtis, Mark Fitzgerald, Mark Friend, Rodney Judson, Damian McMahon, Cliff Pollard, Sudhakar Rao, David Read, Ron Somers, Alicia Tucker, Michael Reade and Tony Joseph.
- The ***Management Committee*** for oversight and advice: Peter Cameron, Nathan Farrow, Belinda Gabbe, Russell Gruen, Meng Tuck Mok and Gerard O'Reilly.
- The ***Trauma Data Working Group*** for their continued efforts and contributions:

APPRECIATION

Maxine Burrell, Nathan Farrow, Belinda Gabbe, Kathy Harvey, Andrew Keygan, Jacelle Lang, David Martens, Kath McDermott, Sue McLellan, Meng Tuck Mok, Gerard O'Reilly, Cameron Palmer, Deb Wood.

- The ***Trauma Quality Systems Working Group*** for their continued efforts and contributions: Cathy Balding, Melissa Bantick, Marije Bosch, Maxine Burrell, Chris Clarke, Kevin Cornwall, Stuart Dickinson, Bronte Douglas, Julie Evans, Nathan Farrow, Angela Fischer, Sally Forrest-Horder, Kerena Grant, Elizabeth Grey, Kellie Gumm, Annette Holian, Alicia Jackson, Helen Jowett, Meng Tuck Mok, Louise Niggemeyer, and Rebekah Ogilvie.
- The ***state trauma registries*** for their assistance, commitment and support: the New South Wales Institute of Trauma and Injury Management, the Queensland Trauma Registry, the South Australian Trauma Registry, and the Victorian State Trauma Registry.
- The ***designated major trauma centres:*** Flinders Medical Centre; John Hunter Children's Hospital; John Hunter Hospital; Liverpool Hospital; Mater Children's Hospital; Princess Alexandra Hospital; Princess Margaret Hospital; Royal Adelaide Hospital; Royal Children's Hospital (Brisbane); Royal Darwin Hospital; Royal Hobart Hospital; Royal North Shore Hospital; Royal Perth Hospital; Royal Prince Alfred Hospital; St George Hospital; St Vincent's Hospital (Sydney); Sydney Children's Hospital; Royal Brisbane and Women's Hospital; The Alfred; The Canberra Hospital; The Children's Hospital at Westmead; The Royal Children's Hospital (Melbourne); The Royal Melbourne Hospital; Townsville Hospital; Westmead Hospital; and Women's and Children's Hospital (Adelaide).
- The ***Royal Australasian College of Surgeons' Trauma Quality Improvement Subcommittee*** and the ***Australasian Trauma Society*** for their advice and support.
- ***International experts***, such as Avery Nathens, John Fildes, Melanie Neal and Tammy Morgan from the American College of Surgeons' Trauma Quality Improvement Program and National Trauma Data Bank, Tom Stelfox from Calgary Health Services, and Ian Civil and Grant Christey from New Zealand, for their excellent advice along the way.

We look forward to continuing to work with you all towards achieving our vision for AusTQIP in 2013 and beyond.



Left to right: Sarah Lensen, Project Officer; Nathan Farrow, AusTQIP Manager; Meng Tuck Mok, Australian Trauma Registry Manager.

Vale Damian McMahon 1958 – 2012

Director, Shock Trauma Service, The Canberra Hospital, 1997–2012

Damian McMahon didn't know how to be anything less than passionate when it came to patient care.

An intense advocate for public health care, he gave of himself daily. His unwavering drive to improve the care of the injured and their families has contributed to the evolution of trauma systems across this country, which includes founding the Australia and New Zealand Association for the Surgery of Trauma. Locally, he lobbied and gave up much to establish the Shock Trauma Service and now Capital Region Retrieval Service, filling every hole in the roster to ensure that our regional areas had access to time-critical surgical and intensive care services. For those he loved deeply, this did not come without sacrifice. A great debt is owed to his wife Della, and sons Xavier, Riley, Grange and Dinan, for sharing this great man with the rest of us.

Many will see these accomplishments as Damian's legacy to his profession, but for me, his death and legacy are far more personal. A man of high standards, knowledge was king, but a faint second to the humanness of medicine. It was this that made me respect him more than any colleague I have ever met. Damian cared. He touched his patients; held their hands, sat on their beds and talked to them. He never promised miracles, but offered them hope, making them believe that they were strong enough to do the work to get home. And that was the thing about him, his passion was infectious. Damian made everyone give that bit more and try that bit harder. We would be that bit better for it, too. I would challenge even those who butted heads with him to prove that their practice has not changed for the better after a bout with him.

Damian was a rare clinician whose dedication to his profession was solely based on the fact that he truly felt privileged to practise medicine. In my whole career I have never had a colleague believe in me and my skills as much as he did. He involved me in every clinical decision made for patients within our service and care, and ensured that other professionals involved were aware of my role and the importance he placed on it within the system. In this way, we were a team, a family.

I keep thinking that he has not left us, that he is just on another trip somewhere, and I expect him to turn up at any second to tell me about all the great things everyone is doing. But he has and he is not. He would think it ridiculous that the world would stop for a moment to remember him. The trauma and acute general surgical community have lost so much more than can be imagined in his passing. We all have. For me, I hope that others see in him what I did. He not only influenced the way that I practise my profession but also changed the way I see the world. He helped me see all that is good and just and human. He was not just my colleague and mentor, he was my friend, and I loved him with the whole of my heart.

Rebekah Ogilvie
Trauma Coordinator
Shock Trauma Service
The Canberra Hospital

Traumatic injury in Australia

Traumatic injury is a significant public health problem in Australia. It is the leading cause of death in people under 45, a major cause of chronic illness and permanent disability, and a substantial cause of health care costs and lost productivity.[1] Approximately 27 people die as a result of injury every day – almost 10,000 lives are lost each year,[2] and over 600,000 Australians report having a disability caused by injury.[3]

On average, more than 1000 injured people are admitted to hospital every day, and trauma accounts for one in every 20 admissions.[2] The annual cost of injury-related health care in Australia exceeds $3.4 billion,[4,5] and injury is second only to cardiovascular disease for hospital expenditure.

Injury is responsible for 7% of the overall burden of disease in Australia.[3] It is the highest contributor to disease burden in regional and remote areas (29.1%).[3] The national annual cost of traumatic injury has been estimated to be close to $18 billion.[2]

Good trauma care is often very challenging: patients can sustain multiple injuries that require immediate or urgent treatment; they may be a long way from a specialist trauma centre; ambulance personnel often have to provide life-saving procedures at the roadside, before patients get to hospital; and the ongoing care that patients need may involve many different types of specialists over many months or even years. Not all injured patients fully recover.

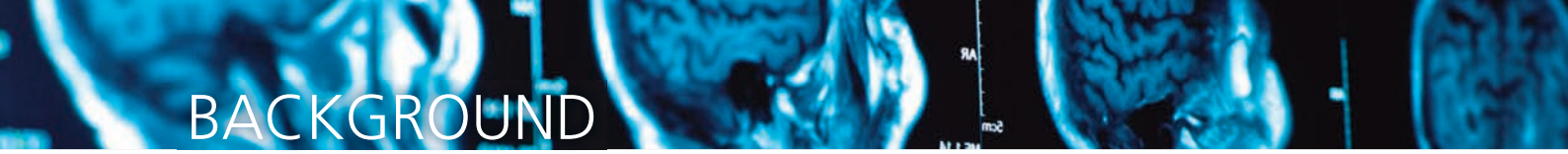
Previous studies highlighting problems in care have led to major trauma system developments. For example, the Consultative Committee on Road Traffic Fatalities[6] and Major Trauma Management Study[7] found that up to one third of all deaths following motor vehicle crashes in Victoria were preventable. An integrated statewide system of trauma care was subsequently developed and, in just 10 years, the likelihood of anyone dying following severe injury has halved. In New South Wales, development of expertise at specialist trauma centres has also resulted in better outcomes than non-specialist centres.[8]

Trauma care requires attention to the entire journey through pre-hospital, hospital and post-hospital services that patients traverse. Providing time-critical care for severely injured patients is complex. An Australian study that showed critical decisions are made every 72 seconds during major trauma resuscitations.[9] The same study, which was a video-analysis of over 1000 trauma resuscitations, showed that in such challenging situations, errors were made in one out of every 10 critical decisions. International research has shown similar demonstrating the consequences of failure to diagnose injuries[10] and of errors in care. A review of 2594 deaths at a leading major trauma centre in the United States identified particular patterns of errors in airway management, haemorrhage control, operative decision-making, and critical care that contributed to death.[11] These studies have, however, also shown that care could be improved, errors reduced, and better outcomes obtained through development of protocols and effective means for decision support.

There is growing evidence that quality improvement interventions are highly effective in trauma care. While Australia's 26 designated major trauma centres have an enviable track record in improving systems of care of the seriously injured within their respective organisations, the full benefit of sharing these improvements is yet to be realised. A national approach is required to enable them to work together in improving trauma care for all Australians.

Overview of state and territory-based trauma systems

State	Land Area (km^2)[12]	Population Size[13]	Designated Major Trauma Centres	Other Trauma Centres
ACT	2351	373,000	The Canberra Hospital	—
NSW	801,315	7.3 million	Children's Hospital at Westmead John Hunter Hospital John Hunter Children's Hospital Liverpool Hospital Royal North Shore Hospital Royal Prince Alfred Hospital St George Hospital St Vincent's Hospital Sydney Children's Hospital Westmead Hospital	10 regional trauma services and 2 state-wide speciality services (burns and spinal cord injury).
NT	1.3 million	233,000	Royal Darwin Hospital	4 other public hospitals
QLD	1.7 million	4.5 million	Royal Brisbane and Women's Hospital Princess Alexandra Hospital Royal Children's Hospital Brisbane Mater Children's Hospital Townsville Hospital	4 metropolitan and 8 regional trauma centres
SA	985,338	1.6 million	Flinders Medical Centre Royal Adelaide Hospital Women's and Children's Hospital	3 urban trauma centres and 8 rural trauma centres
TAS	67,914	512,000	Royal Hobart Hospital	2 other major public hospitals
VIC	227,416	5.6 million	The Alfred Royal Melbourne Hospital Royal Children's Hospital	8 metropolitan trauma services, and 11 regional trauma centres
WA	2.5 million	2.4 million	Royal Perth Hospital Princess Margaret Hospital	2 metropolitan trauma centres, 5 urban trauma centres and 6 regional trauma services



BACKGROUND

Estimated Annual Number of Major Trauma Patients statewide	State Trauma Plan (or equivalent)	State and/or Hospital Registries
260[14]	Works in synergy with NSW trauma system	The Canberra Hospital trauma registry
2700[15]	Selected Specialty and Statewide Service Plans Number Six (2009)[15]	Each major trauma centre registry submits data to the NSW state registry, at the Institute of Trauma and Injury Management (ITIM).
650[16]	Works in synergy with AUSTRAUMAPLAN (2011)[17]	Royal Darwin Hospital trauma registry
2000[18]	A Trauma Plan for Queensland (2006)[18]	Queensland Trauma Registry (QTR) no longer funded from July 2012. Hospital trauma registries have been/are being established.
600[19]	Emergency and Trauma Services Implementation Plan (2000)[20]	South Australia Trauma Registry no longer funded from 2012
154[21]	Works in synergy with Tasmanian Mass Casualty Management Plan (2010)[22]	Royal Hobart Hospital trauma registry
2745[23]	Trauma towards 2014 – Review and future directions of the Victorian State Trauma System (2009)[23]	The Victorian State Trauma Registry (VSTR) collects trauma data from patients treated across the state
650[24]	Trauma Systems and Services (2007)[25]	Hospital trauma registries operating

Trauma quality improvement initiatives prior to 2011

Australia has an enviable history of initiatives to improve trauma care, to which the current systems are testament. Through clinical leadership and by working with international colleagues, Australia has developed some world-class ambulance services, retrieval services, and trauma centres. Through dedicated courses such as the Early Management of Severe Trauma Course (EMST/ATLS) for doctors, the Definitive Surgical Trauma Care (DSTC) course for surgeons, Pre-Hospital Trauma Life Support (PHTLS) Course, the Remote Area Trauma Education (RATE) Course, as well as integration of injury management in general medical, nursing and allied health education programs, Australian providers can receive excellent training. Through sustained advocacy by many committed health professionals and professional organisations, especially the specialist colleges and the Australasian Trauma Society, generations of Government and industry leaders have understood what it takes to improve systems of care. And through various initiatives, successive state and federal Governments have, in the face of competing priorities, facilitated many developments.

While persistence, leadership and collaboration were features of these initiatives, a key deficiency was lack of data to allow reporting of, monitoring, comparing and ultimately improving trauma care. Launched in November 2003, the National Trauma Registry Consortium (NTRC) brought together many key stakeholders to work towards a bi-national trauma registry amalgamating information about trauma patients routinely collected during hospital admissions throughout Australia and New Zealand. The Royal Australasian College of Surgeons, the University of Queensland's Centre of National Research on Disability and Rehabilitation Medicine (CONROD), the Australasian Trauma Society, and the New South Wales Institute of Trauma and Injury Management led a process to develop and agree on a minimum dataset specifying what information should be collected and how it should be defined.

In 2010, Alfred Health (through its National Trauma Research Institute) and the National Critical Care and Trauma Response Centre committed funding for two years to develop AusTQIP to continue and expand on the NTRC's work by creating the first Australian Trauma Registry. The focus of this funding was Australia, but AusTQIP's work was to be closely aligned with trauma system and registry initiatives being undertaken in New Zealand.

CASE STUDY

ANNUAL PAEDIATRIC EMERGENCY AND TRAUMA PROGRAM – WOMEN'S AND CHILDREN'S HOSPITAL, ADELAIDE

Every year for the past five years the Women's and Children's Hospital has hosted an education outreach program for paediatric trauma staff. Trauma Clinical Practice Consultant Ms Jackie Winters says the workshop participants are always a diverse group. 'There are emergency staff, urban and country GPs and nurses, paramedics and even the occasional social worker.'

She explains that the physiology of babies and children is very different from adults, and while the trauma treatment protocols are similar, there are certain injuries where the long-term outcomes can be particularly devastating. Jackie

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Case study continued

says that paediatric trauma can sometimes be overlooked because the number of patients tends to be smaller than for adult trauma. 'A head injury or spinal injury can mean a lifetime of disability for a child. This is one reason I am so passionate about educating health care professionals to provide optimum paediatric care.'

Jackie says that the workshop topics are carefully researched to provide participants with broad, up-to-date skills and information. 'This year our sessions included fluid resuscitation, sports injuries, management of paediatric airways, paediatric vascular access and emergency paediatric orthopaedics.

'We are always looking to improve our trauma care, and our workshops are a great way to enhance the learning and development of health professionals interested in paediatric trauma. It also allows them the opportunity to network, and to engage with each other, sharing their own knowledge and experience.'

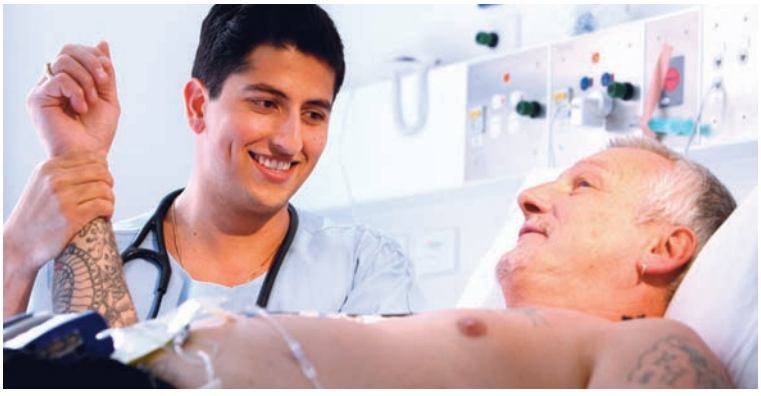
Jackie says course evaluations show that participant satisfaction with the workshops is consistently high. 'It's great to know we are meeting their learning needs in paediatric trauma care.'

The vision for an Australian Trauma Quality Improvement Program

The vision for AusTQIP is of a national collaborative program that supports health services to most efficiently provide the best possible care to every injured Australian, giving each and every one the best chance of recovery.

AusTQIP is pursuing this vision by developing systems to enhance and support foundations for quality improvement that already exist in Australia's major trauma centres. In particular AusTQIP is:

- building a collaborative network for major trauma centres to share information and lessons learned, and to combine efforts in trauma quality improvement
- reducing duplication of effort, improving efficiency and expanding capacity for major trauma centres to monitor and further improve the quality of trauma care provided
- actively encouraging and seeking consumer participation in trauma system improvement and development
- aligning trauma data definitions, developing a national trauma registry, and improving the statistical power and therefore usefulness of trauma data already being collected for quality improvement and patient safety
- developing a 'next-generation' portal to provide access to data and an accessible evidence base for quality improvement for trauma service leaders, clinicians and health service managers, and
- facilitating processes that allow each major trauma centre to accurately but confidentially compare their performance with other centres, taking into account contextual and patient-related differences (risk-adjusted benchmarking). Examples of these differences include transport distances and varying pre-hospital treatment protocols. This will help major trauma centres identify their comparative strengths and weaknesses and help all to learn from higher performing centres what it is that leads to better outcomes.



Progress towards AusTQIP in 2011-2012

Robust governance is established

To ensure a truly national and inclusive arrangement, decisions regarding AusTQIP activities, administration, strategic direction, policies and procedures should be made collectively. To achieve this, AusTQIP has adopted a shared governance approach to facilitate transparency and equitable participation.

Shared governance is based on the following principles:

- The authority of the participating organisations is recognised
- Processes are open and transparent
- Communication is consistent, trustworthy, reliable and multidirectional
- Formal agreement is required to acknowledge mutual acceptance of principles and processes
- All participants are accountable for the proper execution of their roles
- Those affected by a decision are given the opportunity to influence the discussion of any issues
- Decisions are made in a manner that is timely and appropriate to an issue.

CASE STUDY

AUSTRALIA'S FIRST AUTHORISED TRAUMA NURSE PRACTITIONER: REBEKAH OGILVIE – THE CANBERRA HOSPITAL

Rebekah Ogilvie, trauma nurse co-ordinator at The Canberra Hospital, is Australia's first authorised trauma nurse practitioner (NP) – a role that combines her extensive experience and holistic focus as a nurse with specialist trauma training that allows her to practise independently.

Rebekah is passionate about what she calls the 'back end' of trauma care. 'A major component of my NP role is running a trauma outpatient clinic, which attempts to provide exemplary, standardised post-discharge care and to facilitate tracking of long-term outcomes in trauma patients.'

She says there is a huge, hidden injury burden that isn't accounted for when assessing the societal costs of trauma. 'Our focus is on following up injuries to ensure there are no hidden complications.'

Although Rebekah received her endorsement as trauma nurse practitioner in 2008, it has taken four years to secure funding for her position. In that time, she says, under the mentorship and guidance of former trauma director Dr Damian McMahon, she has worked hard to refine the role. 'If I am the first trauma nurse practitioner, I want to do it really well, and that means being collaborative.'

Ms Rebekah Ogilvie

She says evaluation methodology must recognise that a wide range of factors influence patient and service outcomes. 'In some instances it may be difficult to isolate data that reflects the NP's individual contribution, but with the help of the AusTQIP program, I'm confident that evaluation and development of the NP role to suit all trauma centres is achievable.'

- Oversight and review processes are in place to ensure the process is working as intended.

AusTQIP's governance structure reflects the recommendations of the Operating Principles for Australian Clinical Quality Registries published by the Australian Commission on Safety and Quality in Health Care in 2010.[26] For each committee and working group, targeted expressions of interest were sought to recruit participants, then terms of reference, meeting schedules, work plans and administrative support systems were drafted and mutually agreed. Web conferencing was trialled as an affordable technology and is currently the main tool used to facilitate national working group meetings. The following sections provide a brief description of the role and composition of each group.

Steering Committee

The AusTQIP Steering Committee was established as the principal governing committee to ensure that AusTQIP's objectives are met. This includes oversight and monitoring of program deliverables, timelines, quality, risk, and financial resources. The committee meets three times a year and includes participants from: all state and territory major trauma centres; state trauma registries; AusTQIP funding organisations (National Critical Care and Trauma Response Centre and Alfred Health); the academic sector; the Royal Australasian College of Surgeons' Trauma Quality Improvement Subcommittee, the Australian Defence Forces; consumer groups; the Australasian Trauma Society; the Australian Commission on Safety and Quality in Health Care; New Zealand major trauma centres; and the AusTQIP Manager, Australian Trauma Registry Manager, and AusTQIP Project Officer.

Sustainability Subcommittee

Ongoing sustainability of AusTQIP is a key focus of the Steering Committee. To work towards this goal, a Sustainability Subcommittee was formed and meets as required. Participants include AusTQIP's funding organisations, a consumer, the Australian Commission on Safety and Quality in Health Care and the AusTQIP team. In February 2012 this subcommittee used a consultative process to develop a collective response to the Australian Safety and Quality Goals for Health Care – Consultation Paper.[27] The response was part of AusTQIP's strategy to place trauma on the national agenda as a clinical priority area for quality improvement. The subcommittee continues to work in concert with the National Critical Care and Trauma Response Centre and Alfred Health to ensure AusTQIP's financial viability in the future.

CASE STUDY

THE INDIGENOUS HEAD INJURY PROJECT – ROYAL DARWIN HOSPITAL

Royal Darwin Hospital's Trauma Service treats more Indigenous patients than any other major trauma centre in Australia, and more than two-thirds of them live in rural and remote areas.

Trauma Nurse Coordinator Bronte Douglas says that there are over 640 remote communities in the Northern Territory, with 80 different dialects spoken in the Top End alone. 'Indigenous Australians also have a very different health and wellness framework compared to westerners, and while we have excellent support from Indigenous liaison officers and interpreters, certain

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GOVERNANCE

Case study continued

processes in trauma care can be culturally challenging at times.

'For example, when a trauma patient has a mild head injury, we undertake routine cognitive tests to assess whether that injury has affected their usual level of functioning. Asking screening questions such as, "What day is it?" "How old are you?" or "Who is Australia's prime minister?" may be inappropriate and lead to inaccurate test results. Instead, we have worked with Indigenous health workers to adapt these tests to make them culturally appropriate, for example, asking what season it is, or showing pictures of certain animals or plants for them to identify. Such a tool gives a much more accurate guide to how their head injury may have affected them.'

Ms Douglas says that the hospital is also developing an educational DVD with discharge information in various dialects to enable Indigenous patients to be better informed about the nature of their injury and the process of recovery. She says that formal evaluation of the program will be undertaken once the discharge DVD has been developed.

'It is just one of many ways to ensure we are delivering the best and most appropriate clinical care to our Indigenous patients.'

Management Committee

The AusTQIP Management Committee handles day-to-day issues including implementation of key tasks, monitoring and reporting on program deliverables, timelines, data, quality, risk and financial resources. The committee meets fortnightly and provides progress reports to the AusTQIP Steering Committee and prepares and presents biannual progress reports to the Alfred Health management executive and National Critical Care and Trauma Response Centre Joint Implementation Group on behalf of the Steering Committee.

Trauma Quality Systems Working Group

Under the direction of the Management Committee, the Trauma Quality Systems Working Group meets every month to undertake the required work to identify, prioritise and address trauma quality issues and to coordinate shared quality improvement efforts between the major trauma centres. The group was first convened in February 2012 to commence work on recommendations arising from the trauma quality systems audit and from a national workshop on trauma quality improvement, conducted by AusTQIP in collaboration with the National Trauma Research Institute and the Royal Australasian College of Surgeons in November 2011. This group is led by the AusTQIP Manager and includes participants from most states and territories. To support and advise its work, the group has also co-opted health care quality improvement, knowledge translation (applying research to practice) and human factors expertise (understanding interactions among humans and other elements of a system).

Trauma Data Working Group

The Trauma Data Working Group, also under the direction of the Management Committee, undertakes the complex tasks involved in establishing and maintaining an Australian Trauma Registry. These tasks include ongoing development of the Bi-National Trauma Minimum Data Set, design of the Australian Trauma Registry, and drafting of many administrative processes, policies and approvals. First convened in June 2011, the group is led by the Australian Trauma Registry Manager and includes participants from all states and territories. Experts in clinical registry development, trauma research and epidemiology are also available for support and advice.

GOVERNANCE

AusTQIP Governance Structure

AusTQIP Steering Committee

NTRI Director (Chair) Russell Gruen	NCCTRC Executive Sponsor Mark Friend	Alfred Executive Sponsor Mark Fitzgerald	University representatives Peter Cameron Kate Curtis	Commonwealth liaison – ACQSHC Heather Buchan	Australasian Trauma Society Anthony Joseph
Australian Defence Force Michael Reade	Consumer representative Ann-Marie Baker	New Zealand Grant Christey	Australian Capital Territory Ailene Fitzgerald	New South Wales Peter Clark	Northern Territory David Read
Queensland Cliff Pollard	South Australia Ron Somers	Tasmania Alicia Tucker	Victoria Rodney Judson	Western Australia Sudhakar Rao	AusTQIP Manager Nathan Farrow
Australian Trauma Registry Manager Meng Tuck Mok					

NB: The blue shaded boxes in the Steering Committee denote Sustainability Sub-Committee members

International Liaison Advisory Group

United States Avery Nathens	Canada Tom Stelfox	World Health Organization Manjul Joshipura
United Kingdom Keith Willett	Europe (Utstein) Kjetil Ringdal	Asia-Pacific Trauma Quality Improvement Network Witaya Chadbunchachai Gerard O'Reilly
AusTQIP Manager Nathan Farrow	Australian Trauma Registry Manager Meng Tuck Mok	

Management Committee

NTRI Director (Chair) Russell Gruen	AusTQIP Manager Nathan Farrow	AusTQIP Project Officer Sarah Lensen
Australian Trauma Registry Manager Meng Tuck Mok	Patient Safety Expert Peter Cameron	Clinical Registry Experts Belinda Gabbe Gerard O'Reilly

Trauma Data Working Group

Australian Trauma Registry Manager (Group Leader) Meng Tuck Mok	Australian Capital Territory Rebekah Ogilvie	New South Wales David Martens
Northern Territory Kath McDermott	Queensland Kathy Harvey Jacelle Lang	South Australia Debra Wood
Tasmania Andrew Keygan	Victoria Sue McLellan	Western Australia Maxine Burrell
Trauma Dataset Expert Cameron Palmer	Epidemiologist / Registry Methodologist Gerard O'Reilly	AusTQIP Manager Nathan Farrow

Trauma Quality Systems Working Working Group

AusTQIP Manager (Group Leader) Nathan Farrow	Quality Systems Experts Cathy Balding Marije Bosch	Human Factors Scientists Stuart Dickinson Elizabeth Grey
Australian Capital Territory Rebekah Ogilvie	New South Wales Julie Evans / Angela Fischer Sally Forrest-Horder Alicia Jackson Kevin Cornwall	Northern Territory Bronte Douglas Annette Holian
Queensland Kerena Grant		South Australia Chris Clarke
Tasmania Alicia Tucker	Victoria Louise Niggemeyer Kellie Gumm Helen Jowett	Western Australia Maxine Burrell
Australian Trauma Registry Manager Meng Tuck Mok		

A national collaboration framework is developed

Australia's major trauma centres and state trauma registries have a history of collaboration to improve care of the injured, although this network has been limited and informal. A lack of coordination and the necessary resources to navigate administrative requirements and jurisdictional barriers have previously prevented more organised approaches to sharing information and effort. The funding of AusTQIP represented a unique opportunity to provide our major trauma centres with the support required to consolidate and formalise collaboration.

To start the process, the Chair of the AusTQIP Steering Committee wrote to the directors of all major trauma centres and state trauma registries, outlining AusTQIP's objectives and formally inviting their participation. Concurrently, the Chief Executive of Alfred Heath wrote to the chief executives of health services with designated major trauma centres, to introduce AusTQIP and encourage them to meet with the AusTQIP team.

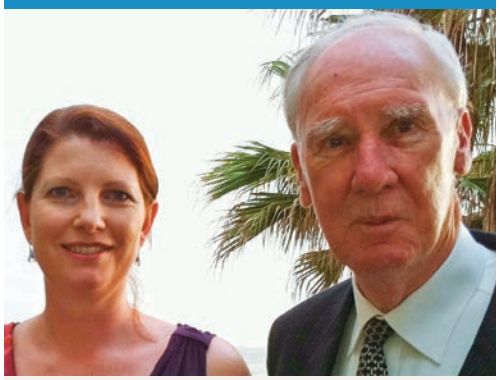
From August to October 2011, the AusTQIP Manager and the Australian Trauma Registry Manager visited all 26 major trauma centres in Australia. They met with key personnel including the trauma directors, trauma program managers/coordinators and trauma data managers and, where possible, with health service executives, quality improvement personnel and clinical leaders in areas relevant to trauma patients.

In 2012, follow-up site visits were made to most major trauma centres to facilitate consultation about AusTQIP activities, to ensure the support needs of major trauma centres in collaborative quality improvement are being met, and to maintain and enhance working relationships. The Trauma Quality Systems Working Group has helped draft the roles and responsibilities of the AusTQIP team and AusTQIP collaborators when sharing information, trauma data and quality improvement projects. It has also overseen the wider consultation process to ensure the perspectives and requirements of the major trauma centres and state trauma registries are reflected in the collaboration framework.

An AusTQIP Collaboration Framework and Agreement, that specifies all aspects of this collaboration in great detail has been drafted and circulated for consultation.

To facilitate effective communication amongst collaborators, an AusTQIP Communication Plan was approved by the Steering Committee in March 2012 and included a quarterly newsletter (The AusTQIP Collaborator), monthly update emails, and the proposed use of social media.

CASE STUDY



Associate Professor Kate Curtis (left) and Professor Frank McDermott (right)

TRAUMA NURSE CASE MANAGEMENT – ST GEORGE HOSPITAL, SYDNEY

Trauma patients with multiple injuries require complex care from a range of skilled medical and allied health professionals, and coordinating that care has traditionally been a challenge for many hospitals. But now, thanks to the research and dedication of Associate Professor Kate Curtis, the management of trauma cases by a clinical nurse is now practised by many hospitals around Australia.

Kate's groundbreaking study at The St George Hospital in 2001 (for which she won the Frank McDermott Award in 2011) found that trauma case management (TCM) not only results in significant health benefits to the trauma patient and their families, but also financial savings to the hospital and health system.

'The study showed that TCM shortens the time taken

Case study continued next page

Case study continued

for patients to progress to physiotherapy and social work consultations,' she said. 'Additionally, there was a decrease in the occurrence of missed injuries and in-hospital complications, a reduced length of stay (particularly in the paediatric and 45 to 65 age groups) amounting to 819 bed-days, and a significant decrease in the number of pathology tests.'

Kate says that other benefits of TCM include improved teamwork, better communication, higher staff morale and patient satisfaction.

'We are determined to see this way of providing care for severely injured patients become the norm in Australia as it has tremendous benefits for the injured person and the treating hospital.'

Current trauma quality improvement activities are identified and audited

Identifying the gaps in trauma quality systems and the needs of the trauma community was an important step in developing a work plan for AusTQIP.

Australia's major trauma centres have a wide range of trauma quality improvement projects and initiatives, complemented by well-established local and state-based trauma registries. However, little information was available about what they have achieved, what they find most challenging, and what tools or support they need. It was also not clear how consistent data collection was between centres.

In the absence of an established standard for trauma quality improvement systems in Australia, an audit tool was developed using the 2009 World Health Organization Guidelines for Trauma Quality Improvement Programmes.[29]

During site visits to all designated major trauma centres and state trauma registries between August and October 2011, AusTQIP undertook an audit of trauma quality improvement activities and surveyed the systems of trauma data collection.[28]

Some key findings were:

- Morbidity and mortality meetings where trauma cases are discussed are a key strength of Australian trauma quality improvement systems at all major trauma centres.
- Preventable Death Panel Reviews where deaths in hospital are reviewed in a structured way, is a process under-utilised by most trauma services.
- Performance measures are used to assess quality of care in all trauma centres however these measures are not standardised.
- Addressing issues of concern and implementing effective improvements are common challenges for major trauma centres, made worse by resource limitations, a greater focus on problems rather than on solutions, and often ineffective governance processes.
- Existing informal communication systems among doctors and nurses involved in trauma patient care (such as the Australasian Trauma Network List) are an important aspect of sharing trauma quality improvement information.
- The majority of major trauma centres have little or no integration of trauma quality improvement activities between acute and rehabilitation phases of care.

The trauma data survey was based on both the

Bi-National Trauma Minimum Data Set[30] and the Operating Principles for Australian Clinical Quality Registries.[26] Some highlights were:

- On average, existing registries collect almost 90% of the data specified in the Bi-National Trauma Minimum Data Set.
- Australian trauma registries have either locally developed systems or utilise a commercial product – the Collector Trauma Registry™.
- Staffing and infrastructure limitations for data collection and management are two commonly expressed concerns.
- Collection of important pre-hospital data from ambulance or retrieval services is done manually.
- Most registries have existing guidelines and data definitions to guide staff in collecting data.
- Compared to state registries, local registries at major trauma centres do not have strong governance frameworks covering data submission, quality, access, use, disclosure and reporting.
- While trauma data is used to improve care, few registries have sought formal approval for the collection of identifiable data.

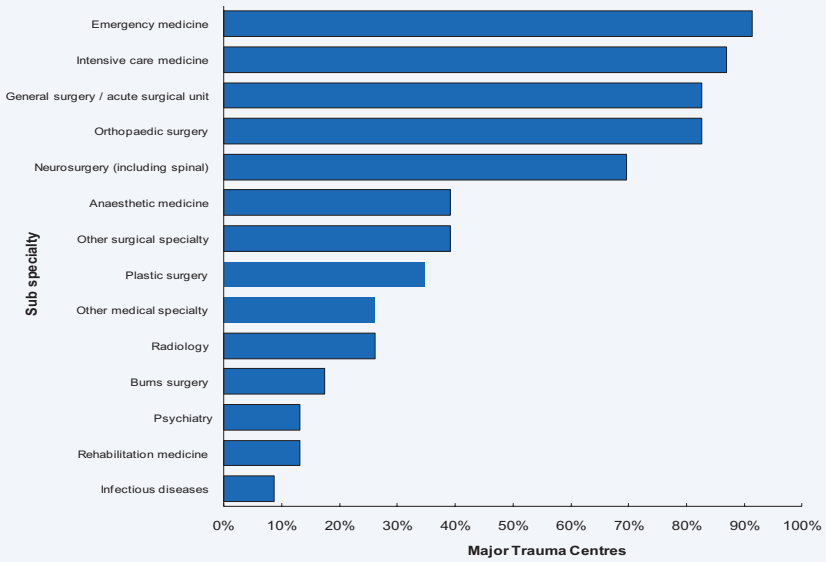


Figure 1. The inter-disciplinary aspect of trauma, showing the various clinical sub-specialties which discuss trauma patients during their Morbidity and Mortality Meetings.

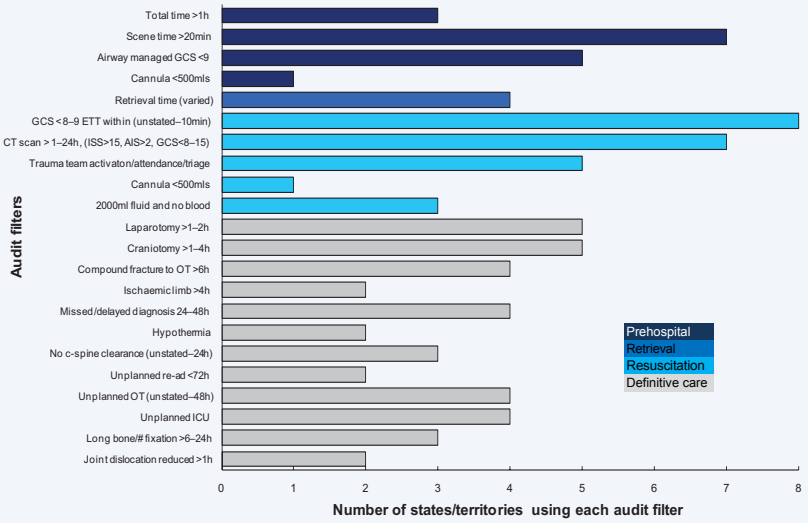


Figure 2. List of performance measures collected by Australian major trauma centres.

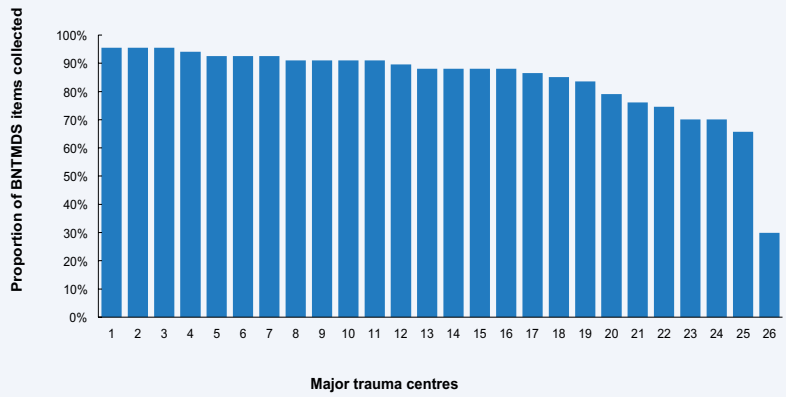
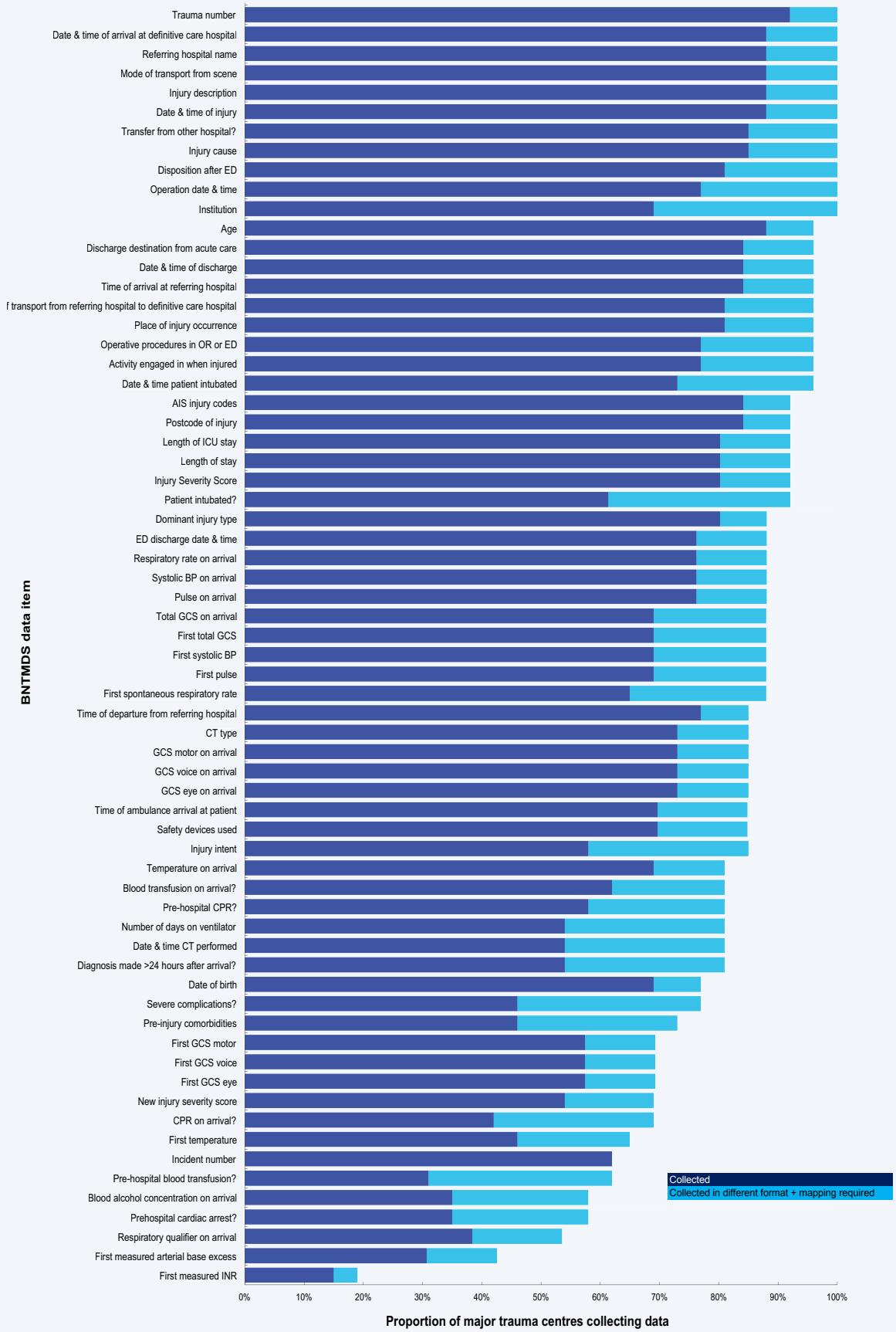


Figure 3. High compatibility of trauma data collected by major trauma centres with the Bi-National Trauma Minimum Dataset.

Bi-National Trauma Minimum Data Set (BNTMDS)

Figure 4. List of Bi-National Trauma Minimum Dataset information already collected by the major trauma centres.



AusTQIP undertook an audit of trauma quality improvement activities and surveyed the systems of trauma data collection

CASE STUDY

THE VICTORIAN STATE TRAUMA REGISTRY – A LONG-TERM PERSPECTIVE

The Victorian State Trauma Registry is a database of trauma patient information from all 138 health services that comprise the Victorian State Trauma System. The information is collected and analysed by the Victorian State Trauma Outcome Registry and Monitoring (VSTORM) group, based in the Department of Epidemiology and Preventive Medicine (DEPM) at Monash University.

DEPM Associate Professor Belinda Gabbe explains that a wide range of information is collected and analysed, including patient age and sex, pre-hospital and inter-hospital transport times, mechanism of injury, length of stay, and outcome (survival and long term disability).

'Before the introduction of the trauma system, 40% of major trauma patients were cared for at a specialised trauma centre. Since the introduction of the system, that figure has increased to 85%.'

Belinda says that more trauma patients are also being directly transported to a major trauma centre. 'Ten years ago, 55% of trauma patients were transported directly from the scene of injury to a major trauma centre. That proportion has now risen to almost 70%.'

She says these achievements are a result of the improved coordination between pre-hospital and hospital care. 'We are one of the very few trauma systems in the world with complete integration of pre-hospital and acute care.'

Belinda says VSTORM reports show that the new system has resulted in a decline in mortality rates, and improved design, monitoring and feedback. 'Over the past 10 years, the risk-adjusted odds of dying after major trauma have declined significantly.'

A 'next generation' AusTQIP Portal is designed

The results of the trauma quality systems audit and trauma data survey identified gaps between routine collection of trauma data and optimal use of this information to improve patient care. Likewise, in-depth interviews with trauma directors, trauma program managers and trauma coordinators indicated there is a need for data and readily available reports to monitor how each trauma service is performing in comparison to others. Comparing performance (known as benchmarking) is an important step in making improvements to patient care. The coordinators also made it clear that they needed:

- an efficient means of sharing and finding information on trauma quality improvement
- a way to collaborate in trauma quality improvement activities
- an accessible source of high quality, national trauma data that can be used (with appropriate permissions) for quality improvement activities and research.

A 'next generation' approach to integrating trauma data and collaborative trauma quality improvement was needed. This resulted in the design of the AusTQIP Portal.

The portal will provide a virtual platform that allows sharing of ideas, know-how and information. It incorporates the Australian Trauma Registry – a repository of national trauma data contributed by the major trauma centres across the country. Data from the Australian Trauma Registry will provide evidence to support trauma quality improvement initiatives that are being carried out at the coalface of trauma care. This will promote use of local registry data to make positive changes to clinical programs.

The Trauma Quality Systems Working Group assisted in the design of the AusTQIP Portal to ensure information to be shared between major trauma centres is appropriately arranged and protected. Processes were built into the design to ensure appropriate acknowledgement of shared information and to mitigate any risks arising from context-specific information such as clinical policies and procedures. The potential for collaborative projects has been enhanced through the integration of the Australasian Trauma Network List into the portal.

Feedback was obtained from experts in trauma registries, trauma research, human factors and health information technology.

The information gathered informed a design proposal for the portal. Software requirement specifications for the Australian Trauma Registry were then outlined in a detailed design document that tells the software developer exactly what is required. This was followed by a feasibility analysis of the software products available that would provide a web-based platform for collaborating and sharing information, which can also integrate with the Australian Trauma Registry. This has allowed AusTQIP to select a usable and affordable software program and identify providers who can assist in customising it to meet the needs of major trauma centres.

The cost estimates have been used to source additional funds to develop the AusTQIP Portal. To date, funding has been granted by the National Critical Care and Trauma Response Centre to develop the Australian Trauma Registry component of the Portal. The Sustainability Subcommittee is currently working with the National Critical Care and Trauma Response Centre and

In-depth interviews with trauma directors, trauma program managers and trauma coordinators indicated there is a need for data and readily available reports to monitor how each trauma service is performing in comparison to others

the National Trauma Research Institute to secure funding to build the rest of the AusTQIP Portal.

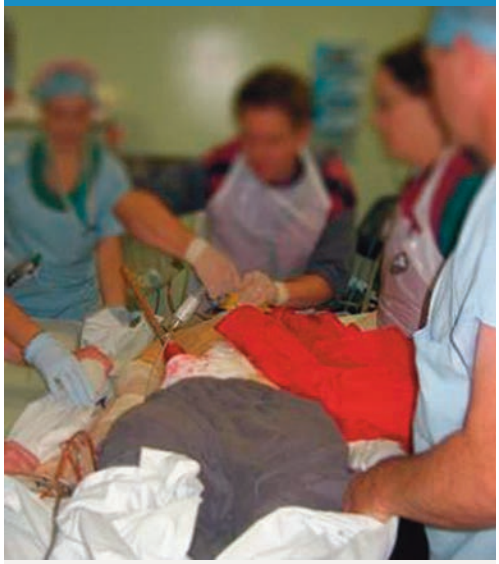
Work is underway to engage a software developer to build the Australian Trauma Registry, with the first submission of trauma data due in early 2013. We anticipate the registry will be integrated into the AusTQIP Portal from mid-2013.

Using the data set previously developed by the National Trauma Registry Consortium and refined by the AusTQIP Trauma Data Working Group, trauma data will be collected systematically and aligned with national and international standards. For the first time, trauma data from around the country will be collected centrally and combined. High-level reports will monitor local and national trends in trauma incidence and fatalities.

Reports of key indicators will enable trauma centres to compare their own performance with that of other centres, without any of them being identifiable. International experience with anonymous benchmarking has shown that anonymity can be faithfully preserved and morbidity and mortality can be reduced across the board. Even high-performing centres have improved in this process.

Ultimately, the AusTQIP Portal will not only provide the gateway to trauma data, but also a comprehensive resource of information and activities for the Australian trauma community.

CASE STUDY



THE RED BLANKET PROTOCOL – ROYAL BRISBANE AND WOMEN'S HOSPITAL

Some trauma patients sustain such severe injuries that any delay in reaching the operating theatre – even by the usual process of being assessed and treated in a trauma centre – can decrease their chance of survival. In 2007 the Royal Brisbane and Women's Hospital introduced the Red Blanket protocol to enable faster transfer of these patients from the trauma centre to the operating room. Ms Dale Dally-Watkins, Trauma Service Assistant Nursing Director, says the protocol was adapted with permission from the Los Angeles County Hospital, and has been amazingly successful.

Case study continued next page

Case study continued

'Before we initiated the protocol, our average time to assess, treat and transfer the patient from the trauma centre to the operating room was 220 minutes. Our staff do a great job, but when a patient requires rapid assessment and transfer, good communication is paramount. Essentially, the Red Blanket Protocol speeds up the process and helps people talk to each other more effectively. After using the protocol, our average transit time is now 10 minutes. That's extremely important when you have a patient requiring immediate, life-saving surgery.'

Dale says that while the initial focus was on reducing transfer times, understanding how these shorter transfer times impact trauma patients is also important. 'We are currently examining our records to see if the Red Blanket Protocol helps more trauma patients to survive and make a better recovery.'

Ethics approvals are obtained

Privacy and confidentiality are essential when dealing with personal health information. Although the Australian Trauma Registry will not be collecting any identifying patient details, AusTQIP and the Australian Trauma Registry must ensure compliance with all ethical, governance and legislative requirements.

Ethics applications are both complex and time-consuming. Although AusTQIP has used a single online National Ethics Application Form (NEAF), many ethics committees still have individualised site-specific requirements. Applications also involve governance relating to the release of data, and this has to be authorised by each organisation. Some states have additional requirements related to their health privacy laws.

Of particular interest to ethics committees is how data will be collected, and who will have access to and use the data. In AusTQIP, use of national data for research and/or publication will need Steering Committee approval, while information used for local research or quality improvement activities by an individual organisation remains the responsibility of that organisation.

For trauma registries, patient data is often obtained using an opt-off consent process.[26] This means patients are notified that information will be stored after collection unless they opt out, and every patient has the right to have their data removed from the registry. The Australian Trauma Registry will adopt this consent model. Security and confidentiality of stored data is based on the highest industry standard accorded to financial transactions.[31]

Over the course of 2012, and guided by the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research[32] and the Operating Principles for Australian Clinical Quality Registries[26], AusTQIP has submitted applications to 12 ethics committees with jurisdiction over the 26 major trauma centres, and to two state trauma registries. AusTQIP has been granted ethics approvals from all of these committees.

Ethics governance processes allow individual organisations to formally acknowledge the relevant ethics committee approval, assess the impact of the project on local resources, identify any other risks to the organisation, and provide formal approval for release of data. At the time of writing, AusTQIP has obtained site-specific ethics governance approval for more than half of the 30 organisations involved.

A minimum dataset is agreed

On the basis of work previously undertaken by the National Trauma Registry Consortium, the Trauma Data Working Group finalised the Bi-National Trauma Minimum Data Set, a nationally agreed set of information to be collected uniformly by trauma registries in Australia and New Zealand. This was approved by the Steering Committee in November 2011 and is publicly available. The data set consists of 67 data elements connecting pre-hospital, hospital and discharge information. Work will continue to improve data definitions to ensure these reflect the data needs and practices of the major trauma centres.

The Australian Trauma Registry is designed

Throughout 2012, the Trauma Data Working Group has been involved in the design of the Australian Trauma Registry. Activities undertaken include:

- addressing how data will move from other registries into the Australian Trauma Registry
- working out how data is converted when necessary
- reviewing and endorsing the AusTQIP Portal design
- reviewing and endorsing the software requirement specifications for the Australian Trauma Registry
- reviewing and endorsing the recommendations of the analysis of software options for information sharing and collaborating on quality improvement
- developing a policy and procedures framework governing data collection, request, access, use, disclosure and reporting.

Reporting and benchmarking are in development

A key element of the Australian Trauma Registry will be the availability of standardised and customised reports. Standardised reports will allow major trauma centres to monitor their performance over time. They will also facilitate comparison between trauma centres to identify strengths and weakness in their respective centres and help identify opportunities to improve trauma care. The Trauma Data Working Group has referred to the report structures used by the National Trauma Registry Consortium in developing standardised reports for major trauma centres.

CASE STUDY

DEVELOPING A STATE REGISTRY – ROYAL HOBART HOSPITAL

Dr Alicia Tucker, Director of Trauma at the Royal Hobart Hospital, says the hospital's trauma committee has been dedicated to creating a state registry to assist in the evaluation and improvement of trauma services within Tasmania for the past 10 years. 'Specific project funding provided in 2010 allowed us to develop our own trauma registry, based on the Victorian model , and obtain approval from our ethics committee to collect the data. Now we have the ability to monitor the quality of care we provide more comprehensively – not just for one trauma patient, but for all of them – and track how well we are doing over time. This means we can see the things we do well, and ensure we keep doing them. It also shows us where we need to improve and how we can do better. Our next step is to secure ongoing funding to employ a trauma nurse coordinator to oversee the process. This role is pivotal for registry development and using data to improve trauma care.'

Alicia is enthusiastic about the work of the Australian Trauma Quality Improvement Program. 'Our involvement in AusTQIP grassroots committees has allowed us to learn from

Case study continued

states with more established trauma systems. It is great to be able to share knowledge, training and education.

'The idea that our registry will assist the development of nationally accepted trauma care protocols is what keeps me going!'

Mr Andrew Keygan (left) Clinical Nurse and Dr Alicia Tucker, (right) Director of Trauma

Recommendations for improving the effectiveness of morbidity and mortality meetings are being considered

The trauma quality systems audit identified significant variations in how major trauma centres routinely review deaths and complications with a view to improving future patient care. Most major trauma services also expressed difficulty in consistently closing the loop. To address this, the Trauma Quality Systems Working Group has commenced a project to develop a standardised approach to morbidity and mortality meetings. Targeted interviews with a sample of clinical leaders from major trauma centres are complete and the data will be used in an in-depth, human factors analysis of how morbidity and mortality meetings are conducted. This will lead to the development of a standardised toolkit to be piloted in 2013.

National health standards are mapped to trauma quality improvement activities

In September 2011, Australia's Health Ministers endorsed the National Safety and Quality Health Service Standards developed by the Australian Commission on Safety and Quality in Health Care.[33] This set of 10 standards was developed to support nationally consistent quality improvement in Australian health services and provide a statement on the level of care consumers should be able to expect.

Many of the major trauma centres undertake their own quality improvement activities, not only in isolation from other major trauma centres, but also with limited communication with the quality and patient safety department of the hospital they are located in. To bridge this gap, the group has mapped standard approaches to trauma quality improvement to the National Safety and Quality Health Service Standards. The aim of this exercise is to help major trauma centres understand how they are located in the wider landscape of quality improvement in health care and to improve communication of lessons learned in quality improvement between major trauma centres and the wider organisation.

Post-discharge trauma patient follow-up processes are shared

Site visits by the AusTQIP team identified growing interest in developing processes for the routine follow-up of trauma patients after discharge to monitor recovery and long term outcomes. Two trauma services and one state trauma registry have already implemented trauma patient follow-up processes, although these were developed in relative isolation of each other. The group collated existing post-discharge follow-up processes, and obtained appropriate permissions to share this information with other centres interested in developing their own strategies.

CASE STUDY

PILOT CRITICAL INCIDENT AUDIT – ROYAL PERTH HOSPITAL

Hospitals are complex places where things usually go as planned and patients receive the high quality care they need. When things occasionally go wrong (critical incidents) it may take weeks or months to complete an investigation. This means that actions to prevent the recurrence of such incidents are often delayed until well after the patient has left hospital.

In 2011 Royal Perth Hospital's Major Trauma Unit set up a 'real time' process for monitoring and reviewing critical incidents that occur in the care of trauma patients. It involves nursing, medical or allied health staff completing a Critical Incident Notification Form which is then audited in a weekly meeting of the Critical Incident Review Group and information entered on a tracking spreadsheet. This has meant that actions to improve the quality of care are not delayed, and patients can experience even better care during the course of their recovery in hospital.

Trauma Program Manager Maxine Burrell says the process is very positive: 'It makes us look at ourselves – how we managed a particular situation. If we decide there is anything we need to change or do better, we can do it quickly.'

Maxine says this past year has seen implementation and refinement of the audit process. 'Like most hospitals, we find that the whole problem in quality improvement is how to close the loop – not only tracking what we've done well, and what needs to be changed, but then chasing up recommended improvements to see whether they've been effective. The tracking spreadsheet is a great audit tool, helping to ensure that trauma patients get better care, faster.'

Next steps

AusTQIP's substantial achievements in the first two years have provided solid foundations on which to build even better systems of trauma patient care through effective use of high quality, national trauma data and shared quality improvement efforts.

A key focus for 2013 will be the completion and implementation of the Australian Trauma Registry. This will include receiving data, testing the registry and undertaking data quality checks, prior to refining standard reports. Work will be undertaken to identify regional differences that should be taken into account when comparing Australian states and territories. Individual major trauma centres will be able to identify their own trauma data in these reports – other centres will be de-identified.

Recent efforts to develop a set of internationally-agreed trauma quality indicators will inform the indicators that Australian major trauma centres might use in the future. AusTQIP will soon assess whether these measures are accurate and reliable indicators of Australian trauma system performance and whether they will facilitate meaningful comparison with international centres.

Funding will be sought to build and implement the remaining sections of the AusTQIP Portal to provide integrated access to both trauma data and trauma quality improvement resources. Once operational, the AusTQIP Portal will facilitate and optimise efficiency in collaborative work on improving trauma care across Australia.

Continued development of working relationships between Australian designated major trauma centres through AusTQIP's shared governance model will provide an important catalyst to stimulate collaborative projects and capitalise on opportunities to share knowledge and experience in improving trauma care.

With the support of the National Critical Care and Trauma Response Centre and Alfred Health, a strategic approach to seeking financial and in-kind support beyond 2013 will help ensure AusTQIP's ongoing viability and expansion of its focus beyond designated major trauma centres to other trauma service providers. Sustainable systems of improving trauma care hold the measurable potential to give all Australians an even better chance of not only surviving serious injury but also recovering with a good quality of life.

Sustainable systems of improving trauma care hold the measurable potential to give all Australians an even better chance of not only surviving serious injury but also recovering with a good quality of life

DESIGNATED MAJOR TRAUMA CENTRES

Australian Capital Territory

Health service/hospital	The Canberra Hospital
Location	Yamba Drive, Garran, ACT, 2605
Number of beds	600
Hospital established	1943
Trauma Director (Acting)	Ailene Fitzgerald
Trauma Nurse Practitioner	Rebekah Ogilvie
Service type	Trauma admitting service
Contact – phone	02 6244 2727
Contact – email	Ailene.Fitzgerald@act.gov.au
Website	www.health.act.gov.au/health-services/canberra-hospital/
Special interests	Trauma education, long term trauma patient outcomes, trauma verification / benchmarking

New South Wales

Health service/hospital	John Hunter Children's Hospital
Location	Lookout Road, New Lambton Heights, NSW, 2305
Number of beds	113
Hospital established	1991
Trauma Co-Directors	Zsolt Balogh, Raj Kumar
Trauma Coordinator	Julie Evans
Service type	Trauma admitting service
Contact – phone	02 4921 4259
Contact – email	zsolt.balogh@hnehealth.nsw.gov.au
Website	www.hnehealth.nsw.gov.au/
Special interests	Solid and hollow organ injuries in children

Health service/hospital	John Hunter Hospital
Location	Lookout Road, New Lambton Heights, NSW, 2305
Number of beds	550
Hospital established	1991
Trauma Director	Zsolt Balogh
Trauma Coordinators	Julie Evans, Kate King, Simone Meakes and Debra McDougall
Service type	Trauma admitting service
Contact – phone	02 4921 4259
Contact – email	zsolt.balogh@hnehealth.nsw.gov.au
Website	www.hnehealth.nsw.gov.au/
Special interests	Polytrauma management, orthopaedic trauma, shock resuscitation, multiple organ failure, pelvic trauma, industrial trauma, rural trauma

Health service/hospital	Liverpool Hospital
Location	Elizabeth Street, Liverpool, NSW, 2170
Number of beds	855
Hospital established	1988
Trauma Director	Scott D'Amours
Trauma Coordinator	Nevenka Francis
Service type	Trauma admitting service
Contact – phone	02 9828 3927
Contact – email	Nevenka.Francis@sswahs.nsw.gov.au
Website	www.sswahs.nsw.gov.au/liverpool/trauma
Special interests	Performance improvement, trauma systems development, trauma research, trauma team function, ultrasound in trauma, trauma education

Health service/hospital	Royal North Shore Hospital
Location	Reserve Road, St Leonards, NSW, 2065
Number of beds	600
Hospital established	1885
Trauma Co-Directors	Anthony Joseph, Con Glezos
Trauma Coordinators	Alicia Jackson, Renae McCarthy
Service type	Trauma admitting service
Contact – phone	02 9926 5151
Contact – email	tjoseph@med.usyd.edu.au
Website	N/A
Special interests	Post traumatic stress disorder, spinal injury management

DESIGNATED MAJOR TRAUMA CENTRES

New South Wales - Continued

Health service/hospital	Royal Prince Alfred Hospital
Location	Missenden Road, Camperdown, NSW, 2050
Number of beds	927
Hospital established	1882
Trauma Co-Directors	Michael Dinh, Chris Byrne, Jeffrey Petchell
Trauma Clinical Practice Consultant	Liz Leonard
Service type	Trauma consulting service
Contact – phone	02 9515 8355
Contact – email	michael.dinh@sswahs.nsw.gov.au
Website	www.slhd.nsw.gov.au/
Special interests	Trauma triage, trauma systems

Health service/hospital	St George Hospital
Location	Gray Street Kogarah, NSW, 2217
Number of beds	600
Hospital established	1894
Trauma Director	Mary Langcake
Deputy Trauma Director	Anthony Chambers
Trauma Coordinators	Kate Curtis, Taneal Wiseman Anthony Cook
Service type	Trauma admitting service
Contact – phone	02 9113 3499
Contact – email	Kate.Curtis@sesiahs.health.nsw.gov.au
Website	www.sesiahs.health.nsw.gov.au/trauma/index.asp
Special interests	Trauma education, trauma models of care and health services research

Health service/hospital	St Vincent's Hospital
Location	390 Victoria Street, Darlinghurst, NSW, 2010
Number of beds	305
Hospital established	1857
Trauma Director	Anthony Grabs
Trauma Service Manager	Karon McDonell
Service type	Trauma consulting service
Contact – phone	02 8382 3436
Contact – email	kmcdonell@stvincents.com.au agrabs@stvincents.com.au
Website	www.exwwwsvh.stvincents.com.au/index.php?option=com_content&task=view&id=232&Itemid=261
Special interests	Penetrating injuries, neurosurgical trauma and early trauma rehabilitation referral

Health service/hospital	The Children's Hospital at Westmead
Location	Corner of Hawkesbury Road and Hainsworth Street, Westmead, NSW, 2145
Number of beds	340
Hospital established	1880
Trauma Director	Danny Cass
Deputy Trauma Director	S.Soundappan
Trauma Clinical Nurse Consultants	Kay Best, Frank Ross
Service type	Trauma consulting service
Contact – phone	02 9845 3059
Contact – email	kay.best@health.nsw.gov.au
Website	www.chw.edu.au/site/directory/entries/trauma.htm
Special interests	N/A

Health service/hospital	Westmead Hospital
Location	Corner Hawkesbury & Darcy Rd, Westmead, NSW, 2145
Hospital established	1978
Number of beds	900
Trauma Director	Jeremy Hsu
Trauma Program Coordinator	Julie Seggie
Service type	Trauma admitting service
Contact – phone	02 9845 7072
Contact – email	Julie.Seggie@swahs.health.nsw.gov.au
Website	www.wsahs.nsw.gov.au/services/trauma/
Special interests	Injury prevention, abdominal trauma, multi-centre clinical trials, massive bleeding protocols, innovations in trauma service delivery

Health service/hospital	Sydney Children's Hospital
Location	1 High Street, Randwick New South Wales, 2031
Hospital established	2003
Number of beds	160
Trauma Director	Donovan Dwyer
Trauma Program Manager	Kellie Wilson
Service type	Trauma admitting service
Contact – phone	02 9382 4464
Contact – email	Kellie.Wilson@sesiahs.health.nsw.gov.au Donovan.Dwyer@sesiahs.health.nsw.gov.au
Website	www.sch.edu.au
Special interests	Paediatric trauma education and research, injury prevention, advocacy for the advancement of paediatric trauma systems

DESIGNATED MAJOR TRAUMA CENTRES

Northern Territory

Health service/hospital	Royal Darwin Hospital
Location	Rocklands Drive, Tiwi NT, 0810
Hospital established	1980
Number of beds	363
Trauma Director	David Read
Trauma Coordinator	Bronte Douglas
Service type	Trauma consulting service
Contact – phone	08 8944 8073
Contact – email	bronte.douglas@nt.gov.au
Website	www.nationaltraumacentre.nt.gov.au/trauma-service
Special interests	Disaster management, Indigenous trauma care, integrated adult/paediatric trauma service delivery, remote trauma management

Queensland

Health service/hospital	Mater Children's Hospital
Location	Raymond Terrace, South Brisbane, QLD, 4101
Number of beds	138 public and 32 private
Hospital established	1939
Trauma Director	Roy Kimble
CNC/ Paediatric Trauma Coordinator	Tona Gillen
Service type	Trauma consulting service
Contact – phone	07 3163 8111
Contact – email	tona_gillen@health.qld.gov.au
Website	www.mater.org.au
Special interests	Paediatric burns trauma, injury prevention, paediatric trauma care

Health service/hospital	Princess Alexandra Hospital
Location	Ipswich Road, Woolloongabba, QLD, 4102
Number of beds	754
Hospital established	1956
Trauma Director	Michael Schuetz
Clinical Nurse Consultant	Susan Nielsen
Service type	Trauma admitting service
Contact – phone	07 3176 6071
Contact – email	Susan_Nielsen@health.qld.gov.au
Website	www.health.qld.gov.au/pahospital/services/trauma.asp
Special interests	Orthopaedic trauma research, interdisciplinary trauma education, spinal trauma

Health service/hospital	Royal Brisbane and Women's Hospital
Location	Butterfield Street, Herston, QLD, 4029
Number of beds	929
Hospital established	1867
Trauma Director	Daryl Wall
Assistant Nursing Director	Dale Dally-Watkins
Service type	Trauma admitting service
Contact – phone	07 3646 0864
Contact – email	RBWH_Trauma_Service@health.qld.gov.au
Website	www.health.qld.gov.au/rbwh/services/trauma.asp
Special interests	Burns, thoracic injuries, spinal injury, neurosurgery – craniectomy, trauma patient inter hospital transfer, rapid transfer, hybrid theatre

Health service/hospital	Royal Children's Hospital, Brisbane
Location	Corner Bramston Terrace & Herston Road, Herston, QLD, 4029
Trauma Director	Roy Kimble
Clinical Nurse Consultant / Paediatric Trauma Coordinator	Tona Gillen
Number of beds	168
Hospital established	1878
Service type	Trauma consulting service
Contact – phone	07 3637 8513
Contact – email	tona_gillen@health.qld.gov.au
Website	www.health.qld.gov.au/rch/professionals/surg_trauma.asp
Special interests	Paediatric burns trauma, injury prevention, paediatric trauma care

DESIGNATED MAJOR TRAUMA CENTRES

Queensland - Continued

Health service/hospital	Townsville Hospital and Health Service District Institute of Surgery and Cardiac Services
Location	100 Angus Smith Drive, Douglas, QLD, 4814
Number of beds	531
Hospital established	2001
Trauma Director	Position Vacant
Trauma Clinical Practice Consultant	Joseph Sharpe
Service type	Trauma consulting service
Contact – phone	07 4433 1537
Contact – email	Tsv-trauma-service@health.qld.gov.au
Website	www.health.qld.gov.au/townsville/hospital
Special interests	Tertiary survey, cervical spine clearance and management, trauma documentation, trauma referral feedback

South Australia

Health service/hospital	Flinders Medical Centre
Location	Flinders Drive, Bedford Park, SA, 5042
Number of beds	580
Hospital established	1976
Trauma Director	Evan Everest
Trauma Nurse Coordinator	Debra Wood
Service type	Trauma consulting service
Contact – phone	08 8204 5511
Contact – email	Deb.Wood@health.sa.gov.au Evan.Everest@health.sa.gov.au
Website	www.flinders.sa.gov.au
Special interests	N/A

Health service/hospital	Royal Adelaide Hospital
Location	North Terrace, Adelaide, SA, 5000
Number of beds	558
Hospital established	1840
Trauma Director	William Griggs
Trauma Coordinator	Chris Clarke
Service type	Trauma admitting service
Contact – phone	08 8222 4408
Contact – email	chris.clarke@health.sa.gov.au emily.bye@health.sa.gov.au william.griggs@health.sa.gov.au
Website	www.rah.sa.gov.au/trauma/index.php
Special interests	Trauma mortality and case review, prehospital and retrieval trauma care

Health service/hospital	Women's and Children's Hospital
Location	72 King William Road, North Adelaide SA, 5006
Number of beds	211
Hospital established	1989
Trauma Director	Malcolm Higgins
Trauma Clinical Practice Consultant	Jackie Winters
Service type	Trauma consulting service
Contact – phone	08 8161 6651
Contact – email	jacqueline.winters@health.sa.gov.au
Website	www.wch.sa.gov.au/services/az/divisions/psurg/paed_trauma/
Special interests	Outreach paediatric trauma education

Tasmania

Health service/hospital	Royal Hobart Hospital
Location	48 Liverpool Street, Hobart , TAS, 7000
Trauma Director	Alicia Tucker
Clinical Nurse	Andrew Keygan
Number of beds	550
Hospital established	1804
Service type	Trauma consulting service
Contact – phone	03 6222 8609
Contact – email	Alicia.tucker@dhhs.tas.gov.au
Website	www.dhhs.tas.gov.au/hospital/royal-hobart-hospital
Special interests	Burns trauma, integrated models of multidisciplinary trauma care, electronic trauma documentation, business case development for trauma services

DESIGNATED MAJOR TRAUMA CENTRES

Victoria

Health service/hospital	The Alfred
Location	Commercial Rd, Melbourne, VIC, 3004
Number of beds	440
Hospital established	1871
Trauma Director	Mark Fitzgerald
Trauma Program Manager	Louise Niggemeyer
Service type	Trauma admitting service
Contact – phone	03 9076 5325
Contact – email	L.Niggemeyer@alfred.org.au
Website	www.alfredhealth.org.au/ traumaservice/
Special interests	Head injury, spine and spinal cord injury, thoracic trauma, trauma systems development and monitoring, trauma information systems, decision support systems, pre-hospital trauma care, trauma care continuum, resuscitation and trauma-induced coagulopathy

Health service/hospital	The Royal Children's Hospital, Melbourne
Location	50 Flemington Road, Parkville, VIC, 3052
Number of beds	200
Hospital established	1870
Acting Trauma Director	Russell Taylor
Trauma Service Manager	Helen Jowett
Service type	Trauma consulting service
Contact – phone	03 9345 5442
Contact – email	helen.e.jowett@rch.org.au
Website	www.rch.org.au/paed_trauma/ index.cfm?doc_id=5958
Special interests	External paediatric trauma management education, spinal trauma management education, injury classification and scoring research, trauma epidemiology, injury prevention

Health service/hospital	The Royal Melbourne Hospital
Location	Grattan Street, Parkville , VIC, 3050
Number of beds	500
Hospital established	1848
Trauma Director	Rodney Judson
Trauma Program Manager	Kellie Gumm, Melissa Bantick
Service type	Trauma admitting service
Contact – phone	03 9342 7232
Contact – email	rosa.garcia@mh.org.au
Website	www.mh.org.au/ royal_melbourne_hospital/ www/353/1001127/ displayarticle/1001393.html

Western Australia

Health service/hospital	Princess Margaret Hospital for Children
Location	Roberts Road, Subiaco , WA, 6008
Number of beds	220
Hospital established	1909
Trauma Director	Helen Mead
Trauma Program Manager	Not applicable
Service type	Trauma consulting service
Contact – phone	08 9340 8222
Contact – email	Helen.mead@health.wa.gov.au
Website	www.pmh.health.wa.gov.au/
Special interests	N/A

Health service/hospital	Royal Perth Hospital
Location	197 Wellington Street, Perth, WA, 6000
Number of beds	833
Hospital established	1829
Trauma Director	Sudhakar Rao
Trauma Program Manager	Maxine Burrell
Service type	Trauma admitting service
Contact – phone	08 9224 2551
Contact – email	Maxine.Burrell@health.wa.gov.au
Website	www.rph.wa.gov.au/ traumaservices.html
Special interests	Spinal trauma, burns trauma, trauma rehabilitation, interventional radiology, injury prevention

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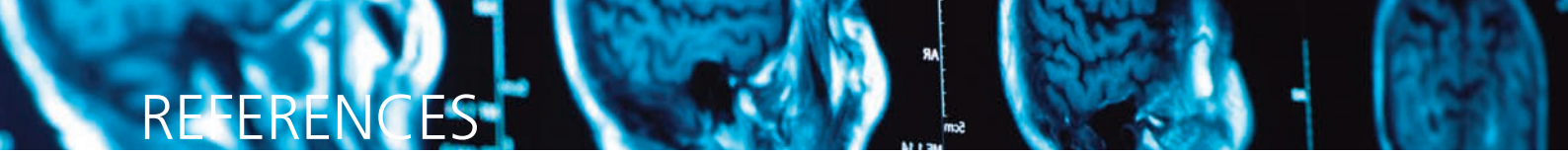

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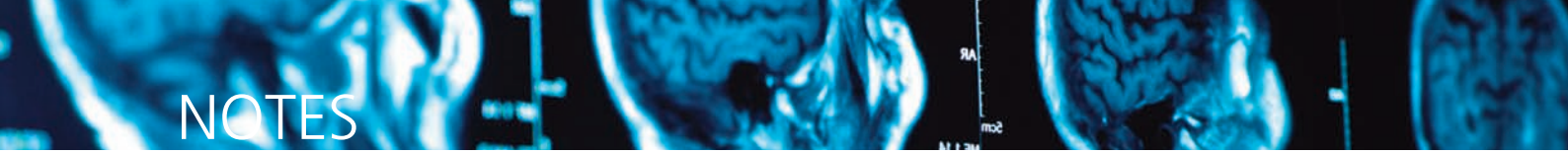

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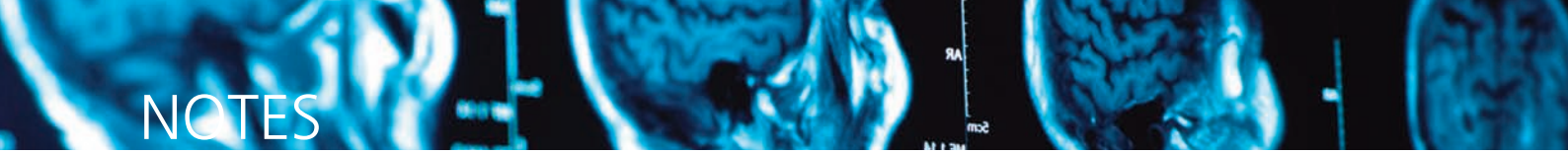

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