ANNUAL REPORT 2006/07

VICTORIAN NEUROTRAUMA INITIATIVE

01 VNI Objectives

The Victorian Neurotrauma Initiative (VNI) seeks to:

- reduce the impact of neurotrauma and improve the quality of life of those affected by neurotrauma through research, innovation and trauma system improvements;
- focus Victorian, Australian and international research and attention on the consequences of neurotrauma through a mix of research funding, innovative initiatives and neurotrauma-related system improvements;
- support and fund research into neurotrauma and its effects; and
- expand the scope of neurotrauma research and foster innovative research and investigation where possible through multidisciplinary, national and internationally-linked research in pursuit of world's best practice in the treatment and management of neurotrauma;

for the benefit of TAC Clients and the Victorian community generally.

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03 Chairman & Executive Director's Report

The last year has been an exciting time of consolidation and growth, with the official incorporation of the Victorian Neurotrauma Initiative (VNI) as the new entity, VNI Pty Ltd.

Announced by the Premier of Victoria, Mr Steve Bracks, in June 2005, the VNI was initially administered by the Transport Accident Commission (TAC) and the Victorian Government's Department of Innovation, Industry and Regional Development (DIIRD). However, on the 10 November 2006 the VNI became its own official incorporated entity and since then has been busy establishing one of the world's largest funding programs specifically dedicated to research into the consequences of damage to the brain and nervous system.

Through the VNI, the TAC and the Victorian Government aims to have better coordination between neurotrauma researchers, clinicians, facilities and projects. The purpose of this is to promote better clinical outcomes for people suffering the effects of neurotrauma and position the VNI as a world leader in neurotrauma research and development.

Major Achievements

The list of the VNI's achievements during 2006/07 is extensive. Underpinning these achievements has been the successful and smooth transition from the VNI Governing Council to the new entity VNI Pty Ltd. The Council is to be congratulated for their tireless efforts in establishing the VNI and laying the groundwork for the formation of the new entity. The Council members included: Michael Wright, Faye Burton, William Burdett and Dr Julie Caldecott.

The VNI feels privileged that many members of the Council became members of the VNI Board of Management. In particular, Michael Wright should be thanked for his significant contribution as Chair of the VNI Board from incorporation until early May 2007. Michael was instrumental in establishing the Company and building strong relationships with key organisations.

The Company held five Board meetings during the year. These meetings saw the VNI:

- Appoint Dr Alex Collie as the Company's inaugural Executive Director, to lead the VNI through this important development stage.
- Develop a clear set of strategic goals that will define the organisation's activities through to 2010.
- Approve funding for a range of projects and initiatives that will ensure Victoria is at the forefront of neurotrauma research.
- Formalise and execute a service agreement with the TAC, ensuring the VNI's funding for the coming three year period.
- Strengthen the relationship with Neurosciences Victoria (NSV) by implementing an agreement that allows access to the NSV's substantial scientific expertise for key projects.
- Develop an expert Scientific Advisory Committee to advise the Board on its research funding strategy and other key initiatives. This group will be expanded during 2007/08 and it is anticipated that their contribution will become more important as the VNI develops.
- Establish a range of policies and procedures for the evaluation and management of funded projects that will ensure transparency.
- Begin the development of a data collection tool to monitor outcomes from the VNI funding program. This tool will allow the VNI, TAC and DIIRD to determine the success of the program in achieving its objectives.
- Develop a range of marketing and promotional material, including the launch of the new VNI website.

Research Funding

This year saw a substantial increase in the range, quantity and quality of funding applications submitted to the VNI.

The response from the research sector to the call for applications has been outstanding. The VNI has attracted responses across many disciplines, including clinicians and service providers dedicated to improving care and services, through to laboratory-based scientists striving to develop new insights into the mechanisms of neurotrauma injuries and their treatment.

Some highlights from the year include:

- Completion of the evaluation process for the first round of VNI funding in August 2006. A total of 55 expressions of interest were received and 33 full funding applications were invited. Of these, 22 projects received funding to a total of $15.6 million. The majority of these projects are now well underway and some are already demonstrating exciting early results.
- The second round of VNI funding in November 2006 saw a significant increase in the expressions of interest received. In total 92 expressions of interest were evaluated by expert external reviewers and 40 were invited to submit full funding applications. Successful applications from this round were announced in September 2007.
- In addition to the open calls for applications conducted during the year, the VNI initiated two targeted research projects designed to fill significant gaps in knowledge and to enhance the capability of Victorians to conduct neurotrauma research.
- Just prior to the year's end, the VNI Board approved a range of capacity building initiatives to be rolled out over the coming five years. These initiatives represent a significant investment in the local neurotrauma research sector and will enhance Victoria's ability to conduct research of international quality.

The Premier of Victoria, Mr Steve Bracks, and the Minister for Innovation, Mr John Brumby, were both involved in announcing the successful applications arising from the first VNI funding round in August and October 2006, affirming the Victorian Government's continuing commitment to this important initiative.

VNI Management

Establishing a research funding agency from scratch requires significant dedication and commitment. The management of VNI has worked tirelessly during the year to ensure that the TAC and DIIRD's significant investment in research results in improved outcomes for the neurotrauma community. We have a small but highly skilled team, supplemented by staff from our partners at DIIRD, NSV and the TAC. These staff form the engine room of the VNI and have helped ensure that the Company continues to move in the right direction.

The Company is also indebted to members of the Expert Reference Panel and the Evaluation Committee for giving their time to evaluating applications. Both groups deserve the Company's sincere thanks and we look forward to their ongoing participation.

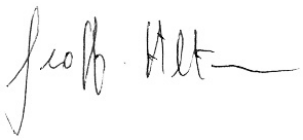
Finances

During this establishment phase, the TAC and DIIRD have contributed substantial resources (both monetary and in-kind) to the VNI. Of the $63 million in funding available to the VNI, up to $24.85 million has been committed for three distinct funding initiatives. Specifically, during the 2006/07 financial year, the VNI committed $15.6 million towards research projects arising from the first round of funding. These projects will be active until 2009. A further commitment of up to $5 million was earmarked for projects arising from the second round of funding, with projects from this round expected to begin in late 2007 and continue for up to three years. Finally, just prior to the year's end, the VNI committed up to $4.25 million towards capacity building initiatives including Fellowships and Skills Development Awards, to be rolled out over the coming five year period.

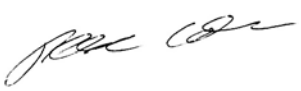
Although these figures represent substantial commitments on behalf of the VNI, the actual expenditure during the financial year is somewhat less. Payments associated with 3-5 year research initiatives are linked with milestones achieved during the course of a research study. Thus, the total expenditure of the VNI during the financial year was $4,473,484. Financial statements for VNI since its incorporation on 10 November 2006 are provided in section 6.

Thank-you

The Company has worked closely with the TAC, DIIRD, NSV and the neurotrauma community to make the VNI vision a reality. All of those involved in the initiative should be congratulated for their contribution to a highly productive and successful year of operations.



Mr Geoff Hilton
Chairman



Dr Alex Collie
Executive Director

Dr Alex Collie and Mr Geoff Hilton (left to right)

04 Overview of the VNI

4.1 Neurotrauma

Neurotrauma is a significant public health issue. Each year in Victoria, more than 700 individuals suffer from severe Spinal Cord Injury (SCI) and Traumatic Brain Injury (TBI). The economic cost of neurotrauma is high. An estimated $1 billion in healthcare and related expenses is spent each year to support Victorians who suffer from SCI and TBI.

Traumatic injuries to the brain and spinal cord commonly affect younger people and cause life-long disability. In the case of TBI, the injury can result in changes in physical, cognitive, behavioural and social function. The magnitude of these changes is directly related to the severity of injury. Spinal injuries result in varying degrees of physical disability depending on the level of injury. Individuals with injuries to the cervical spinal cord display greater physical impairment than people with injuries to lower parts of the spinal cord.

Data from the Australian SCI register reports that the rate of new cases of SCI in Australia every year is 14.5 per million population (or approximately 290 new cases per annum). The vast majority of these injuries (93%) are due to unintentional injury, with 43% attributable to motor vehicle accidents. As at 1997, there were nearly 10,000 Australians living with SCI and it is predicted that this could increase to nearly 12,000 by 2021.

For TBI, recent estimates suggest that there are about 150 people admitted to hospital per 100,000 population per year, or approximately 30,000 new admissions every year. However, this figure is most likely an underestimate of the true incidence due to classification and diagnostic errors, and under-reporting of mild injury. The number of Australians living with permanent disability following TBI is not well known. Motor vehicle accidents account for approximately two-thirds of moderate and severe TBI in Australia.

The incidence of neurotrauma peaks between the ages of 15 and 40, and is more common in males. Much of this sex difference is thought to be related to risk-taking behaviour and is therefore potentially preventable. As the incidence of both TBI and SCI is highest in young people, it coincides with important life events such as career development, establishing families, and completion of education and training.

The VNI aims to fund research aimed at improving the diagnosis, treatment and rehabilitation of individuals with neurotrauma, thus reducing the burden of these injuries on the individuals affected, their families and carers as well as the community generally.

4.2 Background

The Victorian Neurotrauma Initiative (VNI) is a $63 million health research fund established in 2005 in the State of Victoria, Australia. The VNI was established with five years funding provided by the State's Transport Accident Commission (TAC) in partnership with the Victorian Government's Department of Innovation, Industry and Regional Development (DIIRD). The VNI supports research into Traumatic Brain Injury (TBI), Spinal Cord Injury (SCI) and Peripheral Nerve Injury (PNI) conducted by Victorian scientists in collaboration with their national and international colleagues.

The VNI Pty Ltd is incorporated as a company limited by shares. The Company is governed by a Board of Management with representation from the TAC, DIIRD and the Victorian WorkCover Authority, as well as independent Directors. The VNI Executive team is responsible for the daily activities of the VNI, providing operational and strategic support to the Board and its committees. DIIRD and Neurosciences Victoria Ltd (NSV) also provide strategic and project management support to the Executive team.

The aim of the VNI is to better coordinate the wealth of neurotrauma researchers, clinicians, facilities and projects that Victoria hosts and to ultimately provide better outcomes for individuals affected by neurotrauma.

4.3 Strategic Goals

The VNI has identified three strategic goals.

Goal 1. Fund internationally competitive neurotrauma research

To support the establishment of an internationally competitive neurotrauma research sector within Victoria focused on quality, collaborative research that has the potential to improve outcomes for individuals affected by neurotrauma and the community generally.

Goal 2. Facilitate enhanced capacity and capability within the Victorian neurotrauma research community

To increase the focus on research, enhance provider skills and foster knowledge transfer within the neurotrauma community. To develop and manage training schemes and fellowships to build capacity in basic, clinical, rehabilitation and disability neurotrauma research, and enhance inter-agency knowledge transfer and communications.

Goal 3. Facilitate the translation of research findings within the Victorian healthcare system

To improve the outcomes for individuals affected by neurotrauma throughout Victoria and amongst TAC clients by providing evidence based guidelines, policy and practice within the Victorian health system.

4.4 Board of Directors

Throughout the year, the VNI Board of Directors comprised representatives from the TAC, DIIRD, the Victorian WorkCover Authority (VWA) and an independent Director.

2006/07 Membership

The Directors of the Company during the financial year were as follows:

John Geoffrey Hilton (appointed 22 May 2007) **Chairman**
Nominee of the Transport Accident Commission
Director, Transport Accident Commission
Director, Victorian WorkCover Authority
Director, Horton International

Michael Graeme Wright (appointed 10 November 2006 and resigned 2 May 2007) **Chairman**
Nominee of the Transport Accident Commission
Director, Miller Consulting Group
Director, Australian Community Support Organisation
Director, Transport Accident Commission

John William Burdett (appointed 10 November 2006) **Independent Director**
Chair, Neurosciences Victoria
Director, Investment Technology Group
Director, IRESS Market Technology Limited
Director, Australian International Health Institute Limited

Peter Rex Harcourt (appointed 10 November 2006)
Nominee of the Victorian WorkCover Authority
Director, Victorian WorkCover Authority
Director, Victorian Trauma Foundation

Faye Lorraine Burton (appointed 19 December 2006)
Nominee of the Department of Innovation, Industry & Regional Development

Alexander Collie (appointed 19 December 2006) **Executive Director**
Nominee of the Transport Accident Commission

Meetings

Five Board meetings were held during the year, on the following dates:

- 23rd November 2006
- 19th December 2006
- 26th February 2007
- 15th May 2007
- 27th June 2007

4.5 Advisory Committees

The VNI has developed three committees responsible for assisting in the evaluation of research applications and for the development of research strategy. These committees include:

Evaluation Committee

The Evaluation Committee (EC) formulates recommendations for funding to the VNI Board of Directors. These recommendations are based on review of submitted applications.

The EC is composed of individuals with strong scientific, clinical and health policy knowledge and experience. They review funding applications submitted to the VNI in order to determine eligibility and agreement with priorities and criteria for a particular funding round. To assist in their decision making process, the EC receives detailed reviews of funding applications from neurotrauma experts and members of the VNI's Expert Reference Panel.

Current EC members have diverse backgrounds, including health policy and disability services, epidemiology and community medicine, biomedical and neuroscience research. They are:

Dr Phil Marley
Expertise: Pharmacology / Basic Neuroscience

Phil Marley has a PhD in neurochemistry and undertook postdoctoral studies before spending 23 years as a basic neuroscience researcher at the University of Melbourne. He has published over 100 research papers and has been a member of the NHMRC grant review panel and the Mental Health Research Institute advisory panel. Phil is currently appointed as the Manager of Biomedical Research and Technology at the Department of Innovation, Industry and Regional Development.

Professor Rod McClure
Expertise: Medical Epidemiology

Rod McClure has medical qualifications and a PhD in injury epidemiology. He has clinical experience in emergency medicine and specialist training in public health medicine. Over the past 10 years Rod was responsible for the establishment of the Queensland Trauma Registry and the Centre of National Research on Disability and Rehabilitation Medicine. Previous appointments included: CEO and Research Director of Injury Prevention and Control (Australia) Ltd, Associate Professor of Epidemiology at the University of Queensland and Professor of Community Care and Epidemiology at Griffiths University. Rod is currently appointed as Professor of Epidemiology at Monash University Accident Research Centre.

Mr Alan Blackwood
Expertise: Health Policy / Consumer Affairs

Alan Blackwood has spent the last 15 years working in advocacy and policy in health and disability. Alan worked as an advocate and Executive Officer at Headway Victoria, and spent five years as a Senior Health Policy Adviser at the Transport Accident Commission working on a range of rehabilitation and lifetime support policies in the areas of Acquired Brain Injury and Spinal Cord Injury.

Alan currently manages the Public Policy Program at Multiple Sclerosis Australia, promoting disability/chronic illness issues including medical research, health, employment, welfare and long-term care policy across all levels of Government. He has also been involved in the Young People in Nursing Homes campaign, and is a board member of the Chronic Illness Alliance and the Victorian Association of Children with a Disability.

Dr Alex Collie (Chair)
Expertise: Clinical Neuroscience / Psychology

Alex Collie has a PhD in psychology and during his time as a researcher published more than 60 journal articles, reviews and book chapters in the cognitive neurosciences. Alex was also a founding scientist with Melbourne-based biotechnology company CogState where he led the development of the company's cognitive tests for mild Traumatic Brain Injury. Alex is currently appointed as the Executive Director of the VNI.

Expert Reference Panel

The VNI has established a large panel of national and international neurotrauma experts who provide detailed reviews of funding applications submitted to the VNI. As a minimum, the VNI requires two expert assessor reports for each submitted funding application.

These reports are garnered from members of the VNI Expert Reference Panel (ERP). This panel currently consists of over 100 individuals with relevant expertise in neurotrauma.

Scientific Advisory Committee

During the year, the VNI established a Scientific Advisory Committee (SAC). While membership of the committee is yet to be finalised, this group of Australian neurotrauma experts will provide scientific advice to assist the VNI in developing a strategic research funding plan and future vision for the VNI.

The SAC will report to the VNI Board on a range of issues affecting the VNI. For instance, it is envisaged that the SAC will provide advice regarding the principles of a cohesive, unified research platform and the most appropriate research directions for the VNI. The SAC will also advise on current local, national and international trends for research into neurotrauma, and assist the VNI to identify opportunities for collaborative research programs and linkages at local, national and international levels.

4.6 The VNI Team

The activities of the VNI were managed during the year by an Executive team comprised of the following individuals:

Dr Alex Collie (appointed Nov 2006)
Executive Director

Ms Melinda Rockell
Operations Manager (also Conflict Manager and QA Manager)

Ms Pam Garoufalis
Development Manager

Ms Kelly Tapley
Senior Project Officer

Ms Pina McBride (to Apr 2007)
Practice Improvement Coordinator

Ms Genevieve Abbot (appointed June 2007)
Project Officer

Ms Susan Green (to Feb 2007)
Ms Giselle Masaganda (Mar to May 2007)
Ms Leonie Hon (appointed June 2007)
Administration Assistant

The Dept of Innovation, Industry & Regional Development (DIIRD) and Neurosciences Victoria provide strategic and project management support to VNI.

Mr Simon Rabl
VNI Project Manager, Department of Innovation, Industry & Regional Development

Ms Rosemary Paxton
VNI Project Manager, Neurosciences Victoria

In addition, the following individuals performed the roles of Company Secretary and Public Officer for VNI during the year.

Ms Jane Bloomfield
Company Secretary

Mr Peng Thong
Public Officer

05 Research Funding

5.1 Summary

Throughout the year, the VNI completed its first round of project funding and initiated its second call for applications.

The first round of applications resulted in 55 expressions of interest being submitted to the VNI by the closing date in November 2005. These applications were evaluated throughout the 2006 calendar year, with a total of 33 applicants being asked to submit full funding applications in February 2006. Of these, 17 projects were approved for funding in July 2006, with a further five approved in October 2006 following a rigorous evaluation and selection process.

The 22 projects arising from the first funding round represent a commitment of $15.6 million towards neurotrauma research within Victoria. These projects involve Victorian scientists with a broad spectrum of expertise in the basic, clinical and rehabilitation aspects of neuroscience research. The projects also bring together leading universities, hospitals and research institutes within the State and nationally. In summary, the first round of VNI funding contributed substantially to the promotion of collaborative, multi-disciplinary neurotrauma research within Victoria.

Further detail regarding specific projects arising from Round 1 is provided on pages 12 to 23.

The second funding round, incorporating a more targeted call for applications, resulted in the VNI receiving a total of 92 expressions of interest by the closing date in December 2006. Of these, a total of 40 were invited to submit a full funding application by May 2007. The VNI formally announced successful applications arising from this round in September 2007.

The applications received demonstrated the broad range of neurotrauma and neuroscience expertise that exists within Victoria, and further highlights the collaborative nature of Victorian and Australian scientists. A summary of the second round applications is provided on pages 24 to 26.

In addition to these open calls for applications, the VNI has initiated two targeted research projects. These are described in more detail on pages 26 and 27.

5.2 Round 1 Funding

A total of 55 expressions of interest were received by the closing date, requesting a total of $30.17 million in funding. Tables 1 to 2 provide a breakdown of these expressions of interest by area of research (Table 1) and by injury type (Table 2). Figure 1 shows the breakdown of expressions of interest by the primary/host organisation.

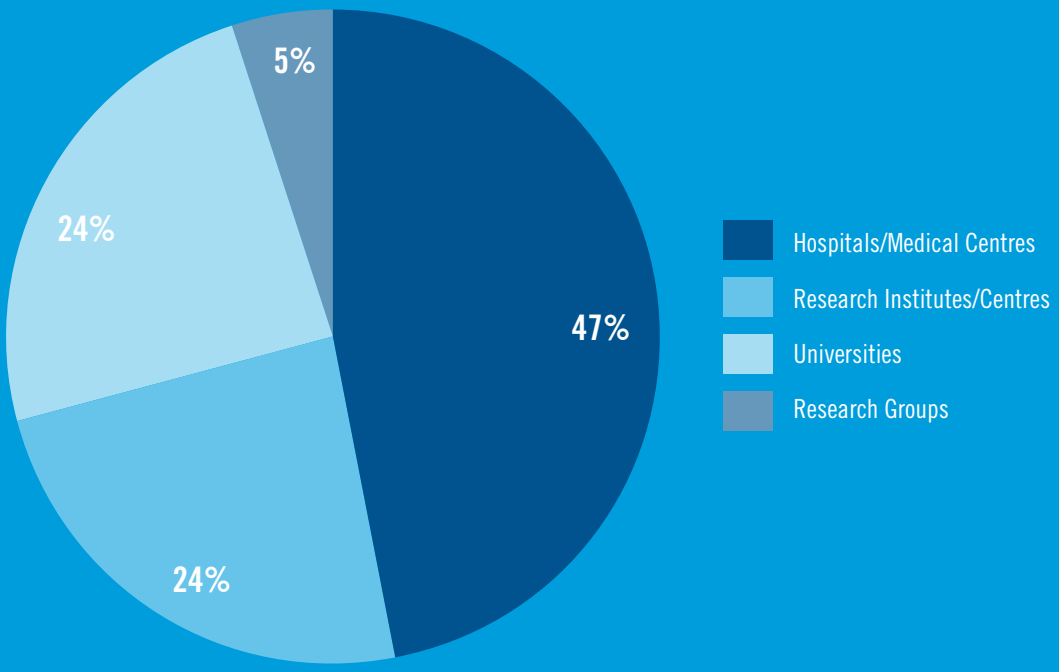
Table 1. Expressions of Interest (EOI) received by area of research.

Area of Research	EOI received		Funds requested
	#	%	$ million
Early stage neurobiological research and animal models	14	25.45	15.43
Clinically based investigation and practice	13	23.64	5.12
Rehabilitation	18	32.73	5.86
Technological developments	5	9.09	2.33
Education and skills development	3	5.45	0.79
Disability	2	3.64	0.63
TOTAL	55	100.00	30.17

Table 2. Expressions of Interest (EOI) received by injury type.

Injury Type	EOI received		Funds requested
	#	%	$ million
Traumatic Brain Injury (TBI)	28	50.90	11.63
Spinal Cord (SCI)	19	34.55	8.74
TBI & SCI	7	12.73	9.67
Other	1	1.82	0.13
TOTAL	**55**	**100.00**	**30.17**

Figure 1. Expressions of Interest (EOI) received by host/primary organisation.



All expressions of interest underwent a rigorous peer review process, including evaluation by the VNI Expert Reference Panel and Evaluation Committee. This resulted in a total of 33 applicants being invited to submit a full funding application. These applications requested a total of $22.91 million funding. Tables 3 and 4 provide a breakdown of the invited full funding applications by area of research (Table 3) and by injury type (Table 4).

Table 3. Full Funding Applications (FFA) invited by area of research.

Area of Research	FFA invited		Funds requested
	#	%	$ million
Early stage neurobiological research and animal models	13	39.40	14.28
Clinically based investigation and practice	8	24.24	3.75
Rehabilitation	9	27.27	3.46
Technological developments	2	6.06	1.26
Education and skills development	1	3.03	0.16
TOTAL	**33**	**100.00**	**22.91**

Table 4. Full Funding Applications (FFA) invited by injury type.

Injury Type	FFA invited		Funds requested
	#	%	$ million
Traumatic Brain Injury (TBI)	18	54.55	8.64
Spinal Cord Injury (SCI)	12	36.36	6.34
TBI & SCI	3	9.09	7.93
TOTAL	**33**	**100.00**	**22.91**

Of the 33 applications invited, a total of 22 projects were approved for funding, to an aggregate value of $15.6 million. This included three grants for research 'programs', in addition to a series of 19 grants for specific 'projects'. The majority of these projects commenced during the 2006/07 financial year. A brief description of each project is provided below.

5.2.1 Program Grants

Title:
Traumatic injury to brain and spinal cord: secondary injury, development and evaluation of new treatments.

Lead Investigator:
Prof Norman Saunders

Chief Investigators:
A/Prof Cristina Morganti-Kossman, Dr Peter Crack, A/Prof David Howells, Prof Seong-Seng Tan, Dr Mark Habgood, Prof Peter McIntyre, Prof Kate Dziegielewska, Dr Jennifer Callaway, Dr Peter Batchelor

Lead Organisation:
The University of Melbourne

Brain and spinal cord injuries, commonly arising from motor vehicle accidents, are a significant cause of death and severe disability in the community. Damage to the brain and spinal cord is categorised as primary (immediate consequences) and secondary (processes that occur after initial impact). The secondary processes involve an activation of complex cascades leading to death of nerve cells and other brain cells as well as clinical complications such as brain swelling, raised intracranial pressure and ischaemic damage to the affected regions. The purpose of this study is to develop a better understanding of the mechanisms that lead to secondary damage following Traumatic Brain Injury and Spinal Cord Injury. This project also aims to identify targets for therapeutic intervention in order to limit the extent of damage and functional loss.

Title:
Human bone marrow stromal grafts in combination with Decorin for repair of the injured spinal cord.

Lead Investigator:
A/Prof Paul Simmons

Chief Investigators:
A/Prof Paul Simmons, Prof Silviu Itescu, Dr Giles Plant, Dr Stuart Hodgetts

Lead Organisation:
Spinal Cord Society of Australia

This research project aims to demonstrate that transplantation of human Bone Marrow Stromal Stem Cells (hBMSCs), in combination with the scar reducing compound Decorin, will provide a favourable environment within the injured spinal cord by reducing the extent of injury (tissue sparing) and promoting regeneration (and other endogenous repair mechanisms not yet known) following Spinal Cord Injury (SCI). The primary aim of this research is to show that improved functional recovery can be achieved with the combination of hBMSCs and Decorin in a rat model of SCI. In the long term, the knowledge gained from this project will guide new clinical strategies in the treatment of acute and chronic SCI.

Title:
Application and development of acellular matrix technology as a biological scaffold for spinal cord repair.

Lead Investigator:
Dr Kathy Traianedes

Chief Investigators:
Prof Stephen Livesey, Dr Giles Plant, Dr Marc Ruitenberg

Steering Committee:
Dr George Owen, Prof Stephen Livesey, Dr Giles Plant

Lead Organisation:
Australian Stem Cell Centre Ltd

In Australia, there are approximately 400 new cases of Spinal Cord Injury (SCI) every year. SCI results in permanent and severe disability. For individuals affected, even partial restoration of the damaged spinal cord could result in improved breathing, limb and bladder function. Such changes could dramatically improve an individual's quality of life. Currently, there is no treatment available for the repair of the injured spinal cord.

This study aims to develop a scaffold that can be used to repair the injured spinal cord. The purpose of the scaffold is to create a bridge across the damaged area, creating a path for spinal cord regeneration. An acellular dermal matrix has been available in the USA for a number of years, for the treatment of various soft tissue injuries (e.g. burns, abdominal wall repair). This technology has been successfully utilised in an animal model of peripheral nerve regeneration. This evidence strongly supports the hypothesis that this type of scaffold may potentially repair the injured spinal cord. This study aims to identify and develop a scaffold that leads to optimal regeneration of the injured spinal cord in an animal model. This will be performed in phases over three years. The final outcome of this study will be an 'off-the-shelf' freeze dried scaffold that can be used at the time of surgery for spinal cord regeneration.

5.2.2 Project Grants - Spinal Cord Injury

Title:
Sleep health in tetraplegia - A population survey and home monitoring of sleep disordered breathing.

Chief Investigator:
Dr David Berlowitz

Other Investigators:
A/Prof Douglas Brown, Prof Robert Pierce

Lead Organisation:
Institute for Breathing and Sleep

The literature indicates that individuals with Spinal Cord Injury have significantly more sleep disturbances and disorders than the general population. Although a small number of studies have been conducted within this area, there have been no comprehensive surveys with follow-up studies in the tetraplegic population.

The purpose of this study is to determine the prevalence and nature of sleep disturbances in individuals with tetraplegia. The outcomes of this study will be used to document sleep health in a population with tetraplegia and lead to the design of treatment trials that would reduce disability and minimise the burden of disease on both the individual and society in general.

Research team led by Dr David Berlowitz (left to right):
Dr Jo Spong, Dr David Berlowitz and Ms Debbie Riley

Title:
Amelioration of macrophage cytotoxicity after Spinal Cord Injury: impact on secondary injury and axonal regeneration.

Chief Investigator:
A/Prof David Howells

Other Investigator:
Dr Peter Batchelor

Lead Organisation:
The University of Melbourne

This project aims to determine if two immune system regulators (IL-4 and IL-10) can reduce damage to nerve cells in the spinal cord following traumatic injury. Promising results have been seen in tissue culture experiments, where it has been demonstrated that these two regulators can prevent the release of the toxins TNF-alpha and NO. A series of experiments over 3 years will seek to replicate these findings in the more complex environment of an animal model and determine whether secondary injury can be prevented and scar formation altered through the use of IL-4 and IL-10. This study may be an important step in the development of an effective treatment for human Spinal Cord Injury.

Title:
Regeneration of the corticospinal tract in the injured spinal cord.

Chief Investigator:
A/Prof David Howells

Other Investigator:
Dr Peter Batchelor

Lead Organisation:
The University of Melbourne

Every year there are about 250 new cases of Spinal Cord Injury in Australia, the majority resulting in permanent quadriplegia and paraplegia. These injuries are tragic because most victims are young (20-35) and, aside from the great personal costs, these injuries result in a significant economic burden. Movement requires wiring between specialist areas of the brain and the spinal cord and a particularly important pathway is called the corticospinal tract. Substantial regeneration of this tract is needed to restore an injured patient's ability to move. To date only modest regeneration has been achieved in animals.

This project aims to explore new approaches for stimulating regeneration of the corticospinal tract through the role of inflammatory cells and growth promoting factors.

Title:
Development of EPHA4 peptide inhibitors for the treatment of neurotrauma.

Chief Investigator:
Prof Ann Turnley

Other Investigators:
Dr Tony Hughes, Dr Yona Goldschmidt

Lead Organisation:
The University of Melbourne

Ephs and ephrins are molecules found on the surface of cells. They recognise and bind to one another, thus providing a means for cells to communicate. Several of these molecules are found in the spinal cord and their expression is increased when the spinal cord is damaged. In this project, computer-aided molecular modelling approaches will be used to design small peptide molecules that block the interaction of one particular Eph molecule, called EphA4 and ephrins. The molecules will be synthesised and purified, then examined for their effects on nerve cell growth and spinal cord regrowth. By the end of the two year project period, a panel of novel molecules will have been tested for their ability to block EphA4 actions in cell culture and in animal models. In the longer term, these compounds may act as lead compounds for further development as regenerative therapy for spinal cord damage following traumatic injury.

Title:
Mechanisms of recovery following Spinal Cord Injury in neonatal *Mondodelphis domestica* (South American opossum).

Chief Investigator:
Prof Norman Saunders

Other Investigators:
A/Prof Kate Dziegielewska, Dr Samantha Richardson, Prof Dalton Dietrich, Dr Jessica Truettner, Dr Helen Stolp, Dr Paul Samollow

Lead Organisation:
The University of Melbourne

The aim of this project is to understand the mechanisms by which an immature spinal cord, unlike the adult one, is able to repair itself following injury. The study will be in a marsupial, South American Opossum because marsupials are born at an extremely early stage of development; thus experiments can be carried out in the newborn rather than in the unborn foetus.

This "proteomics" study will determine changes in gene products (proteins) that occur in spinal cords between an age when recovery occurs (one week after birth) and an age when it does not (one month after birth).

Title:
Evaluation of novel sodium channel blockers for 1) minimising axonal damage & 2) relieving neuropathic pain in rat models of spinal cord trauma.

Chief Investigator:
Prof Bevyn Jarrett

Other Investigators:
Dr Rachel Nally

Steering Committee:
Dr Henry De Aizpurua, Prof Peter McIntyre, Prof John Furness

Lead Organisation:
Howard Florey Institute

Each year in Australia, approximately 300-400 new cases of Spinal Cord Injury (SCI) occur. The 15-34 year age group accounts for half the cases of SCI from trauma, leading to decades of disability and discomfort. The ongoing cost of long-term care for this cohort is approximately $400 million per annum. Whilst the most common clinical symptom is incomplete tetraplegia, surveys of affected individuals have shown that neuropathic pain was the most common complaint followed by disturbances to bladder function and then to respiratory function.

The purpose of this study is to determine whether novel drugs, developed at the Howard Florey Institute, are able to reduce loss of nerves and loss of movement in rat models of acute SCI. This study also aims to determine whether these novel drugs are able to reduce or block central neuropathic pain in rat models of chronic SCI.

5.2.3 Traumatic Brain Injury

Title:
Rehabilitation of attention following Traumatic Brain Injury: a model of Methylphenidate.

Chief Investigator:
Ms Catherine Wilmott

Other Investigator:
Prof Jennie Ponsford

Lead Organisation:
Monash University

Impaired attention, concentration and slowed thinking are common difficulties experienced by individuals with Traumatic Brain Injury (TBI) and contribute significantly to an individual's disability. Research in the USA has suggested that Methylphenidate (Ritalin) may be effective in treating attentional disturbance in those with TBI. However, of the few studies conducted thus far, the patients recruited have been many years post-injury.

The purpose of this study is to determine the efficacy of Methylphenidate for the reduction of attention deficits following TBI, for patients that are actively participating in inpatient rehabilitation. Patients will be enlisted in a two week randomised, controlled treatment trial. In future, the outcomes of this pilot study can be used to guide the development of a multicentre, Phase III Clinical Trial in order to establish an evidence base for practice.

Title:
Assessment and intervention for patients with mild Traumatic Brain Injury.

Chief Investigator:
Prof Jennie Ponsford

Other Investigators:
Prof Peter Cameron, A/Prof Mark Fitzgerald

Lead Organisation:
Monash University

There is continuing debate as to the most appropriate methods of assessing and managing patients with mild Traumatic Brain Injury (mTBI). Scores on the Glasgow Coma Scale (GCS) and duration of post-traumatic amnesia (PTA) are key indicators of head injury severity. Most recently, the accuracy of screening for PTA in the emergency department and the validity of using GCS scores has been called into question.

The purpose of this study is to examine the accuracy of the revised Westmead PTA scale in identifying the presence of PTA in patients presenting to the Emergency Department with mild TBI. The impact of patient's receiving an information booklet on best management of expected symptoms will also be assessed. The outcomes of this study will contribute to improved screening and management of PTA.

Title:
Longitudinal in vivo study of hippocampal structure and function, and relationship to neurocognitive, neurobehavioral and epileptic outcomes, in a model of human Traumatic Brain Injury.

Chief Investigator:
A/Prof Terrence O'Brien

Other Investigators:
Dr Damian Myers, Dr Stefanie Dedeurwaerdere, Mr John Williams, A/Prof David Howells, Dr Peter Batchelor, Prof Rod Hicks, Prof Chris Pantelis, Dr Dennis Velakoulis, A/Prof Gary Egan, Prof Edward Hogan, Dr Nigel Jones

Deficits in cognition, changes in behaviour and epileptic seizures are common and disabling long-term consequences of Traumatic Brain Injury (TBI). Brain scans, such as CT or MRI, will often identify sites of damage, however, no systematic study has been performed to identify how changes to the injured brain are associated with behavioural changes after TBI.

The purpose of this study is to investigate the nature of progressive damage in the brain that continues long after the acute effects have resolved and identify targets for future interventions. This study will be performed using an animal model of closed head injury with advanced imaging techniques applied before and after the injury.

Title:
Fluid resuscitation for patients with Traumatic Brain Injury - potential mechanisms behind the detrimental effect of albumin resuscitation.

Chief Investigator:
Prof Jamie Cooper

Other Investigators:
A/Prof John Myburgh, A/Prof Simon Finfer, Prof Rinaldo Bellomo, Prof Robyn Norton

Steering Committee:
Prof Jamie Cooper, A/Prof John Myburgh, A/Prof Simon Finfer, Prof Rinaldo Bellomo, Prof Robyn Norton, Darryl Jones, Lisa Higgins

Lead Organisation:
Bayside Health

The selection and use of resuscitation fluids is a fundamental aspect of the management of trauma patients. In 1999, a systematic review of fluid therapy in trauma patients suggested that use of crystalloids was associated with a lower mortality. The landmark SAFE study found that administration of 4% albumin (a very commonly used colloid in Australia) was associated with an apparently increased risk of death in patients with trauma and Traumatic Brain Injury (TBI), when compared with saline (a crystalloid). These effects have been subsequently confirmed in the Victorian Trauma Foundation (VTF) funded post-hoc analysis published in the New England Journal of Medicine in September 2007. The aim of the current study is to determine the mechanisms which caused albumin to be associated with an increased mortality in patients with TBI when compared with normal saline. In particular to determine whether increased brain pressures associated with albumin resuscitation, lead to use of therapies with toxic side effects which may have increased mortality.

Title:
Mobility skills following childhood Traumatic Brain Injury.

Chief Investigator:
Ms Anne Kissane

Associate Investigators:
Prof Mary Galea, Dr Beverly Eldridge, Dr Kevin Dunne, Dr Gavin Williams

Lead Organisation:
Murdoch Children's Research Institute

Little is known of the recovery of mobility skills and the impact of physical deficits after childhood Traumatic Brain Injury (TBI). A sensitive and age-appropriate measurement tool is required to record performance, evaluate efficacy of rehabilitation interventions and guide participation in physical activity in the home, school and community. Currently, there are no valid and responsive tools to evaluate performance and recovery of high-level mobility skills following childhood TBI.

The primary objective of this study is to identify whether the High-Level Mobility Assessment Tool (HiMAT) is a useful evaluative outcome measure of mobility skills in children and adolescents with TBI. This study also aims to: i) evaluate clinical utility of the HiMAT in children and adolescents with TBI, ii) evaluate reliability and responsiveness of the HiMAT to change over time in children and adolescents with TBI, iii) evaluate concurrent validity of the HiMAT with the Functional Skills Mobility Scale and Caregiver Assistance Mobility Scale of the PEDI and iv) compare the mobility skills of children and adolescents with moderate and severe TBI with healthy age-matched peers.

Title:
To determine the role of tissue type plasminogen activator in models of Traumatic Brain Injury.

Chief Investigator:
Dr Robert Medcalf

Associate Investigators:
A/Prof Cristina Morganti-Kossmann, Prof Harald Schmidt

Lead Organisation:
Monash University

Tissue-type plasminogen activator (t-PA) is a naturally occurring protease that is used clinically to remove blood clots in patients with myocardial infarction and under limited conditions in patients with ischaemic stroke. However, a large body of evidence has now demonstrated that t-PA has a role in the brain. Indeed, t-PA has been shown to have a beneficial role in memory development, synaptic plasticity and visual processing. Although these effects in the brain are beneficial, under pathological conditions, including Traumatic Brain Injury (TBI), the presence of t-PA is detrimental. This project aims to use an established mouse model to dissect the mechanisms by which t-PA exacerbates secondary damage following TBI.

Title:
Traumatic Brain Injury in older adults: does age matter?

Chief Investigator:
Prof Glynda Kinsella

Other Investigators:
Dr Ben Ong, A/Prof James Olver

Lead Organisation:
La Trobe University

Traumatic Brain Injury (TBI) is most frequently associated with young males. However, older adults (65 years+) form the second most frequently injured demographic. In contrast to the increasingly well-documented outcome literature on younger adults, there are very few studies that have focused on older adults.

The purpose of this study is to extend our understanding of the impact of mild-moderate TBI for older adults in terms of cognition, everyday ability and quality of life. The project objectives are: (i) to delineate the effect of severity of TBI by comparing the outcome of a group of older adults with moderate TBI to a group of older adults with mild TBI, (ii) to determine the effects of TBI per se by comparing the outcome of the combined older adults group with both mild and moderate TBI to that of a trauma control group, (iii) to delineate the effects of trauma per se by comparing the outcome of the trauma control group to that of a healthy age-matched community control group. A baseline, three month post-trauma, and follow-up, six months post-trauma, design will be adopted to determine whether older adults with TBI experience a slower, less complete recovery than adults following trauma alone.

Research Team led by Prof Glynda Kinsella (left to right):
Leonie Cole, Dr Ben Ong, Sarah Price, A/Prof John Olver, Evrim March, Prof Glynda Kinsella, Sarah McLean, Antoinetta Tropeano, Bethan Plowright

Title:
Preventing neuronal cell death following brain trauma.

Chief Investigator:
Prof Seong-Sen Tan

Other Investigators:
Prof Sharad Kumar, Prof David Vaux, A/Prof Cristina Morganti-Kossmann, Dr John Silke, Prof Thomas Kossmann

Lead Organisation:
Howard Florey Institute

This project aims to develop a strategy to limit neuronal death following Traumatic Brain Injury (TBI). This strategy focuses on saving 'what's left behind' in order to limit the effects of secondary brain injury. This project will focus on a new protein (Nedd4 WW-domain binding protein, N4WBP5), that was initially discovered and cloned in Australia, and through preliminary experiments has been shown to be capable of saving stressed neurons from dying.

The short-term aims of this project are to improve our understanding of the function of N4WBP5 in neuroprotection using cultured neurons and animal models. The long-term aims are to extend studies into human cells and tissue, ultimately conducting therapeutic trials of N4WBP5 in individuals with TBI.

Title:
Role of post-traumatic hypoxia in the exacerbation of cerebral inflammation elicited by brain injury.

Chief Investigator:
A/Prof Cristina Morganti-Kossmann

Other Investigators:
Prof Thomas Kossmann, Prof Jamie Cooper, Prof Jeffrey Rosenfeld

Lead Organisation:
Bayside Health

There is clinical evidence showing that 45% of patients with severe Traumatic Brain Injury (TBI) are subjected to respiratory distress leading to reduced oxygen delivery to the brain or hypoxia. Although brain hypoxia is thought to aggravate tissue damage caused by trauma, its impact on secondary pathological pathways has not been thoroughly investigated. Based on previous evidence showing that hypoxia itself induces brain inflammation, we hypothesise that the combination of TBI and post-traumatic hypoxia will exacerbate the production of inflammatory mediators in the injured brain, thus aggravating tissue and neurological damage. This hypothesis will be tested in a model of diffuse Traumatic Axonal Injury (TAI) in which rats will be subjected to trauma with or without post-traumatic hypoxia. Clinical relevance of the results obtained in the animal models will be characterised on patients with severe TBI. Candidate injury marker proteins with potential prognostic and diagnostic value from animal data will also be validated in the human samples to determine clinical suitability.

Title:
Enhancing endogenous neurogenesis as a potential therapy following Traumatic Brain Injury (pilot study).

Chief Investigator:
A/Prof Cristina Morganti-Kossmann

Lead Organisation:
Bayside Health

Traumatic Brain Injury (TBI) is the major cause of death in the population below the age of 40 years. Approximately 25% of individuals that survive head injury remain with permanent neurological disabilities. At the basis of this disability is the massive loss of brain cells (neurons) that occurs after trauma. The brain tissue presents a limited capacity to regenerate and replenish the cells that have been lost after injury. Although the brain has historically been considered a non-regenerating tissue, in recent years, neuroscientists identified immature cells in normal brain that have the potential to grow and differentiate into functional neurons. This process is defined as neurogenesis. This pilot project will investigate the neurogenesis that occurs following focal TBI in mice. We will study the time course of neurogenesis induced by traumatic brain injury, and will determine how this relates to the proliferation and activation of glial cells. The results of may potentially lead to improved tissue repair and neurological function and may assist in the development of new therapies for individuals with TBI.

Title:
Prevention and treatment of social problems following Traumatic Brain Injury (TBI) in children and adolescents.

Chief Investigator:
Prof Vicki Anderson

Other Investigators:
Dr Cathy Catroppa, Prof Keith Yeates

Lead Organisation:
Murdoch Children's Research Institute

This research program aims to investigate the impact of childhood Traumatic Brain Injury (TBI) on social functions, over two years post-injury. The assumption is that such problems (e.g. poor peer interaction, limited understanding of social rules and consequences, loneliness, social withdrawal) are due to a combination of neurologic and psychosocial factors, with the most promising opportunity for intervention being the psychosocial domain. This program, which will involve a sample of children with TBI and healthy children, is an extension of previous work and will employ a theoretical and multidisciplinary framework. The program aims to: 1) using a prospective, longitudinal design, evaluate social function in children post-TBI and follow recovery of these skills over two years post-injury; and 2) identify predictors of social impairment (injury, cognitive, psychosocial factors).

Title:
Hypothermia in Traumatic Brain Injury in Children (HiTBIC)

Chief Investigator:
Dr John Beca

Other Investigators:
A/Prof Warwick Butt, Dr Simon Erickson, Dr Barry Wilkins, Dr Andreas Schibler, Dr Michael Yung, Dr Andrew Numa, Dr Christian Stocker

Lead Organisation:
Royal Children's Hospital

Traumatic Brain Injury (TBI) is the leading cause of death in childhood and exceeds all other causes combined. Approximately 40-60% of children either die or are left with severe disability. Survivors of severe injuries commonly have multiple life long disabilities. Most are not able to hold down a job as adults. Hypothermia or cooling has been shown to protect the brain and reduce damage from a variety of causes. Longer periods of cooling may also be better than shorter periods. To do a study capable of determining whether early and prolonged hypothermia is beneficial would require approximately 450 children.

The objective is to undertake a pilot study of 50 children admitted to paediatric intensive care with severe TBI in Australia and New Zealand. Half of the participants will be cooled to 32-33^{0}C for 72 hours and then slowly rewarmed. The remaining participants will have their temperature maintained at 36-37^{0}C. Neurological outcome will be assessed at 6 and 12 months after the injury. The rate of complications due to cooling will also be assessed. The purpose of this pilot study is to establish the feasibility and safety of undertaking a larger study with other international centres to determine whether early prolonged cooling increases the proportion of children with good outcome.

5.2.4 Traumatic Brain Injury & Spinal Cord Injury

Title:
Establishment of a neurotrauma tissue/fluid bank within the National Neural Tissue Resource Centre (NNTRC)

Chief Investigator:
Prof Catriona McLean

Other Investigators:
A/Prof Cristina Morganti-Kossmann, Prof Jeffrey Rosenfeld, Prof Thomas Kossmann

Lead Organisation:
Bayside Health

A Neurotrauma Tissue Bank (NTB) initiative would be a unique Australian resource that will both underpin and enhance the VNI funded research efforts in Australia. Currently, no such neurotrauma brain bank exists in Australia. As a consequence, Australian researchers are unable to utilise human neurotrauma tissue linked to clinical and pathological data, potentially undermining the current worth of neurotrauma research. Purchase of tissue from overseas sources is prohibitively expensive ($1,000/gm of tissue) and this deters project design from incorporating human tissues. The availability of this resource (high quality human post-mortem CNS tissue) will assist both scientists and clinicians to focus their research on this area of national need. More importantly, new technologies based on high-throughput screening techniques mean that many questions that could not have even been contemplated a decade ago can be addressed using appropriately stored human brain tissue.

5.3 Round 2 Funding

The VNI second round of funding was announced on 4 November 2006 with a call for expressions of interest. A number of priority themes were identified for this funding round, including:

- Effective Rehabilitation – evidence based practice and improved access to services.
- Mental Health – diagnosis, management and treatment.
- Independent and Health Living – accommodation and care options, carer burden and impact of ageing.
- Paediatric Injury – diagnosis and management of injury in childhood.

A total of 92 expressions of interest were received by the closing date of 18 December 2006, requesting a total of $38.06 million in funding. Tables 5 to 7 provide a breakdown of these applications by injury type (Table 5), by area of research (Table 6) and by priority theme (Table 7).

Table 5. Expressions of Interest (EOI) received by injury type.

Injury Type	EOI received		Funds requested
	#	%	$ million
Traumatic Brain Injury (TBI)	57	61.96	26.63
Spinal Cord (SCI)	21	22.83	7.43
TBI & SCI	6	6.52	2.16
Other	4	4.35	1.15
Peripheral Nerve Injury (PNI)	3	3.26	0.55
TBI & PNI	1	1.08	0.14
TOTAL	**92**	**100.00**	**38.06**

Table 6. Expressions of Interest (EOI) received by area of research.

Area of Research	EOI received		Funds requested
	#	%	$ million
Rehabilitation	37	40.22	8.84
Clinically based investigation and practice	26	28.26	14.97
Early stage neurobiological research and animal models	22	23.91	11.80
Technological developments	4	4.35	1.21
Disability	2	2.17	1.10
Education and skills development	1	1.09	0.14
TOTAL	**92**	**100.00**	**38.06**

Table 7. Expressions of Interest (EOI) received by priority theme

Priority Topic	EOI received		Funds requested
	#	%	$ million
Effective Rehabilitation	32	34.78	9.42
Mental Health	24	26.09	13.03
Paediatric Injury	15	16.30	5.04
Independent and Healthy Living	9	9.78	3.70
Non-priority topic	12	13.05	6.87
TOTAL	**92**	**100**	**38.06**

All expressions of interest underwent a rigorous peer review process, including evaluation by the VNI Expert Reference Panel and Evaluation Committee. This resulted in a total of 40 applicants being invited to submit a full funding application. These were received in May 2007 with announcement of successful applications in September 2007.

Tables 8 to 10 provide a breakdown of the invited full funding applications by injury type (Table 8), by area of research (Table 9) and by priority theme (Table 10).

Table 8. Full Funding Applications (FFA) invited by injury type.

Injury Type	FFA invited		Funds requested
	#	%	$ million
Traumatic Brain Injury (TBI)	31	77.50	13.89
Spinal Cord Injury (SCI)	9	22.50	4.07
TOTAL	**40**	**100.00**	**17.96**

Table 9. Full Funding Applications (FFA) invited by area of research.

Area of Research	FFA invited		Funds requested
	#	%	$ million
Rehabilitation	19	47.50	5.85
Clinically based investigation and practice	12	30.00	7.07
Early stage neurobiological research and animal models	7	17.50	4.50
Disability	1	2.50	0.22
Technological advancements	1	2.50	0.32
TOTAL	**40**	**100.00**	**17.96**

Table 10. Full Funding Applications (FFA) invited by priority theme.

Priority Theme	FFA invited		Funds requested
	#	%	$ million
Effective Rehabilitation	17	42.50	8.72
Mental Health	11	27.50	5.37
Independent and Healthy Living	4	10.00	1.41
Paediatric Injury	7	17.50	2.14
Non-priority topic	1	2.50	0.32
TOTAL	40	100.00	17.96

5.4 Targeted Projects

In addition to projects arising from its advertised funding rounds, the VNI committed a further $749,886 over two years towards two highly targeted initiatives. These will enhance the Victorian community to undertake neurotrauma research.

Title:
Enhancing the research capacity of the Victorian Spinal Cord Service.

Chief Investigator:
A/Prof Douglas Brown

Lead Organisation:
Austin Health

The Victorian Spinal Cord Service (VSCS) is based at Austin Health and provides acute, rehabilitation and community outreach services for people with a Spinal Cord Injury (SCI). Currently all VSCS staff are employed within clinical services roles. There are no dedicated research staff employed.

This initiative aims to enhance the research output of the Victorian Spinal Cord Service (VSCS). This initiative will fund the employment of a full-time Research Development Co-ordinator and a part-time Database Manager, over a two year period. The Research Development Co-ordinator will be responsible for the development and management of research projects undertaken by the VSCS. The Research Development Co-ordinator will also play a key role in building SCI research collaborations and providing mentorship opportunities for clinical staff based at the VSCS. The Database Manager will be responsible for the development and maintenance of a SCI database. This database will contain the details of Victorian individuals with SCI and will be used to assist in the identification of potential research participants.

Title:
The Global Evidence Mapping initiative in Traumatic Brain Injury and Spinal Cord Injury.

Chief Investigator:
A/Prof Russell Gruen

Associate Investigators:
Prof Andrew Kaye, A/Prof Sally Green, Dr Claire Harris, Prof Don Campbell, Dr Heather Buchan, Dr Jan Davies, Ms Emma Tavender, Dr Peter Morley, Mr Terry Harrison, Prof Justin Zobel, Dr Julian Elliott, Prof John Lavis

Lead Organisation:
The University of Melbourne

This project is a collaboration between the University of Melbourne and Monash University, the National Institute of Clinical Studies, Royal Melbourne Hospital, Southern Health, the Australasian Cochrane Centre and National ICT Australia. The Global Evidence Mapping (GEM) initiative aims to make available evidence about 'best-practice' approaches and knowledge 'gaps' by systematically identifying, updating, appraising and delivering existing research evidence in the fields of Traumatic Brain Injury and Spinal Cord Injury. It is engaging experts in evidence-based medicine and knowledge transfer nationally and internationally.

The evidence maps will provide VNI with optimal guidance for where and how to direct future research efforts by prioritising important unanswered questions and avoiding duplication of existing research. The evidence maps will also allow VNI to feedback evidence-based clinical and rehabilitation strategies to healthcare providers, as well as the TAC policy and claims divisions. This has the potential to help healthcare providers to develop 'best-practice' models of client service provision. The outcomes of this project will also be of substantial benefit to the wider neurotrauma community, both locally and internationally.

5.5 Capacity Building Initiative

In June 2006, following a period of consultation with the Victorian neurotrauma research community, the VNI Board committed a total of $4.25 million for the establishment of a research capacity building initiative over a five year period. The initial focus of this initiative is a research Fellowship / Training scheme. The VNI Fellowship Scheme is designed to enhance the capacity and capability of the Victorian neurotrauma research sector.

This capacity building initiative will result in the recruitment and training of 20 individuals working specifically within the neurotrauma research field in Victoria. This represents a major investment in Victorian neuroscience that will serve to enhance the ability of the State to undertake research of an international calibre.

The range of programs will ensure that support is provided to:

- Attract first-time researchers to the field.
- Ensure that early career researchers working in neurotrauma or related areas have an opportunity for career advancement.
- Ensure that a small number of highly experienced researchers continue to focus their efforts on neurotrauma specific research.

The short-term benefits of this program will include:

- An increase in the pool of neurotrauma-specific expertise within the State.
- Greater continuity of quality research conducted by motivated early career and senior researchers.
- Enhancement of the potential for local, national and international collaborations.

Longer-term benefits of the program are likely to include:

- Enhanced capability of Victorian researchers to undertake neurotrauma – related research.
- Enhancement of the quality and quantity of neurotrauma and neuroscience research outcomes with the potential to benefit those affected by neurotrauma.
- An increase in neurotrauma funding secured from other sources as the expertise of the local community increases, thereby creating a more sustainable neurotrauma research community within Victoria.
- Enhancement of the quality of clinical care for neurotrauma clients within Victoria due to an increase in the number of research-trained clinicians and an increase in the transfer of evidence-based findings into practice.

The Fellowship scheme was initiated in August 2007 with the first VNI fellowships expected to commence in early 2008.

A second component of the capacity building initiative is the development of research networks. The VNI will aim to facilitate this process by organising forums at which Victorian and Australian neurotrauma researchers and the broader neurotrauma community can interact and develop collaborative relationships.

06 Financial Report

Operating Statement

For the period from 10 November 2006 to 30 June 2007

	Note	2007 $
Revenue from operating activities		
Service fee	2	546,959
Expenses from operating activities		
Salary and related costs		(275,212)
Operating		(179,030)
Project funding		(92,717)
Surplus from operating activities before income tax		**0**
Income tax expense	1(a)	0
Net surplus		**0**

Balance Sheet

As at 30 June 2007

	Note	2007 $
Current assets		
Cash		1
Total assets		**1**
Equity		
Share capital	3	1
Total equity		**1**

Cash Flow Statement

For the period from 10 November 2006 to 30 June 2007

	2007 $
Cash flows from operating activities	-
Cash flows from investing activities	-
Cash flows from financing activities	1
Cash at the beginning of the financial period	-
Cash at the end of the financial period	**1**

Notes to and forming part of the financial statement

1. Summary of significant accounting policies

This general purpose financial report has been prepared in accordance with Australian Accounting standards and Interpretations. Accounting Standards include Australian equivalent to International Financial Reporting Standards (A-IFRS).

The financial report has been prepared on the basis of accrual accounting and the historical cost convention.

Significant accounting policies that have been adopted in the preparation and presentation of the financial report are:

(a) Income tax
The Company is exempt from income tax.

(b) Cash flow
There are no cash flow transactions for operating and investing activities as the Company is not trading.

(c) Comparatives
The Company commenced operations during the financial period and accordingly there is no comparative information for the previous year.

2. Service fee

In accordance with the service agreement between the Transport Accident Commission (TAC) and the Company, the TAC agrees to pay the Company a service fee for delivering the Initiative and achieving the Company's objective. The service fee is calculated to fully compensate the Company for costs incurred.

3. Share capital

	2007 $
Issued capital	
1 ordinary share of $1.00 each, fully paid	1

4. Remuneration of auditor

Fees for services rendered to the Company by the Audit-General's Office are borne by a related entity. The audit fee applicable to this Company amounted to $1,500.

5. Directors' remuneration

The total fees payable to the directors for the period ended 30 June 2007 were $13,317.

Directors' declaration

In the opinion of the directors of Victorian Neurotrauma Initiative Pty Ltd

a. the operating statement, balance sheet, cash flow statement and notes set out on pages 29 and 30 are drawn up so as to:
   i. give a true and fair view of the financial position of the Company as at 30 June 2007 and of its performance, as represented by the results of its operations, for the period ended 30 June 2007; and
   ii. comply with Australian Accounting Standards and Interpretations; and
b. there are reasonable grounds to believe the Company will be able to pay its debts as and when they become due and payable.

Dated at Melbourne this 4th day of September 2007.

Signed in accordance with a resolution of the directors:

Peter Rex Harcourt
Director

Alexander Collie
Director

VAGO

Victorian Auditor-General's Office

INDEPENDENT AUDIT REPORT

Victorian Neurotrauma Initiative Pty Ltd
To the Members of the Parliament of Victoria and Members of the Board

The Financial Report

The accompanying financial report for the period 10 November 2006 to 30 June 2007 of the Victorian Neurotrauma Initiative Pty Ltd which comprises the operating statement, balance sheet, cash flow statement, a summary of significant accounting policies and other explanatory notes to and forming part of the financial report, and the director's declaration has been audited.

The Responsibility of the Members for the Financial Report

The Members of the Board of the Victorian Neurotrauma Initiative Pty Ltd are responsible for the preparation and the fair presentation of the financial report in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations). This responsibility includes:

- establishing and maintaining internal controls relevant to the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error
- selecting and applying appropriate accounting policies
- making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

As required by the *Audit Act* 1994, my responsibility is to express an opinion on the financial report based on the audit, which has been conducted in accordance with Australian Auditing Standards. These Standards require compliance with relevant ethical requirements relating to audit engagements and that the audit be planned and performed to obtain reasonable assurance whether the financial report is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial report. The audit procedures selected depend on judgement, including the assessment of the risks of material misstatment of the financial report, whether due to fraud or error. In making those risk assessments, consideration is given to internal control relevant to the Board Members' preparation and fair presentation of the financial report in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control. An audit also includes evaluating the appropriateness of the accounting policies used, and the reasonableness of accounting estimates made by the Board Members, as well as evaluating the overall presentation of the financial report.

I believe that the audit evidence obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

The Auditor-General's independence is established by the *Constitution Act* 1975. The Auditor-General is not subject to direction by any person about the way in which his powers and responsibilities are to be exercised. The Auditor-General, his staff and delegates comply with all applicable independence requirements of the Australian accounting profession.

Auditor's Opinion

In my opinion, the financial report presents fairly, in all material respects, the financial position of the Victorian Neurotrauma Initiative Pty Ltd as at 30 June 2007 and its financial performance and cash flows for the period then ended in accordance with applicable Australian Accounting Standards (including the Australian Accounting Interpretations).

MELBOURNE
1 October 2007

Mashelle Parnett
for D.D.R. Pearson
Auditor-General

Level 24, 35 Collins Street, Melbourne Vic. 3000
Telephone 61 3 8601 7000 Facsimile 61 3 8601 7010 Email comments@audit.vic.gov.au Website www.audit.vic.gov.au

07 Contact Details

For further information about the VNI or any of the funded research projects, please contact:

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