

# Neurotrauma Research Strategy

2011-2015



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# Introduction

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In 2009, the Transport Accident Commission (TAC) Board approved the TAC Strategy 2015, which defined three key objectives, specifically improving client outcomes, improving client experience and maintaining scheme viability. The TAC's Strategy 2015 described a number of activities to achieve those objectives, including claims model transformation and client service initiatives.

The Neurotrauma Research Strategy 2011–2015 is designed to assist the TAC to achieve its strategic objectives of supporting the recovery and independence of clients who have incurred a brain or spinal cord injury.

## The impact of neurotrauma

Traumatic brain injury (TBI) and spinal cord injury (SCI) are debilitating injuries that have a life-long impact on the injured person, their family and the community. As well as the direct physical impact, many aspects of daily function are affected. These include the ability to take part in social and community activities and to work. If they survive the injury, people living with neurotrauma have a life expectancy equal to those without such injuries. The TAC funds medical, rehabilitation, as well as lifetime care and support services for those with neurotrauma occurring as a consequence of transport accidents in the state of Victoria.

TBI and SCI form a large proportion of those severe injuries which constitute 3% of claims but 66% of the outstanding liabilities of the TAC. The TAC Independence Claims branch is responsible for managing the claims of those clients with severe TBI, quadriplegia and paraplegia. In the 12 months to 31 December 2011, the Independence branch managed 2,910 active claims (232 paraplegia; 205 quadriplegia; 1,273 severe TBI; 1,200 other) and incurred a total expenditure of \$163 million relating to these claims. The total outstanding liabilities of the branch at December 2011 are \$4.81 billion, with the vast majority of this in lifetime care (\$3.91 billion). Other major cost categories for the Independence branch include hospital and medical (\$40.6 million payments/\$201 million liabilities) and paramedical (\$28.4 million payments/\$624 million liabilities) services.

There are many drivers of lifetime care costs. These include the costs of attendant care and accommodation services, and in particular the number of hours of attendant care required per client and the type of accommodation, which are often dictated by the client's level of function. For example, the extent of injury and nature of early treatment have a substantial impact on recovery and downstream attendant care needs. In TBI clients, the presence of behavioural issues leads to greater attendant care requirements. In SCI, the onset of secondary complications can increase care needs, while the presence of concomitant medical conditions can mean greater requirements for care. Similarly, the level of family support the client experiences can substantially influence attendant care and accommodation needs.

## Neurotrauma research in Victoria

The TAC has been a major contributor to establishing the state of Victoria as the national centre of excellence in neurotrauma research via its prior investments in the Victorian Trauma Foundation (VTF) and its successor, the Victorian Neurotrauma Initiative (VNI). The VTF undertook pre-hospital and clinical research on major trauma, including TBI and SCI, and developed novel models of care, databases and evaluation systems. The VNI focused on internationally competitive research on TBI and SCI, capacity development and research translation within the health care system and among TAC clients.

In June 2011, the TAC Board of Directors resolved that the TAC's neurotrauma research funding for new contracts would be managed by ISCR and committed \$20 million for the period 2011 to 2015. The neurotrauma research strategy to 2015 continues the TAC's investment in brain and spinal cord injury research. As well as clinical and biomedical research priorities, the strategy describes an increased focus on community and lifetime care research, recognising the nature of the TAC scheme and the issues faced by TAC clients, their carers and the community.

## TAC research framework

In October 2010, the TAC Board endorsed a research framework that seeks to guide the selection of research projects across three priority areas: road safety, trauma health and claims management. The neurotrauma research program fits within the trauma health area. The framework includes five guiding principles (not rigid rules) that seek to ensure that the TAC invests in research that provides world-class insights that will help the TAC to meet its scheme objectives. These principles are as follows:

1. Research should support the objectives of the Transport Accident Act, represented by the TAC's goals for 2015.
2. Research should deliver findings quickly. This means delivering the research findings within three years of business case approval, with the benefits of research to be realised within five years of business case approval.
3. Research should be applied in nature. The target portfolio mix should be biased towards applied research, with a proportion of pure research not to exceed 10%.
4. Research must leverage existing research. A scan of other research bodies and jurisdictions can help to ensure that the TAC does not reinvent the wheel and leverages existing research to the fullest extent.
5. Research must have a clear value statement. The rationale for undertaking the research must be clear and of benefit to the TAC and/or its stakeholders. Value can be expressed in terms of scheme viability (for example financial benefit), client experience or client outcomes.

ISCRR's research priorities are closely aligned with the TAC research framework, with the additional requirement that research have the potential to contribute to the international pool of knowledge in the field and be of a high academic standard. ISCRR's partners also have a commitment to building the capacity of the research sector in the field by supporting early career researchers and developing research platforms that facilitate research activity.

## Development of the strategy

### High-level priority areas

To identify the high-level research priorities for the neurotrauma strategy, information was collated from documents including TAC's financial cost and liability and strategic documents such as the 2015 Strategy and information arising from the Independence Branch Claims Model transformation. This was supplemented with knowledge of research capacity in the state that was drawn from discussions with ISCRR's research networks and the TAC.

The TAC research framework was taken as a starting point, stating a preference towards applied research, aligned with Strategy 2015 goals and the ability to deliver findings quickly and realise value within a five-year timeframe. This was overlaid with four key criterion that were used in the analysis of this documentation to identify more specific high level priority areas for the neurotrauma strategy. These were:

1. **Need** – The need for research to inform TAC neurotrauma and disability policy and practice, as determined by TAC areas of cost and liability and strategic objectives.
2. **Probability of Impact** – The probability that research outputs will be produced and lead to meaningful changes in neurotrauma policy or practice within a five-year time horizon.
3. **Reward** – The potential return on investment in terms of health and wellbeing of neurotrauma clients and/or cost savings for the TAC. In addition, the potential for leveraging additional research funds, particularly through Commonwealth research grant schemes such as NHMRC and ARC Grants, were taken into account.
4. **Capacity** – The ability of the Victorian neurotrauma research sector to address the issues of greatest need and with a high probability of impact.

A 'balanced portfolio' of research investment was sought, within the boundaries established by the TAC research priorities. The outcome of this analysis, being four high-level research priorities, and the relative level of investment is described in Table 1, below.

**Table 1: Priority areas ranked against key criteria**

Activity	Criteria				Investment
	Need	Probability of Impact	Reward	Capacity	
Priority 1. Models of lifetime care	Very High	High	High	Low	35%
Priority 2. Improving rehabilitation and disability management	High	Moderate	High	High	35%
Priority 3. Bench to bedside	Low	Low	Very High	High	15%
Priority 4. Capacity building	Moderate	Moderate	Moderate	High	15%

## Research sub-themes in each priority area

A series of in-depth discussions were held with the research community to flesh out more specific research issues for exploration under each high-level priority area in the neurotrauma strategy.

In early 2011, the TAC commissioned the National Trauma Research Institute (NTRI) to conduct an environmental scan of neurotrauma research and research needs. The scan was conducted against the backdrop of the substantial prior investment by the TAC, and within the framework of the TAC 2015 Strategy.

The Scan engaged over 160 Victorian, Australian and international members of the neurotrauma community, including the TAC. It identified 31 research priority topics and also concluded the following:

- A balanced neurotrauma research portfolio to meet the TAC's goals would include investment in acute management, in rehabilitation and in community services and disability management.
- It should also spread investment across projects involving review of existing knowledge, discovery of new knowledge and translation of findings into practice and policy.

In mid-2011, ISCRR commissioned a series of workshops that were undertaken by the NTRI. These workshops engaged a diverse range of neurotrauma researchers and TAC staff to develop concepts for research in the priority areas and providers who are interested in conducting the research. These workshops led to identification of the sub-themes listed under the major priority areas in the strategy as well as some specific project ideas listed in the 2012/13 Annual Plan and identified research teams with the capability to carry out the projects.

## Aims of the strategy

The overarching aim of the strategy is to guide future neurotrauma research within Victoria that will lead to improvements in the independence and outcomes for TAC clients with brain or spinal cord injury. The strategy seeks to support engagement between the TAC, the neurotrauma research community and other stakeholders, and promote high-quality neurotrauma research that impacts the policy and practice of the TAC.

## Delivering the Strategy

The TAC has invested a substantial amount of time, money and effort into establishing ISCRR since 2009. This has included the development of a collaborative research agenda in the areas of health and safety, compensation, return to work and recovery, as well as a strong focus on the translation of research outcomes to policy and practice.

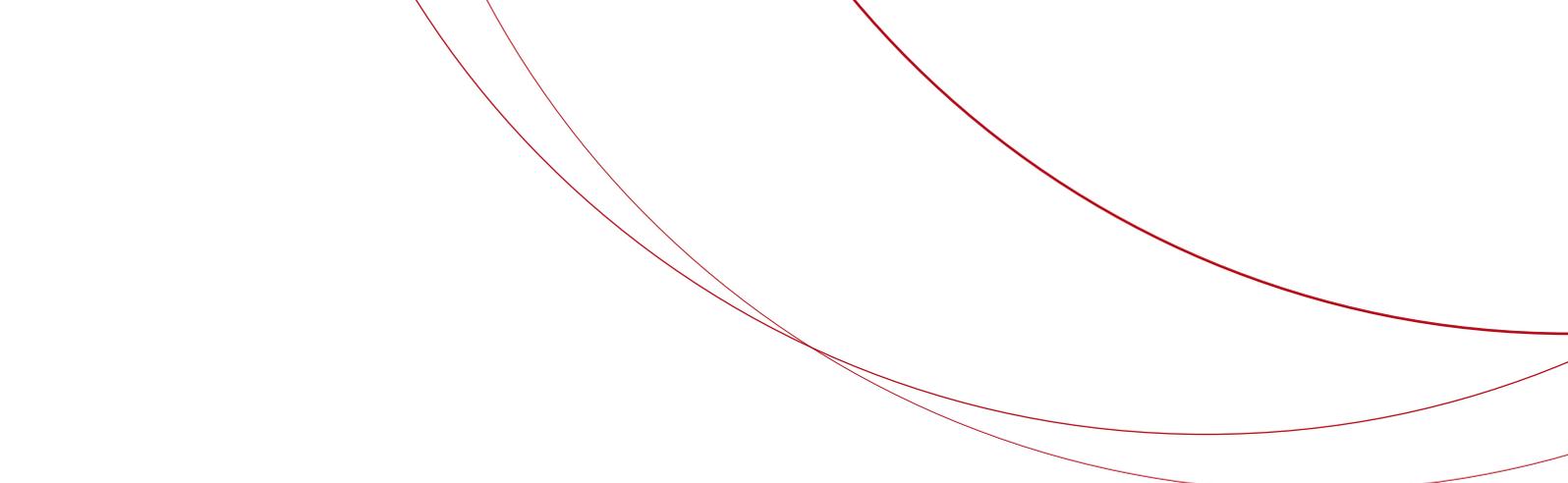
ISCRR's research governance arrangements and program management model will be applied to the Neurotrauma Research Program. In addition, there will be governance arrangements arising specifically from the neurotrauma funding agreement between the TAC and ISCRR.

In late 2011, the TAC approved the funding of two neurotrauma capacity building initiatives aimed at establishing centres of research excellence in spinal cord injury and traumatic brain injury. These initiatives have been funded for three years, commencing in early 2012.

- The Spinal Research Institute (SRI) at Austin Health will develop infrastructure for patient-based spinal cord injury research centred around the spinal unit at the Austin Hospital in Heidelberg.
- The Centre for Excellence in Traumatic Brain Injury Research (CETBIR) at the NTRI/Monash University will harness Victoria's neurotrauma expertise, momentum and networks and will build and maintain capacity for research excellence and collaborations.

These two centres will be key enablers of the neurotrauma strategy, and it is envisaged that ISCRR will work closely with the two centres to deliver the strategy.

The strategy also provides a framework for the development of detailed annual plans for research and operations. These will be developed annually by ISCRR and approved each year by the TAC. The Annual Plan will include the research and research support activities to be funded during the forthcoming financial year, and a budget, for approval by the ISCRR Board, the TAC Health Issues Committee (HISCO) and the TAC Board.



## Neurotrauma Research Priorities

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The strategy consists of:

- four major research priority areas, each with a series of sub-themes around more specific research areas, and
- a set of governance and process mechanisms for delivering the strategy.

The strategy will see a shift towards applied research, particularly in the area of lifetime care and disability support. Support for clinical research is to be maintained, especially in the area of rehabilitation, as is a focus on the biomedical sciences.

## PRIORITY 1

# MODELS OF LIFETIME CARE

Promotion of independence for clients with TBI or SCI who require long-term care is the cornerstone of the TAC's commitment to ensuring better outcomes for their clients. The major issues facing the TAC and their clients in this area include access to quality disability services, particularly attendant care during a time of increased demand, provision of appropriate accommodation and facilitating the integration and participation of TAC clients in the community. This priority area links directly with the TAC Independence claims project, which aims to deliver \$290 million in total liability savings by reducing attendant care costs, paramedical and income replacement costs for existing and new claims. In addition, the TAC is establishing new accommodation services for its clients in eastern Melbourne, presenting an opportunity to evaluate these unique new models of care.

## Attendant care

Attendant care costs represent 11% of the TAC's annual payments and 47% of outstanding claims liabilities. The availability of carers is already an issue in the management of clients with TBI and SCI, and drivers exist which will only exacerbate this. Substantial numbers of nurses and attendant carers will approach retirement age in the next 10 years. In many cases, informal care is provided by older parents, siblings or family members. The impending establishment of the National Disability Insurance Scheme (NDIS) and the National Injury Insurance Scheme (NIIS) will create competition for both purchasers and providers of care services.

Disability workforce research is needed to better anticipate supply in Victoria and to improve the ability of the available workforce to meet demand. Methodologies developed for process improvement in health care in recent years, in response to workforce shortages, will be transferred to the conduct of interventional research in the community sector. Interventions which have the potential to reduce demand for carers include the better use of technology, for example home monitoring.

There may also be potential to, with appropriate supervision, enhance the role of carers and so improve their productivity. Research will be informed by client and family experience and will be undertaken in collaboration with the care industry. Paid and unpaid carers represent the group with the largest potential impact on outcomes and TAC liabilities. As a guide, a one hour per day increase/decrease of attendant care may have a liability impact of \$500,000 over the lifetime of a client. Targeted research into this group is limited, yet it should have a direct impact on scheme viability by improving the efficiency and effectiveness of attendant care and by increasing client and carer satisfaction.

## Accommodation

Meeting the specific and varied accommodation needs of neurotrauma clients is both complex and costly, consuming a substantial component of payments made by the TAC for TBI or SCI clients. From 2009 to 2011, accommodation costs grew from \$17 million to \$19 million per annum (\$17.6 million TBI; \$1.8 million SCI) and the outstanding liabilities for accommodation grew to \$580 million, representing 8% of TAC total claims liability.

Type and quality of accommodation have a substantial impact on the level of independence which can be achieved by a client, and yet the best models of long-term care, particularly for groups such as younger people, still need to be determined. Some clients 'fall through the gaps' in existing care models and need to be identified and reintegrated into appropriate accommodation or care arrangements. The TAC is investing directly in this space by developing shared supported accommodation in the eastern

suburbs of Melbourne, providing a unique opportunity to evaluate the impact of a new model of accommodation.

## Community integration

Engagement in productive activity is a major goal of rehabilitation programs in neurotrauma. A return to active participation in the community, be it through paid or unpaid work or other involvement such as in community gardens, reduces social isolation and contributes to a sense of purpose. As it stands, costs of income replacement (loss of earnings/loss of earning capacity) in clients with moderate to high severity TBI and SCI are \$22.7 million per annum (\$17.4 million TBI; \$5.3 million SCI) and represent 6% of TAC's outstanding liabilities.

The TAC 2015 Strategy identifies improving return-to-work rates as a major component of their focus on recovery. Social functioning and independence can influence dependence on carer support, ability to return to work and quality of life, while return to employment and community integration can lead to substantial reductions in care needs and the costs of care services.

Access to employment opportunities, assessment of capacity for work and matching of activities and capabilities for work or community integration are areas in need of further research. Best practice approaches to education, support and community awareness are required to assist organisations and clients to improve community participation and overcome perceived barriers such as stigma. There are particular issues in children and adolescents, particularly with regards to their educational and developmental needs.

## Research initiatives

TAC neurotrauma funding will support research that reviews and trials new models of lifetime care, including models of attendant care, accommodation and community integration. This research will establish an evidence base regarding the needs of injured persons, carers and families supporting neurotrauma clients in the community.

## Impact

This research will contribute to:

- more efficient and effective use of the existing carer workforce and development of a more sustainable carer workforce
- accommodation options that support independence and community integration, and
- improved participation of TAC clients in the community through return to work and community integration.

## IMPROVING REHABILITATION AND DISABILITY MANAGEMENT

Improving the management of common complications of neurotrauma represents a major opportunity to reduce the severity and long-term impact of TBI and SCI and can facilitate independence and improved client outcomes. Linking up care pathways from acute care through rehabilitation to disability management to ensure a greater continuum of care will result in improved client outcomes. Effective rehabilitation can result in substantial downstream improvements in client independence and thus reduce the cost of accommodation and attendant care services.

### Challenging behaviours in TBI

Some people with TBI develop behaviours such as aggression, violence and sexual inappropriateness and psychiatric conditions such as depression and anxiety. These issues represent significant management challenges for providers and carers, and they often result in greater need for supervision and attendant care. The cost of managing these behavioural conditions in those with severe brain and spinal cord injuries is substantial and are currently running at \$1.94 million per annum, with the majority of this spending (95%) on TBI.

Current attendant care and accommodation services do not always adequately support individuals with these issues, and the system response to these clients is currently considered suboptimal. There is a need for better information on how to assist such clients in the acute phase after injury and over the longer term, so that they can achieve maximal independence.

### Secondary complications in SCI

The potential secondary complications of an acute spinal cord injury are many and include pressure ulcers, bladder and bowel problems, mental health issues, pulmonary and respiratory (breathing) problems, spasticity, pain and impaired sexual functioning. Such complications are a significant cause of disability themselves, in some cases are life threatening, can have a substantial and negative impact on rehabilitation, and are responsible for the majority of hospital readmissions for those with SCI. In many cases, it is these secondary complications that limit a person with SCI from participating fully in important social roles such as a family member, worker/employee or spouse, and from achieving maximal independence. For many such complications, effective management strategies are known. There is a growing focus internationally on reducing the impact of such complications by developing new preventive or clinical management approaches.

### Slow stream rehabilitation

Providing the right kind of services for TBI clients requiring extended periods of rehabilitation, particularly the group of patients who currently experience extended stays in acute hospital settings, is essential for optimal recovery. Slow Stream Rehabilitation is a service that targets people whose needs are more complex, such that they are unable to participate in rehabilitation at the level of patients entering the current subacute rehabilitation services in Victoria.

The slow stream rehabilitation and treatment model of care will feature a strong commitment to the integration of inpatient to community based care. This model will result in increased independence in mobility, self care, communication and cognitive domains and/or reduced burden of care for these patients. TAC has committed to the funding of 10 beds at the Caulfield Acquired Brain Injury unit. A research arm will be established and links have been created with the National Rehabilitation Hospital in Washington.

### Research initiatives

Research funded under the neurotrauma strategy will identify evidence-based approaches for optimal management of TBI clients with behavioural issues, and investigate new approaches to preventing and managing the major secondary complications of SCI to reduce their impact on the injured person and enhance their ability to undertake usual social roles. This research will also develop models of integrated care from acute to long-term community-based care, which will increase independence and reduce burden of care.

### Impact

The primary impact of this research will be more efficient and effective interventions for common complications of neurotrauma and better coordinated care. Secondary consequences of the research will include improved independence, increased client satisfaction and decreased health and disability costs to the TAC.

PRIORITY 3

## BENCH TO BEDSIDE

Realising benefits from biomedical research within a five-year timeframe is extremely challenging and necessitates a focus on translational research that can be taken from the lab and applied in the clinic. TAC neurotrauma funding will be used to conduct 'proof-of-principle' studies of promising biomedical interventions or technical innovations in humans. This may include, for instance, pharmaceutical therapies for limiting secondary damage of neurotrauma or new technologies aimed at improving diagnostic and prognostic accuracy. Establishing a forum in which basic scientists and clinicians can identify translational opportunities is critically important to achieving any impact in the time period of the strategy.

### Research Forum

A collaborative forum that brings together laboratory and clinical researchers will be established. It will aim to identify the most promising opportunities for translating pre-clinical or technological innovations into human studies within a three-to-five-year timeframe. The forum may include research experts in the basic and clinical neurosciences, and may also include other disciplines such as pharmacotherapy, bioengineering, bionics or bioinformatics. It would make recommendations regarding promising studies and research teams for funding consideration.

Through the workshops conducted in October 2011, a number of opportunities have already been identified. These include improving the accuracy of diagnosis and prognosis by developing biomarkers such as new imaging techniques, and leveraging the substantial amount of biomedical research funded in recent years by the TAC and other agencies to identify effective treatments for limiting secondary damage and promoting regeneration following injury. These will be inputs to the forum.

### Research initiatives

Proof of principle research projects of promising biomedical or technological innovations applied in humans will provide an opportunity to fundamentally impact the recovery and rehabilitation of neurotrauma clients. A collaborative research forum will identify and develop such projects for funding consideration.

### Impact

While high risk, research in this priority area has a potentially very high impact on client recovery and level of disability. If successful, projects funded under this priority area have the potential to fundamentally change the future for TAC neurotrauma clients.

## PRIORITY 4

# CAPACITY BUILDING

The TAC and the VNI have been strong supporters of capacity building initiatives by providing financial support for research fellows, and more recently funding the establishment of two centres of research excellence that integrate clinical and research expertise in SCI and TBI. This support will continue under the neurotrauma strategy to 2015. The capacity building priority area also builds on successful models developed by ISCRR. The activities in this priority area will also assist the delivery of research in each of the first three priority areas and support the use of the research evidence by the TAC and its neurotrauma stakeholders.

### Early to mid career research fellowships

The VNI funded a range of research fellowships for emerging and early career researchers, with the aim of attracting new talent into brain and spinal cord injury research and maintaining existing talent. These were considered highly successful, with the number of researchers involved in neurotrauma research growing substantially during the period 2006 to 2010. Similarly, since its establishment ISCRR has developed a number of strategies that are designed to build capacity in the local research community.

The success of the VNI program has meant that there are many early and mid career researchers now seeking support to take the next step in their careers. Neurotrauma funding will be directed at this cohort to maintain and grow the local neurotrauma research community. This activity will be focused in the first two years of the strategy, recognising that completion of scholarships and fellowships by 2015 with results delivered is desirable.

### Evidence Review Service

Effective support for evidence-based policy and service delivery requires synthesis of the vast amount of published research internationally. A number of existing TAC-funded projects aim to improve access to and use of research evidence in neurotrauma by various methods of evidence synthesis (for example literature reviews, rapid reviews).

ISCRR has established a capacity to synthesise research evidence for use in policy settings. We have an active in-house review team that addresses policy relevant questions posed by our partners in WorkSafe and the TAC. The NTRI has developed a strong program of evidence synthesis in the neurotrauma field.

The ISCRR program will be extended into the neurotrauma research area by increasing engagement with the NTRI and other active research groups in the field. The service will provide evidence to support neurotrauma policy and practice development and will be sufficiently flexible to provide short-term or rapid reviews through to full systematic reviews of treatment effectiveness. This activity will run for the duration of the Neurotrauma Research Strategy.

### Compensation Research Database

ISCRR has established a compensation research database incorporating a substantial volume of claims and administrative data from the TAC and WorkSafe Victoria. Information from the database is now used to support project-level activity across the full range of ISCRR's research programs. To date, ISCRR's focus has been on non-catastrophic injury. With the addition of neurotrauma to ISCRR's research program, the scope of research supported by this database will be extended to include, for the state of Victoria, essential information regarding the demographic, injury, occupational, industry, health and compensation characteristics of those injured workers and transport accident clients with neurotrauma.

The database will provide a platform for linking this data with other relevant databases (for example hospital admissions data, clinical or trauma registries) to provide analysis that drive health and disability services improvement. As well, this will enable targeting of future research efforts into areas of greatest unmet need. This activity will run for the duration of the Neurotrauma Research Strategy.

### Development Grants

In 2010, ISCRR established a competitive development grant scheme to identify and fund short-term (<12 months duration) researcher-initiated projects that are highly relevant to the TAC and WorkSafe Victoria. In December 2011, this was extended to include neurotrauma-specific projects that are expected to have benefit to the TAC in the short term. This activity will continue for the duration of the Neurotrauma Research Strategy.

# Delivery Mechanisms

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The Neurotrauma Research Strategy will be delivered by ISCRR on behalf of the TAC. ISCRR will work closely with the TAC and the neurotrauma community to ensure appropriate governance of the neurotrauma funds and to ensure that allocation of funding is conducted in a transparent manner. Existing governance and process mechanisms within the TAC and ISCRR will be used to deliver the strategy. This requires a substantial degree of coordination and collaboration between the TAC and ISCRR, as described below.

## Program governance

The relationship between ISCRR and the TAC will be formalised in a funding agreement between the TAC and Monash University. This agreement will allow ISCRR to manage the neurotrauma program and will establish the basis for the governance of the research program.

Under the funding agreement, Monash University will continue to be an important provider of neurotrauma research services, but not the preferred provider as in ISCRR's original research programs.

The neurotrauma research program will continue to call upon the network the TAC has developed which includes many Australian and international universities, research institutes, research hospitals, clinical and other service providers and community groups. Nevertheless, ISCRR operates out of Monash, and Monash provides ISCRR with most of its administrative services (financial, legal, human resources management and IT).

Within the TAC, the key decision making and advisory groups are the TAC Board, the Health Issues Committee (HISCo – a subcommittee of the TAC Board with delegation to oversee the neurotrauma research program), the Research Oversight Committee (ROC – the senior executives of the TAC with a role in managing the research programs of the TAC) and the Health Services Group (HSG – the functional division of the TAC within which the neurotrauma program resides).

The TAC Board will have final approval of the ISCRR Neurotrauma Research Strategy and will receive Annual Plans and budgets for the program. HISCo will be consulted on the ISCRR Neurotrauma Research Strategy and all Annual Plans prior to approval by the ISCRR and TAC Boards and will also receive all annual reports and evaluations as outlined in the Neurotrauma Agreement. To ensure strategic alignment is maintained with TAC goals, the ROC and HSG will be consulted on a regular basis.

Within ISCRR, the key decision making and advisory groups are the ISCRR Board, the Relationship Management Group (RMG – a subcommittee of the ISCRR Board with delegation to approve research projects up to \$500,000 value) and the ISCRR senior management team.

The ISCRR Board will endorse the ISCRR Neurotrauma Research Strategy and Annual Plans and reports, as well as receive quarterly research program reports which incorporate the milestones and progress of all projects in each program against ISCRR's impact framework (research outputs, actions, impacts). Further input on neurotrauma research will be provided by the RMG, which has been expanded to include the head of HSG.

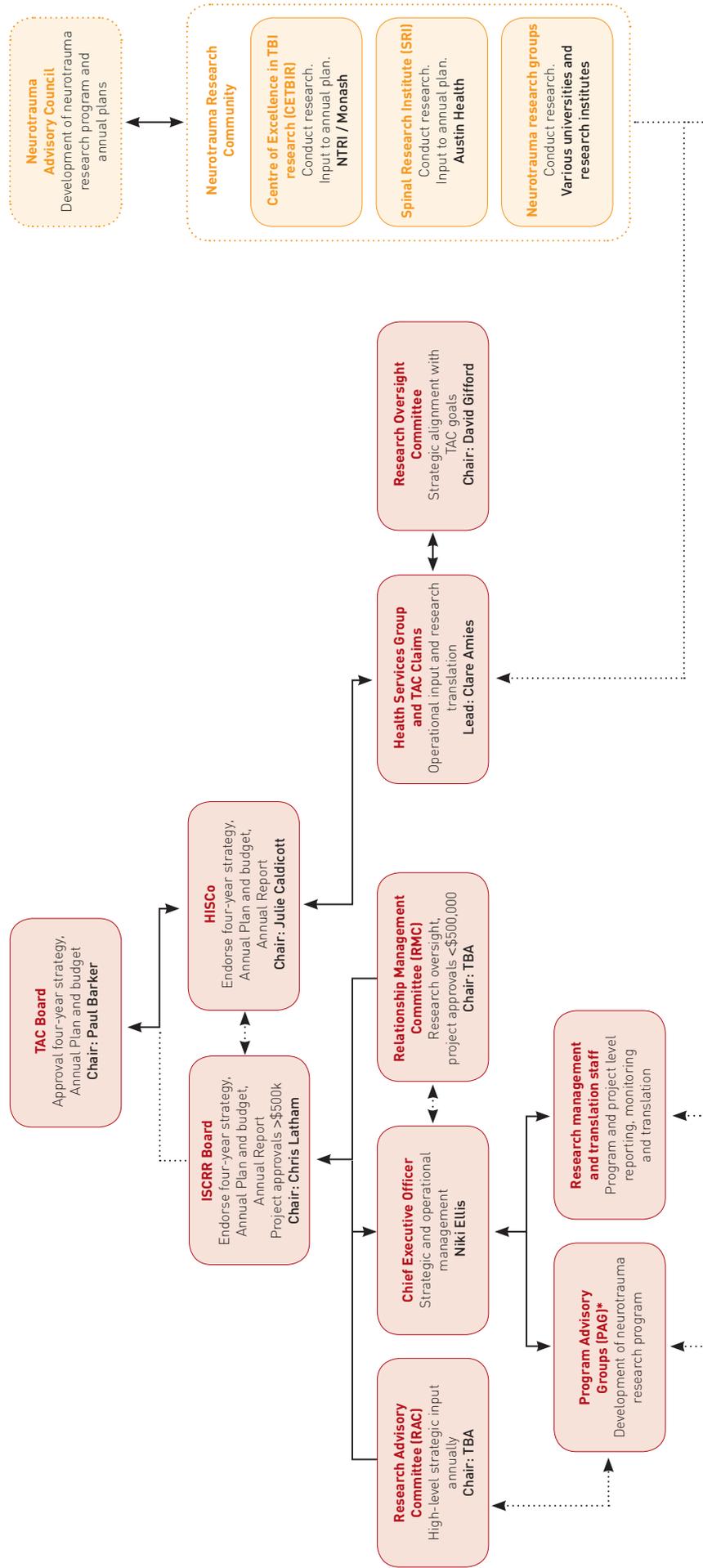
As well as the TAC, ISCRR will work closely with two new centres funded by the TAC in late 2011. These are the Spinal Research Institute (SRI) centre at Austin Health and the Centre for Traumatic Brain Injury Research (CETBIR) at NTRI/Monash University.

One activity of the NTRI is to establish a Neurotrauma Advisory Council of research, clinical, disability and policy experts to advise the health system and the TAC. One function of this council will be to assist ISCRR and the TAC in the ongoing development of the neurotrauma research program. In this respect, the Neurotrauma Advisory Council will operate as an ISCRR Program Advisory Group (PAG). ISCRR also has a PAG for its Health and Disability Services Delivery program, and it is anticipated that some activity under the neurotrauma research program will be developed by this other group.

The main role of the PAGs, including the Victorian Neurotrauma Advisory Council, will be to provide strategic support to the CEO and secondarily to the Chief Research Officer (CRO) on the design of ISCRR's research at a program level that is integrated and aligned with the priorities of ISCRR and the TAC. They will be the primary mechanism for policy maker and researcher dialogue through which ideas for future research will be generated, quality assurance of new projects will be undertaken and research translation efforts monitored and reviewed.

Substantial support will be provided to the PAGs by senior ISCRR personnel and the program coordinators. The relationships between these various organisations and groups is presented in Figure 1 on page 11.

**Figure 1. Neurotrauma Research Program governance structure**



\* The Program Advisory Group (PAG) for neurotrauma will be the NTRI Neurotrauma Advisory Council

## Annual planning

On an annual basis, ISCRR will produce a research plan and budget for the forthcoming financial year's activity. The first of these will be for the 2012/13 financial year. Development of the annual research plan occurs with input from the TAC, ISCRR and the neurotrauma community. The neurotrauma PAG, with joint representation from the academic and policy communities, will play a major role in the development of annual research plans.

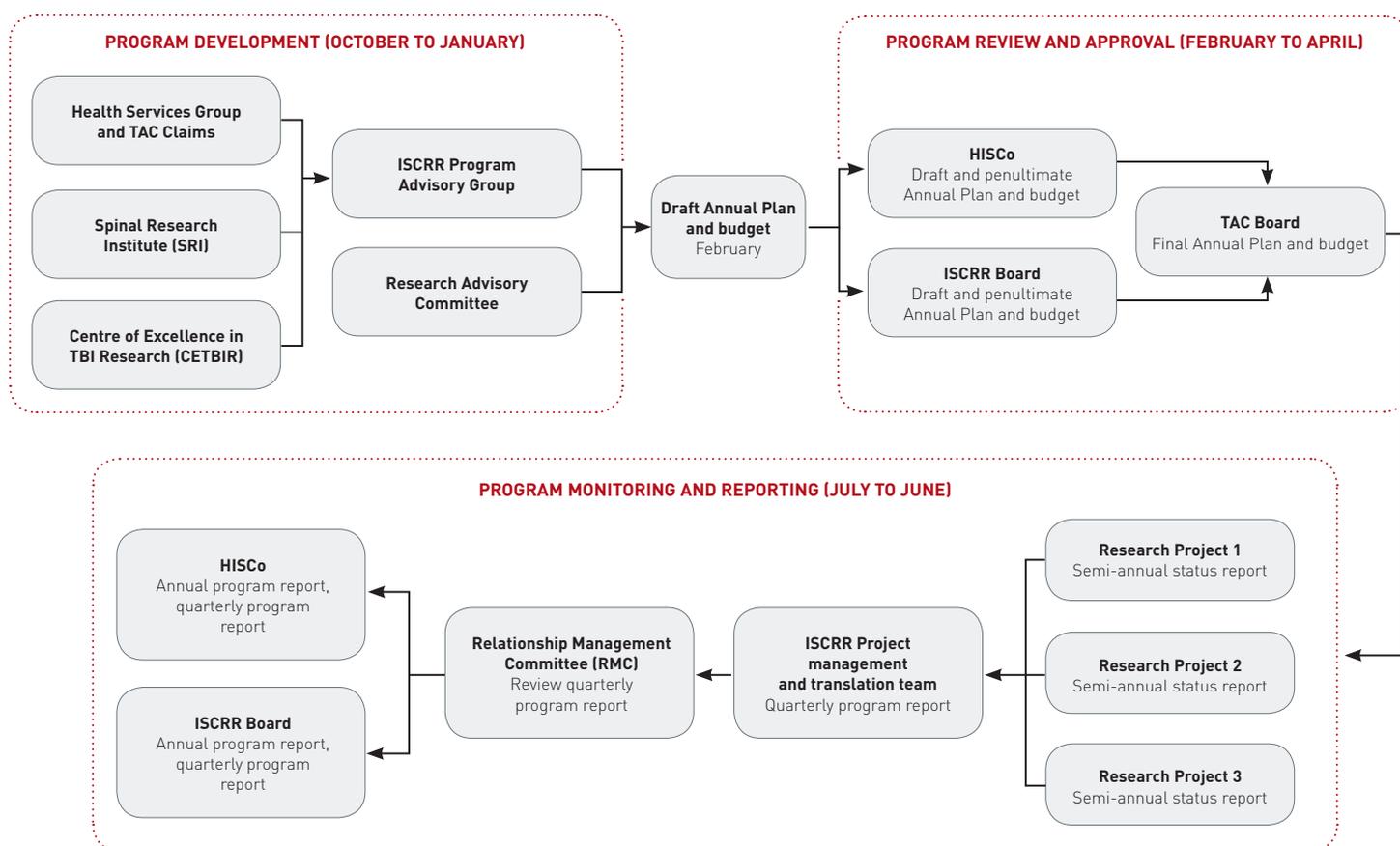
Draft annual plans and budgets will be provided to HISC0 and to the ISCRR Board for feedback and endorsement. Final approval of the annual plan and budget rests with the TAC Board.

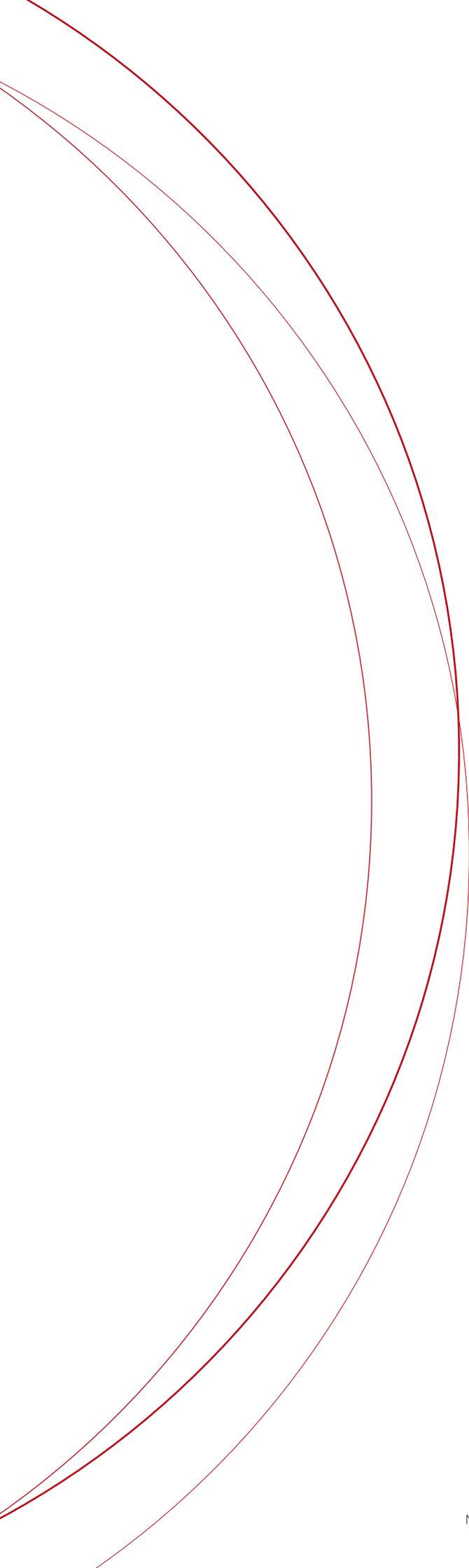
## Program monitoring and evaluation

Research program reports will be generated by ISCRR as per its current practice. These reports assess the progress of all projects in a program against an impact framework. The milestones of each project will be tracked and reported to the ISCRR Board and to HISC0 on a quarterly basis.

ISCRR has a set of key performance indicators (KPIs) that reflect both the need to have an impact on scheme performance and the need to conduct high-quality research. ISCRR is currently strengthening its KPI framework in relation to the measurement of the impact of its research, including on scheme liability. The KPIs will be reviewed after a major review of ISCRR due to be completed by December 2012, including specifically in relation to their application to neurotrauma.

**Figure 2. Program development, approval and reporting process**





## **Project management and translation**

At an individual project level within its existing portfolio of research ISCRR undertakes project planning, maintaining oversight of project progress and deliverables (including progress reporting milestones, budgets, risk management), and in research translation. ISCRR's existing project management systems will be applied to the neurotrauma program.

Project concepts are approved in principle via the Annual Plan. Detailed project plans are approved by either the RMG (< \$500,000) or the ISCRR Board. The advisory and approval processes for planning, oversight and evaluation of neurotrauma research projects are shown in Figures 1 and 2.

## **Evolution of the neurotrauma program**

As noted above, the research conducted under the neurotrauma program will evolve through the timeline of this strategy.

Work in the first year of the strategy comprises a mix of projects that have already been approved by the TAC Board, developed through ISCRR's collaborative processes in recent months (Development Grants, Partnership Grants) or requested by the TAC to support significant new developments in the provision of rehabilitation for ABI and long-term care. This also includes projects that were identified during the workshops held in late 2011 and align well with the strategy.

Other areas require further work in defining the field and identifying opportunities for interventions and research evaluations. This will include, for instance, reviews of research and grey literature and analysis of compensation system and health system datasets to identify projects under priority areas 1 and 2, and meetings of biomedical and clinical researchers to identify projects under priority area 3. The first meetings of the PAG will also occur in the first year, and these are likely to generate many ideas of research in the latter years of the strategy. While \$1 million has been set aside for expenditure during 2012/13 on currently unidentified projects, the intention is to achieve full allocation of the neurotrauma budget to 2015 by June 2013.

A joint initiative of

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