CONROD

Centre of National Research on Disability and Rehabilitation Medicine

Annual Report 2000

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Statement, Director of CONROD

The Centre of National Research on Disability and Rehabilitation Medicine (CONROD), has completed three full years of operation, since its inauguration in May 1997. Originating from a tripartite agreement from the Motor Accident Insurance Commission (MAIC), The University of Queensland (UQ) and the Queensland Institute of Medical Research (QIMR), CONROD has evolved into a thriving research organisation, at the centre of a large network of health research activities.

The formal realignment of the organisational structure of the "CONROD Wheel" which took place in late 1999, was consolidated in 2000. CONROD has now established formal relationships with the CONROD network, and has responsibilities to those individuals and entities, and to MAIC, with respect to the component Programmes, Projects, Fellowships and University Chairs. The network includes the Statewide Paediatric Rehabilitation Service, Acquired Brain Injury Outreach Service, Transitional Rehabilitation Programme, Spinal Outreach Team, Chair of Rehabilitation Medicine, co-funding of the Chair of Orthopaedic Surgery, Biomechanics Fellowship at QUT, School of Human Movement Studies Fellowship at UQ, Rehabilitation Counselling/Nursing/Psychology Research Fellowship at Griffith University, RACP Research Fellowship, RACS Trauma Fellowship, RACGP Fellowship and individual research projects located at the following Universities: The University of Queensland, Queensland University of Technology, Griffith University, University of Southern Queensland, Central Queensland University, James Cook University and University of Tasmania.

During 1999 and early 2000, a conceptual framework for the progression of CONROD was developed. CONROD was fortunate in receiving approval from the Queensland State Treasurer and MAIC for this initiative, and funding in the amount of $14 million over 5 years has been received to support 5 initiatives related to motor vehicle accident trauma. These programmes are: (1) Queensland Trauma Registry; (2) Health Outcomes Assessment; (3) Infomatics; (4) Health Economics and (5) Social Science.

The second major development was the success in the NH&MRC Injury Partnership Grants competition, in which CONROD staff and partners received one of two grants awarded. This initiative, which will be led by the Deputy Director of CONROD, Associate Professor Rod McClure, and which involves multiple stakeholders from the public and private sector, from government and universities, has the following aims and objectives: (1) to develop the evidence-base to inform community injury and prevention programmes; (2) to develop a set of linked injury databases; (3) to demonstrate the effectiveness of population-level intervention programmes in (a) childhood falls, poisonings, drownings; (b) young adults' risk-taking behaviour; (c) workplace injury; (d) falls in older persons; (e) injury in indigenous persons; and (f) to establish a mechanism for translating injury intervention research programmes into national public health practice. The total value of this grant, including in-kind support, is in the order of $15 million.

Finally, CONROD received an additional $1.25 million from The University of Queensland to match funds received from the Queensland State Government to develop the core intellectual capabilities of the Centre.

During 2000, CONROD supported a number of Congresses, including the Paralympic Scientific Congress in Sydney, and was involved in organising the Spinal Injury Research 2000 Symposium in Brisbane, and the Injury 2000 Conference in Canberra.

My first full year at CONROD provided an opportunity to continue an appointment to the Disability Council of Queensland, and to make presentations at the World Health Organisation in Geneva, Switzerland, and the National Institutes of Health, Bethesda, USA, as part of initiatives related to the inauguration of the Bone and Joint Decade. Associate Professor Rod McClure has continued as President of the Australian Injury Prevention Network. Rod has been a major contributor to the success of CONROD, both with respect to his stewardship of existing NH&MRC funded projects, and in assisting CONROD to secure additional funds vital to achieve its strategic goals. The support and guidance CONROD has received from past (Adjunct Professor Graham Hughes) and present (Ms Lesley Anderson) MAIC Insurance Commissioners, has been invaluable. It was a particular pleasure to attend the Queensland University of Technology awards ceremony, at which Graham Hughes received an Honorary Doctorate for his contribution in the area of Accident Research and Road Safety. In addition, we have been most appreciative of the enthusiastic support we received from Mr Mike Hancock, Principal Advisor Rehabilitation, MAIC, through 2000, prior to his taking up a new appointment in New South Wales. We are fortunate at CONROD to work alongside staff of the highest calibre, and I am particularly indebted to Ms Chesne McGrath for her contribution throughout 2000.

The year was one in which CONROD's goals, objectives, strategies and structure were closely scrutinized by Queensland Treasury, Queensland Health, NH&MRC and MAIC. I have been extremely impressed by the encouragement and level of interest shown by those agencies in the mission, objectives and activities of CONROD.

Through a combination of research and education, CONROD aspires to improve quality of care, quality of life and clinical, social and vocational outcomes. With the receipt of recent funds, CONROD can build a strong and substantial intellectual core, to complement its extensive network. Many within that network provide direct patient services, and have the closest contact with those we seek to serve. Our goal is to support health professionals in providing equitable, seamless, timely, evidence-based care to people with disabilities, with a particular emphasis on disabilities of traumatic origin, and a special interest in those resulting from road traffic accidents.

The last 12 months at CONROD have been challenging, progressive and rewarding. CONROD's funding base has expanded considerably and has moved CONROD into a phase of staff recruitment and increased accommodation needs. We look forward to further growth during 2001, to consolidating the gains of 2000 and to move forward with research and education programmes directed at improving the health, social and vocational outcomes of people with disabilities.

Professor Nicholas Bellamy
Director

Statement, Chair, CONROD Board of Management

The year to 31 December 2000, in retrospect, will be seen as one of the most important periods in the consolidation of the CONROD operation.

Firstly, the year saw the funding approval, by the Honourable David Hamill Treasurer of Queensland, for a major expansion of the CONROD operation in accordance with the submitted CONROD Development Plan.

The CONROD Development Plan submission arose out of the deliberations of the Strategic Development Committee on 8 July 1999 and, following support from the Motor Accident Insurance Commission, was formally approved by the Treasurer on 21 September 2000.

Secondly, in no less a major announcement than the funding approval, November 2000 saw a CONROD led partnership the recipient of a National Health and Medical Research Council Grant. The CONROD led research project was titled " Research – based Solution to the Public Health Problem of Injury". This project saw 36 research partners, including our "sister" research institute the Centre for Accident Research and Road Safety Queensland (CARRSQ) and the Commonwealth Government, joining with CONROD in providing a total in the order of $15 million to complete the research project over 5 years.

It is most gratifying indeed for CONROD to receive these votes of confidence from Government and from the NHMRC which is Australia's peak provider of public health advice and the nation's leading funder of medical research.

Consequently, the efforts of CONROD in the early months of 2001 will be directed heavily towards, accommodation and recruitment activities to make the approved expansion a reality, and activities associated with the commencement of the NHMRC Project.

A strategic commitment for CONROD is to raise interest and activity in rehabilitation and disability management research in our environment. Accordingly, in October, in accordance with this commitment, CONROD arranged and conducted a highly commended and well attended conference focused on Spinal Injury Research.

In September, as Chair of the CONROD Board of Management, I presented a paper at the Canadian National Symposium on Disability Management Strategies for the New Millennium and was a member of an international question and answer panel at the Symposium. Following the Symposium I attended a strategic planning meeting of the Canadian National Institute of Disability Management and Research as a member of its International Advisory Council.

During my time in Canada, the opportunity was taken to advance CONROD's international relationships with colleagues from Germany, Canada, Netherlands, Ireland and the United States. In particular, I was able to have discussions with Professor Lex Frieden a member of the CONROD International Advisory Committee on his proposed agenda following his appointment, for a 4 year term, as President of Rehabilitation International.

In reviewing the past year, it is most appropriate that I recognise the professionalism, dedication and teamwork of CONROD'S core unit of Professor Nicholas Bellamy, Associate

Professor Rod McClure and Ms Chesne McGrath. They were ably supported by staff employed on the Queensland Trauma Registry and Cochrane Study Projects.
As a particular acknowledgment of efforts above the call of duty, I personally thank Ms Chesne McGrath and Mr Sean Lybrand for their assistance in the preparation of my international presentations.

In organisations that are undergoing rapid expansion, as is CONROD, it is of major importance to ensure that the sense of belonging to the enterprise and its vision are not diminished. This is a challenge which I am sure will be in the forefront of our deliberations and actions.

The year 2001 will see CONROD further focusing on the development of relationships and partnerships in Australia beyond those currently in place. A particular emphasis will be on the strengthening of our existing relationship and collaboration with our sister research institute, located within the Queensland University of Technology, the Centre for Accident Research and Road Safety Queensland (CARRSQ).

At this point I mention with regret that during the year Mr Michael Hancock resigned from the Board of Management. Mike has been a significant figure in the development of CONROD from its conception and his input, energy and thoughts will be sorely missed.

Finally, I record my gratitude to all the members of the Board of Management for their support and contribution during the year. The importance and role of this distinguished group will grow exponentially over the ensuing years as CONROD continues to expand its horizons and influence.

I view the coming year with some excitement for the further strengthening of the CONROD operation.

Graham Hughes
Chairman, Board of Management

Mission

To achieve recognition at state, national and international levels as a leader in research and education on all aspects of the prevention, acute treatment, rehabilitation, social and vocational management of disabling conditions with special emphasis on those of traumatic origin.

Objectives

- To promote CONROD as a national Centre for basic and applied research into all aspects of the prevention, acute treatment, rehabilitation, social and vocational management of disabling conditions (with special emphasis on those of traumatic origin) and to act as the point of coordination and oversight of research supported through CONROD.

- To provide a source of education and information concerning prevention, acute treatment, rehabilitation, social and vocational management of disabling conditions for health care professionals (including those in training, and in rural and remote locations) and the community more generally.

- Through a combination of research and educational programmes to facilitate the delivery of seamless evidence-based health care.

Background

Motor Accident Insurance Commission

The Motor Accident Insurance Commission administers the Compulsory Third Party (CTP) motor vehicle insurance scheme in Queensland. Established under the Motor Accident Insurance Act 1994, the Commission is a statutory body reporting to the State Treasurer and led by the Commission's chief executive, the Insurance Commissioner.

Since 1936, Queensland has operated a common law "fault" based CTP motor vehicle insurance scheme. The scheme provides motor vehicle owners with a policy of insurance that covers (subject to the provisions of the Act) their unlimited liability for personal injury caused by, through or in connection with the insured motor vehicle anywhere in Australia. For those injured in motor vehicle accidents, the scheme provides access to common law without constraint where the injured party can establish negligence against an owner or driver.

The primary activities of the Commission cover:

- Licensing and supervising CTP motor vehicle insurers.
- Recommending premium rates and levies to government.
- Promoting research, education and provision of rehabilitation services.
- Developing and maintaining a claims register and statistical database to provide management information.
- Administering the Nominal Defendant Fund.

Since the commencement of the Motor Accident Insurance Act on 1 September 1994, the Commission has emphasised research initiatives in accident prevention, treatment and rehabilitation.

Queensland Institute of Medical Research

The Queensland Institute of Medical Research (QIMR) commenced operation in 1945. Today it is the largest medical research facility in Australia and is internationally renowned with 440 scientists and staff working in 30 laboratories for the prevention, treatment and diagnosis of more than 20 life-threatening diseases.

Research at QIMR comprises:

- Cancer research - studying the influence of genes on cancer and how cancers grow and spread so that the process can be halted. Cancers studied include prostate, skin, liver, bladder, colon, breast, ovarian, lymphoma and leukaemia.
- Liver diseases - studying liver cancer, cirrhosis, iron deficiency and iron absorption and haemochromatosis (an inherited iron-overload disease which affects one in 300 Australians).
- Malaria and mosquito-borne diseases unit - researching better methods of control and vaccine development against diseases such as malaria, dengue fever and Ross River fever.
- Rheumatic Fever. Research leading to a vaccine to prevent rheumatic heart disease – a major cause of morbidity amongst indigenous Australians.

- Glandular fever and chronic fatigue syndrome - researching the virus which causes glandular fever and is linked with some cancers and chronic fatigue syndrome.
- Epidemiology and population health - examining how diseases occur in populations and how to control and prevent diseases including skin cancer, arthritis, asthma, mental disorders including schizophrenia and post-natal depression. This research includes genetic and twin studies.
- Human organ transplants - conducting studies to determine how to reduce rejection of organ transplants and improve survival rates.
- Tropical diseases - researching diseases such as giardia (the world's most common worm infestation) and other parasitic conditions which cause ill health and death in many countries.

The University of Queensland

One of Australia's leading universities, the University of Queensland (UQ) is a large, comprehensive, research-intensive institution of international standard.

The Good Universities Guide named UQ as Australia's 1998 University of the Year. The award recognised the high proportion of UQ graduates who obtain full-time employment (topping Australia for three of the past four years) and their success in progressing to further studies (around 36%, compared with 25% nationally).

Since its foundation in 1910, more than 100 000 students have graduated from UQ. Graduates' achievements include winning a Nobel Prize, Rhodes Scholarships and offices as Governor-General, Governor, Premier and Chief Justices of Queensland and Australia.

UQ offers Queensland's most comprehensive range of high quality courses. With nearly 400 courses and 5500 subjects, UQ's 29 717 students have great flexibility in choosing a course of study to suit their chosen career paths.

The majority of Queensland's top school leavers, plus highly qualified students from interstate and overseas, enroll at UQ. With one in 13 students from overseas, drawn from more than 80 countries, UQ enjoys rich cultural diversity and offers all students an international dimension to their studies.

UQ is one of three Australian members of Universitas 21, a select global alliance limited to 20 universities using international benchmarking to monitor and enhance quality and performance.

World-class research is a defining characteristic of the University of Queensland, which, in 1999 attracted the highest level of industry support for research of any of Australia's universities and the Federal Government's second highest allocation of research funding.

Profile

The Centre of National Research on Disability and Rehabilitation Medicine (CONROD) was established in 1997, through a partnership of the Motor Accident Insurance Commission (MAIC), the University of Queensland (UQ) and the Queensland Institute of Medical Research (QIMR) with the support of the Queensland Government.

CONROD was established for the primary purpose of advancing research into the acute treatment and rehabilitation of people injured in motor vehicle accidents or through other analogous events. This focus links with research initiatives in injury prevention and provides a more comprehensive research focus on the entire spectrum of injury control for the purpose of reducing the incidence and impact of injury.

In particular, the Centre was designed to assist the MAIC to achieve its responsibilities in relation to the provision of rehabilitation to people surviving trauma and the promotion of research.

The establishment of CONROD addressed the substantial need recognised by the key stakeholders for a national Centre of Excellence to advance research relating to acute treatment and rehabilitation following injury, and to link research across the spectrum of injury control at local, national and international levels in order to significantly improve the health, social, economic and vocational outcomes for Australians.

Infrastructure

The core intellectual and strategic component of the Centre is a Professorial Unit within the Graduate School of Medicine at UQ. The Professor of Rehabilitation Medicine, appointed in 1999, is the Director of the Centre, who is supported by a Deputy Director appointed at the level of Associate Professor, and a secretary.

CONROD is currently funded with $12,385,000 over five years from MAIC. UQ and QIMR provide in-kind infrastructure support.

CONROD has a 19 member Board of Management representing MAIC, UQ, QIMR and prominent members of the community relevant to the Centre's core business and goals, with advice from an 11 member International Advisory Committee and a 27 member Research Advisory Committee. Additionally, there is a 9 member Research Evaluation Committee and a 6 member Strategic Development Committee.

Membership of the various committees includes local and world leaders in the fields of medicine, law, government and insurance and, as such, provides CONROD with strategic partnerships in all aspects of injury control that span national and global arenas.

Committee Membership

Board of Management

CONROD	***Adjunct Professor G Hughes*** *Chair*
Australian Society of Rehabilitation Counsellors	***Mr M Hancock*** *National President*
CONROD	***Professor N Bellamy*** *Director*
CONROD	***Associate Professor R McClure*** *Deputy Director*
Griffith University	***Professor G Kearney*** *Deputy Vice Chancellor*
Motor Accident Insurance Commission	***Ms L Anderson*** *Insurance Commissioner*
Princess Alexandra Hospital	***Dr P Hopkins*** *Director of Rehabilitation*
Queensland Health	***Professor B Campbell*** *Chief Health Officer*
Queensland Institute of Medical Research	***Professor A Green*** *Head,Epidemiology & Population Health Unit*
Queensland Institute of Medical Research	***Dr G Lawrence*** *Representative*
Queensland University of Technology	***Dr C Hirst*** *Chancellor*
Queensland University of Technology	***Professor M Sheehan*** *Director, CARRS-Q*
Royal Children's Hospital	***Dr Lynne McKinlay*** *Director, Statewide Paediatric Rehabilitation Service*
The University of Queensland	***Professor P Greenfield*** *Deputy Vice Chancellor (Research)*
The University of Queensland	***Professor P Brooks*** *Executive Dean, Faculty of Health Science*
The University of Queensland	***Professor M West*** *Head, Department of Medicine*
The University of Queensland	***Emeritus Professor M Eadie*** *Department of Medicine*
University of Southern Queensland	***Professor J Grant-Thomson*** *Head, Biomedical Engineering Unit*

International Advisory Committee

National Institute of Disability Management and Research, Port Alberni, ***CANADA***	***Mr W Zimmermann (Chair)*** *Executive Director*
Baylor College of Medicine, Houston, ***USA***	***Associate Professor Q Smith*** *Senior Research Associate, Independent Living Research Utilization Program*
Institute of Rehabilitation and Research, Texas Medical Centre, Houston, ***USA***	***Professor L Frieden*** *Senior Vice President*
Insurance Corporation of British Columbia, Vancouver, ***CANADA***	***Mr N Weatherston*** *Senior Vice President, Operations*
John Hopkins Medical School, Baltimore, ***USA***	***Professor E Mackenzie*** *Director, Centre for Injury Research & Policy*
Ludwig Boltzmann Institute of Restorative Neurology, Vienna, ***AUSTRIA***	***Professor M Dimitrijevic*** *Consultant Neurologist*
Ministry of Labour and Social Affairs, Berlin, ***GERMANY***	***Dr H Haines*** *Ministerial Director of Disability*
Ministry of Skills, Labour and Training, Vancouver, ***CANADA***	***Mr B Williams*** *Director, Compensation Advisory Services*
The University of Queensland, Department of Medicine, Brisbane, ***AUSTRALIA***	***Emeritus Professor M Eadie***
Tiefbau-Berufsgenossenschaft, Munich, ***GERMANY***	***Professor M Bandmann*** *Director-General*
UCLA, *Southern California Injury Prevention Research, Los Angeles,* ***USA***	***Professor J Kraus*** *Director*

Research Advisory Committee

CONROD	***Professor N Bellamy (Chair)*** *Director*
Australian Physiotherapy Association	***Mrs L Parker*** *Executive Director*
Bar Association of Queensland	***Mr J Griffin*** *Representative*

Central Queensland University	***Dr R Ho*** *Department of Psychology*
FAI General Insurance Co Ltd.	***Ms K Birch*** *Injury Management Manager, CTP Claims*
Griffith University	***Dr N Buys*** *Faculty of Health and Behavioural Sciences*
James Cook University	***Dr L Walker*** *Rehabilitation Engineer*
Medico-Legal Society of Queensland	***Dr S Thompson*** *President*
Motor Accident Insurance Commission	***Ms L Anderson*** *Insurance Commissioner*
Paraplegic & Quadriplegic Association of Qld	***Dr M Hauritz*** *Chief Executive Officer*
Princess Alexandra Hospital	***Dr P Hopkins*** *Director of Rehabilitation*
Princess Alexandra Hospital	***Mr Greg Ungerer*** *Manager, Transitional Rehabilitation Programme*
Princess Alexandra Hospital	***Dr V Hill*** *Director, Spinal Injuries Unit*
Queensland Health	***Ms P Bowman*** *Allied Health Advisor*
Queensland Law Society	***Mr P Guides*** *President*
Queensland Transport (Road User Behaviour)	***Mr M King*** *Manager*
Queensland University of Technology	***Professor T Parker*** *Head, Human Movement Studies*
Royal Australasian College of Physicians *Royal Australasian College of Surgeons*	***Dr C Davis*** ***Professor G Merry*** *Chair, Trauma Committee*
Royal Australian College of General Practitioners	***Dr B McGrath*** *Director, Research & Health Promotion Unit*
Royal Children's Hospital	***Dr Lynne McKinlay*** *Director, Statewide Paediatric Rehabilitation Service*
The University of Queensland	***Professor J Strong*** *Head, Department of Occupational Therapy*
The University of Queensland	***Dr L Laakso*** *Physiotherapy Department Representative*
The University of Queensland	***Professor M West*** *Head, Department of Medicine*
The University of Queensland	***Professor M Pender*** *Head of Medical Section, RBH*

University of Southern Queensland	***Professor J Grant-Thomson*** *Head, Biomedical Engineering Unit*
Work Directions Australia	***Ms K Murray*** *National Manager, Injury Management Division*

Research Evaluation Committee

Griffith University	***Professor G Kearney*** *Deputy Vice Chancellor (Chair)*
CONROD	***Professor N Bellamy*** *Director*
Griffith University	***Professor G Gass*** *Head, School of Exercise Science*
Queensland Institute of Medical Research	***Professor A Green*** *Head, Epidemiology & Population Heath Unit*
The University of Queensland	***Professor P Brooks*** *Executive Dean, Faculty of Health Science*
The University of Queensland	***Professor P Greenfield*** *Deputy Vice Chancellor (Research)*
The University of Queensland	***Professor G Seymour*** *Head, School of Dentistry*
The University of Queensland	***Professor M West*** *Head, Department of Medicine*

Strategic Development Committee

CONROD	***Professor N Bellamy (Chair)*** *Director*
CONROD	***Adjunct Professor G Hughes*** *Chair, Board of Management*
CONROD	***Associate Professor R McClure*** *Deputy Director*
Motor Accident Insurance Commission	***Ms L Anderson*** *Insurance Commissioner*
Motor Accident Insurance Commission	***Mr M Hancock*** *Principal Advisor Rehabilitation*
The University of Queensland	***Professor P Brooks*** *Executive Dean, Faculty of Health Science*

In Australia, injury remains the principal cause of death in people under 45 years of age and a leading cause of morbidity and permanent disability.

Transport-related accidents represent a significant proportion of the direct cost of injury.

The lifetime cost of injury to Australia is estimated to be $13,305 million annually with road injury estimated to have a lifetime cost of $2,236 million per year.

Road fatalities in Queensland for 1999 were 8.9 per 100,000 while hospitalisations in Queensland during this period were 60 per 100,000.

Strategic Development

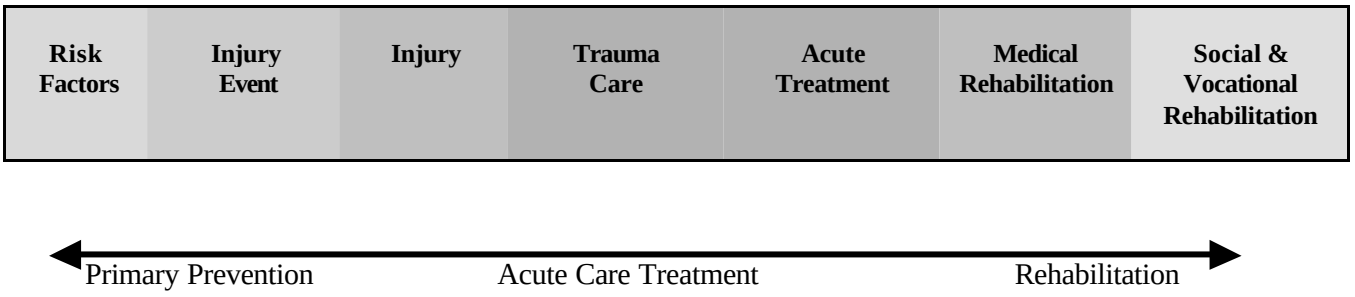
Injury remains a major public health problem, nationally and internationally.

While injury is one of five national health priority areas agreed on by Australian Health Ministers in 1996, injury research and strategies to address the issues remain poorly developed compared to other major epidemics. In Australia, contributing factors include the lack of a coordinated strategic plan and limited core competencies to progress strategies, the lack of a structure to link research, information, practice and policy development and the limited research focus on efficiency, effectiveness and relative cost-effectiveness of different interventions.

In Australia, much of the focus has been on the priority of injury treatment and rehabilitation, which are part of a continuum of research aimed at reducing the overall incidence and impact of injury.

CONROD is in a unique position to address this deficiency and facilitate research relationships across the continuum of injury control including prevention, acute treatment, rehabilitation and disability management aimed at reducing the social and economic costs associated with injury.

CONROD proposes using a model of injury control, which is a spectrum of interrelated research activity that includes prevention, acute treatment, rehabilitation and disability management aimed at reducing the overall incidence and burden of injury in society. By incorporating all aspects of injury control from prevention through treatment, rehabilitation and disability management, CONROD can make a more comprehensive contribution to service provision, public health, health economics and health policy in relation to injury and can facilitate research and data links across all aspects of injury control.



Injury Control
CONROD Research Continuum

Significant advancements in injury control are gained through epidemiological data. However, this needs to be combined with outcome research and research focused on the cost effectiveness and cost utility of therapeutic strategies and quantifying injury severity, health status and rehabilitation outcomes. To be the preferred research provider and a Centre of Excellence, CONROD must be able to respond to these current trends as they apply to key stakeholders.

A competitive research provider, however, must also contribute world class information in key research areas where acquisition of knowledge needs to be accelerated. In relation to injury control, this is required in the area of acute care and rehabilitation so that advancements and data linkages across all aspects of the injury continuum are strongly encouraged and well managed.

Enhancing the Centre's core capacity through this increased research expertise will encourage the development of strategic partnerships across public and private sectors and will enable the Centre to address critical issues for key stakeholders. Critical issues for stakeholders currently include the emphasis on priority-driven research, evidence-based practice and efficiency and effectiveness information in relation to interventions as well as intersectoral collaboration and industry partnerships.

Given its initial focus on achieving injury control relating to motor vehicle accidents, CONROD will apply the continuum of injury control, from primary prevention through acute care treatment to rehabilitation and disability management, across all social groups, from children to senior citizens, in all types of descriptive, predictive and evaluative research into motor vehicle-related injury.

Ultimately, this will position the Centre to participate prominently in research, strategic planning and policy making aimed at reducing the overall incidence and burden of injury in society arising from motor vehicle accidents.

However, the injury control model supports CONROD in investigating injury arising from causes other than motor vehicle accidents. CONROD aims to evolve into a Centre of Excellence to reduce the incidence and burden of injury occurring in the workplace, trauma which arises from causes other than workplace or motor vehicles, musculoskeletal disease of atraumatic origin, atraumatic disease of neurological origin and the opportunity for ingress into other high priority areas.

CONROD has enormous potential to enhance the well-being and health outcomes of Australians and the global population injured as a result of motor vehicle accidents and a range of other diverse aetiologies. By developing its core research expertise, CONROD can address critical issues for key stakeholders and attract strategic partnerships in controlling injury across the spectrum of its occurrence, treatment and recovery. This will reduce the social and economic cost of injury and reduce its burden on society.

CONROD – The Future Perspective

Three distinct but interrelated strategies will be pursued to reflect short, medium and long term goals and build on existing infrastructure and achievements to position CONROD for its evolution into a Centre of Excellence. The three strategies are:

- Phase 1: Develop five key research areas.
- Phase 2: Establish partnerships with relevant key stakeholders across the public and private sectors.
- Phase 3: Advance intellectual and entrepreneurial activities to consolidate the Centre as an ongoing viable investment opportunity.

Phase 1

The Centre's immediate goal is to extend its core business to respond to the need for:

- Priority driven research.
- Evidence based practice.
- Outcome measurement.
- Intervention effectiveness.
- Rehabilitation strategies that are cost effective and useful.
- Intersectoral research collaboration.
- Industry and research interaction.
- National and international partnerships in research and information exchange.

CONROD will support five key research programmes:

- Queensland Trauma Registry (with links into other databases).
- Health Outcomes Assessment.
- Informatics (the Cochrane Collaborative Projects which are evidence based medicine; REHADAT Australia, an information highway for disabled individuals, families and health care professionals; development of undergraduate and postgraduate educational programmes; teaching of critical appraisal skills to health professionals; and development of educational materials for the public domain).
- Health Economics.
- Social Science.

These programmes will facilitate the production of comprehensive information in effectiveness, cost management, best practice, benchmarking, national and international comparisons, policy development, social aspects of injury prevention, rehabilitation and long-term outcomes.

The development strengthens and widens the opportunities for cooperation between, and offers individual benefits to MAIC, QIMR and UQ as represented by CONROD. It also affords the opportunity to develop relationships outside the initial partnership.

Phase 2

This medium term goal involves applying the outcomes of enhanced research

expertise to cultivate key partnerships across private and public sectors. Potential partnerships provide the foundation for successful intersectoral links and collaboration at all levels of government, industry and relevant sectors of society around injury control.

CONROD is already working with State and Federal government departments, including the Departments of the Premier and Cabinet; Families, Youth and Community Care; Queensland Health; Employment, Training and Industrial Relations; Health and Aged Care and the Office of Disability.

CONROD is particularly seeking to further develop its relationship with a key public sector provider, Queensland Health. This is because Queensland Health is largely responsible for managing survivors of motor vehicle accidents; it confronts many of injury's direct and indirect costs; it is a key stakeholder in all aspects of injury control and it has a legitimate role in supporting research directed at improving health outcomes and reducing the burden of injury.

CONROD can partner with Queensland Health in providing:

- A coordinated, comprehensive research, education and training, information collation and analysis activity to facilitate improved decision making.
- A strategic research link between the health outcomes injury prevention and control initiatives and the statewide plan for rehabilitation services.
- A better understanding of economic costs and knowledge of effective interventions across the spectrum of injury control.
- A mechanism to stimulate a whole of Government approach to the burden of injury.
- An improved knowledge and expertise of health care providers.
- Further expertise in evidence-based practice and strategies in injury control.

CONROD's interest in pursuing an expanded relationship with Queensland Health also offers flow-on benefits for injury control across all levels of government. CONROD can be a mechanism to:

- Stimulate and manage fundamental, strategic and evaluative research and global collaboration in health research.
- Advance the intersectoral framework by assisting the health sector to facilitate the capacities and contributions of other related sectors.
- Link with national partnerships focused on injury control to strengthen the focus on treatment and rehabilitation in injury control.
- Raise the profile and influence of Australia in international forums on injury control.

CONROD also recognises that the full benefits of injury control to society are achieved through partnerships with the public and private sectors. By enhancing its research expertise, CONROD can provide high impact research on critical issues, and enhance workforce performance and infrastructure for public and private sector partners.

Phase 3

This long-term phase focuses on elevating the Centre's profile as a preferred research provider and as an ongoing viable investment opportunity across public and private sectors. This strategy represents the most significant challenge for the Centre in the current competitive environment, but CONROD is committed to proving itself as a preferred research provider and ongoing viable investment opportunity, ultimately being positioned as Australia's premier Centre of Excellence for injury control.

This will depend on a commitment of core funding to maintain key intellectual capacities and attract increased research expertise, to build extensive partnerships across public and private sectors, and to leverage diverse external funding sources. Diversity of funding sources will continually raise the profile of the Centre and reinforce its credibility as a viable investment, as well as optimising opportunities for major research innovations and the exchange of ideas, thus feeding investment in a stronger infrastructure to lever further funding across public and private sectors.

When fully evolved, CONROD will represent a national Centre of Excellence involved in priority driven research and strategic partnerships across private and public sectors aimed at reducing the social and economic costs associated with disability in Australia.

Achievements and Highlights of 2000

Since its inception the Centre has made substantial progress towards a number of its objectives and identified key areas for further development in order to achieve its overall mission and aim of enhancing knowledge of all aspects of injury control. Progress towards objectives has occurred across five main areas; awards, collaboration, research, stimulus of research and information exchange and teaching.

Awards

The first major achievement in 2000, was the announcement of an award by The Honourable David Hamill M.P., Treasurer of Queensland, of five years funding from MAIC to CONROD in the amount of $12,385,000.

The Hon D Hamill, MP; Dr G Hughes, Chairman, Board of Management,, CONROD, Prof N Bellamy, Director, CONROD Prof J Hay, Vice-Chancellor, UQ.

Professor John Hay, Professor Paul Greenfield and Professor Peter Brooks, collectively made a matching contribution of $1.25 million over five years. The second achievement was Associate Professor Rod McClure's success, together with his research associates in winning one of two NH&MRC Injury Partnership Awards following an extensive and intense national competition. The third significant event was the award of an Honorary Doctorate by Queensland University of Technology to Mr G Hughes.

Prof D Gibson, Vice-Chancellor QUT; Dr G Hughes, Chairman, Board of Management, CONROD; Prof C Hirst, Chancellor, QUT, Brisbane.

Collaboration

For the purpose of providing leadership in research and through association with the MAIC, CONROD has achieved formal relationships with:

- A collaboration of researchers and service providers (the Statewide Paediatric Service, Spinal Outreach Team, the Transitional Rehabilitation Program and the Acquired Brain Injury Project and multiple research projects) engaged in relevant research activities and funded by the MAIC under the auspices of CONROD.

- Relationships with two University Chairs and three Royal College Fellowships.

- Strong collaboration with the Centre for Accident Research and Road Safety – Queensland (CARRS-Q) within the Queensland University of Technology.

Core Research

There have been extensive achievements in relation to the Centre's research objectives including:

- Queensland Trauma Registry - established through the support of the MAIC and Queensland Health, the Registry was initially operationalised with the assistance of Liverpool Hospital Trauma Department, NSW as a Brisbane-based information system and is now being further developed to meet the demands for a Statewide system.

- Outcomes research – outcomes of road traffic injuries and a Functional Capacity Index (FCI) validity study being conducted in conjunction with John Hopkins University, Maryland, USA.

- Causes of injury – determinants of road traffic injuries, a study of the epidemiology of motorcycle injury in Queensland, indigenous injury study and community-owned injury control strategies in Woorabinda, Queensland.

- Childhood Injury Prevention Study (CHIPS) – established through the support of NH&MRC, this project examines the determinants of injury in childhood, with special reference to injury prevention.

- Biomechanics – Inshore Rescue Boat (IRB) study of injury prevention with Surf Life Saving Queensland.

Stimulus of Research and Information Exchange

CONROD sees the exchange of research information and dissemination of research ideas to the practising community to be an important part of its function.

This year dissemination activities revolved around sponsoring of two conferences and the involvement of researchers from the Centre in numerous other presentations and collaborative meetings.

In October CONROD held a one day conference on spinal injury (Spinal Injury Research – SIR 2000) in which we invited key speakers from Australia and overseas to present for the Queensland community the latest cutting edge developments and exciting areas of research activity which hold promise for improving the care and outcomes of injured persons in Queensland.

Key notes for this conference were presented by Dr Susan Harkema, Department of Neurology and Brain Research Institute, University of California, Los Angeles, USA, and Professor Norman Saunders, Anatomy and Physiology, University of Tasmania, Hobart, Australia.

Topics covered in SIR 2000 included:

- Sensory processing by the human lumbosacral spinal cord during locomotion: Implications for recovery of walking after neurologic injury. Professor Susan Harkema, University of California, USA.

- Prospects for spinal cord repair. Professor Norman Saunders, University of Tasmania, Hobart.

- Transplantation of nasal olfactory tissue promotes partial recovery in paraplegic adult rats. Dr Francois Feron, Griffith University, Brisbane.

- Tracking trauma outcomes – an application of the Queensland Trauma Registry. A/Professor R McClure, The University of Queensland, Brisbane.

- Spinal cord injury in Queensland – Epidemiology and overview of the Queensland Spinal Cord Injuries

Service (QSCIS). Dr T Geraghty, Princess Alexandra Hospital, Brisbane.

- Paediatric spinal cord injuries: Presentation, management and outcome issues. Dr L McKinlay, Royal Children's Hospital, Brisbane.

- Queensland Children's Gait Laboratory: Open for business. Dr R Grote, Royal Children's Hospital, Brisbane.

- The role of 3-D gait analysis in the management of children with spinal cord injury and disease. Ms M Kentish, Royal Children's Hospital, Brisbane.

- Readmission and ageing after spinal cord injury: Hospital readmission during the first two years after rehabilitation discharge. Ms R Cox. Princess Alexandra Hospital, Brisbane.

- Readmission and ageing after spinal cord injury: Long duration spinal cord injury – perceptions of functional changes over time. Ms Delena Amsters, Princess Alexandra Hospital, Brisbane.

- The transitional rehabilitation program for people with spinal injuries – a new model of service delivery. Mr G Ungerer, Princess Alexandra Hospital, Brisbane.

- Longitudinal tracking of anxiety for people with SCI who are approaching community re-entry. Ms M Kendall, Princess Alexandra Hospital, Brisbane.

- Pain and physical impairment in non-resolving whiplash. A/Professor G Jull, The University of Queensland, Brisbane.

CONROD was also involved with sponsoring the 4th National Conference on Injury Prevention and Control held in Canberra on 22-25 November, 2000. This conference brought together researchers involved in primary prevention, acute care and the rehabilitation of persons injured from a variety of causes, including motor vehicle crashes, and probably was the first time so many practitioners from both the primary prevention and acute care settings were joined together in one conference considering the spectrum of the problem with injury control.

Other CONROD presentations throughout the year included:

- At the 4th World Conference Measuring the Burden of Injury, CONROD presented a paper outlining our experiences with a functional capacity index.

- Nancye Peel presented a paper at the 4th National Conference on Injury Prevention and Control in Australia on Falls and the Elderly.

- Roderick McClure presented a paper at the same conference on the Burden of Minor Injury.

Teaching

In 2000 Rod McClure presented several guest lectures to students to increase their awareness and their roles in prevention and management of injury. In particular, to the medical students of University of Queensland a seminar was presented regarding the magnitude of the problem and the possibilities for minimising the problem of injury. Several of their formative and summative examinations held questions with respect to injury

control and through the learning objectives covering this topic, injury was established as a integral component of the medical students training.

Rod McClure also presented a lecture on Injury Control, specifically with respect to population health policy development, to the health promotion course at Human Movement Studies, University of Queensland.

Further lectures to students in the area of injury prevention were in the Post-graduate Master of Public Health course at University of Queensland specifically with respect to study design for injury control research, but also in the corporate MPH program where Rod McClure presented a component of the health policy course that related to health policy development in injury prevention.

Research Projects

CONROD International Studies

Bellamy N and Martin N. An international (Canada, Australia) study of the genetic contribution to the aetiopathogenesis of OA in twins based on the Australian Twin Registry. $36,000

Bellamy N. Development of an international (Canada, USA, France) standard of measurement of pain, stiffness, and physical disability in the osteoarthritic hand. $15,000

Bellamy N. International (Canada, Australia) comparative study of generic (SF-36, HUI, NHP, EuroQol) and disease specific (WOMAC VA3.0) instruments in OA knee assessment. $120,000

Bellamy N. Cochrane reviews of viscosupplementation and intra articular corticosteroid therapy in OA knee. $180,000

McKendry R, Bellamy N with collaborators. Canadian double-blind, placebo controlled trial of gold discontinuation in RA patients. $5,000

CONROD Research Programmes

?? Acquired Brain Injury Outreach Service

?? Statewide Paediatric Rehabilitation Service

?? Transitional Rehabilitation Program

?? Spinal Outreach Team

CONROD Research Grants

McClure R. The University of Queensland. Queensland Trauma Registry. $200,000

McClure R. The University of Queensland, Queensland University of Technology, Queensland Health, NSW Health, Motor Accident Insurance Commission. NHMRC Injury Research Partnership

McClure R. The University of Queensland Childhood Injury Prevention Study. $360,000

Bullock-Saxton JE, The University of Queensland. Changes in joint sensation and muscle function following knee joint injury or disease: Implications for rehabilitation. $10,000

Kenardy J and Spence S, The University of Queensland. Predictors of traumatic stress in children involved in motor vehicle accidents. $19,974

Shum D, Griffith University; Fleming J, Strong J, White J, The University of Queensland; Connell J, Princess Alexandra Hospital. Rehabilitation of prospective memory problems in individuals with traumatic brain injury. $19,707

Mackay-Sim A, Griffith University. Repairing human spinal cord and peripheral nerve: towards autografts of olfactory ensheathing cells. $14,714

Kendall E, Neal R, Buys N, Griffith University. Chronic pain, medical decision making and best practice: Development of a model. $10,000

Murdoch B and Theodoros D, The University of Queensland. Physiological analysis of vocal tract dysfunction in children with traumatic brain injury subsequent to motor vehicle accidents. $18,198

Kuipers P. Griffith University. Developing community based rehabilitation (CBR) through participatory rural appraisal (PRA): A rural research pilot. $37,000

Jull G. The University of Queensland. Measurement of physical impairment in the cervical spine of chronic whiplash subjects. $48,875

Bartold PM, Freer T, Walsh LJ, Stephens RR. The University of Queensland. Orofacial Trauma Research Unit. $250,000

Jasiewicz JM. Queensland University of Technology. Measuring dynamic balance stability during turning. $16,872

Ho R, Davidson G, van Dyke M and Wilson MA. Central Queensland University. Psychological well-being of at-fault driver injured family members. $300,000

Walker L and Ramsden J. James Cook University. Accessible multimedia in tertiary education (AMTE) project. $300,000

Ziviani J. The University of Queensland. School functional performance of children following traumatic brain injury. $7,354

Laakso L and Cabot P. The University of Queensland and Royal Brisbane Hospital. Investigating the role of Low Level Laser Therapy (LLLT) in an inflammatory model. $7,395

Theodoros DG and Murdoch BE. The University of Queensland. Articulatory dynamics in dysarthria following traumatic brain injury subsequent to motor vehicle accidents. $12,500

Tweedy S. The University of Queensland. Research Fellowship – Physical activity for people with disabilities. $250,000

Fleming J. The University of Queensland. An investigation of prospective memory function in adults with traumatic brain injury. $10,000

Vicenzino B, Jull G and Dall'Alba P. The University of Queensland. An investigation of the effect of a novel therapeutic taping technique on mechanical hyperalgesia in patients with whiplash associated disorders. $7,354

Grant-Thomson J. University of Southern Queensland. Mobile Intensive-care Rescue Facility (MIRF) Pilot Project. $237,000.

Monsour F, Batstone M, Peek G, Lynham A, Pattel P. Oral and Maxillofacial Surgical Unit, Royal Brisbane Hospital. Road Trauma related 'Head and Neck' injuries and outcomes. $60,418

Strong J and Fleming J. The University of Queensland. Adjustment and self-awareness in adults with traumatic brain injury and spinal cord injury: the transition from hospital to community. $8,000

Buys N and Kendall E. Griffith University. Understanding barriers to return to work faced by people injured in motor vehicle accidents. $17,000.

Billingsley J, Aigner P, Durack M. University of Southern Queensland. Mechatronic aids for the disabled. $300,000.

CONROD Research Projects Completed

Pope J, Bellamy N with collaborators. An international (Canada, USA) double-blind placebo controlled trial of methotrexate in scleroderma. $80,000

Fleming J, Shum D, Strong J, Connell J. The University of Queensland. An investigation of prospective memory function in adults with traumatic brain injury. $10,000

Murdoch B. School of Health and Rehabilitation Sciences, The University of Queensland. A biofeedback approach to the treatment of articulatory disorder in patients with traumatic brain injury subsequent to motor vehicle accidents. $19,000

Murdoch B. School of Health and Rehabilitation Sciences, The University of Queensland. Physiological features of dysarthria in children with traumatic brain injury subsequent to motor vehicle accidents. $12,500

Murdoch B. School of Health and Rehabilitation Sciences, The University of Queensland. Clinical and radiological investigation of acquired dysphagia in children following traumatic brain injury. $16,000

Radcliffe D. The University of Queensland. Virtual Rehabilitation Teams project, undertaken at the Statewide Paediatric Rehabilitation Service (SPRS). $40,000

Craig A. University of Technology, Sydney. Enhancing the Independence of the severely disabled. $10,000

Murphy GC and Young A. La Trobe University. Disability following traumatic injury in rural Australia: Are country residents achieving inferior rehabilitation outcomes? $41,000

Rodger S, de Jonge D, Fitzgibbon H. The University of Queensland. Identifying factors for successful return to work through technology in the workplace. $17,000

Saunders N and Fry E. University of Tasmania. Central nervous system regeneration: mission impossible? $87,994

Ho R, van Dyke M, Lawrence G, Wood G, Agar-Wilson. Central Queensland University. Psychological well-being of at fault driver injured family members. $300,000

Kendall E and Kendall M. Griffith University. Social support needs and the perceived controllability of stressful life events for people with traumatic brain injury. $11.000

Bullock-Saxton J. Department of Physiotherapy, The University of Queensland. Changes in joint sensation and muscle function following knee joint disease: implications for rehabilitation. $10,000

Valerie P, McClure R, Green A. Rural/urban differences in exposure to transport related injury. $10,000.

Buys N and Kendall E. Centre for Human Services, Griffith University, Brisbane. Understanding barriers to return to work faced by people injured in motor vehicle accidents. $17,000.

CONROD Research Fellowships

Royal Australasian College of Physicians: Dr Allison Malcolm.

Physiology and pharmacology of colorectal dysfunction in spinal cord injury.

Royal Australasian College of Surgeons: Dr Michael Muller.

Hypertonic saline resuscitation of burn shock and tissue oxygenation.

Royal Australian College of General Practitioners:
(Not awarded for 2000).

Queensland University of Technology Research Fellow in Clinical Biomechanics: Dr Jan Jasiewicz.

A turning protocol for the assessment of dynamic balance.

The University of Queensland Research Fellowship in Human Movements: Mr Sean Tweedy.

Establishment of a mobile physical testing and programming laboratory; and research into physical activity and acquired brain injury.

University of Southern Queensland Fellowship in Mechatronics and Biomedical Engineering: Dr Peter Aigner.

Mechatronic aids for people with disabilities.

CONROD University Chairs

The University of Queensland Chair Of Rehabilitation Medicine

The University of Queensland Chair Of Orthopaedic Surgery

Network Reports

Queensland Trauma Registry

Associate Professor Rod McClure, The University of Queensland

Project funding:

Queensland Health, Queensland Motor Accident Insurance Commission, CONROD

Project aims:

1. To establish the Queensland Trauma Registry for the purpose of
   a) evaluating the quality of care of trauma patients in Brisbane in terms of
      - adherence or otherwise to best practice management and
      - level of health outcomes achieved
   b) documenting the distribution and determinants of serious injury in Brisbane
   c) documenting the distribution and determinants of the outcomes of serious injury
2. To extend the Brisbane Trauma Registry to cover the State of Queensland.
3. To develop, in conjunction with trauma registries from other States in Australia, a National Data Bank to enable comparison of outcomes.

Background

Trauma registries are recognised internationally as essential tools for conducting epidemiological studies, planning and evaluating prevention programmes and measuring the quality of trauma care. A trauma registry is an essential element of the improvement in the routine acute care of severely injured patients. Trauma Registry data are system focussed rather than hospital focussed and are generally used in two ways. The first is to monitor the tripping of 'audit filters' or 'quality indicators' which are built into the routine collection system, which identify cases worthy of detailed case record review by peers. The second is to use the aggregate figures from the database for the retrospective quantitative outcome assessments on which to judge the efficacy of the trauma care within the system. Also important to service providers is the need to describe the nature and extent of the burden of injury in Queensland so as to provide the context in which their services will be operating. This includes describing the frequency and distribution of serious injury and the frequency and distribution of the outcomes of these injuries.

Methods and Progress

The Queensland Trauma Registry was established in the Royal Brisbane and Princess Alexandra Hospitals at the beginning of 1998. Through out 1999 and 2000 injuries with a severity score >15 were included from both these hospitals for review. In May 2000, the Registry was extended to include Mater Children's Hospital and the Royal Children's Hospital. Funding was also received from CONROD to continue with the establishment of a Statewide registry. Initial steps have been undertaken to include all level 4, 5 6 hospitals through out Queensland by the middle of 2001.

Implications/Health benefits:

There is a clear need for an information system to accurately document the injury

continuum, from injury event through acute care phase, to rehabilitation course and the final outcome. The Queensland Trauma Registry has the capacity to achieve this goal and, in doing so, will make a major contribution to the improvement of the health of the people in this State.

NHMRC Injury Research Partnership

Associate Professor Rod McClure, The University of Queensland, Chief Investigator.
Queensland University of Technology
Queensland Health
NSW Health
Motor Accident Insurance Commission.

Project funding:

NHMRC

Project aims:

?? To develop, through systematic reviews and basic research activity, the evidence-base to inform community injury intervention programmes.

?? To develop a set of linked injury databases to enable monitoring of prevention programmes and adequate evaluation in terms of population health outcomes.

?? To demonstrate the effectiveness (in terms of minimising the burden-of-injury) of population-level intervention programmes in the five priority injury areas: I) childhood falls, poisonings drownings; II) young adults' risk-taking behaviour; III) workplace injury; IV) falls in older persons; and V) injury in indigenous persons.

?? To establish a mechanism for translating injury intervention research programmes into national public health practice.

Background

While injury is now recognised as a public health problem of major importance and is widely acknowledged as being preventable, less recognition is given to the need to understand the mechanisms for implementing large-scale programmes aimed at national indicators. The contemporary best-practice approach to injury prevention stresses the importance of systems approaches, social and population health perspectives and a consolidation rather than fragmentation of effort across different disciplines, different sectors and the primary, secondary and tertiary components of the spectrum of injury prevention and control.

Methods and progress

In November 2000 the Australian Federal Minister for Health announced the contribution of $1,335,418 from the Commonwealth to support a Health Research Partnership in Injury. These grants were established

> "as a dynamic support mechanism for funding research, harnessing both Federal Government and private sector resources and facilitating the examination of complex health problems using multidisciplinary research partnerships" *(Press release from the Minister of DHAC).*

The injury research partnership is currently in the process of establishing its structure and function.

Implications/Health benefits:

The importance of this research proposal for Australia is that it provides the means for moving the public health approach to injury control past the rhetoric and on to a blueprint for action. The proposal provides, for the first time in Australia, a plan for orchestrating a national response to the problem of injury based on a coordination of effort and an enhanced research capacity. This plan is for a research-based activity that focuses on the conversion of new knowledge into measurable improvements in the injury-related health of the nation.

Childhood Injury Prevention Study

Associate Professor Rod McClure, The University of Queensland, Chief Investigator.

Project funding:

NHMRC

Project aims:

To develop a practical model of the pathway through which low social economic status (SES) acts to cause injuries in children.

To identify particular factors as points for intervention to redress social inequalities in injury-related health.

Background

Injury is the major cause of death amongst Australian children aged 5 to 14 years. With a mortality rate of 7.2 per 100 000 in 1996, injury accounts for nearly half of all deaths in this age group. The annual cumulative incidence of injury requiring medical attention was 11% at ages 6 and 7, 19% at ages 10 and 11 and 25% in 14 and 15 year olds. These estimates, together with a probably sizable number of children's injuries which are treated by parents and are not presented for medical attention, establish injury prevention as the most important public health condition facing children in Australia today.

Methods and Progress

A prospective cohort study of 2500 children is being conducted over three years. Extensive community consultation and logistic planning, together with the appointment of a multi-disciplined team has resulted in a sophisticated capacity for managing the process. Data collection has commenced and will continue over the next two years. A substantial quantity of baseline data and early follow information has been accrued to date.

Implications/Health benefits:

While changing individual or group SES is at best a long term and challenging social objective, proximal risk factors for injury can be more readily modified. Once the proximal risk factor differential across SES groups has been adequately delineated, then the possibility arises for targeted public health intervention to redress the SES differential in the incidence of injury. The sophistication of the proposed modelling will result in a good assessment of the best points to target.

Acquired Brain Injury Outreach Service

Dr Pim Kuipers, Chief Investigator, Queensland Health
Mr Ray Quinn, Manager, Queensland Health

ABIOS is a service delivery and research project providing assistance to people with Acquired Brain Injury (ABI) living in the community. While the primary emphasis of ABIOS is the provision of services to people with ABI post-discharge, the service seeks to have an impact on broader service delivery issues through service development, specific research projects and research collaborations.

Individualised Service Delivery

Service delivery comprises a range of services and supports to assist people to establish themselves back in their own communities after an ABI. The primary mechanism used for enhancing community integration is individualised case management and fostering of service and support networks.

Service Development

ABIOS actively promoted the development of new services to people with ABI. ABIOS attracted one-off funding from Disability Service Queensland for two new 12 month projects:

- A statewide behaviour management consultancy
- A remote areas staff and worker training programme.

These projects will be conducted and evaluated in 2001.

Core Research

ABIOS Research projects currently underway include:

- An investigation and analysis of goal setting in tertiary ABI rehabilitation. *(Collaboration with staff of the Department of Occupational Therapy and the Department of Social Work, University of Queensland – PAH Research & Development Foundation funded)*

- A randomised controlled investigation of psycho-social interventions for people with stroke post-discharge. *(Collaboration with the Centre for Human Services, Griffith University, Department of Social and Preventive Medicine, University of Queensland, and Brisbane Southside Central Division of General Practice – Australian Research Council funded).*

- An investigation of the properties of the Sydney Psychosocial Reintegration Scale (SPRS) and comparison with the Community Integration Questionnaire (CIQ) in an ABI population.

- An evaluation of outcomes for clients of the Acquired Brain Injury Outreach Service.

Other Research

Other projects in which ABIOS is collaborating include:

- Developing Community Based Rehabilitation (CBR) through Participatory Rural Appraisal (PRA): A rural research pilot. *(Collaboration with the Centre for Human Services, Griffith University - CONROD funded).*

- An evaluation of the efficacy of a community based physical activity programme to improve the health of people with ABI. *(Collaboration with the School of Human Movement Studies - PAH Research & Development Foundation funded)*

- An investigation of long duration physical and psychosocial outcomes in people with Spinal Cord Injury (SCI). *(Collaboration with the Spinal*

Outreach Team - PAH Research & Development Foundation funded)

Statewide Paediatric Rehabilitation Service

Dr Lynne McKinlay, Clinical Coordinator
Dr Jim Nixon, Research Coordinator

The Statewide Paediatric Rehabilitation Service (SPRS), has developed a comprehensive, integrated, multi-disciplinary service delivering paediatric rehabilitation services across the state. In addition to the delivery of direct services to children and their families the service has developed an outreach program to provide clinics in rural services in conjunction with an education program and support services to local service providers when required. The service also supports a vigorous research program within the service and in partnership with research institutions.

A closer association with the Rehabilitation of Brain Injury and Neuromuscular Conditions Team (ROBIN Team) at the Mater Children's Hospital has developed with the joint appointment of Dr Lynne McKinlay as clinical coordinator of the service in 2000.

The measurement of outcomes for children in rehabilitation programmes has been actively researched and promoted in the SPRS. The SPRS is routinely using the weeFIM to measure functional outcomes and change in children, as well as the Canadian Outcome Performance Measure (COPM) to judge the achievement of predetermined performance goals by patients. Data from the weeFIM is contributed to an international database from which norms for the progress of paediatric patients will be developed.

Analysis of available data from the weeFIM testing on SPRS patients indicates that children who had a closed head injury, and have undergone a Comprehensive Rehabilitation Program or a Transitional Rehabilitation Program showed significant improvement between admission and discharge.

The establishment of the SPRS has changed the way children's rehabilitation and associated problems (eg schooling) have been managed both in hospital and in the community. In addition to the findings from the weeFIM, the COPM indicated significant improvements in satisfaction with progress as well as performance at discharge.

Other indicators of the level of performance of the unit include:

?? 15% reduction in length of stay in hospital for children with acquired brain injury
?? unexpected readmission rate of 4%
?? 90% of children returned to home after initial hospitalisation
?? 94% of children return to their same school or regular classes with or without special education support
?? Outreach clinics have been held in Queensland centres, seeing more than 120 children
?? Outreach clinics have been shown to be almost 5 times less expensive than transporting children to Brisbane

Consultation with key stakeholders was undertaken in the first year of establishment of the SPRS with a similar consultation being undertaken in November 2000. A traditional Delphi investigation method was used on both occasions. These studies showed that stakeholders in the provision of rehabilitation services supported in particular, the development of specialised teams and of the outreach service. The surveys also showed some change over time suggesting that the service has been

successful in marketing services and in integrating new services and approaches into the healthcare system in Queensland.

Research

The research program has developed strong links with research partners in universities. Five postgraduate students are currently working on projects in SPRS while another has completed data collection and is currently writing her work. A further member of SPRS staff completed a research Masters degree undertaking research within the SPRS.

The program is now developing projects which will focus on measuring outcomes of rehabilitation and service delivery models as well as undertaking trials on treatments which are at the cutting edge of rehabilitation treatment and research.

Output from the research program

The research program has contributed to the development of rehabilitation services for children through contributions to peer reviewed literature, through presentations of findings at local, national and international conferences. The publication and presentation output is listed in the relevant section of this Annual Report.

Transitional Rehabilitation Programme for people with spinal cord injuries

Mr Greg Ungerer, Manager, Princess Alexandra Hospital and District Health Service
Ms Melissa Kendall, Research Assistant, Princess Alexandra Hospital and District Health Service

The Transitional Rehabilitation Program has continued to implement and evaluate an alternative model of rehabilitation for people with spinal cord injuries undergoing primary rehabilitation at the Princess Alexandra Hospital's Spinal Injuries Unit. During 2000, TRP provided programmes for 61 people, assisting those individuals in the transition from hospital to home. TRP has continued to build upon service infrastructure links, provide educational services to community based service providers, and pursue research activities in areas relevant to people with spinal cord injuries.

Client activity increased by 35% in 2000, compared to the same period in 1999. TRP provided accommodation for 24 clients, while the remaining 37 clients completed programmes in their own homes. TRP provided paid personal care for 22 of these clients, utilising the services of existing community based providers, with care packages coordinated by the Paraplegic and Quadriplegic Association of Queensland. On average, 6.3 clients participated in TRP each week, with an average length of stay in TRP being 33.3 days. TRP clients were referred to a total of 100 community or hospital based services in order to meet ongoing personal care, rehabilitation, vocational and other needs. Clients and service providers continue to express extremely high levels of satisfaction with the services and outcomes provided by TRP.

The research agenda of the Transitional Rehabilitation Program has progressed well during 2000. There are several projects related to the rehabilitation of people with spinal cord injury that are currently underway, and this extensive research agenda will allow TRP to continue to actively contribute to the scientific knowledge base in spinal cord injury rehabilitation over the coming years. Some of the research developments and highlights for the year include:

? ? ***Evaluation of the Transitional Rehabilitation Program.*** Data

collection related to the evaluation of TRP is fully implemented and ongoing. Current pre-post data analyses indicate improvements in the functional and psychosocial outcomes of clients throughout their program. Data collection is now sufficient to allow the development of several papers for publication over the coming year

? ? ***Longitudinal tracking of anxiety for people with SCI who are approaching community re-entry.*** A longitudinal pilot study was conducted to inform the development of a larger collaborative study with the Spinal Injuries Unit at the Princess Alexandra Hospital and the Victorian Spinal Cord Injury Service. A joint funding submission was developed for the project and is currently under review.

Other studies in progress include:

? ? A comparison of bladder infection rates in the hospital and the community among people with SCI

? ? Readmissions to hospital among people with SCI prior to and following the introduction of the Transitional Rehabilitation Program

? ? The use of multidisciplinary goal attainment scaling in community-based rehabilitation services for people with SCI

? ? The Clinical Outcomes Variables Scale (COVS)- Improvement of inter-rater reliability and clinical utility across SCI services in the continuum of care

? ? Staff knowledge and attitudes towards sexuality within a SCI rehabilitation service- An intervention.

Spinal Outreach Team

Ms Ruth Cox, Princess Alexandra Hospital and District Health Service

The Spinal Outreach Team (SPOT) supports people with spinal cord injury (SCI), their families and service providers through-out Queensland through consultancy and early intervention. The team consists of physiotherapists, occupational therapists, social workers and a clinical nurse. SPOT aims to enhance access to specialist SCI services for people living outside Brisbane and to assist in preventing human and financial costs of complications. The team achieves these aims through service provision, education and training, and evaluation and research.

Service provision

?? 412 referrals were received. Road traffic accidents were the most common cause of injury (32% of referrals). Approximately 50% of referrals were for people injured 10 or more years ago.

?? Home visiting and telephone consultancy continued to be the main modes of service delivery.

?? State-wide outreach included 10 regional visits to areas such as Bundaberg, Cairns, Roma and Townsville.

Education and training

?? Individualised information was provided to service providers either during joint client interventions, telephone consultations or education sessions.

?? Approximately 851 participants attended SPOT education sessions.

These included 32 in-services and workshops, 3 university lectures and 17 video conferences.

Evaluation and research

?? SPOT evaluated efficiency and effectiveness through client and service provider satisfaction, evaluation of education sessions, performance against

key indicators and the following research activities:

- Goal Attainment Scaling (GAS) - a measure of client outcomes
- Hospital re-admissions following implementation of the Transitional Rehabilitation Program and Spinal Outreach Team (hospital readmission during the first two years after rehabilitation discharge)
- Validation of the SPOT Risk Screening Tool
- Evidence based practice in reducing urinary tract infections related to intermittent clean self cathetherisation
- A review of SPOT interventions with high cost users
- A pressure area study: modelling costs for management in the community against the cost of hospital care
- Evaluation of the effectiveness of SPOT follow-up on the prevention of rehospitalisation for pressure areas
- Examining the problems faced by the friends and family of people with SCI
- Physical and psychosocial changes in people with long term SCI

?? $29,000 in grants were won from the Princess Alexandra Hospital Research and Development Foundation to implement the latter three projects.

?? Two papers were published in refereed journals and a third was accepted for publication. Two articles were published in non-refereed periodicals.

?? Five conference papers, two posters and a workshop were presented.

Measurement of physical impairment in the cervical spine of chronic whiplash subjects

Professor Gwen Jull, Department of Physiotherapy, The University of Queensland

Whiplash associated disorders (WAD) continue to challenge those involved in rehabilitation. In Queensland, 52% of all compulsory third party insurance (CTP) claims involve whiplash, with whiplash being the major injury in 42% of all claims. Insurance payouts indicate that the cost of these injuries is between $70-$90million per annum in this State alone. Two key issues which must be addressed to progress rehabilitation in WAD are the inability to identify or quantify physical impairment in WAD, and the lack of integrated, evidence-based treatment approaches to the rehabilitation of WAD. The project *Measurement of physical impairment in the cervical spine in chronic whiplash subjects* aims to address these issues.

As a direct result of the CONROD Project Grant, the Whiplash Research Unit has been established within the Department of Physiotherapy at The University of Queensland. Processes within the unit were structured to meet the joint demands as a research unit and a self-funding clinical service. The project has met targets to assess 250 individuals with persistent whiplash associated disorders.

Comparison of results of physical measures with those obtained from the previous MAIC funded project *(Establishing a normative database for measures of physical impairment in the cervical spine)* has allowed assessment of the relevance and discriminatory capabilities of these measures to be commenced. Analysis of the data has

revealed that statistically significant differences exist between asymptomatic and whiplash subjects on a range of the newly developed measures of physical impairment. These findings have so far resulted in the submission of five manuscripts for publication. Two of these articles have been published, one is in press and two are under review, with additional articles in preparation.

Refinement of the tests of physical impairment and development of new tests has also been made possible by analysis of results and has been enhanced by completion in July 1999 of a collaborative project with an international researcher. Further development of the diagnostic potential of the measures of physical impairment will continue.

Promotion of best practice management for individuals with whiplash associated disorders continues to be a priority for the research team. Practitioners referring clients to the Whiplash Physical Diagnostic Clinic receive detailed information about appropriate treatments for the individual as well as more general information, which is applicable to a variety of clients with whiplash associated disorders. Presentation of research findings and clinical information obtained during this project has also been undertaken through a range of activities at international, national and local conferences and meetings. The chief investigator represented the MAIC on the Motor Accident Authority of NSW, Whiplash Clinical Practice Guidelines Working Party.

This project has therefore provided the platform for the successful development of a three-pronged approach to addressing WAD in Queensland:

1) A dedicated research unit
2) A self-funding clinical service
3) A self-funding education program for physiotherapists and other health care professionals.

The research unit, which forms the central core of the project, has already attracted two PhD candidates and a Masters student. The clinical service has provided a clinical consultation and rehabilitation plan for 250 persistent WAD clients from as far afield as Townsville. The education program developed by the research team has reached over 200 physiotherapists and medical practitioners.

Orofacial Trauma Research Unit

Professor P M Bartold, Director, The University of Queensland
Professor T Freer, The University of Queensland
A/Prof LJ Walsh, The University of Queensland
Emeritus Professor RR Stephens, The University of Queensland

The major research focus of the Orofacial Trauma Research Unit has been divided into the following areas:

Dental Trauma survey.
Biology of wound healing.

Effect of trauma on dental pulps.
Development of aids for quadriplegics.

Dental trauma survey

Recruitment of patients to the large-scale trauma study has ended. Data from questionnaires have been collated, computer entered, and are now in the process of being statistically analysed.

Biology of wound healing

One project investigating the biocompatibility

of dental materials for management of resorptive defects in teeth associated with dental trauma has been completed and published:

Two projects are currently under way. In one study the role of the plasminogen system in wound repair is being investigated for its potential to be used in regenerative therapies following trauma to the periodontium. In another study, the effect of low level laser therapy on the healing of orofacial wounds is being investigated.

Effect of trauma on dental pulp

This project is now completed and a full report of the findings of this study was presented in our previous report dated December 1998.

Aids for quadriplegics

Development work has continued on the various patterns of mouthsticks previously described with consequent modifications to their technical drawings.

Simultaneously, it continued in the field of the search for a practical self-feeder.

The development work on the electrically powered self-feeders has not been wasted since only level C4 quadriplegics have sufficient lateral head movements for chin-operated rotation of a spoon-ended mouthstick. Higher level C2 and C3 quadriplegics, it seems, could only feed themselves by more complex devices.

Understanding barriers to return to work faced by people injured in motor vehicle accidents

Dr Nicholas Buys, Centre for Human Services, Griffith University

This project concerns the barriers that are faced by people who have been injured in a motor vehicle accident when they are returning to work. In examining these barriers, the study focused on the perspectives of all key stakeholders, injured parties, solicitors, insurers, rehabilitation providers and employers.

The project has been completed and two monographs are currently being prepared. The findings have been presented at an international conference, where several Swedish researchers indicated a desire to conduct further collaborative research. Planning for this project is now underway.

The project delivered some interesting findings about the barriers as they appeared to different parties. Discrepancies were highlighted and recommendations have been made. The final report will take some time to collate given its complexity and sensitivity.

An investigation of prospective memory function in adults with traumatic brain injury

Dr Jennifer Fleming, Department of Occupational Therapy, The University of Queensland

The frequency of prospective memory failure in individuals with severe traumatic brain injury (TBI) was investigated by comparison with a non-brain-injured control group. Prospective memory is the ability to remember to perform intended actions in the future. Self-awareness of prospective memory function was also assessed by comparing self-ratings with ratings by significant others. Study participants included 33 individuals with severe traumatic brain injury and 29 non-brain-injured persons. Each participant nominated a close friend or relative who completed the informant's version of the

questionnaire. Participants and their significant others both rated the participants' frequency of prospective memory lapses using the Comprehensive Assessment of Prospective Memory (CAPM). The CAPM is comprised of two reliable components: a basic activities of daily living (ADL) component and an instrumental ADL component. An independent groups design was adopted to compare the TBI and control groups. No significant difference was found between the TBI and control participants' self-ratings of frequency of prospective memory failure on the basic ADL component, $t(60)= -0.096$, $p>0.05$, or the instrumental ADL component, $t(60)= -0.167$, $p>0.05$. However, ratings by significant others were significantly different, in the direction of the TBI group showing more frequent prospective memory failure on both the basic ADL component, $t(60)= 1.974$, $p<0.05$, and the instrumental ADL component, $t(60)= 2.331$, $p<0.05$. Both groups reported more frequent prospective memory failure for instrumental activities of daily living than for basic activities of daily living. The TBI group demonstrated less self-awareness (i.e. underestimated the frequency of prospective of prospective memory failure compared to significant others) compared to controls for both the basic ADL component, $t(60)= 2.563$, $p<0.01$, and the instrumental ADL component, $t(60)= 1.985$, $p<0.05$. We concluded that although people without brain injury have lapses in prospective memory from time to time, they seem to be aware of the presence of these lapses in their everyday lives. Although individuals with traumatic brain injury reported a normal rate of prospective memory lapses, they lacked self-awareness of changes to prospective memory function since injury. It is therefore important for rehabilitation professionals to recognise the potential for patients with brain injury to demonstrate impaired self-awareness of prospective memory dysfunction.

Psychological well-being of at-fault driver injured family members

Associate Professor Robert Ho, School of Psychology & Sociology, Central Queensland University
Professor Graham Davidson, School of Psychology and Sociology, Central Queensland University
Ms Marilyn Van Dyke, Division of Counselling, Careers and Health, Central Queensland University
Ms Mary Agar Wilson, Division of Counselling, Careers and Health, Central Queensland University

The original memorandum of agreement confirming the grant-in-loan of $300,000 from the Motor Accident Insurance Commission was signed on 18 November, 1996. Subsequently, Professor Geoff Lawrence and Professor Graham Wood, the original team leaders, left the project. Dr Robert Dawson left the management team. Associate Professor Robert Ho was on study leave from July – December 1997. Professor Graham Davidson joined the research team in June 1997. This submission constitutes a final report on the original project.

The commencement of the project was delayed for the second six months of 1997 while the research team awaited a decision from the Insurance Commissioner on whether access to the MAIC could be granted for the purpose of surveying at-fault drivers and passengers. Subsequent advice from the Commissioner indicated that such access to the database might constitute an infringement of privacy legislation. Therefore, alternative arrangements were made to obtain a survey sample by advertising for research participants in regional and metropolitan newspapers. The research then proceeded satisfactorily, and has substantially achieved its original aims.

Research Summary

The research has been conducted in two broad phases. The first phase set out to assess the relative psychosocial adjustment and psychological well-being of at-fault and not-at-fault drivers, as well as relative, similar adjustment and well-being in passengers who were related to at-fault drivers and those who were not related. Three hundred and twenty one motor accident victims were surveyed. The proportion of survey respondents falling into each driver and passenger category resulted in the reclassification of drivers into those who accepted responsibility for their motor accident and those who did not accept such responsibility, and of passengers into those who were related to the driver of the vehicle in which they were travelling at the time of the accident and those who were not related.

Contrary to initial impressions, but in keeping with other research into the attributions of victims of trauma, drivers overall reported significant decreases in psychological well-being following their accident, but the decrease was greater for drivers that did not accept responsibility for their accident than for drivers who accepted such responsibility. While motor accidents had a significant negative impact on passengers' psychological adjustment and well-being, few differences emerged between passengers who were related and those who were unrelated to the driver of the vehicle in which they were travelling when the accident occurred. Results were in keeping with the hypothesised facilitatory nature of responsibility self attribution and other research findings which have shown that accepting responsibility for a negative outcome event constitutes a kind of coping aimed at re-establishing control and developing resistance to stressful situations.

A plain English report of research findings from the first stage of the project was mailed to survey participants who provided contact information for that purpose.

In the second stage of the project, a therapeutic intervention for victims of motor accidents was developed and evaluated. The results of the therapeutic intervention with a combined group of drivers and passengers involved in motor accidents are very promising, with evidence existing for reductions in negative affect and psycho-social distress and for increased psychological well-being immediately following participation in the therapeutic programme.

The potential exists to complete an in-depth evaluation of the therapeutic intervention program developed by the research team and to investigate other factors that might impede psychological adjustment to, and recovery from, motor accident trauma, such as the impact that litigation can have on victims' psychological adjustment and well-being.

Measuring dynamic balance stability during turning

Dr Jan M Jasiewicz, School of Human Movement Studies, Queensland University of Technology

One of the activities of the Clinical Biomechanics Fellowship this year has been to investigate the potential of a new dynamic balance assessment procedure for future application as a research tool and as a sensitive assessment procedure to inform clinical decision-making and rehabilitation. Many conditions, from traumatic injuries to degenerative disease, can impair mobility, so any test should be applicable to a range of populations. Existing tests of stationary balance have limited validity since most falls occur during movement (e.g. gait initiation, termination and turning), while existing

clinical test of dynamic balance provide very gross, non-specific measures.

One way to examine dynamic balance is through the interaction of centre of pressure (COP) and centre of mass (COM). COM measurements reflect body position while COP reflects weight shifts. Biomechanical studies show that during standing COM is controlled by the COP primarily via ankle musculature, while more proximal muscles become involved in dynamic tasks. Turning contains features common to both walking and standing.

We asked 5 normal subjects to turn 90? under 4 sensory conditions: eyes open while standing on a firm surface, eyes closed on a firm surface, eyes open on foam (unstable surface) and eyes closed on foam. We examined how these successively more challenging conditions affected COP and COM path lengths. A Parkinson's subject was tested in the first two conditions.

We found that COM and COP path lengths became significantly longer as the difficulty of the conditions increased. The Parkinson's subject showed the same result except that path lengths were equivalent to those of the normal subjects on foam. Interestingly the Parkinson's subject was at least as stable as the normal subjects when standing still. This is particularly encouraging because it suggests the task may be sensitive to balance impairments not detectable by static balance procedures.

Since the purpose of this work is to devise sensitive and widely applicable assessment tools, the testing of a variety of groups of patients is critical. To this end we will also be testing post-motor accident brain and spinal cord injured adults and children in the coming year.

Physiology and pharmacology of colorectal dysfunction in spinal cord injury.

Dr Allison Malcolm, Royal North Shore Hospital, University of Sydney

Aims of the study

The incidence of traumatic spinal cord injury in Australia is high (25 per million per year). With greater life expectancy of such patients, the prevalence of persons living in the community with paralysis following spinal cord injury is increasing. Bowel dysfunction of some type including constipation, faecal incontinence and abdominal discomfort is almost universal in spinal cord injury. Therapies to relieve symptoms are suboptimal. The economic and social consequences of bowel dysfunction in spinal cord injury are therefore enormous.

The aims of this study are to evaluate the prevalence of gastrointestinal symptoms and nature of gastrointestinal dysfunction in spinal cord injury. This study also aims to evaluate the physiology of colorectal function and dysfunction in health and in spinal cord injury. The study utilises novel and sophisticated recording methodology utilising the barostat technology. In particular the study evaluates intrinsic reflexes such as the gastro-colonic, colo-rectal and recto-colic reflexes. By comparing these reflexes and responses in health, cervical spinal cord injury and cauda equina syndrome, we will be able to conclude the likely neural pathways involved.

Institution

Royal North Shore Hospital and University of Sydney Gastrointestinal Motility and Spinal Injury Units.

Research topic and outcome

We are currently performing a questionnaire study of gastrointestinal symptoms in a large number of spinal cord injury patients. We have also completed extensive physiological studies in a large series of healthy subjects, and have submitted this work to the annual American Gastroenterology Association meeting. We have been able to document the presence of colorectal and rectocolic reflexes in healthy human subjects and have characterised the nature, extent and time course of these reflexes, both during fasting and postprandially. We have further defined the nature and timing of the "gastro-colonic" and "gastro-rectal" reflex. We have performed preliminary studies in spinal cord injury patients with interesting results and are currently recruiting patients for full physiological colorectal studies, the next major phase of the project.

Long-term applications

As outlined above, gastrointestinal dysfunction in spinal cord injury is a major community problem and treatment is currently suboptimal. Definition of the physiological abnormalities present allows direction for future development of better therapies to treat these conditions. This information also has relevance to many other gastrointestinal conditions thought to have a neurological basis such as constipation, irritable bowel syndrome, faecal incontinence, and to the severe gastrointestinal problems that occur in neurological diseases such as Parkinson's disease, multiple sclerosis and stroke. Clearly the long-term aim is development of better therapies and improved quality of life for these patients who sometimes have devastating symptoms.

Developing community based rehabilitation (CBR) through participatory rural appraisal (PRA): A rural research pilot.

Dr Pim Kuipers, Centre for Human Services, Griffith University

This project is exploring the utility of an implementation strategy known as Participatory Rural Appraisal (PRA) for establishing Community Based Rehabilitation (CBR) initiatives. The project, now in its final phases, is based in the Taroom Shire, Central Queensland. Preliminary findings indicate that the process has contributed to greater responsiveness by community members to the needs of people with disabilities and their families.

Piloting of PRA as an implementation strategy has been associated with a number of constructive service and research outcomes.

Service development outcomes include:

- The emergence of a community-relevant model of informal disability service delivery.
- The establishment of a community based network which:
  - Coordinates practical assistance for people with disabilities and others with short or longer-term need for informal assistance.
  - Collates and disseminates disability and related information for people in the Shire.
  - Acts as an intermediary between community members and urban human services.
  - Has been integrated into broader health and human service planning for the Shire.

Research outcomes include:

- A research oriented piloting of PRA methodology for implementing community-based services.
- Identification of strengths and weaknesses of PRA methodology.
- Adaptation of the PRA approach based on research experience in Taroom.
- A documented example of the utility of Community Based Rehabilitation in rural Australia.

Current status:

The research project is in its concluding phase. Final data is currently being drawn from key participants and agencies. A research monograph is currently being developed. Remaining funds are being utilised by community members (and monitored by the researchers) to seek to achieve a greater degree of sustainability of the service that has emerged from the project.

Four conference presentations and two peer reviewed journal publications have arisen from the project.

Investigating the role of low level laser therapy (LLLT) in an inflammatory model.

Dr Liisa Laakso, Department of Physiotherapy, The University of Queensland
Dr Peter Cabot, Department of Pharmacy, The University of Queensland

This project is a collaborative effort between the above-named departments (Dr Liisa Laakso - Physiotherapy, and Dr Peter Cabot - Pharmacy).
This study aims to investigate the cell-migration (circulation to tissue to localized lymph node) of beta-endorphin containing lymphocytes in a rat model of post-traumatic inflammation, and whether low level laser therapy alters the inflammatory response or induces the release of beta-endorphin to control inflammatory pain. A series of pilot trials were performed during 2000. A number of different wavelengths and dose combinations of therapeutic laser were selected. Results demonstrated that inflammatory pain scores (indicated by paw pressure threshold) improved by 12% at 24 hours post-induction of inflammation, and that improvement was as much as 34% at 72 hours compared to control conditions. The difference in scores was maintained until 192 hours, at which time baseline pain scores improved in non-treated rats.

These results indicate that there is strong evidence that LLLT causes changes in baseline pain scores and results in faster recovery from inflammatory pain than control animals. There has been some variability of results based on different treatment parameters. To date, there is no clear evidence to support the theory of peripheral opioid peptide release by known mechanisms, and further studies will be required to investigate the relationship between reduced pain thresholds and the immune system's role in the localized inflammation.
By the end of February, 2001, we hope to have the results of the immunohistochemical analyses of tissue samples and regional lymph nodes which will assist in identifying the role that circulating immune cells may have in the behavioural responses noted in the pilot trials. It is evident from our preliminary studies that a much larger study encompassing for the first time a range of wavelengths and dose combinations will be essential to determine the true optimum combination for greatest efficacy.

Repairing human spinal cord and peripheral nerve: towards autografts of olfactory ensheathing cells

A/Professor Alan Mackay-Sim, Centre for Molecular Neurobiology, Griffith University

The specific aims of this proposal were to identify the factors necessary to grow human olfactory ensheathing glia *in vitro* with the goal to produce them in large quantities.

Aim 1: *to develop a method of purification and culture of ensheathing cells*
Aim 4: *to test growth factors for their ability to expand and maintain cultured ensheathing cells*

We have developed methods for the purification and proliferation of rodent and human olfactory ensheathing cells *in vitro*. We can now grow these cells at purities in excess of 95%. We have identified several growth factors which are very powerful for the proliferation and purification of these cells, including: NGF, BDNF, NT3, FGF2, EGF, TGF? ?1IGF-I. Experiments on the effects of the neurotrophins is being finalised and will be written up for publication shortly. A methods paper on the culture of human olfactory ensheathing cells is also being prepared because this is a vital step for the use of these cells clinically. (We have a paper in press on the use of ensheathing cells for spinal repair in rat and a current project on their use for peripheral nerve repair.)

Aim 2: *to identify growth factor receptors on ensheathing cells*

Using immunochemistry and *in situ* hybridisation we have identified receptors for the following growth factors on these cells: p75 (the low-affinity neurotrophin receptor) NGF, BDNF, NT3, FGF2, PDGF. We are currently investigating whether the cells express the IGF-I receptor because they respond to IGF-I *in vitro*. This work is on-going and we are currently extending our investigations into the TGF? family of growth factors and receptors (TGF? , BMPs etc).

Aim 3: *to perform a genome-wide analysis for growth factors, growth factor receptors and their signalling pathways in these cells*

We intend to do this next year, comparing gene expression in human Schwann cells and olfactory ensheathing cells. This year we developed the techniques to produce purified populations of both cell types and early next year we will grow up the cells in sufficient numbers for the gene expression study.

Physiological analysis of vocal tract dysfunction in children with traumatic brain injury subsequent to motor vehicle accidents

Professor Bruce E Murdoch, Department of Speech Pathology and Audiology
Dr Deborah G Theodoros, Department of Speech Pathology and Audiology

The aim of this project was to develop a performance profile of the speech mechanism of children with motor speech impairment caused by TBI suffered in motor vehicle accidents. In particular the project was aimed at determining the level of individual motor sub-system malfunctioning and to cast further light on the physiological nature of the malfunction in an attempt to provide a more specific treatment focus. A total of 21 children with TBI, together with a similar number of non-neurologically impaired control children, were tested on a comprehensive battery of physiological tests, including tests of the respiratory support for speech,

tests of laryngeal function, velopharyngeal function and articulatory function.

As part of the project a number of new physiological instruments were developed and adapted specifically for use with children and, to this end, the research has provided the only available database worldwide relating to the physiological performance of the speech production apparatus in children with acquired brain injury. Data analysis is currently being carried out, but preliminary findings have documented a heterogeneity of the physiological impairments across children with traumatic brain injury, thereby necessitating the development of individual treatment programmes aimed at improving their overall intelligibility of speech. Specifically, the preliminary findings indicate that the various motor sub-systems of the speech apparatus are not only affected differently between individuals who had suffered traumatic brain injury, but also differed in the nature of the physiological breakdown within the one individual and between the different motor sub-systems.

The research findings raised a number of important questions relating to the differential nature of speech motor control vs limb muscle function in individuals with neurogenic conditions. The findings of the research have a number of important implications for the clinical management of motor speech disorders occurring in children subsequent to traumatic brain injury. The data collected as part of the project is expected to provide a firm basis and specific directions for the development of physiologically-based biofeedback programmes for treatment of motor speech impairments manifested in these children.

Articulatory dynamics in dysarthria following traumatic brain injury subsequent to motor vehicle accidents

Dr Deborah G Theodoros, Department of Speech Pathology and Audiology

Professor Bruce E Murdoch, Department of Speech Pathology and Audiology

The aim of this project was to apply recently introduced and state-of-the-art technology to the determination of the nature of physiological impairments in the articulatory mechanism of persons with a speech impairment caused by traumatic brain injury. In particular, the project aimed to apply the techniques of electromagnetic articulography and electropalatography to the examination of lip, tongue and jaw function in persons with traumatic brain injury and to compare these findings with those of a group of non-neurologically impaired controls.

Electromagnetic articulography is a technique that utilises a weak electromagnetic field to plot movements of a range of sensor coils that are placed in contact with various parts of the tongue, lip and jaw. The advantage of the technique is that it does not require the use of ionising radiation and, consequently, presents with a number of significant advantages over previously used technology such as cineradiography for this purpose. In particular, a significant advantage of the technique is that, due to the non-use of ionising radiation, data acquisition time is greatly expanded and, consequently, a more comprehensive examination of the physiological functioning of the tongue etc. can be carried out. To date, electromagnetic articulography has been performed on 10 subjects with traumatic brain injury and 10 non-neurologically impaired controls.

Further assessment of the remaining subject cohort is in progress and data analysis is expected to be completed within the next three months.

One paper arising from the work completed to date has been published in the journal *Brain Injury* (see details below), and a further paper has been accepted for publication. Another paper arising from the work has recently been submitted for publication.

Rehabilitation of prospective memory problems in individuals with traumatic brain injury

Dr David Shum, School of Applied Psychology, Griffith University

Work has commenced on this project (funded in 2000) which is an extension of our earlier CONROD funded work on prospective memory following traumatic brain injury. Prospective memory is the ability to remember to perform intended actions in the future. This current study aims to develop and evaluate an intervention programme designed to improve prospective memory in individuals with traumatic brain injury. Whilst past studies have been conducted to rehabilitate the ability to recall or recognise past information (or retrospective memory), little research as attempted to investigate ways to treat prospective memory problems. This is surprising given that prospective remembering is important for independent everyday living. Our intervention programme is based on a compensatory approach incorporating the use of environmental modifications, cues, and organisation devices (e.g. diary). The training techniques emphasise the development of self-awareness of prospective memory deficits, and the generalisation of compensatory strategies beyond the clinical environment to everyday life. The program will be evaluated via a randomised pretest-posttest design with 40 persons with severe traumatic brain injury.

Physical activity for people with disabilities

Mr Sean Tweedy, CONROD Research Fellow, School of Human Movement Studies, The University of Queensland

The year 2000 was the fourth year of the CONROD Research Fellowship - Physical activity for people with disabilities. This report summarises activity in the three primary areas of responsibility of the Fellowship – research, teaching and community service.

Research

Design and outfit of the Mobile Exercise Science Laboratory, which was funded through monies from CONROD, the Australian Research Council, various sources within the University of Queensland and Southern Cross University, continued over 2000. All collaborating researchers were consulted and it is expected that the facility will be ready for operation early in 2001. Housing a sixteen channel EMG unit, portable forceplate / walkway system, a portable gas analyser, zero watt arm crank and cycle ergometers and a portable bone sonometer, this laboratory will permit fundamental and applied research on physical activity and movement control in groups for whom normal laboratory access is either impossible or inappropriate.

A grant of $23,000 was awarded by the Princess Alexandra Foundation for a collaborative project entitled "The efficacy of a community based physical activity intervention in improving the health of people with acquired brain injury" to the research team of Dr Ron Hazelton (PAH), Prof. Wendy Brown (UQ), Sean Tweedy (UQ), Dr Pim Kuipers (PAH), and Tamara Ownsworth (BIAQ). The sum of $1,300 was awarded to Sean Tweedy and Prof. Brown from the Finch Bequest to support preliminary reliability work for the above study. Sean Tweedy (Associate investigator) collaborated with Prof. Jenny Strong, Elizabeth Gibson and Dr Heather Podlich (Chief Investigators) on project entitled "Inter-rater reliability and predictive validity of a new functional capacity evaluation for chronic back pain", which was awarded $85,600 from NHMRC.

A paper entitled "Using the ICIDH-2 to define eligibility in disability athletics" by Sean Tweedy and Ros Madden (Australian Institute of Health and Welfare) was presented at the Scientific Congress of the 2000 Paralympic Games, Sydney, October 11th to 13th.

Teaching

In recognition of the importance of physical activity for people with disabilities, a rule change has been passed which includes Adapted Physical Activity for Special Populations as a foundation (or compulsory) subject for both professional streams of the BScApp(HMS) taught through the School of Human Movement Studies (HMS). The intent is to ensure all undergraduate students enrolled in professional degrees in HMS gain knowledge and experience working with people with disabilities. A record 116 students enrolled in HM337 in 2000.

The course content on exercise testing and prescription for people with neuromusculoskeletal impairments was again taught within the coursework Masters programme (clinical exercise science).

Community Service

In my capacity as an International Classifier for athletes with cerebral palsy (including athletes with acquired brain injury and stroke) a considerable amount of support was provided during the lead-up to, and conduct of, the Sydney Paralympic games, including official duties at the Games, classification at pre-Paralympic events and a range of community seminars. A module entitled "Coaching Athletes with Acquired Brain Injury" was written for the Australian Sports Commission. The Adapted Physical Activity Programme, the community outreach arm of the Fellowship provided community based physical activity programmes to 5 clients (4 from ABIOS and 1 from SPOT).

An investigation of the effect of a novel therapeutic taping technique on mechanical hyperalgesia in patients with whiplash associated disorders.

Dr Bill Vicenzino, Department of Physiotherapy, The University of Queensland
A/Professor Gwen Jull, Department of Physiotherapy, The University of Queensland

This research project seeks to build on recent evidence of a specific physical impairment in patients who have suffered a whiplash injury. Interestingly, a number of physical therapy treatment techniques can positively influence this type of deficit. One such technique is called a deloading taping technique. It is reasonably new and has been recently studied in people who are not injured. It

has not been studied in people who have pain, such as those who have sustained a whiplash injury. This study proposes to do just that. If this technique is found to beneficially influence pain in whiplash patients then it may be used to encourage pain free movement and exercise during the rehabilitation of the injury.

The aims of the project are to: ascertain the effects of a therapeutic deloading taping technique on mechanical hyperalgesia in subjects who have whiplash associated disorders, and secondarily to compare the effects of the taping technique to a placebo taping technique and a control non-treatment technique.

To date the project has involved a pilot study to confirm clinical guidelines for the treatment technique and to confirm adequate power with the anticipated 24 participants. The database and statistical programmes that are required for managing and analyzing the data have been established. Grant monies have been expended on materials, participant and research assistance and will be continued to be used for these purposes. The progress of the project although slow initially, due to several unexpected participant recruitment issues, has improved recently with more than half of the participants being tested. Completion of the project by early April 2001 is predicted on recent progress. Consequently results are not available at the time of writing this report. Submission for publication in a multi-disciplinary, international peer-reviewed journal will be undertaken once data has been collected and analyzed.

Accessible Multimedia in Tertiary Education (AMTE) Project

Dr Lloyd Walker, Teaching & Staff Development Unit; Occupational Therapy Unit, James Cook University

The AMTE project has continued to refine the delivery systems available for teaching tertiary subjects to students with disabilities - in particular cognitive disabilities. At the end of 2000 some 12 subjects have been or are being developed including Sociology, Australian History, Computers in Education, Accountancy, and Introduction to Education. Each of the subjects developed are at a full University academic level and is available for study at a student's own pace and using technology supports for other physical and sensory disabilities as necessary.

During 2000 a number of students enrolled in subjects that form part of the program. Most of these students had no identified disability but were taking subjects to facilitate and develop their learning. These students were able to assist the development team in ensuring the quality and reliability of materials developed matched or exceeded the quality delivered through usual face-face methods. It has been disappointing that any enquiry and subsequent enrollment has been low from target students - those with cognitive disabilities. Government changes to equity support have not assisted the situation but the project team will further investigate marketing issues with student admission's staff involved.

The project team continued to streamline

planning and the development costs of individual subjects. The use of demonstration elements has reduced the costs incurred as a result of academic staff's limited experience with both the target group of students, and the possibilities of current electronic delivery systems. During 2000, the process of development was extended to permit subject development between collaborative teams at a distance. Designers and academic staff in both Townsville and Cairns were able to successfully work together to achieve a high quality subject development.

The year also marked a change in perceptions by a number in the University community about the benefits of the AMTE project. Many of the support and integration aspects the project team developed during 1998 and 1999 were adopted almost without change by the broader James Cook University community in 2000. The WWW links to the library, study skills and related support pages available to all students now, reflect the project's mainstream (or Universal Design) approach to ensuring all students can access services to help them succeed in University life. Naturally there exist specialist services where these are necessary and access to these services is also improved through the integrated systems.

The project team presented details of the project throughout the year to academic staff of the University. Dr Walker participated in the Spectronics/Zygo Assistive Technology in Education Summit in Sydney and discussed developments in computer assisted education systems for integration with the project.

Preliminary concepts for an evaluation phase of the project were developed during the year and will be refined and funding sought for implementation and further research during 2001.

School functional performance of children following traumatic brain injury.

A/Professor Jenny Ziviani, Department of Occupational Therapy, The University of Queensland

The problems encountered in readjusting to school by children with traumatic brain injuries are widely acknowledged. These difficulties can have adverse effects upon the child, its family and the school community into which s/he returns. As a primary means of educational and social development, successful readjustment to school is an important rehabilitation outcome. As these children grow into adults the success with which they progress through their educational program can predict their long term employment and social outcomes. Therefore ensuring optimal transition, from hospital to home, school and community for children who have sustained a traumatic brain injury is integral to the operation of all rehabilitation programmes.

An important component of school readjustment is the extent of functional independence experienced by children upon their return to school. Functional independence relates to a student’s ability to perform a variety of functional tasks which enable him or her to participate in the various learning activities of the school day. As such a distinction is drawn between functional and academic ability, the former facilitating the latter. This research is concerned with functional school performance. A number of factors

are known to impact upon functional ability. In broad terms they relate to the severity and nature of the injury experienced by the child, the extent of residual disability and the ability of the physical and social environment of the school into which the child is returning to respond to the child's needs.

The research aims to identify the set of predictor variables which contribute most to the differentiation of school functional ability, six months post discharge, in children who have experienced a traumatic brain injury. Identifying the relative impact of child and family centred factors and those which are more school and environmental focussed will help to inform those involved in discharge planning.

To date, 15 children (aged between 5 and 14 years), their respective families and schools have participated in the study. It is aimed to obtain data on 50 children for purposes of quantitative analysis. A qualitative component, however, has been added to the project is response to the wealth of information which has been forthcoming from children, parents and teachers.

Chronic pain, medical decision making and best practice: development of a model

Ms Ronita Neal, Centre for Human Services, Griffith University

This project is a qualitative investigation of the attitudes held by General Practitioners towards people who experience chronic pain following injuries sustained in motor vehicle accidents. Further, the project aims to understand the decisions that are made regarding the management of these patients during the course of their recovery and rehabilitation.
The project began in October, 2000 and, to date, a series of focus groups have been conducted to develop and trial the utility of the proposed interview format. Ethical clearance has been completed and approval has been gained from the Division of General Practitioners to begin collecting data.

Research Outcomes

The project has been presented at two conferences to date (one as a conceptual model and another using preliminary focus group data). A third presentation is planned for June, 2001 when initial GP data will be collected. In addition, a publication has been requested by a major Australian rehabilitation journal and is in preparation. The introductory paragraphs of a monograph have been prepared.

Current Status

The interview schedule has now been designed and the Division is currently assisting with the access to GPs. Participants are being sought and it is expected that at least 30 GPs will be involved in indepth critical incident interviews regarding their management of pain patients. Analysis will begin in May and the project will be completed by October, 2001.

Mobile Intensive-care Rescue Facility (MIRF) Pilot Project

Professor John Grant-Thomson

Introduction

The Motor Accident Insurance Commission (MAIC) provided the University of Southern Queensland (USQ) with a grant of $237,000 to support the MIRF pilot project. This project is evaluating the use of the MIRF and its associated undercarriage in the public health sector with respect to hospital transfers of critically ill patients.

Progress

Hospital Trial

A Mobile Intensive-care Rescue Facility

(MIRF) was placed at Toowoomba General Hospital Accident and Emergency Department for one month. During this period it was used and assessed by clinical staff and comments were recorded. A new variable height, electrically powered undercarriage was also trialled to support the MIRF.

Comments were very favourable about the mobility and compactness of the MIRF allowing patients to be easily moved whilst under intensive-care management. The concept was described as excellent and comments relating to viewing the monitor whilst intubating the patient were noted. It was also noted that the large pneumatic wheels on the undercarriage allowed a perception of instability to occur. It was also noted that the motor drive system used on the undercarriage was too noisy. The Queensland Ambulance Service (QAS) also introduced its new "blue bonnet" series of ambulances during this trial period. These new vehicles have an attendants seat installed near the patient entrance which limited the space to insert the MIRF and its undercarriage. Following this initial trial period the following modifications were effected to the MIRF and its undercarriage:

1. The undercarriage was modified to reduce its width to an acceptable size for the new QAS vehicles.

2. A new drive motor system was researched, designed and fitted to the undercarriage. This was faster and much quieter in operation.

3. The MIRF itself was modified to allow the physiological monitor to slide out of the MIRF case, which addressed the issue of difficulty in viewing the monitor.

4. Other changes to fit a lighter syringe driver were also implemented.

Helicopter Trial

The RACQ Careflight helicopter medical team flew to the USQ Campus to assess the feasibility of using a MIRF for in-flight patient retrievals. The trial fit determined the MIRF could fit and be secured within the cabin of the helicopter. Following a small modification to assist in securing the MIRF, a trial has been proposed with the medical staff of Careflight to assess the MIRF in helicopter operations. This trial will commence early in 2001 following the modifications to the prototype MIRF.

Undercarriage Trial

Following the literature reviews and surveys, a detailed specification was developed and several prototype undercarriages were constructed and tested. Feedback from the trials both from the hospital and ambulance sectors resulted in enhancements to the prototypes. Work is continuing on "fine tuning" the design which should be completed in the next few months.

Road trauma related 'head and neck' injuries and outcomes

Professor Frank Monsour
Dr Martin Batstone
Dr Greg Peek
Dr Anthony Lynham
Ms Pamela Pattel RN, Research Assistant
Oral and Maxillofacial Surgical Unit, Royal Brisbane Hospital

Since the summary published in the 1999 CONROD annual report, stage 1 of this comprehensive study of facially injured road trauma patients has been completed.

This study achieved the aims set out in the proposal to a greater extent and with the identification of deficits in the management of these patients the stage has been set for progression to stage II of the study.

Stage I identified the demographic details of patients admitted with injuries in the facial skeleton and associated soft tissues. Maxillofacial injuries suffered as well as other concomitant injuries were identified and important injury associations have been noted.

The deficits in care of these patients, particularly with respect to assessment, transfer times and consultation times were identified and quantified. Problems with the recording of data and patient outcomes both pre and postoperatively were realised and this has led to the development of a data recording tool. The general lack of rehabilitative services referral has been noted. These deficits have been noted and will be addressed in development of the management protocol, which is to be scientifically validated as the crux of stage II of the project.

Stage I of the study achieved the development and refinement of the facially injured patient database, which provides an invaluable tool for future management and disability assessments. The database is a dynamic and functional entity which with further refinement and ongoing patient entry will achieve considerable social and cost savings.

The research team is now ready to proceed to stage II of the study which has the following aims:-

1. Expand the database in collaboration with other services and specialities to accord a better platform for the prospective study and future developments
2. Establish an evidence-based protocol for management of facially injured patients and appropriate indicators of outcomes of related injuries.
3. Trial the established Protocol within Regional and Tertiary Level Hospitals and Trauma Units
4. Develop a longer term strategy for Rehabilitative Services and monitoring/auditing outcomes five (5) years post-trauma.
5. Establish a State Based Database of Road Accident Trauma Victims- especially with Maxillofacial Injuries.

Adjustment and self-awareness in adults with traumatic brain injury and spinal cord injury: the transition from hospital to community

Professor Jenny Strong, Occupational Therapy Department, The University of Queensland
Dr Jenny Fleming, Occupational Therapy Department, The University of Queensland

This prospective study investigated self-awareness and emotional adjustment in adults with traumatic brain injury (TBI) and spinal cord injury (SCI) over the period of transition from hospital to the community. The aims were:

1) to investigate to what extent impaired self-awareness of deficits in adults with TBI is related to organic brain injury compared to psychological adjustment factors (by comparing the TBI group to the non-brain injured SCI group); 2) to investigate the effect of discharge from hospital to home on the development of self-awareness and emotional adjustment, and; 3) to determine and compare the level of emotional distress experienced by adults with SCI and TBI following discharge from rehabilitation.

Participants were 23 adults with TBI and 13 adults with SCI consecutively discharged from rehabilitation units of a major metropolitan public hospital. In both groups the cause of injury was predominantly motor vehicle accidents. A repeated measures design was used with interview data collected at two stages, prior to discharge and 2 months after discharge. Five questionnaires designed to assess self-awareness and emotional adjustment were administered at both interviews: the Self-Awareness of Deficits Interview (SADI), the Patient Competency Rating Scale (PCRS), the Head Injury Behaviour Scale (HIBS), the Hospital Anxiety and Depression Scale (HADS), and the Centre for Epidemiological Studies Depression Scale (CES-D). The Community Integration Questionnaire (CIQ) was also completed at the second interview.

Data were analysed descriptively. Pre-discharge scores indicated that the TBI group had generally greater impairment of self-awareness and less emotional distress than the SCI group. Organic brain damage is hypothesised to explain the comparative lack of self-awareness in the TBI group. The results are consistent with previous research indicating that self-awareness of deficits is related to emotional distress. Scores at two months after discharge showed an improvement in level of self-awareness for both groups on the SADI and PCRS with the SCI group maintaining generally more accurate self-awareness than the TBI group. This suggests that exposure to "real life" experiences in the community may assist with more accurate self-appraisal. The TBI group showed slightly more emotional distress before discharge, which is consistent with their enhanced self-awareness. Despite having a slightly higher level of community integration on the CIQ, the SCI group remained generally more distressed than the TBI group at follow-up.

Predictors of traumatic stress in children involved in motor vehicle accidents

Associate Professor Justin Kenardy. School of Psychology, The University of Queensland

There have been significant difficulties in recruiting patients into this project, as at the end of 2000, only 10 patients have been recruited. Changes to recruitment procedures (separation of consent for this study from consent for Child Trauma Registry) and entry criteria (broadening entry criteria to trauma rather than road traffic accident related trauma) late in the year have meant that recruitment is proceeding at a satisfactory pace in 2001.

Mechatronic aids for the disabled

Professor John Billingsley, National Centre for Engineering in Agriculture, University of Southern Queensland

Over the last two years, the Mechatronic Aids for People with Disabilities project has been conducted under the supervision of Dr. Peter Aigner, who was recruited for this purpose. Beforehand, the project had already made significant progress in researching the needs of people with

disabilities and the availability of devices both through the consumer electronics market as well as the specific disability market. At this stage the project had also developed a prototype of the BrowsMouse.
Over these last two years, the BrowsMouse has been developed further into a product that is being trialed by users and is almost ready for commercialisation. There is a reassuring indication that the BrowsMouse will be a successful product.
At the same time, further research has been carried out into a variety of other sub-projects. These are

- making home automation systems more accessible to people with disabilities,
- a playing card reader for the blind, using a Nintendo Gameboy,
- a proposal for a course or short courses in disability technologies, and
- a re-configurable keyboard.

The project has also developed links with the W.R. Black Disability Resource Centre in Brisbane. Some of the BrowsMouse trials are being conducted through this centre.

The project has had its focus on developing devices which are useable by the widest variety of people whether disabled or not as well as providing a solution which empowers the users. The BrowsMouse is a prime example of this. It is a product that can be used to advantage by anyone wishing to use a computer. It can be operated by people with a wide variety of disabilities, although any mouse has limited potential for people with cognitive disabilities. Access to a computer, which the BrowsMouse provides, plays an important role in giving people access to information, entertainment and the ability to control their environment.

Dr Aigner has now been tempted away from the project by industry. Based in Brisbane, he will still maintain a close interest in the field trials. It is intended to seek a replacement for him and to expand the work to further projects.

A substantial report has been produced which encapsulates the technical aspects of the present projects and can serve as a valuable handbook.

Changes in joint sensation and muscle function following knee joint disease: Implications for rehabilitation

Dr. Joanne Bullock-Saxton, Department of Physiotherapy, The University of Queensland.

The aims of this funded project were to determine the form/s of therapeutic intervention that could be effective in resolving impairments in sensory and muscle function associated with knee disease in the short term.

Findings have indicated that patello-femoral taping of the knee is significantly better than sham taping or no taping in improving functional performance in the short term of people suffering osteoarthritis of the knee.

Two papers related to this project are in draft form and near to completion.

Reprints will be sent to the CONROD office when available.

Hypertonic saline resuscitation of burn shock and tissue oxygenation

Dr Michael Muller, Royal Brisbane Hospital
Dr Bala Venkatesh, Royal Brisbane Hospital

Aim: *Comparison of hypertonic saline and isotonic crystalloid resuscitation fluids with regards to tissue oxygenation parameters in burns shock*

Ten patients have been studied of a possible eleven who met the entry criteria. Three patients have died, but not unexpectedly. The mean age of the patients was 32. The mean BSA of burn was 56%. Seven of the 10 had respiratory burn. The mean APACHE II score was 22. Six were randomised to the hypertonic limb, whilst the remaining 4 to the isotonic limb. Seven survived intensive care.

Preliminary data on these patients is attached. These data are a snapshot of the gastric tonometry readings and are just incredible. All the patients have shown a fall in pHi from baseline (shock phase) to resuscitation phase. This is in keeping with what was found in the preliminary study, (which has now been accepted for publication in *Journal of Trauma*). The degree of fall is greater in the isotonic crystalloid group (0.24+/- 0.03) as compared to the hypertonic group (0.16 +/- 0.01), although the differences do not reach statistical significance at this stage. However based on our data in our pilot study, this observation is also in keeping with our hypothesis that hypertonic saline results in lesser oedema in the tissues and therefore better oxygenation.

Examination of subcutaneous gas tensions

Although the data analysis has not been completed for all of the 10 patients, we have observed a decline in subcutaneous PO_2 and an increase in subcutaneous PCO_2 with resuscitation as observed in the preliminary study. With full data entry (which should be completed in the next couple of months), we hope to provide more information.

Completeness of data collection

We have full tonometry data in all patients. We have had problems with Paratrend 7 sensor malfunction in some patients, which have resulted in some loss of data. Nevertheless, we have sufficient data to get a reasonable statistical analysis.

Repair of the injured spinal cord

Professor Norman Saunders, University of Tasmania

The aim of the project was to investigate morphological and functional recovery And to determine the origin of nerve fibres growing across a lesion.

This project has established the value of the neonatal opossum for studies of spinal repair. This is the only mammalian species in which substantial functional and structural recovery from complete spinal cord transection has been demonstrated. Honours student Michael Lane has shown a strong correlation between the amount of structural repair following complete transection by cutting in the first week of life and the amount of behaviour when the animals are adult. The development of new behavioural tests has lead to an invitation to collaborate with the Reeve-Irvine Paralysis Institute in Irvine, California. Postgraduate student Elizabeth Fry has identified the diverse populations of neurons which contribute axons to the repair and shown that a proportion are indeed regenerating following spinal transection. Her work gained her a US Society for Neuroscience Award for

Women in Neuroscience, one of only 3 overseas awards.

This research has been presented at national and international meetings, including the 5th Paralympic Scientific Congress and the US Society for Neuroscience meeting in New Orleans. The behavioural studies will be the subject of an invited talk by Norman Saunders at an international meeting on "Functional recovery after Spinal Injury" in Switzerland in April 2001. Following a lecture tour in the USA by Norman Saunders, requests for collaboration in addition to that from the Reeve-Irvine Institute, were received from The Miami Project to Cure Spinal Paralysis, The Salk Institute, La Jolla and the Dept of Physiology University of Miami. However because of lack of support for this work in Tasmania, it is unlikely that these requests can be taken up.

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International

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Bellamy N. Clinical measurement in osteoarthritis. Invited speaker at National Institutes of Health Bethesda, USA. February 2000.

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