New research on stroke aims to improve recovery

A team of researchers within the Centre for Brain Research, with strong links to Tāmaki Innovation Campus, have been successful in attracting funding in the Health Research Council 2014 round, with two of the projects focusing on stroke research.

Sport and Exercise Science Professor Winston Byblow and his team have received $1.2 million to investigate how stroke affects “inhibitory tone” in the brain, which can lead to difficulties in producing movement. The study seeks to extend the group’s world-leading discovery as to why some individuals make a good recovery after stroke, while others do not.

“This funding will help us identify new factors in the initial days and weeks following a stroke that may dictate a good versus poor recovery weeks and months later,” says Professor Byblow.

The team, including Professor Alan Barber and Associate Professor Cathy Stinear from the Department of Medicine, will use magnetic resonance spectroscopy to identify a “chemical signature” for each patient early after stroke. That signature will identify whether the stroke has created a barrier to plasticity, and be used to identify patients who need an additional boost to reach their full potential for recovery.

The group has also been awarded a $150,000 grant from HRC to conduct a feasibility study looking at accelerating recovery after stroke, led by Associate Professor Stinear. The feasibility study will investigate whether transcranial direct current stimulation (tDCS) can increase the rate and extent of motor recovery after stroke.

Together the studies have the potential to improve the recovery of motor function and independence for the approximately 6,000 New Zealanders who experience stroke each year.
Message from Head of Tāmaki Innovation Campus

Dear Colleagues

I am very pleased to be back with you at Tāmaki following my term as Acting Dean of Science prior to the arrival of Professor John Hosking, and subsequently as Deputy Dean. I would like to extend my thanks to Professor Peter Thorne for the excellent job he has done as Acting Head of Campus during this period. I am also pleased to confirm that my appointment as Head of Campus has been extended a further three years from 1 January 2015, and I look forward to continuing to work with you all.

Last month, the Vice-Chancellor Stuart McCutcheon and Director of Property Services Peter Fehl, updated the campus community on the proposed sale of the Tāmaki Campus. It was reiterated that the divestment of the campus is underpinned by The Principles for the withdrawal from Tāmaki. An overarching principle is that the “withdrawal must be orderly, ensuring that the greatest possible benefits are created for, and the minimum amount of harm done to, our students, staff and community partnerships”.

As the process of withdrawal evolves, the University is committed to maintaining facilities at Tāmaki to an appropriate standard; ensuring that a vibrant active community is maintained and a high level of communication and engagement with stakeholders continues. I look forward to working with you to ensure that this is achieved and I welcome your thoughts on how best this can be done.

As you are probably aware, the Newmarket Campus is making rapid progress with the refurbished facilities now handed over to the University. The gradual process of relocating staff and postgraduate students from the faculties of Engineering and Science to the new research facilities has begun and will continue over several months. This includes some of our colleagues from the Tāmaki Campus, with the Formula SAE Team the first Tāmaki group to move, now at Newmarket.

I am particularly pleased that Professor Simon Thrush has agreed to speak at our next Head of Campus Seminar Series on 24 October. Professor Thrush is the Director of the newly established Institute of Marine Science, which is multidisciplinary in its approach and is working towards improving our understanding of the marine environment. His ecological interests are linked to a growing interest in the interactions between ecosystems and society and how best we can restore, conserve and use marine ecosystems. I look forward to seeing you at this seminar entitled “Oceans of change”, and I’m sure Professor Thrush will pose many interesting insights about this extremely important aspect of our environment.

Best wishes

Associate Professor Greg Anson
Head of Tāmaki Innovation Campus

What’s been happening?

Building stronger networks

The Centre for Asian and Ethnic Minority Health Research hosted a national symposium, themed improving the health and wellbeing of Asian and ethnic minority communities through building stronger multidisciplinary and intersectoral networks. Opened by CAHRE director Associate Professor Elsie Ho and the NZ Office of Ethnic Affairs director Berlinda Chin, the keynote presentation “Life and times of our youth, our future: realising hopes and aspirations” was given by Shanthi Ameratunga, Roshini Peris-John and Agnes Wong.

Mental wellbeing of parents important

Experts in the field of mental wellbeing of mothers, fathers and infants came together at the Pacific Mental Wellbeing during Pregnancy & Parenting seminar, hosted by TAHA Well Pacific Mother & Infant Service. The seminar highlighted the importance of wellbeing in its broadest sense. Dr Teuila Percival, TAHA director says health and wellbeing of a mother, before, during and after pregnancy, is an important predictor of the health and wellbeing of her baby. It stands to reason that preventative measures for improving overall wellbeing must start with addressing the needs of expectant and new parents beyond the physical domain, and include emotional, social, cognitive and environmental domains.
In brief

**Coming up - Head of Campus Seminar Series**

24 October, 3-4pm, 731.201

“Oceans of change”

**Professor Simon Thrush**

Director of the Institute for Marine Sciences, Simon Thrush’s ecological interests are linked to a growing interest in the interactions between ecosystems and society - trying to engage in identifying effective processes for change and helping society make informed choices about how we restore, conserve and use marine ecosystems.

**Computer vision best seller**

Professor Reinhard Klette’s textbook “Concise Computer Vision: An Introduction into Theory and Algorithms” is on the Amazon computer vision best seller list. The book provides an accessible general introduction to the essential topics in computer vision, highlighting the role of important algorithms and mathematical concepts. It is ideal for an introductory course at third- or fourth-year level in an undergraduate computer science or engineering programme.

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**Highlighting the prevalence of FASD in NZ**

World FASD Awareness Day is held on 9 September every year, to raise awareness of the risk of drinking during pregnancy and to bring attention to the needs of those born affected by FASD (Fetal Alcohol Spectrum Disorder).

The ninth is symbolic for the 9 months of pregnancy. The day is usually marked by a ‘Moment of Reflection’ at 9.09am as it makes its way across the different time zones, starting with New Zealand.

“FASD in Aotearoa New Zealand: A Time to Act”, a symposium being held this month at the School of Population Health, will supplement this by bringing together experts from a range of sectors: health professionals, researchers, community care providers, advocates and policy makers with an interest in advancing knowledge and action on FASD.

A collaboration between the Centre for Addiction Research and the Alcohol Healthwatch, the symposium aims to increase awareness of the implications of FASD in New Zealand and to seek broad cross-sectoral consensus on a plan of action for research, policy and prevention, and management of service delivery.

Dr David Newcombe, director of the Alcohol and Drug Studies programme and an Associate Director of the Centre for Addiction Research, explains that FASD is an umbrella term for a range of physical, cognitive and behavioural impairments caused by alcohol exposure during fetal development.

“Impairments may include growth retardation, facial malformations and other organs, but primarily FASD is a neurodevelopmental disability which substantially impairs day-to-day functioning and social interactions, posing major challenges for individuals with FASD, their families, and treatment providers.”

Dr Newcombe says FASD is the leading preventable cause of intellectual disabilities in the developed world. International studies that have identified the prevalence and impact of FASD, estimate the lifetime cost of an individual with FASD can run into the millions.

He says New Zealand has no systematic programmes that target this vulnerable population and little research is being done.

“Remarkably, there is no reliable data on the prevalence of FASD here. Based on overseas studies and our drinking patterns, we could have as many as 3,000 babies a year born with FASD. Better information is vital to develop effective policy and health sector responses to reduce the prevalence and societal impact of FASD.”

For more information visit the Fetal Alcohol Network NZ website www.fan.org.nz.

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Dr David Newcombe says better information is vital to develop effective policy and health sector responses to reduce the prevalence and societal impact of FASD.
Dotted around Liz Fairgray’s office in the Listening and Language Clinic are handwritten thank you notes from children and parents. They’re a testament to her patience and skills, working in an area she loves because it makes a huge difference to someone’s life, every day.

The majority of children with whom Liz works are aged between two and ten. Some have a hearing loss while others have difficulties such as autism or general developmental delays, and others have a specific speech and language problem.

The programme includes an assessment, with age appropriate toys to encourage interaction, and a report and recommendation followed either by referrals or onsite intervention. Work includes a highly individualised programme plus coaching parents to help with ‘homework’.

The on-campus clinic creates an environment of interdisciplinary sharing of knowledge and research-based models to select the most appropriate speech language therapy work. It forms part of the network of clinics at the University of Auckland Clinics based at Tāmaki Innovation Campus, also covering health and performance, hearing and tinnitus, nutrition and dietetics, optometry and psychology.

Liz says she can put her finger precisely on the ‘aha’ moment that defined her 25 plus year career. From a medical family, she was used to finding a variety of people with different ailments or abilities around the family breakfast table. But it took a gentle pointer when she was 16, from an audiologist family friend, to divert her from medicine and begin training as a speech language therapist specialising in hearing loss.

Studying and working in the United States for several years added to her professional development; through clinical work as well as qualifying with an MSc in Speech Pathology and Audiology, a degree not available in New Zealand.

Over time, her interest expanded to working with profoundly deaf children, coinciding with a move to mainstreaming in New Zealand schools. In 1999, she became the founding therapist for pioneering speech charity, The Hearing House. This was the first New Zealand centre dedicated to providing services for children with profound hearing loss to enable them to learn to listen and speak with regular audiology appointments and therapy sessions.

“That changed the future of hearing education in New Zealand and I look back on that period and initiative with a lot of satisfaction,” she says. She was also the first speech language therapist for the Cochlear Implant Programme and the first New Zealander to become a certified Auditory-Verbal Therapist and believes the implants have significantly improved the quality of life for hearing impaired people.

She’s particularly pleased to see recently approved funding for two cochlear implants per child, rather than just one, offering improved spatial awareness of sounds and a greater ability to move seamlessly into the mainstream.

For more information about the Listening and Language Clinic visit www.clinics.
Immunisation expert appointed to WHO

A New Zealand immunisation expert has been invited to join the World Health Organisation’s strategic advisory group on immunisation.

Director of the Immunisation Advisory Centre based in the School of Population Health, Associate Professor Dr Nikki Turner, will serve a three year term with the WHO’s Strategic Advisory Group of Experts (SAGE) on immunisation.

The invitation from WHO is seen as acknowledgement of her expertise and research on immunisation.

SAGE has responsibility to advise WHO on overall global policies and strategies, ranging from vaccines and technology, research and development, to the delivery of immunisation and its linkages with other health interventions.

Dr Turner is a researcher and advocate for immunisation. She is committed to reducing equity gaps in children’s health, sees immunisation as an important component in achieving this, and is an executive member and health spokesperson for the Child Poverty Action Group.

Her duties will include SAGE meetings at WHO headquarters in Geneva, as well as involvement in international subcommittees and regular communication with the Western Pacific WHO region, based in Manila.

“I am very privileged to be offered this position,” says Dr Turner. “Immunisation is a major international issue with potential to further significantly reduce deaths and illnesses with better vaccine delivery of our current vaccines and the use of important new vaccines.”

“To be able to participate in such a committee to support better outcomes for populations and particularly children internationally is really an honour,” she says. “I hope it will also be useful to be able to bring new knowledge and expertise back to New Zealand and learn from it, to support vaccination strategies here.”

Dr Turner has developed and evolved the New Zealand Immunisation Advisory Centre, since its inception in 1996, into a national communication, co-ordination, education and research centre.

Rats no longer rule

New Zealand leads the world - a comment more often linked to a sporting or business achievement. However, for the Centre for Biodiversity and Biosecurity, the accolade is heaped on the work done by internationally recognised Dr James Russell and his team, in studying rodent eradications.

An innovative combination of ecology, statistics and genetics to prevent rats and other mammalian pests invading predator-free islands is helping to keep endangered species safe and strengthening New Zealand’s reputation as a world leader in island conservation.

Using unique DNA fingerprinting of rats, statistical modelling and scientific tools to solve conservation problems means the New Zealand team is in high demand globally for its expertise. As James puts it, “We have a rat problem, call in the Kiwis.”

September will see a celebration of 50 years of rodent eradications in New Zealand with a full-day symposium on 10 September. The symposium will consist of a series of talks by those involved at the time in pioneering eradications, a retrospective of the eradication operation, the benefits today, and the future of island conservation and rodent eradication.

It’s based on the 50 year commemoration of confirmation of successful eradication of Norway rats from Maria Island (Ruapuke) in the Naïses Islands in 1964. Much has changed in those fifty years, including the landmark use of helicopters in 1990 to deliver bait aerially, and the knowledge export of rodent eradications to other islands around the world.

In the Hauraki Gulf there is now a 100 per cent success rate in intercepting new rat invasions. Challenges remain, however, such as working with island communities to implement rodent eradication strategies, and dealing to mouse invasions of islands, which require particular detail.

For more information about the 50th anniversary of rodent eradications in New Zealand visit www.science.auckland.ac.nz.
mHealth potential to improve Pacific health care

The potential use of mobile phones as a health tool for disease prevention and control in the Pacific has led Master of Public Health graduate Elaine Umali to connect some of the world’s most remote regions, helped by a Fred Hollows Foundation NZ scholarship.

She’s now writing her formal paper but warns mHealth (mobile health services) is not the hoped for silver bullet. Although promising and with potential, she doesn’t believe it is a substitute for actual improvements in the health system, especially in low-resourced settings. If core health infrastructures are defective or lacking, investments in mHealth cannot be used to replace actual investments to improve health services she asserts.

The journey for Philippine born and educated Elaine began when she took up Global Health papers in the School of Population Health, as course requirements for postgraduate studies in public health, under co-ordinator Dr Judith McCool.

Hearing about the Fred Hollows Foundation NZ Scholarship for researchers and adding to the knowledge of the Foundation struck a chord.

“I wanted to look at how mobile phones could be used in health, because it presents a critical opportunity among low and middle income countries to improve and increase access to health care,” she says.

“The rapid spread of mobile technology across the globe is making the medium very attractive in the development sector. And in the Pacific, there’s been a huge leap in the number of people with access to a mobile phone, providing a way for Pacific Islanders to change how they communicate, govern and implement activities.

“Looking at how mobile phones can be used for health in the region is something timely and useful,” says Elaine.

During her research she undertook an analysis of key stakeholder perspectives on establishing mobile phone services in the Pacific region to support the prevention of trachoma by conducting interviews with key NGO and government representatives and mHealth experts across the Pacific, Asia, Africa and the United States. She hopes the outcomes can be a useful tool to start debate around the use of mHealth in the region and enhancing local health systems.

Before moving with her family to New Zealand five years ago, Elaine worked for a variety of internationally funded development programmes, spending more than five years in tuberculosis programmes in the Philippines as well as environmental governance projects, and hygiene and sanitation initiatives. She retains a passion for development work and views this research as another step in advancing health care development in the Pacific.

Since 2012, the Fred Hollows Foundation NZ has funded research scholarships to support Master of Public Health students in the School of Population Health’s Global Health group. Students work in partnership with the Foundation and its Pacific Eye Institute in Suva.

Girls can do anything!

An “all girl” group of enthusiastic year 12 students from St Mary’s College recently visited the Centre for Advanced Composite Materials (CACM) and “were absolutely blown away by what they experienced.”

The students are entering the Transpower Neighborhood Engineers Awards and are being mentored by CACM graduate, Dominic Lauten, who now works for WSP Group, a building engineering consultancy.

Prizes are awarded to the best and most innovative collaboration between students, teachers and volunteer engineers, and offer students the opportunity to work with engineers on practical projects in their school and community.

The St Mary’s students are designing an infant incubator and the visit to CACM has helped them to understand the processes used to make this type of equipment and what the potential issues could be. It has also introduced them to new materials being developed and how materials can be tested.

Young women are under-represented in engineering careers and CACM Business Development Manager, Graeme Finch, says there is evidence to suggest there are many opportunities for women in this area. Engineering isn’t just about dirty machinery – it requires problem solving skills and creativity to provide solutions for large and complex problems.

Graeme says it was wonderful to be able to enlighten the girls to the possibilities that study in the fields of science, technology, engineering and mathematics can provide.

The visit was organised through Futureintech, an IPENZ initiative funded by the government, to promote careers in science and technology to teachers, parents and students.