



# Tāmaki Update

June 2012  
A newsletter for  
Tāmaki Innovation  
Campus

## New research institute at Tāmaki



Associate Professor Chris Bullen is keen to talk about collaborations and alliances with other University groups.

Tāmaki Innovation Campus has a new University research institute, the National Institute for Health Innovation (NIHI). Located within the School of Population Health, NIHI is now the largest research group in New Zealand focused on exploring and evaluating novel ways of improving health and healthcare.

NIHI's Director, Associate Professor Chris Bullen, says that NIHI provides a scale and breadth of health research capability that is unique.

Recent projects illustrate the range of areas and methods within NIHI's brief, such as Nutritrack, a database comprising

information on the nutrient composition of processed foods on sale at New Zealand supermarkets and major fast food restaurants, and the development and deployment of a framework to help district health boards in their decision-making around procurement of health IT systems.

The School of Population Health's Quality Improvement ('EPIQ') and Health Systems groups (NIHI Associates) bring additional expertise in areas such as evidence-based decision support and quality improvement, economic evaluation, assessment of health system performance and models of care.

"Underlying much of NIHI's work is

the application of health information technologies to facilitate research as well as interventions in their own right," says Associate Professor Bullen.

"Another important capability is designing and conducting rigorous assessments of the efficacy of new pharmaceuticals, new ways of using existing drugs, and new approaches to prevention and treatment across the spectrum from policy change to community action and individual behaviour change."

New Zealand's isolation is not necessarily a disadvantage, according to Associate Professor Bullen. "New Zealand is increasingly being recognised as an ideal test-bed for innovations. A priority for us is to establish NIHI's reputation nationally and internationally as a leading centre for health innovation research excellence."

"We also want to leverage our core capabilities to assist other groups in the University in their work, particularly in the areas of dataset curatorship, data management and statistical support, and technology support, such as website design, SMS and app development. And we are keen to grow our engagement with commercial research organisations and industry in New Zealand and abroad."

What this means for Tāmaki Innovation Campus is that there is now a large widely-networked group with a unique and diverse mix of expertise across a range of disciplines dedicated to addressing the current and future 'big picture' health challenges.

"We are keen to talk about collaborations and strategic alliances with other groups on campus."



## Message from Pro Vice-Chancellor Tāmaki Innovation Campus

Dear Colleagues

I recently had the pleasure of attending the launch of Conectus, a new alliance of four established health-related UniServices organisations focused on infants, children, young people and their families.

The four Conectus organisations are all located in the new UniServices Innovation Hub in Building 734. This exciting development was made possible due to the Library and “I” Building consolidation programme initiated in 2009 and completed with the opening of the Sport and Exercise Science laboratories in Building 731 in early May this year.

The relocation of groups into thematic precincts as set out in the Tāmaki Innovation Campus Academic and Precinct Plan has allowed for an Innovation Partner such as Conectus to emerge. I am extremely pleased to see this development take place as a direct result of the consolidation, and with this the vision and strategic plan for the Tāmaki Innovation Campus is strengthened and reinforced.

Another very important development for the campus has recently been announced with the Tāmaki Innovation Campus gaining impressive new Faculty of Engineering research facilities. These developments are two-fold and will include firstly, the refurbishment of Building 740 to accommodate the relocation of two major research centres: Light Metals Research Centre and the Research Centre for Surface and Materials Science.

Secondly, a brand new research facility adjacent to Building 740 is to be built providing an additional 5,000 m<sup>2</sup> of space for large scale research projects. This new facility will include a structures test hall, a fluid dynamics laboratory, and a thermodynamics laboratory. Also, relocating to the new facility will be the Energy and Fuels Research Unit and the Transportation Research Unit. This is an extremely exciting development for the Faculty of Engineering, as it means the University will be gaining updated, state-of-the art facilities, and it is expected that this will open up opportunities for exciting new research projects that have not been possible in the past.

I see this as an excellent opportunity not only for the Faculty of Engineering, but also for the Tāmaki Innovation Campus. The research groups relocating to Tāmaki will be joining the already well-established Tāmaki groups, the Centre for Advanced Composite Materials and the Plastics Centre for Excellence. This will firmly position the Materials Innovation theme on campus for the future.

I will be keeping you up to date with the progress of these projects, and it is expected that the building work will commence this year with completion by the start of 2014.

Best wishes

Professor Michael C.R. Davies

Pro Vice-Chancellor Tāmaki Innovation Campus



## Seminar series highlights Tāmaki research

David Raubenheimer, Professor of Nutritional Ecology at Massey University, was the inaugural speaker at the Pro Vice-Chancellor Tāmaki Innovation Campus Seminar Series recently. Professor Raubenheimer proved a popular choice with his absorbing insight into, “The geometry of nutrition: the protein leverage hypothesis and why the Atkins diet won’t work for gorillas”.



From left: Prof David Raubenheimer, Prof Mick Clout, Dr James Russell, Prof Michael Davies

The Seminar Series topics are aligned to the strategic plan and themes for the Tāmaki Innovation Campus, with Professor Raubenheimer recommended as a speaker by the School of Biological Sciences’ Biodiversity, Biosecurity and Conservation section.

Professor Michael Davies, Pro Vice-Chancellor Tāmaki Innovation Campus, says, “The seminars are to be at the cutting edge of their discipline in their material but also accessible to an ‘educated general audience’. The purpose of the seminars is to allow colleagues from across the Campus and the University to understand what research is being conducted in the different disciplines represented at the Tāmaki Innovation Campus and, perhaps, spark new interdisciplinary activity”.

Professor Davies will in fact be the next speaker on 3 August, and in his capacity as a Professor of Engineering will be speaking about his research on geotechnical engineering: “Engineering the Earth”.



## Snapshot in time of 'biodiversity hotspot'



Dr Peter Buchanan says knowledge of New Zealand biodiversity is fundamental to meaningful conservation.

Fifteen scientists from Landcare Research which has a base at Tāmaki Innovation Campus, and three from The University of Auckland, have contributed to a recent landmark publication of the final volume of 'New Zealand Inventory of Biodiversity'; the first ever compilation of everything recorded so far in New Zealand, from bacteria to birds, fungi to trees, corals to fish.

The 1,758 page, three-volume series provides a common language introduction to all phyla of life and while the accompanying checklists document every recorded species currently known in New Zealand (approximately 56,000 living and 15,000 fossil species), it is widely accepted, and a cause for excitement, that there are more species yet to be discovered than the number so far recorded.

The third volume completes a publication initiated in 1999 as a millennium project, championed and led throughout by Dennis Gordon of NIWA. The series has involved 237 authors from 19 countries; those (for Vol. 3) from The University of Auckland are Dr Simon Swift (human bacterial pathogens), Dr Sue Turner (geothermal bacteria) and

Dr Barry O'Connor (geology).

Dr Peter Buchanan, Landcare Research Science Team Leader, Systematics, and collator of a number of chapters, said Landcare Research staff and associates wrote 13 chapters in the final volume, covering bacteria, fungi, and plants.

"Knowledge of New Zealand's biodiversity is fundamental to meaningful conservation and to our understanding of ecosystems," said Dr Buchanan. "This Inventory will be of significant use to government, the public, and to students - it's readable, well-illustrated, and comprehensive in coverage.

"As a world-acclaimed biodiversity hotspot, authors globally have joined with New Zealand experts to document our biodiversity. New molecular technologies are assisting our task to describe the thousands of New Zealand's yet-to-be recorded species."

Checklists from the Inventory will be a major contributor to the continually updated 'New Zealand Organisms Register', a national database to be officially launched on 27 August this year.

## University and Fred Hollows Foundation join forces

How can we most effectively prevent blindness in the Pacific? This is a key question University of Auckland researchers will be tackling as the result of targeted funding from The Fred Hollows Foundation NZ.

The Foundation, which works to eradicate avoidable blindness and restore sight in the Pacific, is funding two research scholarships to support Master of Public Health students within the School of Population Health (Global Health).

"We are very excited about the potential of this research to enhance our work in the Pacific," says Andrew Bell, Executive Director of The Fred Hollows Foundation NZ. "Our priority is ensuring the best outcomes for people affected by avoidable blindness, and through targeted research we hope to gain a deeper understanding of the barriers and challenges we face delivering eye care programmes in the region."

The first two students to win scholarships have already begun researching diabetes eye health in Fiji, where the Foundation has been involved in diabetes eye care training and service provision since 2010.

One of the projects is looking at how local GPs perceive the importance of eye care when patients present with diabetic symptoms. "High blood sugar affects the retina and if left untreated can cause diabetic retinopathy, a condition that results in vision loss and even blindness," explains Dr Judith McCool, Senior Lecturer with the Global Health group and supervisor of the masters' projects. "A survey of local doctors will give us a better understanding of how they approach eye health in diabetic patients."

The second project is looking at the impact of the Foundation's programmes on diabetes management and policy in Fiji. Through key informant interviews, the research will help The Fred Hollows Foundation NZ to target its interventions where it can be most effective.



## Young at risk refugees involved in study



Chaykham Choummanivong's passion for working with refugees is sparked by her own experience.

There are more layers to PhD candidate Chaykham Choummanivong than first appear, but her love for her work shines through them all.

Her passion for working with refugees is sparked by her own experience. As a seven year old she fled with her family from their homeland of Laos to Thailand and lived in two refugee camps over two years. Arriving in New Zealand, under the refugee quota, the family eventually settled in Hamilton.

Chaykham studied at the University of Otago, graduating with a BSc, and then completed her Masters (Hons) and Postgraduate Diploma of Clinical Psychology at the University of Waikato.

After working as a clinical psychologist at Whirinaki Child and Adolescent Mental Health, she took up a role as Primary Mental Health Co-ordinator at Te Kohao Health. Her interest in refugee issues led her to working with Refugees As Survivors (RASNZ) before setting up in private practice in the Waikato.

The private work helps support another layer in Chaykham's life, working on her PhD at the Tāmaki Innovation Campus with the Department of Psychology. Here she is known by her maiden name of Choummanivong, kept for academic purposes, she says, to honour her parents.

A doctoral scholarship from The

University of Auckland also provides significant support for her study, where she is looking at young refugees 13-18 years old, who have arrived in New Zealand under the refugee quota and who have accessed mental health services.

"It has been well documented that young refugees are at risk, with greater likelihood of exposure to war, violence, trauma, poverty and discrimination," she explains. "Whilst the original trauma or incident may not be recalled specifically by the young refugees, the constant retelling by families is reinforcement."

"Family conflict, as a result of role changes and settlement, is happening across ethnic groups in New Zealand, from Colombian to Ethiopian refugees."

From a practitioner's viewpoint, there are a lot of common issues including the often low socio-economic status and its attendant problems. The greatest difficulty overall, is the cut in funding for English language teaching, which Chaykham calls a fundamental criterion and one which needs to be reviewed to help refugees not only assimilate but also to cope better.

With the high recognised vulnerability, including mental health needs of refugee adolescents, there is still low use of psychological and support services. The PhD study sets out to examine refugee adolescent coping and experience of mental health service.

The lack of documented research into this area in New Zealand, especially with the increasing number of refugees since New Zealand agreed to accept refugees makes it an important and relevant issue to study.

Insights from Chaykham's young life have provided direction for her career. "When you are in a bamboo house in a refugee camp and that goes up in flames, and then you have got less than nothing, that is very devastating," she remembers.

She credits volunteer workers such as the Red Cross with sparking an early interest to work in the same area; a role she describes as a 'dream come true'.

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## PhD research relevant to commercial innovation



Supervisors and PhD students presented at the Materials Accelerator workshop.

The Materials Accelerator research programme recently held its first PhD workshop at Tāmaki Innovation Campus.

The workshop involved presentations by supervisors and PhD students themselves and was attended by senior researchers from Scion, Industrial Research Ltd, GNS Science, Victoria University Wellington, and The University of Auckland as host.

“The quality of the presentations was extremely high for first year PhD students and the relevance of the presentations to commercial innovation was quite exceptional”, says Professor Ralph Cooney, Deputy Director of the Materials Accelerator.

Funded by the Ministry of Science and Innovation (MSI), the Materials Accelerator involves a network of eight research providers across New Zealand and approximately 100 applied materials researchers. The University of Auckland contributors include a number of research centres and groups from the Faculties of Engineering and Science, including the Light Metals Research Centre and the Centre for Advanced Composite Materials.

Its mandate is to accelerate basic research to commercial products and this currently involves six technology platforms, including aerospace, construction, agricultural technology, coatings, and air quality.

The objectives of the workshop included: filling knowledge gaps in the technology platforms; establishing network awareness of basic research projects; reviewing the benefits for existing and future commercial opportunities; and ensuring development of research and communication skills among the students.

The topics covered by the students comprised nano-structured water-interactive surfaces, metal polymer-interfaces, dry adhesion inspired by Gecko’s feet, metal-ceramic interfaces, thermal and electro-magnetic materials, and membranes for oxygen enrichment.

In his opening comments Professor Cooney outlined the operations of the Materials Accelerator and the career advantages for students studying under the auspices of the Materials Accelerator.

The workshop will be held annually and in future years it is anticipated that innovative industry partners will be invited.

## Opening of Sport and Exercise Science laboratories



Professor Michael Davies officially opens the Sport and Exercise Science laboratories.



The exercise physiology laboratory.



Dr Nick Gant explains his research to Professor Davies.



## Unlocking the secrets to ageing well for elderly Māori



Professor Ngaire Kerse is recognised as an international expert in her areas of research including care of older people.

New Zealand's first large-scale longitudinal study of older Maori has shown that engaging in traditional and cultural practices and better nutrition arising from living with others are both key factors in high quality of life.

Professor Ngaire Kerse, Head of General Practice and Primary Health Care at the School of Population Health, said 'Life and Living in Advanced Age: a Cohort Study in New Zealand (LiLACS NZ): Te Puāwaitanga o Nga Tapuwae Kia Ora Tonu' is the only longitudinal study of ageing that includes a large number of indigenous people.

It will, she said, provide useful information for providers, planners and government policy makers by supplying information about what leads to successful advanced ageing for Māori and non-Māori.

The study began in 2010, with researchers recruiting over 510 non-Māori aged 85 years and 420 Māori between the ages of 80 and 90 years from the Bay of Plenty and Rotorua regions. The focus was finding what leads to successful ageing in the elderly.

The study is anticipated to cover 15 years depending on funding, aiming for a minimum of five years of follow-up on this group.

Time on a marae, frequency of marae visits and knowledge of culture were shown to be associated with enhanced well-being. Older Māori are busy as they age, with strong cultural community links and involvement in cultural practices related to such things as tangihanga (funerals).

"Although other studies have shown the correlation between older Māori and their involvement with their own community, this is the first study ever to show this correlation through quantitative numerical data," says Professor Kerse.

Other findings from the first two years of the study show that 92 percent of participants in the trial took prescribed medication, with a reasonable number not taking any medication at all; 90 percent had no cognitive impairment; 67 percent were still driving; and the average grip strength was close to or better than expected for this

age group - 30.5kg for men and 19.1 kg for women.

As expected, cardiovascular disease was quite prevalent with 67 percent of Māori and 63 percent of non-Māori having established heart disease or stroke. The minority took cholesterol lowering medications (about 40 percent of Māori and 37 percent of non-Māori).

"We found food is important to successful ageing and living with others was associated with better nutrition," says Professor Kerse. "Detailed food records have been collected in the second wave of research to celebrate the variety of foods eaten and understand the health risks related to nutrition.

"We are excited to see how this group of people fare over the next year, with upcoming interviews to include the main caregiver and their perspective on successful ageing."

And, she adds, of course the study is seeking additional support and is interested in any funding initiatives.