



# Tāmaki Update

March 2015

A newsletter for  
Tāmaki Innovation  
Campus

## Health Hackathon finds answers



Dr Karen Day with Sir Ray Avery who attended the Health Hackathon as a mentor, assessing ideas put forward by teams and offering guidance on improvement and refinement of their concepts. Photo: Chris Loufte.

They're not Foo Fighters, but fever fighters; the winning Health Hackathon team, 'Fight the Fever', created an innovative solution for young people who have had rheumatic fever to help manage monthly antibiotic injections over a ten year period. Their solution consisted of an electronic appointment diary, a league table for appointments kept, a support network, a game to keep them engaged, and incentives and rewards.

The inaugural Health Hackathon aimed to stimulate innovative thinking about technology solutions for people with long-term health issues, to help track and record their healthcare plan, progress and outcomes, and to improve their overall wellbeing.

Doctors, nurses, clinicians, software developers and anyone with an interest in the area were invited to attend the weekend long event, to collaboratively explore and develop technology solutions for self-care of long-term health issues.

Organiser Dr Karen Day, programme director for health informatics in the School of Population Health, says the hackathon was a first for the University in this area and also a personal first. "It was great to see how team members converged on a problem, considered how to solve it, and came up with strong possibilities. Mentors moved around, offering intermittent help and shifts in thinking, and sometimes stayed with a group

for the rest of the weekend. The weekend's dynamic was electrifying."

A major coup for the hackathon was the attendance by 2010 Kiwibank New Zealander of the Year, Sir Ray Avery, who was invited as a mentor. According to Dr Day, his words of advice were "always bear in mind the customer statement of need" and consider the risk of creating a product that has no conceivable purpose other than being something cool. He also encouraged teams to think about product realisation rather than production and that they should realise products in response to consumer statements of need.

The runner up was a team that created a medication label that reads out loud, accommodating different languages, answering a problem for those people who struggle to read medication labels due to sight or language difficulties.

Dr Day says, "Many people ask what's next for the hackathon teams and the winners in particular. Some teams have formed strong bonds and continue to work on their solutions long after the hackathon weekend. It is too early to tell what will be commercialised or how the solutions will become ready for commercialisation. The important thing that has happened is that patients have a voice in innovation development, and this was clear during the weekend."

For her research, Dr Day has collected responses from half the hackathon members for one survey, and a subset of responses for two more surveys. Now it's time for data analysis and writing it all up for publication.

In summary, Dr Day says hackathons are a great way to bring people together to be creative and develop innovative solutions to everyday problems.



## Message from Head of Tāmaki Innovation Campus

Dear Colleagues

Welcome back! It is wonderful to see all the new faces and existing students back on board, adding zest to the campus now that Semester One is well underway. Thanks to all who have been involved in orientation activities, and for your contributions to making the student experience at Tāmaki enjoyable, productive and positive.

The year at Tāmaki has started well with two of our colleagues celebrating significant achievements. Please join me in congratulating Peter Adams and Chris Bullen from the School of Population Health on their promotion to professor. This is a great distinction and recognises outstanding teaching, research and professional achievement at the highest international academic level. Professor Adams is deputy head of the School of Population Health and an associate director of the Centre for Addiction Research. Professor Bullen is the director of the National Institute of Health Innovation and co-director of the Tobacco Control Research Tūranga, a \$5 million Health Research Council programme of multidisciplinary research into tackling smoking in New Zealand. Don't miss the article on Page Four about Professor Bullen and the recently held symposium on e-cigarettes.



In February, we said farewell to staff and students from the Department of Computer Science, who relocated to the City Campus as part of the unification of their department. We also farewelled Professor Reinhard Klette, who has been with Computer Science at the Tāmaki Campus for almost 20 years. Professor Klette has taken up a position at AUT University and we wish him all the best in his new endeavour. His presence on campus, and the Computer Science staff and students, will be greatly missed.

We have another excellent line up of outstanding speakers for the Head of Campus Seminar Series in 2015. The first seminar on 20 March is "The Psychology of Seeing - or, Is the Dress Black and Blue or Gold and White?", a very topical subject to be presented by Professor Will Hayward, head of the School of Psychology. The second seminar will be delivered by Professor Ngaire Kerse, head of the School of Population Health on 1 May. Dr Lester Levy, chair of the Auckland and Waitemata District Health Boards will be our third seminar speaker on 24 July. Look out for email notifications with all the details nearer to the events.

In this edition of the Tāmaki Update, we welcome some new faces to the campus. Firstly, Dr Cate Macinnis-Ng who is not new to the University but recently joined the School of Biological Sciences at Tāmaki and is undertaking exciting research around kauri trees and climate change. Also, Dr Stacey Reading, programme director for clinical exercise physiology in the Department of Sport and Exercise Science, who joined us from the University of New Brunswick, Canada. He has played an important role in the clinical exercise physiology programme receiving international accreditation, the first outside North America. I hope you enjoy reading these and other articles about our people and activities.

Best wishes

**Associate Professor Greg Anson**  
Head of Tāmaki Innovation Campus

## What's been happening?

### Urban Ecology Symposium



An Urban Ecology Symposium was hosted by the Centre for Biodiversity and Biosecurity and organised by Dr Margaret Stanley.

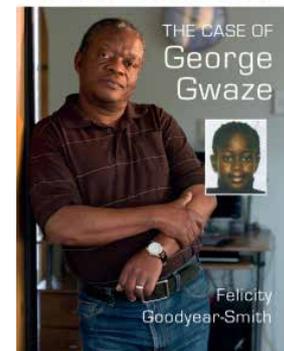
Professor Kevin Gaston (pictured) from the University

of Exeter, one of the world's leading ecologists was the plenary speaker, and the programme included a diverse range of talks on ecological research, the human dimensions of living urban environments, and urban design. The symposium was attended by a range of stakeholders including Auckland Council, Department of Conservation, landscapers, environmental consultants and a number of universities.

Dr Stanley says, "A special feature of the symposium was the inspiring plenary session on the Bastion Point and Okahu Bay restoration by Ngāti Whātua o Ōrākei."

### New book for Felicity Goodyear-Smith

## MURDER THAT WASN'T



A book by Professor Felicity Goodyear-Smith, head of General Practice and Primary Healthcare, was recently launched by Otago University Press.

"Murder that Wasn't: The Case of George Gwaze" tells the story of George Gwaze,

twice charged and twice acquitted of rape and murder of his ten-year-old adopted niece, Charlene Makaza. Murder that Wasn't meticulously explores the facts surrounding this case, based on scientific, medical and court records and individual interviews, to give an account of this family's extraordinary story.



## New dysphagia role opens cross-faculty opportunities



Dr Anna Miles' goal is to develop multidisciplinary and cross-faculty collaborations to build a productive dysphagia research programme focussing on improving outcomes.

Dr Anna Miles is not new on campus, having worked alongside the speech science programme since its inception 12 years ago. But her role as Lecturer in Dysphagia is new, with the goal of developing multidisciplinary, cross-faculty dysphagia research.

Dr Miles is one of only two dysphagia academics in New Zealand and sees her greatest challenge in developing collaborations and support systems.

"Dysphagia or swallowing difficulties is a relatively new area of speech language therapy and the speech science programme did not have a lectureship in dysphagia when I started. The dysphagia paper was taught online," she says.

"Speech language therapists are now expected to graduate with a strong theoretical knowledge in dysphagia as well as competent clinical skills in the area. With the support of Professor Will Hayward, head of psychology and Professor Suzanne Purdy, head of discipline for speech science, we put together a proposal to develop this position."

Dr Miles says dysphagia lends itself to multidisciplinary teaching and research and hopes to build relationships throughout the University and with the district health boards to ensure students can optimise dysphagia learning and experiences.

"I'd like to work with colleagues across

faculties to build a productive research programme focussing on improving outcomes. Last year, Nutrition and Dietetics joined the University of Auckland Clinics and clinical director Julia Sekula and I ran joint student clinics for people with Parkinson's disease, assessing both nutrition and swallowing and providing advice and support."

She also works closely with the Simulation Centre for Patient Safety, running workshops for students and qualified speech language therapists in specialist skills such as tracheostomy management. They have a number of research projects in progress, evaluating simulation in speech language therapy.

Dr Miles says her work as a speech language therapist in the acute hospital system showed her the impact of dysphagia on people's lives. "Dysphagia puts patients at risk of developing pneumonia, malnutrition and dehydration but equally as important, it impacts on quality of life. Life without social eating and drinking is just awful."

Dr Miles was awarded the Jean Seabrooke Prize in 2013 and the NZ Speech-language Therapists' Association Research Excellence Award in 2014.

## In brief

### Coming up - Head of Campus Seminar Series

20 March, 3.30-4.30pm, 721.201

"The Psychology of Seeing - or, Is the Dress Black and Blue or Gold and White?"

### Professor William Hayward



Seeing is one of the easiest things that we do. Only it just appears to be simple; in fact the brain has to solve a tremendously complex set of problems in order to let us see the world around us. This was

perfectly illustrated by a recent viral image of a dress that some people saw as blue and black and others as white and gold. Find out why we can't we agree on its colours.

### Private rentals often unsafe for toddlers

Many private rentals fall short of being safe places to bring up a child, according to new research into household safety released by Growing Up in New Zealand. "By the age of two years, 28 percent of the GUiNZ children had sustained an injury that required a doctor or hospital visit, with 69 percent of these injuries occurring in the child's own home," says senior research fellow, Sarah Berry. "Home is where children spend most of their time during their early years, so it is a good place to focus our attention if we want to create safe environments for children to grow up in."

### Natural quit smoking remedy

National Institute for Health Innovation researchers have found that a low cost, plant-based product is better than nicotine replacement therapy at helping smokers quit. Cytisine has been used in smoking cessation for more than 40 years in Eastern Europe and is commercially produced in Bulgaria and Poland. The trial followed 1310 adult daily smokers who called the national Quitline in New Zealand.



## Shedding new light on food allergies



PhD student, Colleen McMilin, is planning to pursue a career in academia. She is passionate about improving public health through research and helping students learn and succeed in their university studies.

Colleen McMilin is hoping to generate data of both national and international significance, through her PhD thesis, that could shed new light on the epidemiology of food allergies in children.

A graduate of the Montana State University and Colorado School of Public Health, Colleen’s career has focussed on community and behavioural health. It’s a natural fit for her PhD studies in the Centre for Longitudinal Research, where she is using data collected from the Growing Up in New Zealand study to inform her thesis investigating life-course determinants of food allergy in New Zealand children; examining the prevalence and incidence of food allergy, causal factors and the population effects.

Her work includes the role of vitamin D status at birth, health disparities in childhood food allergy identification and management, and quality of life issues faced both by children diagnosed with a food allergy and their families.

Colleen’s past experiences have allowed her the opportunity to work in a variety of public health settings from promoting healthy eating and active living within schools, co-ordinating a community-based programme

among older Latino populations, conducting cardiovascular disease perception-based work among Latino and underserved populations, and assisting with the development and analysis of metabolic research diets.

“While working as a school wellness co-ordinator in the United States, I became interested in the topic of food allergy as I often heard comments about the apparent surge in the number of children with a food allergy. To provide me with a global health perspective, I decided to pursue a PhD outside the United States and joined the Centre for Longitudinal Research at the University of Auckland in 2012.”

Colleen plans to submit her thesis in June and return to the United States to pursue a career in academia in either a postdoctoral fellowship role or as a lecturer. “My research and teaching interests lie within public health with a focus in community health, child health outcomes, nutritional epidemiology, food allergy, community-based participatory research, reducing health disparities, and implications for health policy.”

“My passion lies in improving public health through research and helping students learn and succeed in their university studies.”

## More evidence needed on e-cigarettes

The need for more examination and investigation into the role of e-cigarettes was called for by the Associate Minister of Health at a symposium organised by the Centre for Addiction Research and the Tobacco Control Turanga, led by Professor Chris Bullen (pictured).



Different perspectives on the science, use and regulation of e-cigarettes were shared at New Zealand’s first day-long symposium on the alternative device. Participants included smoking cessation researchers, government policy makers, healthcare groups, tobacco control lobby groups, individuals and industry representatives.

Associate Minister for Health, the Hon Peseta Sam Lotu-liga said that there was not yet enough evidence to allow the unregulated use of e-cigarettes. The Government valued the role of nicotine therapies in smoking cessation, but the role of e-cigarettes as a form of nicotine replacement therapy required careful examination and investigation.

“That’s why today is important – being the first national symposium of its kind on e-cigarettes bringing together the latest expertise and data, and the viewpoints of experts and key stakeholders from here and around the world,” he said.

Professor Chris Bullen advocated for a balanced scientific approach to considering a way forward for e-cigarettes in New Zealand and the goal of SmokeFree NZ by 2025.

“Currently we have a regulatory context where nicotine is regulated as a medicine except where it is in tobacco and we need to think about the appropriateness of that,” he said. “We won’t make that goal if we continue with our ‘business as usual’ tobacco control strategies. We do need to think outside the box and of innovation, and the question is, are e-cigarettes part of trying to reach that target.”



## Dietary supplement may protect the brain from injury



Professor Winston Byblow (left) and Dr Nick Gant.

The dietary supplement creatine can protect the brain when its oxygen supply is reduced, a study has found. Published in the *Journal of Neuroscience*, the study was led by Dr Nick Gant along with Professor Winston Byblow, and PhD student Clare Turner, all from Sport and Exercise Science and the Centre for Brain Research.

“The brain requires a constant supply of oxygen and is highly vulnerable when this supply is reduced by injury or disease,” says Dr Gant. “We set out to help improve the brain’s natural defences and think we’ve discovered a way of doing this.”

The secret to creatine’s success is that it requires no oxygen to make energy. The study found that creatine was stored in areas of the brain that are easily oxygen deprived. “Athletes have been getting an energy boost for their muscles from creatine for over 20 years,” says Dr Gant. “Creatine supplementation increases the amount of useable energy stored in muscle and our research shows it has a similar effect within the brain.”

A combination of advanced neuroscience techniques to study the brains of healthy adults were used. According to Ms Turner, “The supplement increased the amount of creatine stored in the brain by nine percent which prevented the decline in cognitive performance that occurred with a placebo supplement. It also increased neural excitability in parts of the brain that control movement.”

The ability to sustain attention was the area of mental performance that was improved most by creatine. “This is encouraging”, says Professor Byblow. “Attentional capacity, or the ability to sustain focus, is the most commonly impaired process with exposure to high altitude and among survivors of brain injury.”

The study is the first demonstration in humans that shows a short six-day course of this widely available dietary supplement can be neuroprotective. The team is currently investigating creatine as a treatment for concussion and exploring if creatine can help improve the brain’s ability to form new connections.

## Leaves unlocking climate change secrets

Dr Cate Macinnis-Ng climbs trees for a living - and calls her working environment “vibrant, active and exciting”.

The recently appointed Lecturer in Ecology within the School of Biological Sciences has a Marsden-funded project looking at seasonal and inter-annual variation in tree process in kauri forest.

Her group is working at the University of Auckland’s Huapai Reserve monitoring how much water the trees are using and how fast they are growing.

“We are also measuring environmental variables so we can work out which factors affect plants and also identify what adaptations the plants have to survive drought conditions,” she says.

And while the all important leaf measurements mean spending time “in the canopy”, a less than enthusiastic head for heights means she’s happy to delegate the task to her four current students and one part-time postdoc; all working on some aspect of plant ecophysiology.

The kauri project is one of a number under her care, and complements her interest in interactions between plants and their environment, including climatic and soil conditions. Fieldwork, shade house experiments and modelling work is done to improve understanding of how a changing climate will impact on plant growth, water use and survival.

“The information we are gathering helps us prepare for a changing climate. We can work out if the trees will get enough water and if they are still accumulating carbon or if they are losing carbon under a changing climate. The results are useful for conservation, carbon accounting and water resource management.”

Dr Macinnis-Ng recently took part in a major global research project to help build better climate models using data collected from plants at 56 sites around the world including kauri trees at Auckland’s Waitakere Ranges. Overall the study, published in *Nature Climate Change*, found that plants use water wisely, indicating that plants have adapted their water-use strategies to their environments.



Dr Cate Macinnis-Ng has recently joined the School of Biological Sciences at Tāmaki.



## Clinical exercise physiology programme a first for US accreditation



Dr Stacey Reading regards a high level of practical experience at the Health and Performance Clinic critical for students undertaking the PGDip and MSc in clinical exercise science and physiology.

Dr Stacey Reading has been on campus for less than a year, but he's making an impact in the Health & Performance Clinic. He arrived in July as programme director Clinical Exercise Physiology and senior lecturer in the Department of Sport and Exercise Science.

Since then, the two year old Master of Science: Clinical Exercise Physiology programme has received accreditation from CAAHAP (Commission on Accreditation of Allied Health Education Programs), becoming the first course outside North America to receive it.

Dr Reading explains that both the Postgraduate Diploma and Master of Science programmes include high level practical experience in the Health & Performance Clinic; something he regards as critical and this is reflected in the significant amount of time students spend with clients in the clinic.

"A clinical exercise physiologist uses structured exercise (aerobic, resistance and flexibility training) in a prescriptive form to preserve or improve functional capacity lost because of a chronic illness or injury. Clinical exercise physiologists must have expert

knowledge in exercise physiology, training adaptation, rehabilitation, epidemiology, and pathophysiology supported by foundational knowledge in physiology, metabolism, pharmacology, biomechanics and behavioural sciences," he says.

The Postgraduate Diploma in Clinical Exercise Science is a one-year 120 point programme providing students with academic and clinical experience in the field of clinical exercise physiology. In addition to formal course work, students obtain 200 hours of clinical experience assessing and prescribing exercise therapy to clients with chronic illnesses such as cardiovascular disease, diabetes and obesity.

The taught Master of Science: Clinical Exercise Physiology is a one-year 120 point programme of course work and significant practical training. Students obtain 400 hours of clinical experience with clients who have cardiovascular, metabolic, musculoskeletal, neoplastic, neurological and/or pulmonary disease. They also gain experience with clients experiencing mood disorders and those recovering from surgery.

The new degree programmes combine

and replace the previously offered specialisations in exercise rehabilitation and cardiac rehabilitation.

Students completing the PGDip and MSc years accumulate the academic qualifications and required clinical experience to challenge the American College of Medicine's Registered Clinical Exercise Physiologist examination, the highest qualification for practicing clinical exercise physiologists in the United States and recognised worldwide.

The role of clinical exercise physiologists in healthcare is only just emerging in New Zealand as it is elsewhere in the world. Dr Reading says medicine manages symptoms and acute aspects of illness but is not set up to provide long-term specialised therapy aimed at maintaining or restoring function lost to chronic disease.

The clinical exercise physiologist is trained to integrate prescriptive exercise with disease pathology and medical management so that functional capacity is maintained for as long as possible. They are also trained to help children and adults transition from an inactive to active lifestyle safely and effectively to delay the onset of diseases related to physical inactivity.

Dr Reading says the field is a growing one; probably most advanced in Australia where it is considered part of healthcare services. In New Zealand, some clinical exercise physiologists work in traditional healthcare settings but the remaining practitioners are in private practice or fee for service tertiary healthcare settings.

According to Dr Reading there is a challenge associated with developing the field of clinical exercise physiology in countries with publically funded healthcare. Patients and clients feel the service should be free or at least subsidised by public health departments. There is also the perception that the treatment is "just exercise" and therefore the skill required to prescribe exercise in accordance with the disease condition and its medical management is under appreciated.