YOUNG SCIENTIST INVESTIGATES CAUSES OF HEART DISEASE AND DIABETES.

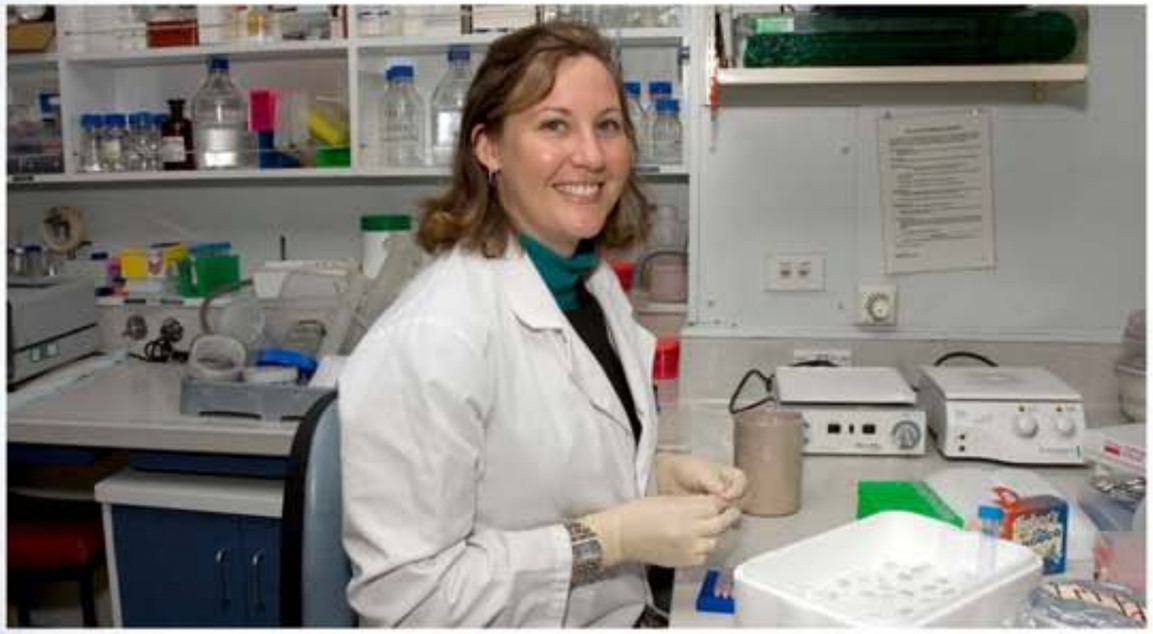
Dr Nicola Scott from the Christchurch Cardioendocrine Research Group is what's known in the scientific world as an 'emerging researcher'. It may sound as though she is just coming to the surface after being buried for some years, and in a metaphorical sense there is some truth in that. After spending three or four years on a PhD and then extending this research into a 'post-doc' there is a sense that as a young scientist she is emerging into the light of day.

As a young and enthusiastic scientist she has recently managed to win her first grant from the Health Research Council to investigate the metabolic syndrome, one of the most pressing health problems in this country, and how it may be a risk factor for heart disease and diabetes.

"It was a really nice surprise to get an HRC grant as not many young researchers manage to pull it off," she says with enthusiasm. "It means for the first time I'll be responsible for my own research project under the guidance of senior scientists."

Over the next three years Nicola will be looking at the development of the metabolic syndrome which affects thousands of people in New Zealand. It is characterised by increased weight, high blood pressure, abnormal cholesterol levels and insulin resistance.

"We know very little about how or why the metabolic syndrome develops and to what extent it increases your chance of developing Type 2 diabetes or heart disease and how they interact,"she explains.



"There's a lot of contention over these issues and my research aims to clarify some of these associations. It'll also look at gene variants which are linked to the development of the metabolic syndrome, insulin resistance and high cholesterol."

Dr Scott's career in science and her interest in heart disease is motivated by the fact that her father died from a heart attack when she was twelve. She says that ever since she has been interested in doing something involving science, research and health, and was really enthused during her honours year in biochemistry at the University of Otago and after doing a Summer Studentship in Christchurch.

"I had an absolute blast of an honours year, nothing worked, but in the process I fell in love with research," she says with a laugh. "But it and the Summer Studentship were so interesting, every day was new and it convinced me to go for a career in medical research."

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University of Otago, Christchurch, September 2009

Connecting with the Community

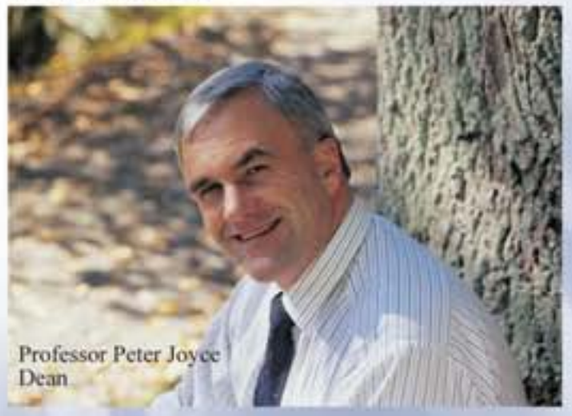
It is a great pleasure for me to introduce our second community newsletter for 2009. Our vision is to be: "A research-led campus with an international reputation for excellence." We are proud to be the top rated of the four Schools of Medicine in the country, and part of New Zealand's top rated University for research.

This year has many challenges beyond the usual. The global economic recession impacts on all aspects of our community, including health and education. However, this year is also providing a once in a lifetime opportunity, as both the University of Otago and the Canterbury District Health Board have employed planners to take a thirty year look at our physical campus. Both planners are charged with coming back to the respective organizations with a vision as to the physical arrangement and shape of our buildings for the future. Future generations will either take for granted the design of a well functioning hospital/university campus, or wonder why we got it so wrong.

This year also has the makings of being a landmark year for the health service. During the ill planned and ill managed health reforms of the 1990s, education and research were 'unbundled' from health and neither were seen as 'core' business for District Health Boards. A recent series of reports to the Minister of Health, on junior doctors, senior doctors, nursing, clinical training are all pointing in the same directions: if we are to provide the health services our people deserve, then our health services to need re-prioritize and 're-bundle' education, training, research and innovation. Only a valued, innovative and educated health workforce can deliver the health care we all wish for!

Over the last two years, our two largest research groups have both received new Health Research Council programme grants. These grants provide some financial security for five years for both Professor Mark Richards' Cardioendocrine Research Group in the Department of Medicine and for Professor Christine Winterbourn's Free Radical Research Group in the Department of Pathology. Both these research groups continue to be extremely active and productive, and their global reputations grow.

In February 2012 we will be welcoming our 40th class of fourth year medical students to this campus. At that time we will be celebrating our first 40 years of teaching and research. We will be undertaking fund raising to provide for future research fellowships and clinical training fellowships. These presitigious fellowships will be called Carrell-Espiner Fellowships, named after Professor Robin Carrell and Professor Eric Espiner, two of our foundation staff who made outstanding contributions to research on the Christchurch campus.



Professor Peter Joyce
Dean

CANTERBURY STUDY INTO HEALTH AND AGEING

A new long-running study investigating the health of the growing ageing population is about to get under way next year in Christchurch. CHALICE, or the Canterbury Health and Ageing Lifecourse Study, aims to shed new light on one of the community's greatest challenges, how to care for older age groups, and maintain their health into old age.

This new wide-ranging research project will recruit a large sample (2500) of fifty year olds from the Canterbury region, with the objective of first interviewing and assessing them at fifty, and then to re-interview and reassess them every five years over many decades, or until death.

"CHALICE will focus on health, wellbeing, healthy ageing, healthy eating, healthy hearts and healthy brains," says study leader and Dean of OUC, Professor Peter Joyce. "Our health system will need to change to deal with the increasing numbers of elderly people."

Understanding healthy ageing is a major scientific challenge. Diseases of the heart, vascular related diseases such as stroke, and dementias are major causes of death and disability. Disorders such as depression influence quality of life, as do falls and fractures.

Professor Joyce says with long term studies the greatest benefits will occur over time, as has happened with the US-based Framingham Heart Study and the Christchurch Health and Development Study, both of which are recognised as world-leading health research.

In the CHALICE study there will be the potential to examine a wide range of questions from how genes, biology and nutrition impact on ageing and age-related diseases; how social, cultural and personality factors impact on wellbeing and healthy ageing; the determinants of heart disease, stroke, dementias, and late life depressions.

The study will recruit an additional sample of fifty year old Maori, so that the health and wellbeing of Maori can be compared with a random sample of Canterbury people of all ethnicities.

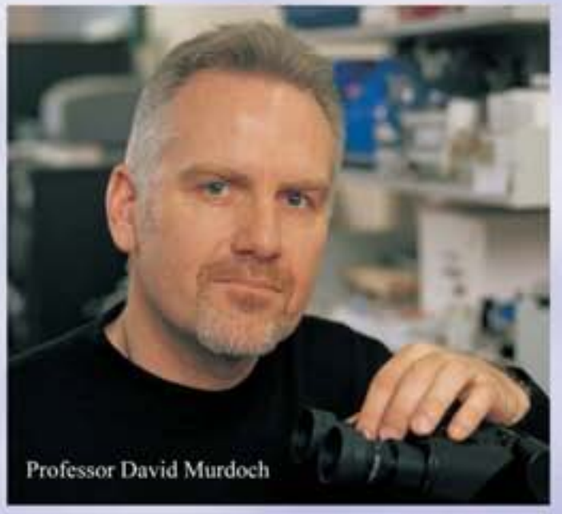
CHALICE will also become a method of assessing how people use health services, and how they perceive the services provided.

As this new study will randomly select a sample from the electoral rolls, Professor Joyce asks that people do not phone up to volunteer. However he says the University of Otago, Christchurch is keen to keep the community informed as findings from the study emerge.

Some of the CHALICE research team:

Professor David Murdoch, Janet Spittlehouse, Associate Professor Martin Kennedy, Professor Peter Joyce, Professor Richard Porter, Associate Professor Vicky Cameron, and Dr John Pearson.

NEW FINDINGS ON SERIOUS HEART DISEASE.



Professor David Murdoch

A definitive international study led by Christchurch scientists has shed new light on the potentially fatal disease, infective endocarditis (IE).

Endocarditis is an infection of a heart valve and has an 18% in-hospital mortality rate; a rate that has not changed in the last 25 years. The one-year mortality rate is even worse, approaching 40%. It also has other serious health impacts such as stroke, blood clots, heart failure and other ongoing complications.

The head of the Department of Pathology at the University of Otago,Christchurch, Professor David Murdoch says this is the first major international study which has examined the presentation, causes and outcome of infective endocarditis. It is the largest ever study of IE, with 2781 patients from 58 hospitals in 25 countries, and may never be repeated.

"It will enable us to be much more definitive about the contemporary causes of this serious disease and how to better treat it and reduce the stubbornly high mortality rate," he says.

"It's shown that infective endocarditis is often an acute and serious illness that needs to be diagnosed and treated quickly with antibiotics and often surgery in order to save lives."

About 300 people are hospitalised in New Zealand every year with infective endocarditis and the study shows that internationally 50% undergo heart valve replacement surgery.

The study reveals that the bacterium *Staphylococcus aureus* is the most common cause of IE in much of the world, and that IE commonly follows degeneration of the heart valves with ageing. This is in contrast to earlier studies that linked it to heart valve damage following rheumatic fever in younger age groups.

The study concludes that some of the classical clinical features of IE that are taught to all medical students now only occur in a minority of patients. Doctors will now have to reassess how they diagnose and treat this acute disease, and medical guidelines and education will have to be adjusted.

One of the more interesting findings is that 25% of patients with IE contracted the bacterial infection following health care, or after invasive medical care, particularly in the USA.

This is relevant in New Zealand with an ageing population which is likely to be exposed to more hospital care. Other factors linking IE with in-hospital death are increasing age, pulmonary oedema and other heart valve complications. An important finding is that early surgery is associated with a decreased risk of dying.

The research is published in the *Archives of Internal Medicine*. The New Zealand arm of the study involved hospitals in Auckland, Wellington and Christchurch .

GRAFTON BRIDGE SUICIDE RESEARCH PROVES BARRIER'S EFFECTIVENESS

A team of researchers from the University of Otago, Christchurch, and Yale University in the US examined how the removal and subsequent re-instalment of safety barriers on Auckland's Grafton Bridge impacted the number of suicides.

Safety barriers to prevent suicide by jumping were removed from Grafton Bridge in 1996 after having been in place for 60 years. After they were removed, there was a five-fold increase in the number and rate of suicides from the bridge.

These increases led to a decision to reinstall safety barriers. Since the reinstallation of barriers, of an improved design, in 2003, there have been no suicides from the bridge.

The researchers commented that this natural experiment, in which the new barriers used a powerful a-b-a (reversal) design (i.e. barriers in place-barriers removed-barriers in place), shows that safety barriers are an effective suicide-prevention tool: their removal increases suicides; their reinstatement prevents suicides.

The researchers estimated that had barriers not been removed, 14 lives could have been saved.

Lead investigator Associate Professor Annette Beautrais from the Canterbury Suicide Project, who conducted the research and was instrumental in getting barriers reinstated on the bridge, said that this finding adds to an increasing body of evidence that the most effective form of prevention at bridge-jumping sites is installing safety barriers.

Grafton Bridge, Auckland