An ill wind: Could that nor’wester affect the health of Cantabrians in the future?

By Suzy Botica

An HRC-funded study by 2010 Foxley Fellowship recipient Frances Graham suggests that the predicted increase in heat-related extreme weather events as a result of climate change, in particular the infamous nor’wester wind in Christchurch, could pose a risk to the delivery of hospital services in the future.

Ms Graham examined Christchurch hospital data collected from 1990 to 2010 and climate data from the National Institute of Water and Atmospheric Research (NIWA) to determine the effects of heat-related extreme weather events, like the nor’wester wind, on heat-associated adverse health outcomes such as hospital admissions (morbidity).

This research is believed to be the first study in New Zealand to examine the relationship between environmental factors like climatic winds and the incidence of heat-induced conditions.

"The nor’wester is a particularly hot, dry and turbulent wind that results in a sudden increase in temperature and decrease in relative humidity," says Ms Graham. "The city of Christchurch provided a unique location to examine the effects of the nor’wester on morbidity because of its location in the so-called nor’west belt."

Preliminary results from Ms Graham’s research show that there was a six per cent increase in the number of people admitted to Christchurch Hospital for diabetes on hot days (≥25°C), including warm, windy days, and a 10 per cent increase in admissions for renal failure between 1990 and 2010.

Abnormally hot days caused by climatic events like the nor’wester can increase the risk of developing a heat-related condition for those people with mental disorders, hyperthermia and chronic medical conditions such as diabetes. The thermoregulatory, physiological and circulatory adjustments necessary for the human body to cope with extreme heat can also place stress on the kidneys, predisposing patients to dehydration, heat exhaustion and heat stroke.

Ms Graham says modelling data from NIWA's Dr Brett Mullan, a co-author of the study, along with input from climatologist Professor Glenn McGregor (The University of Auckland), shows that heat waves and other extreme heat-related events are expected to increase in both

(Continued on page 6)
Chief Executive’s message

We are rapidly heading towards the end of the year, although for the HRC it’s a busy time, as we have several funding opportunities underway. I am well aware of the commitment required from researchers when funding bids are planned and prepared. All bids are accompanied by great hopes. Almost all researchers that I speak with are motivated by their desire to make a difference. They want the opportunity to use their insight, knowledge and skills to improve the lot of New Zealand, whether that is through expanding knowledge, creating new products or processes, or generating evidence to inform policy.

The HRC takes the decisions about where to allocate the scarce research funding seriously. Project bids to the HRC’s annual funding round have had a low probability of receiving funding for the last two years, and it is unlikely to be any different for the current annual funding round. The Board of the HRC recognises the quality of much of the research that is proposed, and knows that good research that is not funded represents lost opportunity.

In deciding where to invest money in health research the HRC relies heavily on the opinions provided by hundreds of experts each year. Many of these experts are colleagues in New Zealand and Australia, but a significant proportion come from further afield. Without their input, the funding decision processes would be much the poorer. The HRC has created a College of Experts, in part to recognise the contributions made by these experts to the HRC.

At the same time as we acknowledge and value the input from our peer reviewers, the HRC is introducing a novel funding scheme that will not rely on peer review. In times of highly constrained funding, the traditional peer review assessment process carries with it a risk that funding decisions will become increasingly conservative. Few high risk, but potentially paradigm changing, ideas are likely to be funded. Our new Explorer Grant scheme seeks to redress the balance somewhat. We are confident that there will be some exciting, innovative and thought provoking ideas supported.

Finally, as this is the last issue of the HRC News for this year, I hope that all readers have an enjoyable Christmas break.

Dr Robin Olds
Chief Executive
Health Research Council of New Zealand
HRC establishes College of Experts

The HRC has recently established a College of Experts to support the formation of the HRC assessing committees and contribute to the robust assessment process of grant applications.

The members of the College of Experts are a pool of members who have been identified as having appropriate scientific expertise, knowledge and peer review experience to form the basis of assessing committees for grant assessment; and to provide feedback and advice on investment processes (where appropriate).

“The contribution made by the members of the HRC’s College of Experts will shape the HRC’s investment in health research in New Zealand. The HRC views the college as a prestigious group, and members’ appointment to the college is our acknowledgement of their expertise and standing,” says HRC Chief Executive, Dr Robin Olds.

“For the 2013 Project application Expression of Interest round, 46 per cent of Science Assessing Committee (SAC) members were from the College of Experts. This is in line with our expectations, which is to be able to populate the SACs with about 50 per cent college members, and then add further expertise as determined by the nature of the applications under assessment.”

College of Experts – Terms of reference

Aim

To support Assessing Committee formation and contribute to a robust grant assessment process.

Scope

The College of Experts will include a diverse range of members with expertise relevant to the assessment of all grant types funded by the HRC.

Membership composition

Members will be selected for their scientific expertise and experience. Membership will be separate from that of the HRC’s statutory Research Committees, that have roles defined in the HRC Act (1990). Consideration is also given to ensuring membership is representative of HRC stakeholder organisations and includes both national and international experts.

Term of office

The College of Experts has a three year membership term, and the HRC greatly appreciates members’ willingness to commit their expertise over this time.

Roles and responsibilities

The main function of College of Expert members is to quickly populate Assessing Committees and provide process feedback and advice where appropriate. Specific roles and responsibilities include to:

• be familiar with HRC processes as set out in the peer review manual and other information provided by the Secretariat
• be available for Assessing Committee membership (to a maximum of two meetings a year)
• respond to requests as appropriate
• adhere to confidentiality and conflict of interest requirements.

Coming soon…

The HRC is currently putting together the first issue of the Specialist Report, an e-newsletter for members of the HRC’s College of Experts. The e-newsletter will include updates on the annual funding round and assessment process, as well as other interesting items about health research policy.

Secretariat staff news

We are pleased to welcome two new staff members to the HRC Secretariat. Jessica Smith recently commenced her role as project manager, Research Partnerships and replaces Phil Light. Suzy Botica is the HRC’s new communications adviser and replaces Louise Coburn. We wish both Jessica and Suzy all the very best in their respective roles.

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Update on the HRC 2013 annual contestable funding round

By Dr Vernon Choy

The Investment Processes group is happy to report that the funding round for some application types has already reached the mid-point. 370 Project Expressions of Interest were assessed in September and 111 invited full Project applications have been submitted for the final stage of assessment.

Assessment of Feasibility Study (31), Emerging Researcher First Grant (37) and Programme (18) applications has started and the HRC Board will consider recommendations in May 2013.

The newly introduced Explorer Grants, designed to stimulate innovation in health research, created a high level of interest, with potential applicants seeing the grants as a much needed opportunity for emerging researchers to compete with established ones. It was not known whether the number of applications for the three available grants exceeded the more than 100 anticipated at the time of this report. The results will be published by June 2013, although an earlier date may be possible.

Here are some facts and figures for the Project round. The total number of application registrations started on the system was 440, of which 70 were withdrawn, and 370 Expressions of Interest were received for assessment; 111 were invited to the next stage. The distribution across Research Investment Streams was 139 (34 invited to next stage) for New Zealand Health and Wellbeing, 162 (49) for Improved Outcomes for Acute and Chronic Conditions in New Zealand, 47 (17) for New Zealand Health Delivery and 22 (11) for Rangahau Hauora Māori. The spread across research disciplines was 135 (42) for biomedical, 49 (10) clinical, 55 (15) community and clinical controlled trial, 23 (10) Māori health, six Pacific health and 102 (34) public health.

Overall, the numbers were similar to last year.

Ten Science Assessing Committees (five biomedical, two public health, one health delivery, one community and clinical trial, one Māori health) with a total membership of 87 New Zealand and Australian health researchers, with expertise matched to the range of applications, met in September 2012. In this round, community and clinical trial proposals were allocated to a single assessing committee. The HRC is very grateful to everyone involved in this aspect of peer review.

The HRC project managers are now fully engaged in the process of recruiting assessing committee members to complete assessment of applications and working with the committees to find suitable experts to submit external referee reports. All applicants should refer to the online submission system to check the status of their proposals and to find out whether they will need to submit rebuttal statements after the referee reports have been received.
Researcher honoured for pioneering work on ‘souped up’ toxins

Professor John Fraser FRSNZ was awarded the 2012 Sir Charles Hercus Medal for clinical sciences and technologies and public health at the Royal Society of New Zealand’s research honours dinner on 21 November.

The medal is for Professor Fraser’s pioneering studies on bacterial superantigens, which have major implications for understanding and treating a range of human infectious diseases.

Professor Fraser is currently the Dean of the Faculty of Medical and Health Sciences at The University of Auckland, and Deputy Director of the Maurice Wilkins Centre for Molecular Biodiscovery. He’s internationally recognised for his work in the field of microbial virulence and pathogenesis, and is acknowledged as the discoverer of bacterial superantigens, first identifying them in the late 1980s.

Professor Fraser is first named investigator on a $5.8 million HRC-funded programme looking at the mechanisms of virulence and persistence of three important human pathogens, including Staphylococcus aureus, with the aim of developing protective drugs and vaccines.

Professor Fraser was a member of HRC’s Biomedical Research Committee from the end of 2000 to mid-2007, regularly chaired a number of biomedical science assessing committees and has continued to support the HRC since then.

Professor Linda Tuhiwai Smith
Professor’s commitment to Māori researchers recognised

Professor Linda Tuhiwai Smith, a member of the HRC’s Board and chair of the HRC Māori Health Committee, received the Dame Joan Metge Medal for excellence and building relationships in the social science research community at the Royal Society of New Zealand’s research honours dinner.

Professor Smith, who is the Pro Vice Chancellor and Dean of the School of Māori and Pacific Development, University of Waikato, was recognised for inspiring, mentoring and developing Māori researchers.

For information on all the award recipients, go to www.royalsociety.org.nz/events/annual/research-honours/2012-research-honours-dinner.

About HRC News

HRC News can be viewed on the HRC website: www.hrc.govt.nz

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frequency and magnitude as climate change becomes more prominent. For the Canterbury region, the annual mean temperatures are predicted to increase 0.9°C from 1990 levels by 2040 and 2°C by 2090.

Based on her findings, Ms Graham believes that health providers and policy makers need to start taking preparations for climate change seriously. “Global warming is changing our world dramatically and generating new risks. Health providers and policy makers need to consider the science and begin applying it to the problem. In some circumstances, that will mean applying the same risk reduction approaches that emergency managers apply to natural disasters such as earthquakes.”

The results from the study will now be used to assess the ability of Christchurch’s hospitals to deliver quality of care during hot days. Addressing heat exposure through urban planning, the design of new hospital facilities and changes to health education are some of the adaptive strategies being explored.

“Long-term health conditions such as diabetes and renal failure are forecast to continue to rise as New Zealand’s population ages. The question is how much the predicted average increase in temperatures will influence this,” says Ms Graham.

“Given New Zealand’s relatively high exposure to climate extremes, the social, economic and health benefits of better managed hospital services are significant.”

Frances Graham is a senior adviser in the Environmental and Border Health team at the Ministry of Health. She took a research sabbatical to pursue this study with the help of the HRC’s Foxley Fellowship.

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These maps show the projected increase in the number of hot days (≥25°C) to 2100 using low (left) and high (right) sensitivity models (O’Donnell 2007). The current projection for the Canterbury region suggests increases of between 5 and 30-plus hot days per year.
Drop in whooping cough hospital admissions boosts health care system

By Suzy Botica

A study by Dr Cameron Grant, a paediatrician at Starship Children’s Hospital and Associate Professor in paediatrics at The University of Auckland, shows that New Zealand’s exceptionally high rate of hospital admissions for whooping cough (pertussis) decreased in the 2000s – the first decade to record a decrease since the 1960s.

New Zealand has a history of large and nasty whooping cough epidemics. Throughout the 1960s to 1990s, our rates of whooping cough remained well above Australia, the UK and US, despite the introduction here of a vaccine in 1945. Much of this can be put down to New Zealand’s low immunisation coverage, which was well below many developing countries. Whooping cough still kills about one child each year in New Zealand; most of those babies who die are under two months of age.

For his study, Dr Grant, whose PhD on pertussis in New Zealand infants was supported by the HRC and Cure Kids, calculated annual whooping cough discharge rates using national hospital discharge and census data. He then compared the average annual rate with previous decades. He says whooping cough hospitalisation admissions in the 2000s dropped by approximately 20 per cent compared with the 1990s.

“Ministry of Health and HRC-funded research underpinned the development of a national strategy to raise immunisation coverage levels in babies and young children,” says Dr Grant. “Improving immunisation delivery became a national health target in 2007, with the aim to have 95 per cent of children under two fully immunised by July 2012. A robust immunisation register was also developed. These initiatives have made a big difference. As of June 2012, 93 per cent of New Zealand children had received all of their scheduled doses of whooping cough vaccine.”

However, Dr Grant has words of caution. “While this recent decrease is very encouraging, we’ve still only made a small dent in the number of infants being admitted to hospital with whooping cough. Our infant admission rate remains three times higher than the rate in Australia.”

Dr Grant says now that we’ve shown that we can improve immunisation coverage, we have to shift our focus to making sure children are immunised on time. Children need to receive their immunisations for whooping cough at six weeks, three months, five months, and a booster at ages four and 11. “You have a five times greater chance of being hospitalised from whooping cough as an infant if your immunisation is delayed, and by delayed, I mean getting the three month dose when you’re four months old.”

So when might we be able to see whooping cough hospitalisation rates comparable to our Australian neighbours?

“I’d love to think that we’re not going to have kids die from this disease anymore, but it’s a tricky disease. Breastfeeding doesn’t offer much protection, which is unusual, and our natural immunity is incomplete. It’s also unbelievably infectious. Every case of whooping cough causes about 15 secondary cases, making it several times more infectious than influenza,” says Dr Grant.

“To get the disease rate down, we require high immunisation coverage and timely immunisation delivery which is sustained over a number of years. I think it’s going to take a decade or two more of doing what we’re doing – and continuing to do it well – before we can get hospitalisation rates comparable to Australia, the UK and US.”

Dr Grant says if you had asked him five years ago if achieving a 95 per cent immunisation rate for children under two was possible, he wouldn’t have felt confident about saying yes. Today, he is.

“There’s so much more confidence now in the health care system. It’s been so exciting to see people who have been working in the immunisation area for a long, long time, saying ‘yes, what we’re doing is working’.”

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Is vitamin D really something of a cure all?

By Suzy Botica

Researchers at The University of Auckland are part of a worldwide effort to test whether or not vitamin D can cut the risk of infections and chronic diseases, ranging from cardiovascular and respiratory diseases to cancer and diabetes.

Professor Robert Scragg from The University of Auckland’s School of Population Health is leading, with Professor Carlos Camargo from Harvard Medical School, the New Zealand vitamin D trial, which is financed by the HRC ($4.972 million) and ACC. He and his colleagues will determine if giving patients a monthly vitamin D dose of 2.5mg over four years can reduce the risk of cardiovascular disease, respiratory diseases such as pneumonia, and fractures.

The trial, known as ViDA (Vitamin D Assessment Study), is currently one of five major vitamin D trials around the world. Other investigators are Mr Alistair Stewart and Dr Carlene Lawes (The University of Auckland), Professor Les Toop (University of Otago, Christchurch) and Professor Kay-Tee Khaw (University of Cambridge).

A sample of 5100 Aucklanders, aged between 50 and 84 years, are taking part in the trial, with recruitment due to finish this month. Participants are randomly allocated to receive either a vitamin D capsule or a placebo.

Dr Scragg says the trial is one of the largest randomised controlled trials carried out in New Zealand.

“Attitudes towards vitamin D and cardiovascular disease have totally changed,” says Dr Scragg. “Up to the 1970s, people suspected that vitamin D actually caused cardiovascular disease. However, early studies of animals used extremely high doses of vitamin D, the equivalent of up to half a million units daily in adult humans.” In New Zealand, vitamin D is still used in possum bait.

Dr Scragg first became interested in vitamin D about thirty years ago when he was training in epidemiology in Australia. He observed that cardiovascular disease went up by about 40 per cent in winter compared with summer. Also, populations living in high altitudes, where they were exposed to more UV sunlight, had lower rates of cardiovascular disease – and likely higher levels of vitamin D.

“There’s now substantial evidence that low vitamin D levels predict increased risk of cardiovascular diseases. However, most of what we know comes from observational studies,” says Dr Scragg. “That’s why we need clinical trials such as this one to sort out once and for all if vitamin D has a protective effect.”

Unlike other vitamins, which people get mainly through food, the body produces most of its own vitamin D with the help of sunlight. Only 10 per cent of our vitamin D comes from food such as oily fish.

Observational studies have shown that the risk of a wide range of diseases is lowest when vitamin D levels are at about 80 to 100 nmol/L. However, Dr Scragg says that New Zealand adults have vitamin D levels of, on average, only 60 nmol/L. Levels are even lower for those of Māori and Pacific decent, and decrease with age.
“In the US, where many more foods are fortified with vitamin D, it’s easier to access supplements, and the sun protection policy is less stringent, vitamin D levels are much higher than in New Zealand,” says Dr Scragg. If vitamin D does prove to have a beneficial effect on the risk of cardiovascular and other diseases, there could be great public health gains. “Modelling work we have done suggests that cardiovascular disease could decrease by up to 20 per cent if vitamin D levels doubled from 50 to 100 nmol/L, which is the amount given in this trial,” says Dr Scragg. “This would be very cost-effective because a six month dose of vitamin D costs only about six dollars. But clinical trials like ViDA are required to confirm this.”

The first preliminary results of the ViDA trial will be available in 2016. 

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ViDA study design

- 5100 people recruited through GP registers
- Baseline interview and examination (e.g. measuring blood pressure, heart rate, lung function, weight, height, muscle function)
- Blood sample taken
- Participants sent a questionnaire, along with a vitamin D or placebo capsule, each month for four years

New Diamond Jubilee grant awarded to improve Kiwi kids’ immunisation rates

A research team led by Dr Nikki Turner of The University of Auckland, has been awarded funding for a research project that will focus on translating knowledge gained from best practice to ensure high rates of immunisation for all New Zealand children.

The project is being funded by the HRC and the Ministry of Health through the QEII Jubilee Research Grant – ‘Health Knowledge to Action.’ This funding initiative is one of a number of initiatives being commissioned by the Government to celebrate the Diamond Jubilee of Queen Elizabeth II.

The overall objective of this funding initiative is to support research that examines the transfer of knowledge into practice in New Zealand’s health delivery sector, with the end goal of supporting the improvement of New Zealand’s healthcare services and the health of New Zealanders. There is increasing evidence that knowledge generated from research must be appropriately adapted to unique local circumstances, scopes of practice, patient populations, resources and institutional perspectives, before it can be applied to practice.

Dr Nikki Turner and her team will undertake a project that aims to improve immunisation coverage and timeliness of delivery to ensure high rates of immunisation for all New Zealand children. They will transfer knowledge gained from general practices with high childhood immunisation rates into successful strategies and actions for practices with low coverage, examining what was successful and what factors facilitated and/or impeded uptake.

The project is due to finish in September 2014.

Principal Investigator: Dr Nikki Turner

The University of Auckland

Translating best practice research to reduce equity gaps in immunisation

24 months, $444,809
Vitamin D no help against colds

By Mark Wright

Even though an HRC-funded study found that good doses of vitamin D didn’t reduce the incidence or severity of colds, the research is the feature article in a recent issue of the prestigious Journal of the American Medical Association (JAMA).

The Christchurch-based study, led by Professor David Murdoch, Head of Pathology at the University of Otago, Christchurch, followed 322 healthy adults over an 18 month period, including two winters. Half of the cohort were given good doses of vitamin D and half were given a placebo.

“Over that time we had regular follow-ups and regular administration of these tablets. We recorded the number of colds participants had over the time period and the amount of time off work due to those colds and illnesses. We also measured their severity to see if illness was less severe if you were on vitamin D.”

Professor Murdoch says once the results were analysed they found that there was no difference between the two groups.

“It’s always more exciting to have studies that show your intervention did make a difference, but this is actually very important because all the other studies in the area have been inadequate. They all gave quite low doses of vitamin D and there were questions over whether they weren’t effective because of that, or because they weren’t followed for long enough.”

Professor Murdoch says there has been a lot of interest in the past few years in vitamin D in relation to all sorts of conditions.

“You really rely on adequate exposure to sunlight to get adequate vitamin D and the issue we were particularly interested in was the area of vitamin D and infection, in particular susceptibility to infection. If you have a low vitamin D level does that make you more susceptible?”

“There is some evidence that that’s the case and one of the intriguing associations is the fact that because your vitamin D level is related to your sunlight exposure, people’s levels dropped during winter for obvious reasons. But it’s also a time when people have lots of colds and flus, so it has always been an intriguing question, whether those two factors are related or just purely coincidental.”

Even though they established that good doses of vitamin D wouldn’t prevent colds, at least in an average New Zealand population, Professor Murdoch says few of their group were markedly deficient in vitamin D, so they can’t answer the question of whether that group might still benefit.

“We had a group of people who were moderately to non-deficient and it showed that it didn’t help them.”

He says they also had a low proportion of Māori and Pacific peoples, which in other New Zealand surveys have been found to be more deficient in vitamin D.

In something of a footnote, Professor Murdoch says one of the big achievements of the research was that they not only managed to keep the trial going during the Canterbury earthquakes, but they had a 91 per cent retention rate right through every follow-up of the study.

“We’ve kept completely to our timetable despite amazing disturbances. This partly reflects the good study team we have and the fact that our study population were staff and students of Canterbury District Health Board and the University of Otago, Christchurch.”

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Updated ethical guidelines for intervention studies and observational research

The National Ethics Advisory Committee (NEAC) has published revised ethical guidelines:
Ethical Guidelines for Intervention Studies and Ethical Guidelines for Observational Studies.

These guidelines set out the ethical standards that all researchers must meet when undertaking health and disability research. The guidelines apply to all health and disability research, whether or not that research also requires Health and Disability Ethics Committee (HDEC) review.

The NEAC updated these guidelines to reduce any overlap and inconsistency with the Ministry of Health’s new standard operating procedures for HDECs, which came into effect on 1 July 2012.

This review did not fundamentally change the existing ethical standards set out in the guidelines.

You can access a copy of the updated guidelines on the NEAC website: www.neac.health.govt.nz/moh.nsf/indexcm/neac-resources-publications-ethicalresearchguidelines.

A limited number of hard copies are also available from the NEAC Secretariat upon request.

About the National Ethics Advisory Committee

Established in 2001, NEAC is an independent adviser to the Minister of Health. NEAC’s statutory functions include advising the Minister on ethical issues related to any health and disability matters and determining nationally consistent ethical standards across the health sector.

Members of the NEAC have expertise in ethics, health and disability research, health service provision and leadership, public health, epidemiology, law, Māori health and consumer advocacy. They are appointed by the Minister for a term of up to three years.

For more information, please refer to the NEAC website: www.neac.health.govt.nz or contact: NEAC Secretariat, PO Box 5013, Wellington, email: neac@moh.govt.nz.

New Zealand, Australia and Canada establish a new research partnership

The Health Research Council of New Zealand (HRC), the National Health and Medical Research Council (NHMRC) of Australia, and the Canadian Institutes of Health Research (CIHR) recently signed a trilateral letter of intent to improve research capacity in indigenous peoples’ health.

This agreement recognises and builds upon each country’s strengths in indigenous health research. The three countries will share expertise and support a cadre of indigenous researchers to reduce the health disparities between indigenous peoples and general populations. Under the partnership, the HRC, the NHMRC and the CIHR have committed to developing a programme of initiatives, which will be implemented collaboratively over the next five years.
Health benefits of insulation and heating

By Mark Wright

Health benefits have been shown to exceed costs by a factor of nearly four to one in an HRC-funded cost benefit analysis of the Warm Up New Zealand: Heat Smart programme, carried out through Motu Economic and Public Policy Research.

The Warm Up New Zealand programme was launched after the HRC funded two big trials; the Housing Insulation and Health Study and the Housing Heating and Health Study.

One of the principal investigators, Professor Philippa Howden-Chapman from He Kainga Oranga/Housing and Health Research Programme, University of Otago, Wellington, says both of those earlier studies included cost benefit studies that showed benefits exceeded costs.

The analysis of the Warm Up New Zealand programme also showed health benefits led the way with reduced mortality, lower hospital and prescription costs, and several co-benefits like energy efficiency, more time spent at school, and overall well-being. The research group estimated benefits totalling $1.224 billion, compared with costs of $339 million.

“The programme has now helped insulate and heat close to 200,000 houses. This is a big step up from our initial studies where we had 1400 households in the first study and 500 in the second, with about 7000 people affected,” says Professor Howden-Chapman.

“We know of no other country where randomised community trials have been carried out to test the health effects of insulation and heating,
and no other country that has then evaluated a roll-out in a country as a whole.”

She says this is a rare example of evidence-based policy, where policy is first rigorously piloted and then rationally generalised more widely.

“You look at what the evidence is for a relationship between determinants of health and health outcome. You carry out a study that shows there are positive benefits in health and other co-benefits, and then you hope that will feed into the development of policy and then implementation.”

“This is a text book example of rational public policy development and implementation and there aren’t many of them.”

The evaluation was led by Motu Economics and Public Policy Evaluation Research and drew on the expertise of Covec and the School of Mathematics, Statistics and Operations Research at Victoria University of Wellington.

Using a technique to match Quotable Value data with hospitalisation records developed by Dr Lucy Telfar-Barnard, Nicholas Preval matched hospital records with insulation records and electricity usage before and after insulation. They then examined all the times people were in hospital, what they were in for, and for how long and what the costs were of their hospitalisation. They also linked pharmaceutical and death records.

“There were small but significant savings in electricity, and significant savings in hospital costs. For older people over 65 who had been in hospital the previous year for coronary conditions - the condition we thought the housing most affects - if you came out of hospital into an insulated house you were less likely to die than if your house hadn’t been insulated.”

There were also clear benefits for children’s health. More than one-third of the households who were getting this insulation roll-out had a child aged under 15. When the researchers looked at effects of the insulation on children they found that even allowing for the fact it was often subsidised, there was a saving of $32 million by insulating homes and protecting children.

Professor Howden-Chapman says their main recommendation for housing is that it should be seen as a key part of national infrastructure.

“Housing is mentioned in the National Infrastructure Plan, but we need a detailed strategic plan for housing, just as we have for roading, ports and airports.”

“If you think of housing as infrastructure then you think about how you can maintain it and how you can have it operating as efficiently and equitably as possible. You have a proper planning process for it and you make sure that you allocate money regularly.”

She says this approach fits in with the research her colleague Associate Professor Michael Baker has been doing on social housing.

“Our work showed that if you insulate homes, and a nurse goes in at the same time to assess existing health problems and make sure houses are not too crowded, then there is a two-thirds drop in hospitalisation for children.”

Hopefully the roll-out of these programmes will also translate into a drop of the approximately 1600 excess winter deaths occurring each year from avoidable causes of death, such as coronary and respiratory conditions caused by people being cold indoors.

“I think it’s an important demonstration of how fundamental science, social science and economics can really help to inform policy.”

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<td>Use cold water instead of warm for laundry</td>
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Source: EECA Energywise, www.energywise.govt.nz
Complex genetics found in inflammatory bowel disease

By Mark Wright

Links between the inflammatory bowel diseases (IBD), Crohn’s disease and ulcerative colitis, and other inflammatory diseases are being uncovered by an HRC-funded research programme out of the University of Otago, Dunedin.

Dr Rebecca Roberts, a senior research fellow in the Department of Surgical Sciences and 2008 HRC Sir Charles Hercus Health Research Fellowship recipient, says both diseases have strong genetic and environmental components. Crohn’s disease has a peak age of onset of about 25 years, while ulcerative colitis has a peak age closer to 30.

“At the moment there is no known cure for either. If you can’t control these diseases with drugs, your ultimate end point will be surgical intervention.”

“They are regarded as chronic inflammatory diseases. We don’t know the exact cause but it is now widely accepted that these diseases arise through an inappropriate interaction of gut microbes with the immune system in people who have a genetic predisposition to IBD. The nature of the genetic predisposition is still being teased out.”

That is where genetics researchers like Dr Roberts come in, delving into hundreds of genes that could contribute to disease susceptibility. Since the development of genome-wide association technology, researchers have identified more than 80 risk genes for Crohn’s disease and over 40 for ulcerative colitis.

“When you add all the genes together they only explain 20 per cent of the estimated heritability of Crohn’s disease,” says Dr Roberts.

“There is a lot we still don’t know, and I think when we started on this journey we thought we would have a lot more of the answers than we do. What we have now is more questions than answers.”

Among those questions are links with other chronic inflammatory diseases, such as the genetic overlap between Crohn’s disease and an inflammatory arthritis of the spine termed ankylosing spondylitis.

There are studies that suggest 5 to 10 per cent of people with Crohn’s disease go on to develop ankylosing spondylitis, and vice versa, and some of the risk genes are shared, something Dr Roberts says they are very interested in exploring.

“It could be that they are two ends of the same disease continuum. It’s possible both diseases start in the gut and your genetic make-up determines whether you go on to develop Crohn’s disease or ankylosing spondylitis.”

Dr Roberts says they are also looking at genetic variation that may help predict patient response to drugs used to manage these inflammatory diseases - an area of study called pharmacogenetics.

Prospective genotyping may enable drug treatments to be tailored to the individual patient, thereby maximising efficacy and minimising adverse side-effects.

“In the case of inflammatory diseases a lot of the drugs that are used to control the symptoms are quite toxic,” says Dr Roberts.

“About 25 per cent of IBD patients are unable to tolerate some of the commonly used drugs due to side effects. We are talking everything from pancreatitis to flu-like symptoms, to bone marrow toxicity and drug-induced hepatitis.”

They have found a number of genetic variants which appear to be associated with side-effects or resistance to treatment. In time, if a link is proven, it may be possible to develop genetic tests which could enable patients at high risk of a side effect to be identified before starting treatment.

Dr Roberts and her colleagues, during the course of the programme, have published three Nature Genetics papers as part of international consortia, and a number of smaller papers with more local relevance.

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HRC to fund research partnerships between researchers and health delivery organisations

Four projects have been offered HRC funding for research that will provide an evidence base to inform practice or system change and improvement, and support decision making in the area of health delivery in the short term in New Zealand.

The Research Partnerships for New Zealand Health Delivery (RPNZHD), which was run for the first time in 2010, requires the collaboration of the health research community and health delivery organisations.

Cardiovascular disease (CVD) causes many early deaths in New Zealand, particularly among Māori. Combination therapy with aspirin, cholesterol-lowering and blood pressure-lowering medicines can halve a person’s risk of CVD. However, many who could benefit from this therapy are not receiving or taking all these medications. **Associate Professor Christopher Bullen** will lead a research project that aims to measure the costs of treating people at high risk of CVD with ‘usual’ care compared with a ‘polypill’ (a single pill that combines the medications mentioned above), and obtain detailed information about patient and doctor medication practices over a longer time frame. This will help District Health Boards determine how to improve the medication management of CVD in high-risk patients.

The number of people aged over 85 years in New Zealand will double by 2035, markedly increasing care burden and health care expenditure. A research team led by **Professor Martin Connolly** will aim to improve residential aged care outcomes, including reducing costly hospitalisations.

Fewer than half of people with depression seek any treatment, and few receive any help from specialised mental health professionals. Computerised psychological therapies, or e-therapies, have the advantage of being accessible and convenient for users. **Professor Robyn Whittaker and Associate Professor Simon Hatcher** are undertaking a project that will seek to find out if computers can deliver effective psychological therapies. The project will use Sir John Kirwan’s ‘The Journal’, supplemented by a health professional acting as a coach, to test whether this is better than usual care for people referred to mental health services with depression. If the e-therapy is effective, it will result in shorter waiting times and more convenient treatment for patients. It will also free-up clinicians to focus on more complex problems that don’t respond to routine care.

The treatment of depression is particularly pertinent for young people, with more than 50,000 young New Zealanders affected by depression each year. An e-therapy called SPARX has been developed for depressed adolescents. A research team led by **Associate Professor Sally Merry** will undertake a project that aims to make SPARX available online and link it electronically with primary care clinicians who ‘prescribe’ SPARX so they can monitor young people’s progress. Young people would be able to contact a clinician and request more support, if needed. Professor Merry’s project, in partnership with Kapiti Youth Support, will develop and pilot a system that can be used in day-to-day primary health care settings.

**Associate Professor Chris Bullen**
The University of Auckland, in partnership with Auckland DHB, Counties Manukau DHB and Waitemata DHB
**Adding IMPACT via a District Health Board partnership**
12 months, **$199,998**

**Professor Martin Connolly**
The University of Auckland, in partnership with Waitemata DHB and Waitemata PHO
**Aged residential care health care implementation project (ARCHIP)**
18 months, **$200,000**

**Associate Professor Sally Merry**
The University of Auckland, in partnership with Kapiti Youth Support
**E-monitoring and e-therapy for youth depression in primary care**
18 months, **$199,500**

**Dr Robyn Whittaker**
The University of Auckland, in partnership with Waitemata DHB
**A randomised controlled trial of JK’s “The Journal” for depressed out-patients**
18 months **$199,500**
New treatment for non-cystic fibrosis bronchiectasis

By Mark Wright

Azithromycin, one of the macrolide group of antibiotics, has been highlighted as a new option for helping prevent or reduce episodes of lung inflammation and infection in patients with non-cystic fibrosis bronchiectasis.

Dr Conroy Wong

Dr Conroy Wong, the Clinical Head of Respiratory Medicine at Middlemore Hospital, headed the HRC-funded research into bronchiectasis - a permanent abnormal widening of the bronchi, which is usually accompanied by a distortion of the airways. The condition is associated with persistent inflammation of the airways, chronic coughing, increased sputum production and recurrent bacterial infections.

There are very few treatments that are effective for bronchiectasis, says Dr Wong, so they were looking for a new way of treating it using macrolide antibiotics.

“The macrolide antibiotics are a special class of antibacterial agent that also have an anti-inflammatory and immune modulating effect. Other classes of antibiotics kill bacteria but don’t have anti-inflammatory effects.”

“We chose azithromycin because studies in patients with cystic fibrosis, a genetic form of bronchiectasis, showed improvements in lung function.”

These anti-inflammatory properties are complex, says Dr Wong, but macrolides have effects on many cellular pathways to reduce airway inflammation.

“We hypothesised that azithromycin would reduce acute exacerbations. We focused on exacerbations mainly because we felt that they were a clinically relevant end point in bronchiectasis.”

They tested the hypothesis in a randomised controlled trial using azithromycin given three times a week to 71 patients. A placebo was given to a control group of 70 patients.

They chose an azithromycin dose that would be lower than usual for treating an acute infection because it is thought that part of the drug’s benefit comes from its anti-inflammatory effect rather than just its antibiotic effect, Dr Wong explains.

“We felt that by giving it three times a week at a lower dose patients would be able to tolerate the medication better. We were also giving it for a much longer period than a standard short course of antibiotics.”

Dr Wong says they also had to be mindful of the development of bacterial resistance, particularly in Streptococci, because when macrolides are used widely the level of resistance may increase significantly.

“There is a general concern about the longer term use of antibiotics and therefore the development of resistance for the whole community. For the individual patient, however, the treatment is highly effective for a condition that is often causing them a lot of problems.”

Dr Wong says that the current mainstay of bronchiectasis treatment, when it flares acutely, is to give a two week course of antibiotics, but that is not evidence-based.

“There really are very few evidence-based treatments, although many have been tried.”

This is not a treatment they are recommending for everyone. It should be for a highly selected group of patients who have moderate to severe disease and troublesome symptoms despite standard treatment.

Dr Wong says they now need to establish which patients they should give it to and how they should incorporate the treatment into clinical practice.

They are looking at a biomarker in sputum that could indicate the occurrence of an infection and give them a better indication of whether a patient needs antibiotics and how long they should give them for.

The azithromycin study was a multi-centre study involving Middlemore, Waikato and Auckland City hospitals. Dr Wong says they are using the same network to recruit patients for another HRC-funded study looking at tiotropium, which is a long-acting bronchodilator. This will allow them to evaluate a new inhaler treatment in a similar group of patients.

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