Serious infectious diseases and inequalities on the rise in New Zealand

The results of a national epidemiological study recently published in The Lancet\(^1\) show that infectious diseases made the largest contributions to overnight hospital admissions of any cause (excluding child birth) in New Zealand over the 20 year period from 1989 to 2008.

Twenty years ago (1989-1993) infectious diseases accounted for about 21 per cent of acute overnight hospitalisations in New Zealand. That figure increased to 27 per cent in 2004-2008, which represents more than 17,000 extra hospitalisations a year.

The study, funded by the HRC and the Ministry of Health, was led by Associate Professor Michael Baker from the University of Otago, Wellington, and aimed to investigate trends in the incidence of serious infectious diseases by ethnic group and socioeconomic status.

The incidence of acute overnight admission for infectious diseases rose by 51 per cent, compared with a seven per cent increase in hospitalisations for non-infectious diseases. The study also found that the main contributions to this rise came from increases in respiratory, skin and gastrointestinal infections.

Associate Professor Baker, says he was ‘surprised’ by the size of the increase.

“What we expected to see was a steady decline in serious infectious diseases and a rise in admissions for chronic diseases, such as cancer and diabetes, which is the usual pattern for a developed country. Instead we found infectious diseases had risen far faster than chronic diseases. New Zealand now has the double burden of rising rates of both infectious and chronic diseases.”

The research also found large and increasing ethnic and socioeconomic inequalities. Based on the 2004-2008 period, Māori were 2.2 more likely to be hospitalised for serious infectious diseases, and Pacific peoples were 2.4 times more likely than European and other ethnic groups. And those living in the poorest neighbourhoods were 2.8 times more likely to be hospitalised than those living in the least deprived.

\(\text{(Continued on page 8)}\)

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\(\text{1 The Lancet, Volume 379, Issue 9821, Pages 1112 - 1119, 24 March 2012. doi:10.1016/S0140-6736(11)61780-7. Published Online: 20 February 2012.}\)
Chief Executive’s message

Recently, I had the opportunity to participate in a multi-agency discussion about how to get the best value out of the public investment in health research in New Zealand. As many health researchers will be aware, the total investment (public and private sector combined) in health research in New Zealand is modest, and significantly below the OECD average. Despite this, health research in New Zealand has global standing (according to the OECD) and is one of the best performing parts of the New Zealand research and innovation ecosystem. It is useful to take a step back and consider what value it is that the public investment in health research should be creating.

In my view, there are six important outcomes from health research, and they are not mutually exclusive. Value can be achieved through enhancing health and well-being, and productivity, of the population. This includes research that informs prevention of illness and disability, as well as management of acute and chronic conditions. Value from research can be created through improving the efficiency and effectiveness of the health system; for example, by identifying care models that manage individuals outside the high-cost hospital environment, or through introduction of innovative health technologies. Value can be realised through commercialisation of innovative products and, potentially, processes. More broadly, value can accrue when research investment contributes to recruitment and retention of highly skilled clinicians who deliver care, or academics who train health professional undergraduate students. There is value if the New Zealand brand is enhanced internationally; for example, globally acknowledged innovative and high quality research will attract overseas investment, and provide access so that New Zealand can be early adopters of overseas-derived innovations. Finally, there is value in new knowledge, even if its applicability is currently not apparent. The value in this not-yet-applied knowledge is recognition that today’s innovations are derived from yesterday’s discoveries.

Clearly, any individual piece of research has the potential to add value through more than one of these dimensions. A productive health research ecosystem will make judgements about the relative importance of these various research outcomes, and be designed to facilitate the outcomes being delivered with as few barriers as possible. The various agencies - whether involved in policy, funding or research delivery - need to work together with common purpose and agreed priorities.

Ultimately, much of the value of health research can only be realised if there is efficient exchange of knowledge and technology along the research and development pipeline and then onto the end-users, be they policy makers, clinical care decision makers or entrepreneurs and private enterprise. This knowledge and technology transfer necessarily crosses traditional discipline boundaries, and may be the single biggest weakness in the research enterprise, and not only in New Zealand.

Seamless development and sharing of knowledge and technology requires close relationships between the different elements – biomedical, public health, clinical, health services - of the health research sector. More challenging, and potentially more important, is achieving effective relationships between the research sector,
(Continued from page 2)

and the health sector, and, of course, their public and private sectors components. New Zealand should have a comparative advantage here; better integration is feasible as the number of players is modest, and there is the background of high quality healthcare and high quality research. Such integration will lead to greater value being derived from both public and private sector investment in health research.

I am increasingly aware of the need for organisations such as the HRC to prove their value in a time of economic uncertainty and departmental mergers. At the HRC we are continuously looking at ways to make our organisation even more effective and efficient. At the moment the HRC is busy managing the 2012 annual funding round and starting to prepare for the 2013 round. We have commenced the peer review phase and applications are currently being reassessed by external referees, with the final results of the annual funding round due to be announced in late June 2012.

The 2013 annual funding round will begin earlier than in previous years, as the HRC has shifted timelines so that all applications will be submitted prior to Christmas. A full list of all of the upcoming closing dates can be found on page 4 of this newsletter and on our website: www.hrc.govt.nz. Further information about the 2013 annual funding round will be provided in the June/July issue of HRC News and in our fortnightly e-newsletter, Update.

Dr Robin Olds
Chief Executive
Health Research Council of New Zealand
Secretariat staff news

**Dr Andre George**, has resigned from his role as the HRC’s Group Manager, Knowledge Management and Information Systems (KMIS). Andre joined the HRC initially as the Research Contracts (Investment Processes) Manager before moving to the KMIS team in 2005. Andre finished in his role with the HRC mid-January 2012 to take up a new position. We wish Andre every success in his new role.

**Cathy Lai** joined the HRC as a Web Developer in the KMIS team on 16 January 2012. **Vivien Lovell**, has been appointed as the HRC’s Business Systems Manager.

**Lucy Pomeroy**’s (née Todd) has returned from her parental and is now working at the HRC on a part-time basis, working Wednesdays and Fridays as Project Manager (Clinical), Investment Processes. We are also pleased to announce that **Dr Katie Evans** has taken on the Project Manager (Biomedical) responsibilities in the Investment Processes team, on a permanent part-time basis, working Monday to Thursday.

Upcoming closing dates

- **New Programmes and Projects - Applicant rebuttal opened**
  16 March 2012 – 8:00am
- **New Programmes and Projects - Applicant rebuttal closes**
  27 March 2012 – 12:00pm
- **Queen Elizabeth II Jubilee Research Grant - Health Knowledge to Action - Full applications deadline**
  29 March 2012 – 12:00pm
- **Queen Elizabeth II Jubilee Research Grant - Health Knowledge to Action - Full applications hard copy deadline**
  5 April 2012 – 5:00pm
- **Community-based primary healthcare research - Canadian Institutes for Health Research - Letter of Intent closes**
  1 May 2012 – 5:00pm
- **Community-based primary healthcare research – HRC Registration of Intent closes**
  1 May 2012 – 5:00pm
- **Career Development Awards - Registration and Full Application closes**
  - Clinical Practitioner Research Fellowship (New)
  - Clinical Research Training Fellowships
  - Foxley Fellowship
  - Sir Charles Hercus Health Research Fellowship
  2 July 2012 – 12:00pm
- **Projects – Online Registration of Expression of Interest closes**
  31 July 2012 – 12:00pm
- **Projects – Online Expression of Interest closes**
  10 August 2012 – 12:00pm
- **Pacific Health Research Career Development Awards – Registration and Full Applications close**
  - Pacific Health Research Masters Scholarship
  - Pacific Health Research Postdoctoral Fellowship
  - Pacific Health Research PhD Scholarships
  - Pacific Health Research Summer Studentships
  - Pacific Health Research Development Grant
  3 September 2012
- **Programmes | Feasibility Studies | Emerging Researcher First Grants – Full Application Online Registration closes**
  12 September 2012 – 12:00pm
- **Programmes | Feasibility Studies | Emerging Researcher First Grants – Online Full Applications close**
  12 October 2012 – 12:00pm
- **Community-based primary healthcare research – HRC Full Applications close**
  16 October 2012 – 5:00pm
- **Projects – Online Full Applications close**
  16 November 2012 – 12:00pm

The HRC website: [www.hrc.govt.nz](http://www.hrc.govt.nz), lists all Registration and Expression of Interest opening and closing dates. Contact your Host Research Office for their closing dates, as these are always earlier than the HRC’s closing dates.
HRC annual contestable funding round update

The 2012 annual contestable funding round is already into the final phases as the assessing committees prepare to receive referee reports and rebuttals prior to their meetings at the end of April.

The HRC Investment Processes group had an extremely busy period prior to the Christmas/New Year break. Unlike last year, the current annual funding round started earlier so that the Project Expression of Interest stage concluded in November 2011.

Those invited to the Full Application stage were able to submit in December. Peer review is now underway so that the final results of the round can be announced in June 2012. Applications for all contract types are being processed and results will also be released in June 2012.

Applications for Emerging Researcher First Grants, Projects and Programmes are being assessed by external referees, whose reports will be available to applicants for comment and rebuttal using the HRC’s ‘Online submission system (EASY)’1. Applicants should log on to the system for announcements, to view their referee reports and submit rebuttals.

The table below shows the number of Project Expressions of Interest, Full Project, New Programme, Feasibility Study and Emerging Researcher First Grant applications in the funding round.

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<thead>
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<th>Health and Wellbeing in New Zealand</th>
<th>Improving Outcomes in Chronic and Acute Conditions</th>
<th>New Zealand Health Delivery</th>
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<tr>
<td>Emerging Researcher First Grant</td>
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Since the last funding round the HRC Statutory Research Committees, assessing committee members, roadshow attendees and host organisation research office managers have provided feedback about various aspects of the annual funding round. Many of the resulting changes were related to assessing committee processes, for example, scoring criteria descriptors. Others were background improvements of the online submission system, which appeared to function smoothly with fewer “problems”. Research office administrators have appreciated the requirement for fewer hard copies delivered on a more flexible due date trialled for Project applications.

As the funding round moves through the final stage, the HRC will release further updates on the HRC website, the online submission system, HRC newsletters and via email. Applicants should visit the HRC website: www.hrc.govt.nz, to check the funding calendar and to find funding opportunities and application requirements.

1 A link to the HRC’s “Online submission system (EASY)” is available on our website: www.hrc.govt.nz, in the blue banner at the bottom of each webpage.
HRC Pacific Health Research Fono 2012

Fono 2012, through its theme - Pacific Edge: Transforming Knowledge into Innovative Practice - will provide an opportunity for Pacific and non-Pacific peoples, researchers and health professionals from New Zealand, Australia and the Pacific to discuss Pacific health research knowledge that will inform innovative practice.

Registration for Fono 2012


Dr Sela Panapasa

Dr Sela Panapasa from the Institute for Social Research at the University of Michigan is the keynote speaker at the Fono. Dr Panapasa is Assistant Research Scientist in the Program for Research on Black Americans at the University of Michigan’s Institute for Social Research. Her work includes research on family support and intergenerational exchanges, population dynamics, racial/ethnic disparities and population-based survey research. She is Principal Investigator for numerous projects, including a study of US Pacific Islander health, the assessment of federal data on Native Hawaiian and Pacific Islanders, and an examination of cancer disparities among US Pacific Islanders.

Hon. Hekia Parata

Hon. Hekia Parata, the Minister of Education and the Minister of Pacific Island Affairs, is another speaker at the Fono. Hon. Hekia Parata grew up in Ruatoria and is of Ngati Porou and Ngai Tahu descent. She has lived and worked in Wellington for most of the past 30 years, during which time she has worked in the both the public and private sectors, holding senior policy and management positions, and running a successful consultancy company, which advises clients in New Zealand and internationally, with her husband Sir Wira Gardiner. Hon. Hekia Parata has represented New Zealand at the New Zealand Embassy in Washington, DC, and at a number of multinational forums, including the South Pacific Forum, the United Nations Forum and the World Bank Forum. She has been in Parliament since 2008, and lives in Wellington with her husband and their two teenage daughters.
Fono 2012 objectives

The HRC Fono in 2012 will serve as a significant opportunity:

• To disseminate knowledge. While there may be institutional opportunities where the recipients of HRC awards can share their work with peers and colleagues, there remains limited opportunities for them to profile their work to wider Pacific and non-Pacific communities in New Zealand. Hence knowledge is not only contained institutionally, but confined to the select few.

• For stakeholders, researchers and health professionals to form and develop networks with those in health and research fields, funding entities and research organisations.

• To connect Pacific peoples to the work of the HRC, in terms of strengthening and building Pacific research capacity.

Presentation streams:

• Child and Youth
• Non-Communicable Diseases
• Communicable Diseases
• New Directions in Health
• Disability
• Mental Health
• Capacity Building

Fono outcomes

The anticipated outcomes of Fono 2012 are:

• Knowledge Translation: Career development recipients/researchers will share their research with Pacific and non-Pacific communities verbally and in print.

• Relationship Building: Strengthened ties between the HRC and the community of Pacific researchers/stakeholders/funders.

• Capacity Building: Pacific peoples exposed to health research as a career pathway.

Fono registration fees

Full conference - Waged: $200
Full conference - Unwaged: $100
One day only - Waged: $100
One day only - Unwaged: $50

Registration closes on Wednesday 11 April 2012. Payment is by credit card or online bank deposit only.

Payment is by credit card or online bank deposit only.

Please note that there is no facility for payment by cheque or credit card for registration on the day of the Fono.

Fono dinner - Wednesday 18 April 2012 at 6.30pm at the Waipuna Hotel and Conference Centre: $65.00 per person.

For more information about the Fono or to register, go to http://pacificfono.hrc.govt.nz, or contact Dr Nuhisifa Seve-Williams, email: nseve-williams@hrc.govt.nz or telephone: +64 9 303 5225.

HRC announces new Clinical Practitioner Research Fellowship

The HRC is delighted to announce the opening of a funding application round for a prestigious new Clinical Practitioner Research Fellowship.

The purpose of the new Fellowship is to strengthen healthcare practice and health services by providing the opportunity for experienced clinicians to sustain a programme of research.

“The Fellowships will also support integration of research into clinical practice, provide a focus for the development of additional research within the healthcare environment, and promote translation of health research into practice,” says Dr Robin Olds, HRC Chief Executive.

“The Fellowship should allow the growth of the individual’s research activities thereby benefiting healthcare in New Zealand, and also provide a focus for additional research within the individual’s organisation,” he says.

The Fellowship is open to those who already have a significant track record of research. It is expected that applicant’s will have been engaged in postgraduate clinical practice for at least 10 years (although under exceptional circumstances a shorter term may be accepted). An applicant’s research track record should indicate leadership in their field nationally, if not internationally.

The Fellowship provides part-time salary support (0.3-0.5 full time equivalent) and $50,000 per annum for research expenses, including knowledge transfer activities.

Read more about new the Clinical Practitioner Research Fellowship on the HRC website: http://www.hrc.govt.nz.

Registration and Full Application closes (online) 2 July 2012 - 12:00pm.
The hospitalisation rates for young children were also of concern. In 1989-1993 Māori children less than 5 years of age were 1.6 times more likely to be hospitalised than New Zealand European and other ethnic groups, increasing to 2.1 times more likely in 2004-2008. And for Pacific children the risk increased from 1.5 times more likely in 1989-1993 to 2.1 times more likely in 2004-2008.

Associate Professor Baker says that household crowding is likely to be a major contributor to the increased risk of infection for some groups, particularly young children. Work carried out by He Kainga Oranga/Housing and Health Research Programme supported by the HRC, has demonstrated a strong association between household crowding and rates of rheumatic fever and tuberculosis.

Māori and Pacific children are, respectively, about 12 and 25 times more likely to be exposed to severe household crowding that European and other children and these inequalities have increased over this 20 year period.

One positive finding from the research was that rates of serious infectious diseases dropped for some Māori and Pacific peoples over this 20 year period, but only for those living in the more affluent areas. For those in the poorest neighbourhoods, rates doubled over this period.

“It is difficult to know for certain what has caused the increase in serious infectious diseases in New Zealand. However, the rise in income inequality during the 1990s coincided closely with the steepest increase in infectious diseases. Household crowding is one of the ways in which poverty can act directly to increase infectious disease transmission,” says Associate Professor Baker.

The paper concluded that New Zealand needed to address disparities in broad social determinants such as income levels, housing conditions, and access to health services to lower the ethnic and social inequalities identified by this research. It also noted the need for further research to investigate the contribution of specific factors, such as household crowding, antibiotic resistance, vitamin D deficiency, rising rates of chronic diseases, and the effectiveness of health-care services.

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Detailed findings from the paper:

Source: University of Otago, Wellington

- Infectious diseases are the most common reason for overnight hospitalisation in New Zealand (excluding child birth). They accounted for 27 per cent of acute hospital admissions in the 2004-2008 period;

- The incidence of hospitalisation for serious infectious disease increased in absolute terms over the 20-year period 1989-2008:
  - 1989-1993 – annual rate 1,242 per 100,000 population (equivalent to 1.2 per cent of the population admitted overnight for treatment of an infectious disease each year).
  - 2004-2008 – annual rate 1,880 per 100,000 population (equivalent to 1.9 per cent of the population admitted overnight for treatment of an infectious disease each year).

- The incidence of hospitalisation for serious infectious disease also increased in relative terms over the 20-year period 1989-2008:
  - The incidence of overnight admission for infectious diseases rose by 51 per cent compared with non-infectious diseases which rose by 7 per cent.
  - Consequently, the proportion of acute overnight hospitalisations caused by infectious diseases increased from 21 per cent in 1989-1993 to 27 per cent in 2004-2008.

- The increasing trend observed from 1989 to 2008 appears to have continued in 2009 and 2010. The infectious disease hospitalisation rate in 2009 of 1,992 per 100,000 population (equivalent to 2.0 per cent of the population admitted overnight for treatment of an infectious disease) was the highest reported over this period, and dropped slightly in 2010;
- Hospitalisations for serious infectious diseases are concentrated in children under 5 years of age followed by older adults (70+ years). Rates are relatively low in those aged 5-69 years;

- Māori are 2.2 more likely and Pacific peoples 2.4 times more likely to be hospitalised for serious infectious diseases than the European/other population (based on 2004-2008 data);

- Those living in the poorest neighbourhoods (deprivation scores of 9 and 10 using the NZDep index) are 2.8 times more likely to be hospitalised than those living in the least deprived;

- Māori and Pacific ethnicity and deprivation (poverty) are independent risk factors for serious infectious diseases. For example, at every level of deprivation Māori were between 58 per cent and 85 per cent more likely to be hospitalised than the European/other population during the 2004-08 period;

- These ethnic 'gradients' in risk for infectious diseases are much steeper than those for non-infectious diseases. For example, for Māori the excess risk of infectious diseases is about twice as large as the excess for non-infectious diseases. This finding suggests that lowering infectious disease risk across the population may be a particularly good way of reducing the health gap between Māori and non-Māori;

- Ethnic and socio-economic inequalities are increasing:
  - In 1989-93 Māori were 2.0 times more likely to be hospitalised for an infectious disease than European/Other, increasing to 2.2 times more likely in 2004-2008.
  - In 1989-93 Pacific peoples were 1.9 times more likely to be hospitalised than European/Other, increasing to 2.4 times more likely in 2004-2008.
  - In 1989-93 the poorest 20 per cent of the population (based on living in the 20 per cent most deprived neighbourhoods) were 2.4 times more likely to be hospitalised with an infectious disease compared with the most affluent 20 per cent of the population (based on living in the 20 per cent least deprived neighbourhoods), increasing to 2.8 times more likely in 2004-2008.

- Ethnic inequalities in risk have risen fastest for children less than five years of age. This is particularly important as pre-school aged children are the most vulnerable to infectious diseases based on having the highest rates.
  - In 1989-1993 Māori children were 1.6 times more likely to be hospitalised than European/Other children, increasing to 2.1 times more likely in 2004-2008.
  - In 1989-1993 Pacific children were 1.5 times more likely to be hospitalised than European/Other children, increasing to 2.1 times more likely in 2004-2008.

- Rates of serious infectious disease and inequalities decreased for Māori and Pacific peoples living in the least deprived neighbourhoods.
  - For Māori living in the least deprived neighbourhoods (NZDep 1-2), rates declined by 9 per cent over the 20-year study period. In 1989-1993 Māori living in NZDep 1-2 were 2.8 times more likely to be hospitalised than European/other decreasing to 1.6 times more likely in 2004-2008.
  - For Pacific peoples living in the least deprived neighbourhoods, rates declined by 26 per cent. In 1989-1993 Pacific peoples living in NZDep 1-2 were 5.0 times more likely to be hospitalised than European/other decreasing to 2.3 times more likely in 2004-2008.

- The opposite pattern was seen for the most deprived neighbourhoods, where rates of serious infectious disease and inequalities increased for Māori and Pacific.
  - For Māori living in the most deprived neighbourhoods (NZDep 9-10), rates increased by 78 per cent. In 1989-1993 Māori living in NZDep 9-10 were 1.5 times more likely to be hospitalised than European/other increasing to 1.9 times more likely in 2004-2008.
  - For Pacific peoples living in the most deprived neighbourhoods, rates increased by 112 per cent. In 1989-1993 Pacific peoples living in NZDep 9-10 were 1.2 times more likely to be hospitalised than European/other increasing to 1.7 times more likely in 2004-2008.
One in five unaware of HIV infection

By Mark Wright

As many as one in every five gay and bisexual Auckland men with HIV are unaware they are infected, according to an HRC-funded study carried out by the University of Otago’s Department of Preventive and Social Medicine. The study showed that overall 6.5 per cent of the group surveyed have HIV.

Lead investigator Dr Peter Saxton says it was the first time a biological measure of HIV had been collected in a community setting of gay men in New Zealand.

Previous studies had looked at sexual health clinic attenders, a sentinel population in which you would expect to find earlier warning of changes to the epidemic than in the general population.

“But of course sentinel samples tend to overestimate the prevalence of infection amongst the broader community, so we wanted to recruit gay and bisexual men from community settings to understand the extent of infection and the proportion undiagnosed.”

It is a timely finding given that routine enhanced surveillance of HIV diagnoses conducted by the AIDS Epidemiology Group indicated that 2010 saw the highest number of new HIV cases amongst gay and bisexual men in New Zealand.

Dr Saxton says routine enhanced surveillance of new diagnoses is essential but also provides an incomplete picture of the epidemic in that it relies on people testing for HIV after being exposed. Those who remain undiagnosed are invisible in
that sense, yet they play a central and disproportionate role in driving HIV spread.

“Obviously someone with undiagnosed HIV isn’t able to tell a sexual partner they have HIV and they might not initiate safe sex. Learning more about the prevalence of undiagnosed infection and whether that varied by certain subgroups would enable us to sharpen testing and prevention programmes.”

The February 2011 study recruited 1,049 gay and bisexual men with the bulk of those coming from a gay community fair day. They were asked to complete an anonymous questionnaire and provide an anonymous saliva specimen.

“Of the 6.5 per cent that were HIV antibody positive we were able to anonymously link those specimens back to the individual’s questionnaire and determine that 21 per cent of these weren’t aware they had HIV at the time of survey. So one in five HIV positive men were undiagnosed.”

Dr Saxton says the overall HIV prevalence of 6.5 per cent is confronting to some people but it is actually low compared to gay community samples collected in other large cities around the world.

“Although one in five positive men being unaware is also alarming to many, it’s also around the lowest proportion compared to most similar studies of gay and bisexual men internationally,” he adds.

“Even if we lift testing to very frequent levels there will always be people with HIV who don’t know it because the most at risk individuals tend to have sexual encounters more often than they seek testing.”

Any increased investment in testing needs to be matched with an equal investment in preventing infection occurring in the first place, he says.

“Most of the men who had undiagnosed HIV had tested in the past, in fact over half had tested in the year prior to survey. So we know that these men aren’t avoiding testing and some are testing quite regularly. We can and should encourage earlier diagnosis for personal health benefit, but the argument that all we need to do is increase testing is flawed because for testing to have a lasting effect on controlling the epidemic it must also motivate behaviour change.”

Dr Saxton says condom use remains the key strategy for preventing HIV transmission amongst gay and bisexual men in New Zealand. It is something both sexual partners can verify, whereas relying on previous negative tests or the disclosure of HIV status means you are relying on assumptions that may be sincerely held but incorrect.

The study, titled Actual and undiagnosed HIV prevalence in a community sample of men who have sex with men in Auckland, New Zealand was published in BMC Public Health 2012 and is available free online: http://www.biomedcentral.com/bmcpublichealth/.

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Study provides valuable immunisation insights for primary care

Dr Cameron Grant

By Mark Wright

An extensive survey of New Zealand primary care practices, which took place between 2004 and 2006, has highlighted a wide variability in immunisation coverage between practices and thrown light on many of the factors behind such variability.

The study, which was funded through the Immunisation Research Strategy, a partnership between the HRC and the Ministry of Health, was headed by Dr Cameron Grant, Associate Professor in Paediatrics and Associate Director of the Centre for Longitudinal Research He Ara ki Mua at The University of Auckland’s Faculty of Medical and Health Sciences. A manuscript reporting findings from it was published in the Journal of Paediatrics and Child Health\(^1\) in August 2011.

Dr Grant says the research project was developed in response to the country’s slow progress in improving immunisation coverage at that time. “Immunisation coverage levels were not high enough to prevent regular epidemics of vaccine-preventable disease. As a result young babies in New Zealand were at several fold higher risk of being hospitalised with vaccine-preventable disease than children in Australia, America or the UK.”

Previous research had focused on household and family characteristics that were associated with children being less well-immunised, but Dr Grant and his team felt it was necessary to examine just how much primary care practice approaches to immunisation varied.

They surveyed 118 primary care practices in the Auckland and midland regions. They found enormous variance between the practices in the proportion of the children registered in each practice who were fully immunised. “Basically from zero to 100 per cent, which was pretty staggering really.”

“We found there were a number of factors associated with practices having higher coverage. These included aspects of practice organisation plus characteristics of the doctors and nurses working in the practices staff and also some family related factors.”

The degree of social deprivation of the population served by the practice proved to be a key factor and was one of the strongest determinants of immunisation coverage achieved by individual practices, he says.

“Practices that served more socially deprived populations had lower coverage. This reflected a number of issues. Such families have more barriers to service access in terms of transport and being able to make appointments ahead of time and being able to get to the practice when it is open.

“I suspect it also reflects the workload of those practices. They are likely to have a higher proportion of their workload taken up with acute care and perhaps therefore less time to spend on developing a population focus as some other practices with more resources.”

The study also identified that:

- Practices in the midland region had higher coverage than those in the Auckland region;
- Practices that were not Māori governance practices had higher coverage;
- Practices that were serving more socio-economically deprived regions had lower coverage;
- Practices that registered children at a younger age had higher coverage;
- Practices were better at immunising younger children than older children, so that as the age of
children at a practice increased, their coverage decreased;
• Practices that did not have staff shortages had higher coverage;
• Practices where the nurses had dedicated time for immunisation follow-up had higher coverage, and
• Practices where the doctor was confident in their knowledge about immunisation had higher coverage.

“With respect to the caregiver factors the only thing that was important in a multivariate analysis was that immunisation coverage was lower at practices where the majority of caregivers had received discouraging information about immunisation antenatally,” says Dr Grant.

“We also found that the majority, two-thirds of the mums interviewed, had made their decisions about immunisation antenatally. So the fact that they were getting discouraging information is an area of real concern.”

Dr Grant sees it as a significant issue given the way our primary care system is structured.

“You have a GP until you become pregnant and once you become pregnant you change your care to a lead maternity caregiver. So there’s not a consistent person along that pathway who is going to be saying, ‘immunisation is something we are going to have to be doing together after your baby is born so let’s be talking and thinking about it now’,” he says.

“It is clear from this project that the antenatal period is an important immunisation time. This is one of the key immunisation issues that we are targeting in Growing Up in New Zealand (www.growingup.co.nz), New Zealand’s new birth cohort study” of which Dr. Grant is the Associate Director. Within Growing Up in New Zealand we are examining immunisation decision-making, both for the mums and their partners antenatally, because we think this is potentially a very important area for some focused parental education about immunisation.”

Dr Grant says it is pleasing to now be seeing the positive effects on immunisation coverage that have occurred since improving immunisation coverage became a national health target in 2007.

“Coverage rates have really increased as a result of this government’s immunisation Health Target initiative and much of the variance in immunisation coverage between practices has been eliminated.”

Immunisation monitoring and coverage has improved since the inception of this research project. A National Childhood Immunisation Coverage Survey in 2005 estimated 77 per cent of children were fully immunised at aged two years. Since 2005 immunisation coverage has been measured using New Zealand’s National Immunisation Register. For the three month period ending December 2011 immunisation coverage was at 92 per cent for children aged two. ‘The target is 95 per cent coverage which is the standard set by the World Health Organisation.

Every three months District Health Boards (DHB) report to the Ministry of Health on progress towards the immunisation coverage target. Each DHB has formed an immunisation steering committee who meet regularly to develop strategies and implement activities to improve immunisation coverage in their DHB.

Since investing in this piece of research, the funding partners - the HRC and the Ministry of Health - funded four further research projects under the Immunisation Research Strategy.

The Ministry of Health have also funded Immunisation Audience Research (Litmus).

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Immunisation: Practice nurses do make a difference

The positive contribution practice nurses can make in lifting immunisation rates has been brought to the fore by HRC and Ministry of Health-funded research from The University of Auckland.

Dr Cameron Grant, Associate Professor in Paediatrics at the Faculty of Medicine and Health Science says nurses are the key professional groups for immunisation delivery in many primary care practices.

“They are the ones who give the immunisations, who have to be experienced, have to be knowledgeable, handle most of the of the telephone calls and responses, so they are a key health professional group in New Zealand for immunisation.”

The study, published in the Australian Journal of Advanced Nursing1, found that higher coverage and more timely immunisation delivery is achieved at practices where the nurse to child ratio is lower, where nurses are confident in their immunisation knowledge and are perceptive of parental attitudes which can be barriers to immunisation.

This manuscript summarises the findings of a Masters of Public Health thesis on ‘Practice nurse determinants of immunisation coverage’ completed by Natalie Desmond, a registered nurse who was the lead author on the paper. ■

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1. Australian Journal of Advanced Learning Volume 28 Number 4
Calories count more than protein or carbs

A focus on cutting calories is more important for overweight or obese people with type 2 diabetes than focusing on a high protein or high carbohydrate diet, according to an HRC-funded study from the University of Otago, Wellington.

The study, led by endocrinologist Dr Jeremy Krebs, followed 419 participants, aged 35-75 who were split into two groups and given two low fat diets - one with a high protein intake and the other high in carbohydrates.

The findings, published in the international diabetes research journal Diabetologia, are available online and in the March 2012 print edition.

Dr Krebs says obesity is the prime modifiable driver of Type 2 diabetes, so weight loss is one of the cornerstones of the management of Type 2 diabetes.

“There has been quite a bit of controversy about what is the optimal dietary composition for people with diabetes to lose weight,” he says.

“There’s been a focus on the macronutrient composition of the diet - what is the best proportion of fat or protein or carbohydrate in the diet? Probably for the last 30 years the focus has been on low fat diets and we’ve all seen the inexorable rise in the rates of obesity and diabetes and there has been a questioning of whether that strategy is the right approach.”

The past decade has also witnessed a resurgence in some of the fad diets such as the Atkins diet and the Zone diet, which promote moving away from carbohydrates to a low carb approach and replacing that with either fat or protein, Dr Krebs explains.

“So the question was how safe is that for someone with diabetes and does it work? Could that fad sector of the diet community be right?”

He and his team designed a randomised controlled trial to try and answer that question by comparing two diets - a high carbohydrate/low fat diet and a high protein/low fat diet.

“That second diet, which was focussing on protein, was a relatively low carbohydrate diet but certainly not to the extreme that you would see with the Atkins diet and did not promote uncontrolled fat intake.

“There had been some evidence around suggesting that could be a good way to go because protein is seen to be more satiating than carbohydrate and people are less likely to be feeling hungry, which is one of the prime drivers of people to regain weight they have managed to lose. There were some good scientific reasons why that could be a good approach,” he says.

“Also, we were conscious there was no point in doing a study which was too short, because anyone can lose weight over two months or even six months if they put their mind to it, but really what we are interested in is can people lose weight and keep it off over a longer period of time through modifying their dietary approach. That to us was more important from the overall health perspective.”

“The third thing that was important to us was to do it in a way that was in a real world situation. It needed to be something that could be immediately rolled out into general practice and the population.”

Dr Krebs says the study found no difference between the two approaches in the amount of weight lost. Both groups did lose weight, although the weight loss was modest, at around 2-3kg over the two years.

“That is still clinically meaningful and worthwhile but it is certainly not a massive weight loss that might have been hoped for,” he says.

“One of the other really important findings of the study was that despite being given very clear information about the sorts of foods and quantities, and having support with group based sessions people found it very difficult to actually change and sustain the types of foods they ate.

“So what we tended to see was that people drifted back to the composition of the diet that was their habitual diet before they entered the study. They could manage it for a little while but they find it very hard to maintain that change in the type of food that they eat.”

“I think that’s really important because going forward it means that going forward we need to think about how we might approach helping people to sustain that change. That is part of the real challenge here - modifying what becomes a habit for people.”

He says the key message is simple: reduce the total energy intake.

“Whether they choose to follow a high protein diet or a high carbohydrate diet doesn’t seem to really matter, it’s what works for them that’s going to be important. This still needs to include a focus on reduced saturated fat, high fibre and minimal refined carbohydrate.”

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Utilising plant compounds as anti-addiction therapies

A plant compound, the Mexican herb salvia divinorum, is being tested as a possible medicinal treatment to help reduce the impact and side effects of drug addiction, specifically psychostimulants such as cocaine or methamphetamine.

This project is being led by Dr Bronwyn Kivell from the School of Biological Sciences at Victoria University of Wellington. Dr Kivell was a 2010 HRC Emerging Research First Grant recipient for this study, Investigating Novel Compounds to Prevent Addiction, and has formed a collaboration with a medicinal chemist at the University of Kansas in the United States, and Professor Susan Schenk at Victoria University of Wellington.

Dr Kivell’s research team is screening a number of anti-addiction compounds that have the potential to form the basis of medications that help reduce cravings and prevent relapses. They are looking at ways of targeting a protein in the brain, called the kappa opioid receptor, which can alter a person’s perception of mood, reward and pain. While there are drugs that can activate these receptors, they typically have extreme side effects such as nausea, depression and sedation, so this study is investigating a new selective kappa opioid receptor activator, Salvinorin-A, isolated from the plant salvia divinorum.

The herb salvia, known by some as the Mexican or Tijuana tripping weed, is a powerful hallucinogen that has been chewed by Mexican Indians for centuries.

While Salvinorin-A was formally recognised in 2002 as being a kappa opioid activator, it was Dr Kivell and her team that were first to show that it has an anti-addiction effect, and more recently, their testing is showing that some of these compounds have much milder side effects. Collaborator Thomas Prisinzano, who is at the forefront in the development of novel kappa opioid compounds is continually making new compounds based on the behavioural and cellular finding of this team.

“We are now starting to understand how some of these side effects work and multi-drug therapy will possibly resolve this. We are also looking at dosage levels and longer acting compounds as Salvinorin-A is metabolised too quickly,” said Dr Kivell.

In parallel to measuring the anti-addiction effects, Dr Kivell says they need to understand the mechanism of how these compounds work at the cellular level.

“I have always been interested in health research, and I am interested in addiction because it is a disease that affects so many people and the problem is growing. There are currently no therapeutic drugs to help psychostimulant users quit. We aim to help solve this problem by developing an effective treatment to combat addiction,” said Dr Kivell.

Dr Kivell’s interest in drug addiction research was led by her PhD studies at Victoria University of Wellington in the development of opioid systems in post-natal development. Her Post-Doctoral studies then took her to the National Institute on Drug Abuse in Baltimore, USA, where she had the opportunity to be supervised by renowned kappa opioid researcher, Dr Toni Shippenberg.

She is currently involved in a number of other projects and papers including research with the ESR looking at what other addictive components are contained in cigarettes other than nicotine, that contribute to addiction and how and why people take salvia divinorum in New Zealand. Other interests include developing kappa based therapies to treat pain.

This research received funding from the HRC, the Neurological Foundation of New Zealand and the Wellington Medical Research Foundation.

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Our high sodium intake is in the processed food we eat

Results from the latest New Zealand Adult Nutrition Survey show that nearly two-thirds (65 per cent) of adult New Zealanders are consuming more sodium than recommended in current nutrition guidelines.

Dr Rachael McLean

Consumption of large amounts of sodium increases the risk of high blood pressure, cardiovascular disease (heart disease and stroke) and kidney disease, and is also associated with stomach cancer.

An HRC Clinical Research Training Fellowship recipient, Dr Rachael McLean of the University of Otago in Dunedin’s Edgar National Centre for Diabetes and Obesity Research, analysed urine samples taken from 3,000 people who participated in the survey. Urine sodium from a nationally representative sample was measured and analysed to provide sodium intake estimates, and the findings from the survey were presented for the first time late last year.

Dr McLean found that that the average sodium intake for adults was estimated to be around 3,500 mg per day, which is the equivalent of nine grams of salt per day. She says the recommended upper level of sodium intake is 2,300 mg per day. “We found that younger men and women had higher estimated sodium intakes than the older generation, and men aged 19-44 years of age had mean intakes almost double the recommended upper level of intake for adults,” she said.

Interestingly, Dr McLean says: “There was no significant difference in sodium intake by ethnicity or socioeconomic deprivation.”

While other studies have shown that most sodium is consumed as salt – around 90 per cent - around three-quarters of salt is consumed through what is already in processed foods.

“The survey data showed that adding salt to food after it has been cooked was associated with higher sodium intake, however, the participants who reported never adding salt to their meals after it had been cooked still had a mean sodium intake exceeding the recommended upper level,” Dr McLean said.

“Therefore, to reduce salt intake to the recommended level, the focus needs to be more than simply limiting table salt consumption. Reformulating processed foods to reduce salt content, in order to lower sodium intake to below 2,300 mg per day for adults, which is six gram of salt per day, would have a significant impact on the reduction of the incidence of high blood pressure, heart disease and stroke of the adult population in this country.”

Dr McLean’s research background is in nutrition and public health, and she has also been involved in obesity and food labelling studies. She says the HRC Fellowship has made a major difference in terms of her being able to embark on a three year project focusing on sodium intake, consumer perceptions, and the implications for chronic disease.

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