

# definingnz

News from Massey University | Issue 24 | May 2013

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## health check

Issues New Zealand needs to address



| home safety | tobacco | osteoporosis |  
| sleep | fairness | inactivity | alcohol | drugs |



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Cover image: Co-Associate Director of the Sleep/Wake Research Centre at work. Dr Sarah-Jane Paine's main areas of interest are investigating and eliminating inequalities in sleep health between Māori and non-Māori, understanding the role of the circadian biological clock in the regulation of sleep timing, and quantitative aspects of kaupapa Māori research methodology.

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Vice-Chancellor Steve Maharey has driven cars in the cause of photo opportunities before, but the last time it was a plug-in Prius. This time the car entrusted to his care was very different, a one-of-a-kind prototype Hulme Supercar, and the cause was Massey's new television commercial. The car, lent to Massey by Hulme Supercar's Managing Director Jock Freemantle, has Massey in its DNA: Professor Tony Parker is the firm's chief designer; Professor Christoph Schumacher has offered business advice; and Associate Professor Johan Potgieter has provided engineering input. Fortunately, there was little chance of Maharey putting the very precious car in harm's way. His task was to navigate at walking pace the Albany campus buildings, relating the story of Massey's innovative approach to education along the way. The advertisement is featuring alongside last year's edition, which featured Maharey filming himself on an iPhone on the Wellington campus.

➡ To view the advertisement, visit [massey.ac.nz](http://massey.ac.nz). To learn more about the Hulme Supercar, go to [hulmesupercars.com](http://hulmesupercars.com).



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In late 2012 the British medical journal *The Lancet* released the results of the latest Global Burden of Disease Study. They contained good news and bad. The good news is that globally we are all living longer; the bad, that as matters stand, not all of the additional years will necessarily be spent in happiness and good health.

The report also set out the diseases that are killing us. In the developed nations – those that have made the transition to low birth rates and low death rates – these overwhelmingly fell into the category of what the study called ‘non-communicable’ diseases.

Non-communicable disease is also the term employed in one of the 12 National Science Challenges recently set out in the report of New Zealand’s National Science Panel:

**Healthier lives: research to reduce the burden of major New Zealand health problems**

To improve the primary and secondary prevention of, and ensure more effective management of, the most important non-communicable diseases (obesity, diabetes, cancer and cardiovascular disease), taking into account the distinctive features affecting the New Zealand population with regard to these.

So far, so good. Most of us recognise that the complexion of public health has changed; we see it in the patterns of health evident in ourselves and our friends and family.

The ‘Healthier lives’ challenge is worthy, and one to which I think Massey’s new College of Public Health will make an outstanding contribution.

But here is a question that sounds minor but has major implications: should we be terming these diseases or risk factors (for obesity is not of itself a disease) non-communicable? This may be the term in most common use, but there are a number of public health practitioners – among them Professor Paul McDonald, who is featured in this issue – who regard the use of non-communicable as a catch-all category to be both misleading and disabling. Misleading, because in some senses it does look as if many of our most prevalent non-communicable diseases are transferable; and disabling because it shifts the burden of responsibility away from society and on to the individual.

In 1948, a famous longitudinal study began in the town of Framingham in Massachusetts. The study – now in its third generation of participants – set out to follow the cardiovascular history of 5209 healthy men and women aged 30 to 62. It is from the study that much of what we know about the effects of diet, exercise and common medications such as aspirin is drawn. Indeed, it was the

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If we don't take action,  
we will have only  
ourselves to blame when  
the societal and fiscal bill  
falls due.

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Framingham study that introduced the term risk factor into the public health lexicon.

But that was not all it did. It also amassed a trove of data – and it was to this that some researchers from Harvard and the University of California, San Diego, turned when trying to work out the pattern of obesity developing across the United States.

Framingham gave them access to a social network of 12,067 people who had





been closely followed from 1971 to 2003. It gave them the relationships – friends, spouses, siblings and neighbours. And it told them how much each person weighed at various times. What they found was astonishing. If someone had a friend who had become obese, the likelihood that they too would become obese increased by 57 percent. If it was a close friend, the likelihood tripled.

This shouldn't surprise us. We are social animals, all too ready to adopt the behaviours of the people around us.

This is the first strike against the term non-communicable: in practical terms, conditions like obesity (and their risk-factor-associated diseases) function as if they were communicable, it is just that the infectious agent is neither bacterial nor viral but rooted in the person's societal and physical environment.

The second strike against the term is that it is unhelpful. Communicable diseases are usually regarded as no-one's fault and a problem to be held in common. Non-communicable diseases and conditions are viewed as the result of risk-taking behaviours and the agency – the fault – is often attributed to the individual. You can see this in the multitude of *Biggest Loser*-style programmes on our television screens, each a morality play about addressing an individual failure of will.

The risk is that in assigning the responsibility for risk-taking behaviours to the individual, we abdicate our ability to address those behaviours as a society, when in fact we have the means to do so.

Professor McDonald and others like him believe that the way we frame problems is crucial, that changing the way we define problems determines the success with which we address them. A number of non-communicable diseases are better termed chronic diseases or, better yet, transmissible chronic diseases – for we, as a society, can actively stop them spreading.

# 5.4

**The number of years by which average life expectancy increased (from 75.3 to 80.7) for New Zealanders between 1990 and 2010.**

# 11

**The approximate number of years that the average New Zealander will spend with disability or disease.**

**Top five risk factors for New Zealand's disease burden:**

- **Dietary risks**
- **High body-mass index**
- **Smoking**
- **High blood pressure**
- **Physical inactivity**

*The Global Burden of Disease Study 2010*

He deserves our attention. In the past three decades he has been part of the most successful public health campaign ever: the one mounted against smoking. It has saved hundreds of thousands of lives. We need similar successes.

A grey tsunami is about to engulf New Zealand. In 2005, around one in eight New Zealanders were over the age of 65; from the late 2030s it will be around one in four. The diseases set out in the 'Healthier lives' challenge – diabetes, cancer and cardiovascular disease – are strongly age-associated.

If we don't take action, we will have only ourselves to blame when the societal and fiscal bill falls due.

**Selected causes of mortality 2009**



*Mortality and Demographic Data 2009, Ministry of Health*



## Leaving their stamp

Associate Professor Kingsley Baird is known for his permanent works. In Nagasaki, his sculpture *The Cloak of Peace – Te Korowai Rangimarie* is constructed in laser-cut stainless steel; in Wellington, the *Tomb of the Unknown Warrior*, another of Baird's designs, has been built of black granite, bronze and pounamu; in Australia, the New Zealand memorial is bronze.

So his latest work of memorial is a departure: it is built from Anzac biscuits, around 18,000 of them.

The biscuits, stamped out in 12 shapes, are the building blocks in a three-metre-long sculpture, called *Tomb*, in France's leading

World War I museum, the Historial de la Grande Guerre in Péronne.

Each biscuit stamp is a variation on town-square-statue silhouettes of Australian, New Zealand, French and German soldiers.

The construction of the sculpture – and the necessary biscuit-baking marathon at a local bakery – took place in the three weeks leading up to Anzac Day.

Baird says the choice of Anzac biscuits resonated in a number of ways. The impermanence of the material – like that of memory and life itself – appealed to him, he told 3 News. But he also wanted

people to think about “how as individual citizens we are responsible for the consumption of those who go to work to fight for us”.

Oddly enough, says Baird, the Anzac biscuit recipe may postdate the event it commemorates. “It has been claimed they were sent by wives to soldiers abroad because the ingredients do not spoil easily and the biscuits kept well during naval transportation. However, the combination of the name Anzac and the recipe now associated with it apparently first appeared in 1921.”

*Tomb* will be on display until November.



## Campus wide



### \$1.2 million to health research

Two College of Health projects have been separately awarded a total of \$1.2 million by the Ministry of Health and the Lotteries Commission.

The first project, funded by \$1.15 million from the Ministry of Health, will measure the levels of a range of environmental chemicals present in New Zealanders. Three hundred children aged five to 16 and 300 adults aged 19 to 64 will be screened.

The chemicals tested for will include lead, mercury, arsenic, cadmium, chromium, thallium, antimony, bisphenol A, phthalates, triclosan, cotinine and fluoride.

Led by Dr Andrea 't Mannetje from the Centre for Public Health Research (at left), the project will look for any statistical associations between levels of environmental chemicals and factors such as gender, age, geographic region and ethnicity. 't Mannetje says the project will provide baseline levels for a range of common environmental contaminants in the New Zealand population and enable them to be compared with baseline levels in other countries.

The second project, led by Dr Ridivan Firestone, also from the centre, will develop reference values for lung function in Pasifika children. It has been awarded a Lottery Health Research grant of \$55,800. Firestone says that the project will immediately improve the diagnosis and management of respiratory health conditions in Pasifika children and its findings are likely to be referred to by clinicians and researchers nationally and internationally.

### \$500,000 grant to centenary history project

The Massey University Foundation has been given \$500,000 in lottery funding towards three volumes of the Centenary History of New Zealand and the First World War project. The funding will allow work to begin on *The War against the Ottoman*, *The Home Front* and *New Zealand Medical Services in the War*.

Up to 13 volumes will be published on different aspects of the conflict, covering the major campaigns in Europe and the Middle East, New Zealanders' contributions

in the air and sea, the experiences of soldiers at the front and civilians at home, the Māori war effort, and the war's impacts and legacy. Six volumes are underway, and work is due to begin on two more.

Massey University, the New Zealand Defence Force, the Ministry for Culture and Heritage and the Royal New Zealand Returned and Services' Association are working together on the project, which will form part of the centenary commemorations of the conflict.



The world ranking given to Massey's agriculture programme in the 2013 Quacquarelli Symonds' (QS) world university subject rankings. In the Southern Hemisphere, only the University of Queensland and Brazil's Universidade Estadual de Campinas did better. No other New Zealand university made the top 200.



# 700 megapascals

The achievable pressure of the new two-litre-capacity high-pressure processing machine at Massey's Food Pilot Plant. (The pressure at the bottom of the Mariana Trench, 11 kilometres beneath the sea, is 110 megapascals.) The machine kills bacteria and yeasts without using high temperatures, extending the shelf life of foods while retaining their taste and nutritional value. (It also does a nifty job of shrinking polystyrene cups.)



# \$50,000

The sum anonymously donated via the Massey University Foundation towards an Auckland-based children's literacy programme. The programme, a joint venture between a Massey PhD graduate and Institute of Education staff, assesses children who have reading difficulties and provides tailored assistance.



## Ending the trade in blood ivory



These are not good times for wild elephants. In 2011, around 17,000 elephants were killed by poachers for their ivory and it looks as if the figures for 2012 will be no better.

At its March meeting, CITES (the Convention on International Trade in Endangered Species) gave the eight countries identified as the worst offenders in the supply, traffic and receipt of ivory until July 2014 to come up with action plans to reduce their involvement, or face sanctions. China was one.

Wildlife economist **Brendan Moyle** believes a well regulated ivory trade offers the best chance of reducing the illegal poaching of elephants in Africa. He talks to **Sidah Russell**.

Dr Brendan Moyle is a senior lecturer in the School of Economics and Finance.







Photograph courtesy of Metropolitan Police Service Wildlife Crime Unit

**SR Much of the blame for elephant poaching has been directed at China. Tell us about your recent research trip there.**

**BM** The trip took about two years to organise, even with my connections there, but we got access to a lot of places that others haven't. We were able to inspect the official stockpiles of ivory that nobody outside China has seen in about a decade. We also got to meet a lot of key industry people and talk to them.

Although demand in China is one of the contributing factors to poaching, the situation is a little more complicated. Around 50 percent of the poached ivory is destined for Asia, but another 30 percent is still going to Europe and the United States.

I suspect a lot of conservationists still think that laundering is the means by which ivory is traded in China, but the evidence actually pointed away from this scenario. The legal traders are small-scale with limited production capacity – they can't absorb the massive amounts of poached ivory. This view was supported by how carefully they eked out their legal supply by economising on materials.

So this means that poached ivory isn't being laundered. It's being sold underground via unregistered factories and shops. And it's being stockpiled.

**SR You have long argued for a well regulated legal system for trading ivory. How would this work?**

**BM** The trade system has to be designed with regulations, monitoring and economic incentives to deter laundering. Laundering was the Achilles' heel of the 1980s' trade regime because poached ivory was passed off as coming from legal sources.

I'd like to see a system that provides direct benefits back to countries that conserve

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We were able to inspect the official stockpiles of ivory that nobody outside China has seen in about a decade.

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elephants and hinders poachers by hitting them with competition. Conservation isn't cheap, and developing countries aren't wealthy enough to see reserves as more than money sinks. Also, elephants generate conflicts with local human populations by eating crops, damaging buildings and killing people. Making elephants valuable rather than pests is good for their long-term conservation.

**SR What recommendations did you make to the Chinese wildlife authorities?**

**BM** There is a need to develop a conservation message at the retail end. Legal retailers are a bit vague on how their sales of legal ivory help conservation. If they can get Chinese consumers to switch to legal ivory by emphasising the 'poached ivory is bad, legal ivory is good' message, it will drive a wedge between the two markets.

We're also pushing them to get a system in place to record price data regularly. It seems odd, but for all the international efforts to understand the ivory markets, nobody has focused on price data. This is leading to a lot of disagreements as groups sweep through making eyeball measures in shops.

**SR What else is on your research agenda?**

**BM** I think we need to figure out just how big the unregistered market for ivory in China really is, and how much is being stockpiled. If it is being stockpiled, we need to understand what's driving that. The massive shipments of tusks aren't making a ripple in terms of prices or the availability of ivory in China.

I'd also like to get into other markets in Asia, such as Thailand and Japan. It's hard to generalise from China, especially given that China is unusual in many respects. And if there were a chance to go to Africa I'd definitely take up that opportunity.

## Distinguished Massey University Professors



Sociologist **Paul Spoonley**, photographer **Anne Noble** and food scientist **Harjinder Singh** (pictured above, top to bottom) have been awarded the title of **Massey University Distinguished Professor**. The award is the highest academic title the university offers and is normally bestowed on up to 15 professors who have achieved "outstanding international eminence in their fields". Anne Noble is the first professor from the College of Creative Arts to hold the title.

## Campus wide

### Moving on from milk

A sweet-potato-based infant-weaning food developed by a PhD student could be used to cut the number of infants who suffer vitamin A deficiencies in developing nations.

In Francis Kweku Amagloh's native Ghana the usual choice of weaning food is a porridge made with white maize. This has its problems: as Amagloh's PhD supervisor Associate Professor Jane Coad explains, white maize (along with a number of other cereals) is low in micronutrients and high in phytate, a phosphorus-based molecule that binds to iron and stops it being absorbed. The consequences can include childhood anaemia and vitamin A deficiency, the symptoms of which include skeletal problems and night blindness.

Prompted by a period he spent working for the World Health Organization in Ghana, Amagloh has developed an easily stored and rehydrated, kumara-based (sweet potato) food powder suited to being manufactured in developing nations using locally grown sweet potatoes. It is low in phytate, high in vitamin A precursors, and could serve as a good dietary source of vitamin A.



Coad says the mix of expertise hosted by Massey was critical to Amagloh's work. "We took this right across the breadth of expertise of the Institute of Food, Nutrition and Human Health, so although Francis is a nutritionist, we used Massey's expertise in food technology at the Food Pilot Plant and the expertise in post-harvest technology and sensory evaluation."

Amagloh's PhD thesis made the Dean's List of Exceptional Doctoral Theses.

Dr Amagloh, whose study at Massey was funded by NZAID, is now back in Ghana with the University for Development Studies. He is seeking funding to carry out more research on the nutritional advantages of sweet potato and plans to continue collaborating with the staff of the institute.



Massey University has been ranked the **fifth most attractive employer brand in New Zealand** in the annual Randstad Awards, an international survey conducted across 14 countries. It was also the education sector winner. Air New Zealand topped the list, followed by the New Zealand Customs Service, the Department of Conservation and Television New Zealand.

Two major projects researching new migrants and ageing have earned 'gold standard' accolades from the **Ministry of Business, Innovation and Employment**. The gold standard was devised to recognise projects that have met and exceeded contract requirements. The projects, both from within the College of Humanities and Social Sciences, were: the Integration of Immigrants Programme (2007-2012) led by sociologist **Professor Paul Spoonley** (pictured at right) and involving **Associate Professor Robin Peace** and **Dr Trudie Cain** (pictured at left); and the New Zealand Longitudinal Study of Ageing (2007-2012), led by psychologists **Associate Professor Fiona Alpass** and **Professor Christine Stephens**.



New Zealand teams dominated the **2013 VEX Robotics World Championships** for the fifth year running, with an alliance from Auckland's **Lynfield College** and Tauranga's **Otumoetai College** crowned world champion in Sack Attack! The teams also finished first and second respectively in the Robot Skills competition, with Lynfield achieving a world record score of 400 points. American-based VEX robotics was launched in New Zealand in 2008 by Massey University. In 2009 the university held the first national VEX competition at its Albany campus and it has provided mentoring for participating schools ever since. This year Massey University engineering lecturer and robotics mentor Frazer Noble accompanied the teams to the competition.





1992.742 ©NAM.NZ

Two signallers outside the Divisional Signal Office on the Gallipoli Peninsula (1915) enjoy a meal of bread and jam, washed down with a mug of tea. The jam did provide a source of vitamin C but it was not enough. Source: Used with permission from National Army Museum, New Zealand (Number: 1992.742)

# Bully beef and biscuits

Massey and Otago researchers have been collaborating on a nutritional study of the New Zealand soldier's diet at Gallipoli. Their verdict? It was inadequate and certainly would have affected their health and performance.

**Associate Professor Nick Wilson** and **Professor Glyn Harper** speak to Malcolm Wood.

**T**here are Anzac biscuits and then there are Anzac biscuits. The first are the golden syrup, rolled oats, butter-based, fail-proof family favourites that was, according to legend, baked by wives and girlfriends and mailed out to the troops.

The second – the Anzac biscuit the World War I troops at Gallipoli would have instantly recognised – was of an entirely different kind, a rock-hard bread substitute manufactured for its keeping qualities.

Consumed with corned beef (often Argentinian), jam (usually tinned apricot), black tea and, inadvertently, quantities of flies, this Anzac biscuit, better known as the Anzac tile or wafer, was a trench staple.

What was the diet in the trenches like? Here is a diary entry by John Henry Thomson (who would die in the last year of the war).

*Our rations are 7 biscuits a day, a very little each of jam, tea & sugar & a very fat chunk of bacon. There*

*is any amount of bully beef but only because it is poor & barely eatable. I have a struggle to get satisfied; it takes a lot of gnawing to fill up on biscuits & our 7 are as many as a man with ordinary jaws can manage.*

Often the soldiers managed no more than nibbling away at the edges before tossing the centres out into No Man's Land. (And, as Thomson's diary attests, the bully beef was no better. A tin of bully beef thrown into the Turkish trenches was soon thrown back with the note: "Cigarettes yes. Bully beef no".)

But, when interviewed, military historian Professor Glyn Harper and epidemiologist Associate Professor Nick Wilson from the University of Otago Wellington were still looking forward to trying the Anzac wafers – or at least biscuits

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A tin of bully beef thrown into the Turkish trenches was soon thrown back with the note:  
"Cigarettes yes.  
Bully beef no".

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Above from left: Associate Professor Nick Wilson; Maree Hoare, who baked the Anzac wafers shown; and Professor Glyn Harper.  
 Below: the official Gallipoli daily ration.

### Rations Scale of:—

The scale of Rations after leaving Egypt will be:—

- 1 $\frac{1}{4}$  lbs. Fresh Meat or 1 lb. (nominal) preserved meat.
- 1 $\frac{1}{4}$  lbs, Bread or 1 lb. Biscuit or 1 lb. Flour.
- 4 ozs. Bacon.
- 3 ozs. Cheese.
- 2 ozs. Peas, Beans or dried Potatoes.
- $\frac{5}{8}$  ozs. Tea.
- $\frac{1}{4}$  lb. Jam.
- 3 ozs. Sugar.
- $\frac{1}{2}$  oz. Salt,  $\frac{1}{20}$  oz. Mustard,  $\frac{1}{36}$  oz. Pepper.
- $\frac{1}{10}$  gill Limejuice.
- $\frac{1}{2}$  gill Rum.
- Tobacco not exceeding 2 ozs. per week. } at discretion of G.O.C. on recommendation of S.M.O.



## Feature

made to an approximation of the original recipe – made by Massey staff member Maree Hoare.

In recent times Harper and Wilson have worked together as part of a multidisciplinary team studying the nutritional content of New Zealand military food rations at Gallipoli, to see whether it might have affected the troops' performance.

As it turns out, the diet was not only unappetising and monotonous, it was also disablingly bad. It lacked enough vitamin C to stave off scurvy (early symptoms are malaise and lethargy) and its vitamin A content was potentially low enough to lead to night blindness and probably reduced resistance to the dysentery and typhoid that killed more than 200 of the New Zealanders. (Also below the level of modern dietary requirements were vitamin E, potassium, selenium and dietary fibre.)

On the Turkish side, things were somewhat better – at least there was a better prospect of more fresh food and ample fresh water (the Anzac ration was a pint [470 millilitres] a day at times), but still not good. According to medical historian Leonard Wilson, “among the Turkish troops taken prisoner, there were many well defined cases of scurvy, beriberi, and pellagra”.

Should the military provisioners have known better? Scurvy had, after all, afflicted the troops in the mid-19th -century Crimean and American Civil Wars

(47,000 Union troops were diagnosed in the latter) and the Merchant Shipping Act of 1867 required all ships of the Royal Navy and Merchant Navy to provide a daily lime ration to sailors to prevent scurvy.

But, in fact, in the early years of the 20th century, scurvy was not universally recognised as the manifestation of a nutritional deficiency, and it wasn't until 1932 that vitamin C was isolated and the link was proven – and to give the provisioners of the time their due, as the war progressed improvements were made to military rations.

With revisionist hindsight, Otago's researchers were able to come up with a diet based on bread, flour, cheese, rolled oats, dried peas and canned tomatoes that could have achieved all nutrient requirements at around half the contemporary cost of the 1915 military rations.

What did food reviewers Wilson and Harper make of the modern-day Anzac wafers?

“Salty,” was Wilson's verdict, “tasteless,” Harper's. And even a day after being baked the biscuits were becoming hard to break. Imagine, says Harper, what they would have been like after several weeks.

A nutritional analysis of New Zealand military food rations at Gallipoli in 1915: Likely contribution to scurvy and other nutrient deficiency disorders. Nick Wilson, Nhung Nghiem, Jennifer A Summers, Mary-Ann Carter, Glyn Harper. *New Zealand Medical Journal*



A precious water point at Anzac Cove, Gallipoli Peninsula (1915). Two quarts (1.9 litres) a day was the normal ration for New Zealand soldiers and it had to be used for all purposes. Most went to make tea. As one New Zealand soldier wrote: “water is worth its weight in gold here”. *Used with permission from National Army Museum, New Zealand (Number: 2007.550)*



# Lessons from Lance

**Professor Steve Stannard**, head of the School of Sport and Exercise and a former racing cyclist, writes.

Professor Stannard at the 2012 New Zealand Cycle Classic.

don't condone the now undisputable fact that Lance Armstrong took banned substances to win and I especially dislike that some of his peers like Tyler Hamilton and David Millar are venerated after "fessing up" and "dobbing in"—but only after they were caught.

What I hate is the head-in-the-sand attitude adopted by people in the cycling world who knew something dodgy had been going on for a long time but refused to do anything about it. The UCI (International Cycling Union) and various national cycling federations sit squarely in those seats, but so do some of my peers; physiologists and coaches working with EPO-laden and blood-doped riders who surely saw some field- and laboratory-based 'feats' that were just not natural. Some of these people have ridden on the coattails of the Armstrong ilk, making money and getting promoted. Where is Armstrong's coach now; the one who sold all the books about "scientific training" and what you need to do to become the next Armstrong? Where is his team of sport scientists who even published papers describing the magnificence of his almost-supernatural physiology? Gone to ground I guess. Perhaps some of these hangers-on will now write their own books...

Worst of all, though, are the people and organisations who profited nicely from associating their products with

Armstrong, but are now asking for their money back. These are apparel and equipment manufacturers, nutrition companies, television companies, and hey, even a postal service. Well, they sold lots of their stuff at the time because Armstrong promoted it, and they made plenty of money then. Even the South Australian Government is talking about reclaiming the appearance money it paid Armstrong. Excuse me, but the fact that he went there meant that plenty more people turned up in Adelaide and spent their pingers in hotels, bike stores and restaurants. It's not like they're going to go and ask for refunds of their winery tours in 2008 because Armstrong has now admitted taking EPO.

Some years ago, a cyclist friend of mine, an accomplished racer, who got a "holiday" from competing courtesy of a banned stimulant, had an interesting slant on the 'drugs in cycling' issue. He said, "Why do they make such a big deal out of it when cyclists regularly negotiate to influence the result?" By "negotiate", he meant that in cycling the winner is often not the best rider, but the one who can cajole, influence or even bully other riders into assisting them. It works like this because the person at the front of the bunch doing 50 kilometres an hour is having to do twice as much work as the person sitting behind them, and maybe three times as much work as the person spinning their legs in the middle of the pack. This slipstreaming effect means that riders will jostle for position



during the race to avoid taking the wind until they really have to, like when it's time to sprint for the finish. It means that during a multi-day 'tour' a rider with a strong team can be protected from the wind day after day, until the individual time trial stage when they can show their muscle and put some time into their opponents. Incidentally, when people ask whether Armstrong won all his tours because of his drugs, I say, "No, he won because he had the strongest team around him. But he had the strongest team because he made them all take drugs...". The impact of aerodynamics is the reason why cycling is such a wonderfully complicated sport that has been referred to as "chess on wheels"; you not only have to outride your opponent, but have to out-think them too.

Sometimes negotiating the result means exchanging expected prize money. For example, two riders, A and B, are co-operating by taking turns into the wind to maintain a breakaway (from the bunch) and are nearing the finish line. Rider A knows that B (from another region) is a better sprinter and he has little chance of beating him across the line, but the finish line is in A's home town where his sponsors and supporters are. The sensible thing for rider A to do would be to simply stop taking his turn, allow rider B to tire and then attack with a few kilometres to go so he'd get the glory of a solo win. But A's sitting on would wear thin pretty quickly on Rider B and he would then stop working too. They'd both slow up and quickly get caught by a swarming bunch of fresher riders. Neither would get any prize money – a loss/loss situation. However, a scenario that might play out in this case runs like this: Rider A has a quick chat to rider B indicating that "if you let me win in my home town, I'll give you the prize money". Now that'd be a win/win, because rider B gets first and second prize money, and rider A gets the home-town glory and a better sponsorship package. Extrapolate this sort of co-operative thinking to the team racing situation and you find a situation where a whole team is bought out by another team so their man can win the big race. There are tens or even hundreds of thousands of dollars in prizes, sponsorship and endorsements at stake. This is a truly professional sport and part of the 'rich tapestry' and certainly the history of cycling. It's fairly open knowledge and tolerated by the riders, the fans and, to some extent, the officials. However, apply this sort of thinking to test cricket and it's called corruption. All of a sudden, as my cycling friend pointed out, a little pill here and there seems inconsequential...

The spiritual home of professional cycling is the narrow and sometimes cobbled roads of rural Flanders. There, one way to escape the drudgery of shovelling manure on the family farm is to become a professional

bike rider. Those who do crack it become the town sporting heroes, and many a local café has old pictures on its wall of the local lad done good all those years ago (he probably now runs the local bike shop and sponsors one or two up-and-coming riders).

But there is no harder job than that of a professional cyclist, riding and racing every day of the week, literally rain, hail or shine. Unless you're at the very top, the pay's not particularly good and you're only ever one crash away from shovelling the poo. It's not surprising therefore that drugs are taken and money changes hands. These practices and their vested acceptance reflect the history of the sport and have greatly influenced what it is today. But for the sport to move on, some things need to be consigned to history and those accepting of the 'old ways' consigned as well.

As watchers and fans though, we too need to take some responsibility for this and other 'drugs in sport' sagas for a couple of reasons. Firstly, we put athletes like Armstrong up on pedestals believing that because they possess the physical and mental toughness to succeed in their sports, they are also morally beyond reproach. However, like the rest of us they are flawed, and will occasionally fall victim to the same influences and pressures that life throws at all of us. The high-profile rugby player having a dust-up at 5am outside a nightclub is an all-too-familiar example. As in business, education and family life, some athletes will even cheat to succeed. That this surprises us is perhaps the most shocking revelation of all. Secondly, when someone cheats or money changes hands in sport to influence the result, we should closely consider who is the victim and who is the perpetrator of this 'crime'. We are aghast when a greyhound is nobbled or a horse doped, not simply because the animals are unable to say whether they wanted to be involved in the racket. Rather, we are upset because we, the punters and the bookies, have been duped. Match fixing in cricket is such a big deal only because of the millions of dollars literally swinging on each boundary hit. It's certainly not because we didn't enjoy the spectacle of the event, because no-one seems to know by watching if any 'fixing' has taken place! So if the spectators are happy and onlookers can't officially bet on the outcome, what's the problem when the winner is partly a result of negotiation between the competitors?

Armstrong has finally confirmed what many suspected all along. There are plenty of others out there in many sports, coaches, administrators and sponsors alike, who still need to spill the beans about using banned drugs or otherwise cheating. In cycling at least, nothing short of an entire-clean out of the 'old guard' is needed. As a proudly clean former racing cyclist, one who has been cheated by the dopers, I'm happy to help push the broom.

# The health of nations



Canadian **Professor Paul McDonald** is the inaugural Pro Vice-Chancellor of Massey's new **College of Health**. The college brings together a range of specialists in public health, food science and technology, nutrition and physiology, sport and exercise, rehabilitation, nursing, Māori and Pasifika health, social work, occupational health and safety, social work, social policy and medical laboratory science. He talks to **Malcolm Wood**.

**I**n the coming decades the world will face some immense public health challenges. Professor Paul McDonald is determined to see the work of Massey's new College of Health inform the way they are tackled. He knows what it is like to be frustrated by a dearth of useful information.

In the 1980s, working in smoking cessation with a set budget in one of Canada's public health units, he once asked a large research network to tell him which smoking cessation interventions were the most cost efficient.

"Not cost effective," he clarifies. "Cost efficient. Cost effective means doing A is better than doing B. Cost efficiency is 'given this amount of money, which of these interventions help the most people?'"

Instead, they flooded him with research that confirmed what he already knew: that it was cheaper to intervene to stop smoking than to fund the treatment of smoking-related diseases.

This wasn't useful. "I wanted to be an evidence-informed healthcare professional, and now I am a part of academia I want to be a practice- and policy-informed researcher."

McDonald began his working life as an architectural designer before deciding to "retool" himself a clinical psychologist, picking up an interest in health psychology and behavioural medicine on the way to his undergraduate degree. He then began a PhD in clinical psychology, but partway through he and his wife received the news that they had a second child on the way. His scholarship money wouldn't be enough. To support his family, he needed paid employment.

A job vacancy had opened up in public health. "I was interested in health and wellbeing and what some people call 'lifestyle issues', and as a clinical psychologist I had been trained in how to change people's behaviours. I thought, 'I could do that.'"



“But what I was exposed to was completely unexpected: treating populations by altering the wider environment.”

He worked on such issues as tobacco, substance abuse, healthy eating and physical activity and, he says, “loved it; I absolutely loved it”.

It was while he was working as the director of the health promotion division of a health unit that Canada’s University of Waterloo called. It was starting up a PhD in health studies with an emphasis on population health. Would McDonald like to be a member of the first class? He began a regimen of 14-hour days, coming home to his papers, exam study and thesis. Fittingly, he chose a research topic with practical implications. McDonald wanted to know the most effective and cost-efficient way to enlist people in smoking cessation interventions. How did the mass media campaigns then in vogue compare with the more personal approach of a telephone call?

“The answer turned out to be somewhat dependent on the smoker, but in general a telephone call was much more effective and cost efficient.”

Soon after his PhD McDonald joined the staff of the University of Waterloo, where 14 years on, having become the Director of the university’s School of Public Health and Health Systems, he heard that Massey was seeking a Pro Vice-Chancellor to head its newly created College of Health.

McDonald and his wife liked – “adored” is the word he uses – New Zealand. His sons were then in their 20s. “This kind of opportunity at a world-class institution like Massey only arises once a decade, if you are lucky, and most of the time most of us are at the wrong point in our careers.” He seized the moment, taking up the appointment in April 2013.

If there is one thing that McDonald has come to realise during his working life, it is the importance of environment.

During his days as a clinical psychologist, he often found himself wondering if, placed in his clients’ sometimes bizarre circumstances, he might find himself behaving in similar ways. There but for the grace of God. And if this applied to the clients’ mental health, surely it must apply to physical health as well.

His experience since has only confirmed his intuition – and the public health profession has swung into agreement.

“Public health now realises that classifying something as a lifestyle choice is fundamentally misleading. Most people don’t choose to be obese, they don’t choose to eat poorly, they don’t choose to smoke.

“A complicated matrix of environmental and biological factors increases the likelihood that someone will engage in an activity that is detrimental to their health.

“I spent years in tobacco control, and we didn’t start to get a huge change until we started raising the price, until we started taking it out of public places, until we stopped advertising it. These are all things that go well beyond what any given individual can achieve on their own. These were collective social responses.”

You might think that given McDonald’s experiences with tobacco control he would take a similar line on public health issues such as obesity, diabetes and stroke. Tobacco causes cancer. Excessive amounts of dietary sugar, fat and salt are implicated in a variety of non-communicable diseases. Shouldn’t we tax and regulate?

McDonald says this isn’t necessarily the best way to go. Tobacco – a product almost devoid of redeeming features – is a very different issue from food and diet. Everyone must eat to live; smoking is non-essential.

Rather, McDonald looks to Finland’s example. In 1973 Finland had one of the highest rates of coronary heart disease in the world.

In response, it set up a trial public health programme in the North Karelia region.

In the programme, the food industry and the public health sector – along with educational institutions, public health providers and others – worked in concert, achieving a startling reduction in the amount of salt and saturated fat in the Finnish diet.

And the programme drew on a mass of research that was tailored to producing useful information. Coronary heart disease rates plummeted.

So successful was the programme that it was decided it would be unethical not to introduce it to all of Finland.

One meat and sausage manufacturer found itself using 40,000 kilograms less salt annually. A biscuit manufacturer switched from trans fats to canola oil.

The North Karelia programme, says McDonald, showed that population-based prevention is the best and most affordable approach to chronic diseases and that non-directive, society-wide initiatives can work well.

“We tend to think of chronic diseases as medical problems with social consequences.” However, McDonald argues, “the time has come to think of chronic diseases

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“I spent years in tobacco control, and we didn’t start to get a huge change until we started raising the price, until we started taking it out of public places, until we stopped advertising it.”

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## TOBACCO CONTROL

Professor Paul McDonald talks to Malcolm Wood.

The years between 1991 and 2003 were good for New Zealand's anti-smoking campaigners. The places where people could smoke were restricted, the advertising of tobacco products and tobacco sponsorship were banned, and, step by step, it became more expensive.

These measures contributed to a dramatic 43 percent drop-off in the consumption of tobacco. But in recent times the decline has slowed – and the battle is far from won: around one in five New Zealanders still smokes and smoking-related illnesses kill between 4300 and 4700 New Zealanders each year.

In the past decade McDonald has twice visited New Zealand to offer advice on proposed legislation that would advance the anti-smoking cause.

First, it was to offer up some wisdom from the Canadian experience about the effects of introducing graphic health warnings on cigarette packaging.

It was contested territory. Some thought that fear-based warnings might create resistance or even a boomerang effect, and initially it looked as if the Government might adopt a cautious approach.

But McDonald was able to give a more nuanced idea of what 'resistance' actually meant.

"When we asked smokers, the immediate response to the idea of warning labels was 'I will just cover them up', or 'I will take the cigarettes out of the package' – and that kind of intrigued us. It intrigued us that people would go to those great lengths to

avoid the images; it meant that we were registering.

"In psychological theory, the depth at which you process certain information is profoundly important. The greater the depth, the more likely you are to act on it."

So it turned out. "When we followed the people who at first said 'I will cover the label', or 'I will take my cigarettes out of the package', lo and behold, they were actually more likely to quit smoking cigarettes in the next few months. They were so disturbed by the images that they just couldn't ignore the damage they were doing to themselves any more."

Graphic health warnings were introduced on New Zealand cigarette packaging in 2008.

Similarly, when New Zealand proposed to introduce a ban on point-of-purchase displays, McDonald was invited to give an account of the Canadian experience. Again, he was supportive. New Zealand's tobacco display ban came into force in 2012.

Nor does he think that there is any reason for the impetus in the anti-smoking drive to slow, and he rejects the idea that somehow there is a core of smokers who are beyond reach.

"To be honest, I think that the reason that we come to the conclusion that there is a hard core of addicted smokers whose problem we will never be able to address is a function of our failings as scientists and practitioners. It is easy to say, well, we have done our best, therefore it must be the smokers' fault. Rubbish! Absolute rubbish.

"If we had taken that perspective 30 years ago, half the population

would still be smoking and 30 percent of them would still be dying off from tobacco-related diseases. It is not the tobacco users; we just haven't been smart enough to figure out ways that will work with them, that are matched to their particular needs and circumstances."

Even the most apparently set-in-their-ways smokers can change their ways.

"When someone initially says they are quite recalcitrant, their actual level of commitment and/or ambivalence changes quite a bit over time. We did a longitudinal study where we followed a few hundred people for two or three years, and we found people would go from heavy smoking to a few cigarettes in a day, or even temporarily quitting. People move in and out of phases.

"The good news is that people are slightly more likely to move from heavy regular smoking to occasional smoking than the other way around. What that indicates to me is that there is a pathway."

He cites research by Mark and Linda Sobell of Toronto, who found that a neat divide applied to heavy drinkers. "There were those who said, 'I don't think that I could ever just stop, I just don't have it in me, but I could probably drink less'. And there were those who said, 'If I have one drink then I will have 20'."

In response, the Sobells suggested that both abstinence-led and moderated drinking were valid approaches to reducing heavy drinking.



# 650,000

Estimated number of New Zealand adults who smoked **at some time** in 2011/2012. (This figure has remained near static since 2006/2007.)

“We haven’t done that with tobacco because of the notion that any amount of smoking is bad, and anything other than getting someone to quit entirely is a failure.”

He remembers a client from the days when he was a clinical psychologist. “When I first saw him he smoked 75 cigarettes a day. There were times when I saw him with two cigarettes, finishing one and lighting the other.

“We got him down to one cigarette a day. Now I could never get him to quit completely. There was one period in the day when he had to have one. But I was thrilled. He had done something that no-one thought he could do. His health was measurably better and he had dramatically lowered his risk.”

# 583,000

Estimated number of New Zealand adults who smoked **on a daily basis** in 2011/2012. (This represents a decrease since 2006/2007.)

Ministry of Health (2012). *The Health of New Zealand Adults 2011/12: Key Findings of the New Zealand Health Survey.*

► as a social problem with medical implications. Most diseases have an element of communicability, but instead of transmission by virus or bacteria, transmission comes through our exposures to various social, economic, physical, political and cultural environments”.

The biggest challenge on the near horizon for public health is the ageing profile of New Zealand’s population – a grey tsunami is about to wash over us.

In 2005, around one in eight New Zealanders was over the age of 65; from the late 2030s it will be around one in four.

“In Canada we waited way too long to respond. We could see the demographics 50 years ago – it’s not a surprise – but we didn’t do anything about it, and now the country is paying 43 to 44 percent of all tax dollars on healthcare.

“The challenge that we face in characterising this is that we mustn’t do this in a way that is ageist. It is overly simplistic to say that our healthcare problems are caused by old people. That’s not true. They are the result of chronic diseases that happen to be more prevalent among older populations.”

His ideal? “We know that our biological machinery wears out eventually. There is a limit in terms of what the biology is capable of supporting, and we think that is around 120 years. I think the ultimate aim is that on the day after our 120th birthdays we just quietly slip away in otherwise good health.”

McDonald is new to Massey and New Zealand. His office is still being furnished, staffed and equipped. The two family dogs have yet to arrive and pass through quarantine. Life is passing in a whirl of meetings, flights between campuses and 14-hour days.

Yet he is enormously buoyant, almost euphoric, about the possibilities, and already his identification with New Zealand and Massey is total.

New Zealand, he says, is the sort of place where good things can be made to happen quickly, and internationally New Zealand’s health researchers enjoy enormous credibility and respect.

“We are not seen as overly dogmatic – as forcing ideas on other people – but as facilitators, as generators of ideas whom you can go to and work with.

“We have a phenomenal group of people here. Great things lie ahead.” ■

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The biggest challenge on the near horizon for public health is the ageing profile of New Zealand’s population – a grey tsunami is about to wash over us.

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## SLEEP

Professor Philippa Gander writes.

**THE ISSUES:** We spend a third of our lives asleep. Our understanding of the critical nature of sleep for all aspects of waking functioning and health is growing exponentially, yet sleep remains conspicuously absent from the health debate and public policy in New Zealand.

To balance all the pressures of modern life, sleep is often seen as a tradable commodity. Many people mistakenly believe they can get more out of life by sleeping less. However, sleep is not passive 'down time'. It is a complex series of active processes that the brain must go through to be restored after the demands of all waking activities. It is also during sleep that memory consolidation vital for learning takes place. The Massey College of Health includes the Sleep/Wake Research Centre, which is the only group in New Zealand dedicated to research addressing the vital balance between sleep and waking function.

### Sleep duration and health

A recent proliferation of longitudinal and cross-sectional epidemiological studies confirm that adults who report usual sleep of fewer than seven hours or at least nine hours per night are at increased risk of a range of adverse health outcomes including obesity, impaired glucose tolerance, type 2 diabetes, cardiovascular disease, poor general health and premature mortality, after controlling for other risk factors.<sup>1,2</sup> In a representative sample of New Zealanders aged 30-59 years (n=6799, 46 percent Māori), 30.1 percent of Māori and 24.4 percent of non-Māori reported usual sleep of fewer than seven hours,

while 13.5 percent of Māori and 7.9 percent of non-Māori reported usual sleep of at least nine hours.<sup>3</sup>

Experimental sleep restriction studies are identifying potential pathways that could underpin the effects of short sleep on health. These include increased caloric intake, decreased physical activity and/or altered thermoregulation, impaired glucose metabolism, and increases in blood pressure, sympathetic nervous system activity and inflammatory markers of cardiovascular risk.<sup>4-9</sup> Less is known about why long sleep should be associated with poorer health, but these findings raise the tantalising possibility that a significant proportion of adults could sleep their way to slimness and better health, as well as reduced accident risk and increased productivity<sup>10</sup>, if they could change their habitual sleep durations. At a minimum, there is compelling scientific evidence to support advocacy for adequate sleep to be added to good nutrition and regular exercise as the pillars for maintaining and improving health.

### Sleep restriction and safety

Restricted sleep causes cumulative, dose-dependent degradation in most aspects of waking performance and mood. Inadequate sleep has many potential causes, but for most people it is primarily due to psychosocial factors (for example, voluntary sleep restriction, non-standard work patterns, emotional stress and looking after young or elderly dependants who have irregular sleep patterns), rather than medical conditions.

Fatigue is a catch-all term used to describe performance impairment

resulting from the combined impacts of sleep loss, extended time awake and trying to function at inappropriate times in the daily cycle of the circadian pacemaker in the hypothalamus (the 'body clock'), which programs the brain and body for sleep at night. Fatigue is identified as a workplace hazard in the Health and Safety in Employment Amendment Act 2002. This means that all New Zealand workplaces are required to manage fatigue.

Shift work is a common cause of sleep loss and workplace fatigue because it requires sleeping and working at suboptimal times in the circadian pacemaker cycle (the pacemaker does not adapt fully to altered work/rest schedules). About 20 percent of New Zealand workers are involved in rotating shift work, with or without night shifts. This doubles their risk of reporting work-related injuries, after controlling for exposure to high-risk occupations, lifestyle factors and excessive daytime sleepiness.<sup>11</sup>

In 2010 on New Zealand roads, fatigue was identified as a contributing factor in 47 fatal crashes, 127 serious injury crashes and 508 minor injury crashes. These crashes resulted in 51 deaths, 181 serious injuries and 704 minor injuries. The total social cost of crashes involving driver fatigue was about \$346 million, which is about 10 percent of the social cost associated with all injury crashes.<sup>12</sup> It has been estimated that injury accidents on Auckland roads could be reduced by 19 percent if people avoided driving when they felt sleepy, or with fewer than five hours'



sleep in the prior 24 hours, or between 2am and 5am (when physiological sleep drive peaks).<sup>13</sup>

### Sleep disorders

We have one of the best characterised populations in the world with regard to the prevalence of sleep restriction and the epidemiology of major sleep disorders, at least among adults. Ironically, this highlights that existing treatment and diagnostic services for sleep disorders are inadequate to meet total population demand and are not well designed to reach those groups at greatest risk.

As with many other aspects of health, Māori are at greater risk than non-Māori of experiencing symptoms of common sleep disorders (obstructive sleep apnoea and insomnia) and of reporting chronic sleep problems. The higher prevalence of socioeconomic deprivation, night work and unemployment among Māori is central to disparities in sleep health, rather than ethnicity per se.<sup>14</sup>

Health economics analyses indicate that providing appropriate treatment services for sleep disorders would be

very cost effective. For 2005, the total annual societal costs of untreated obstructive sleep apnoea syndrome for New Zealanders aged 30-60 years were estimated at \$40 million (range \$33-\$90 million).<sup>15</sup> In 1998-2005 for a gain of one quality of life year (QALY), the average cost of drugs selected by PHARMAC to receive government subsidies for use in the healthcare system was \$6865. For the effective treatment of obstructive sleep apnoea syndrome, the estimated QALY cost in 2005 was \$94 (range \$56-\$310).<sup>15</sup> Similar estimates for insomnia are more difficult, for a variety of reasons.<sup>16</sup> However, it has been estimated that the effective treatment of insomnia would save money, with an average QALY gain of \$3072 (range \$240-\$8102). For 2009, it was estimated that the successful treatment of insomnia would have saved the country \$21.8 million (range \$2-\$33 million).<sup>16</sup>

### Sleep across the lifespan

Sleep changes across the lifespan as a normal part of development and ageing. The Sleep/Wake Research Centre has a range of research projects

addressing such issues as sleep across pregnancy and postpartum and the relationship with maternal mental health, factors affecting sleep in one-year-old infants, primary school children and teenagers, and ways to improve the sleep of older people with dementia, and their family carers.

**THE OPPORTUNITIES:** Researchers at the Sleep/Wake Research Centre are recognised leaders in the epidemiology of sleep disorders and in applying new scientific knowledge to improve occupational safety, health and productivity, particularly through the better management of workplace fatigue, shift work and (in the global aviation industry) jetlag. They work in research partnerships with Māori health researchers, clinicians, health economists, governments, industries, labour unions, the community and other research teams in New Zealand and internationally. The centre offers unique undergraduate and postgraduate papers in sleep and circadian science and its applications, and also provides world-class postgraduate research training.

1. Banks, S & Dinges, DF (2010). Chronic sleep deprivation. In *Principles & Practice of Sleep Medicine*, MH Kryger, T Roth & WC Dement, Eds. Elsevier Saunders: St Louis, Missouri, pp. 67-75.
2. Lucassen, EA, Rother, KI & Cizza, G (2012). Interacting epidemics? Sleep curtailment, insulin resistance, & obesity. *Ann New York Acad Sci*: early view, online only.
3. Harris, R (2003). *Obstructive Sleep Apnoea Syndrome: Symptoms and Risk Factors Among Māori and Non-Māori Adults in Aotearoa*. University of Otago Master in Public Health thesis (distinction).
4. Patel, SR & Hu, FB (2008). Short sleep duration & weight gain: A systematic review. *Obesity* 16(3): 643-653.
5. Bromley, LE, Booth, JN, Kilkus, JM, Imperial, JG & Penev, PD (2012). Sleep restriction decreases the physical activity of adults at risk for Type 2 diabetes. *Sleep*, 35(7): 977-984.
6. Buxton, OM, Cain, SW, O'Connor, SP, Porter, JH, Duffy, JF, Wang, W, Czeisler, CA & Shea, SA (2012). Metabolic consequences in humans of prolonged sleep restriction combined with circadian disruption. *Sci Transl Med* 4(129): 129ra43.
7. Spiegel, K, Leproult, R & Van Cauter, E (1999). Impact of sleep debt on endocrine and metabolic function. *Lancet* 23: 1435-1439.
8. Tochibuko, O, Ikeda, A, Miyajima, F et al (1996). Effects of insufficient sleep on blood pressure monitored by a new multi biomedical recorder. *Hypertension* 27: 1318-1324.
9. Meier Ewart, HK, Ridker, PM, Rifai, N et al (2004). Effects of sleep loss on c-reactive protein, an inflammatory marker of cardiovascular risk. *J AM Coll Cardiol* 43: 678-683.
10. Walsh, JK, Dement, WC & Dinges, DF. Sleep medicine, public policy, and public health. In *Principles & Practice of Sleep Medicine*, MH Kryger, T Roth & WC Dement, Eds. Elsevier Saunders: St Louis, Missouri, pp. 716-724.
11. [transport.govt.nz/research/Fatigue](http://transport.govt.nz/research/Fatigue).
12. Franssen, M, Wilsmore, B, Winstanley, J, Woodward, M, Grunstein, R, Ameratunga, S & Norton, R (2006). Shift work and work injury in the New Zealand blood donors' health study. *Occupational and Environmental Medicine* 5: 352-358.
13. Connor, J, Norton, R, Ameratunga, S, Robinson, E, Civil, I, Dunn, R, Bailey, J & Jackson, R (2002). Driver sleepiness and risk of serious injury to car occupants: population based case control study. *BMJ* 324: 1125-1129.
14. Paine, S-J, Gander, PH (2011). Sleep, sleepiness and sleep disorders: Principles for examining differences by ethnicity. In Kushida, C, Ed. Academic Press: Waltham, Massachusetts.
15. Gander, P, Scott, G, Mihaere, K & Scott, H (2010). Societal costs of obstructive sleep apnoea syndrome. *New Zealand Medical Journal* 123(1321): 13-23. URL: [nzma.org.nz/journal/123-1321/4301](http://nzma.org.nz/journal/123-1321/4301).
16. Scott, GW, Scott, HM, O'Keefe, KM & Gander, PH (2011). *Insomnia: Treatment Pathways, Costs, and Quality of Life. Cost Effectiveness and Resource Allocation* 9:10. URL: [resource-allocation.com/content/9/1/10](http://resource-allocation.com/content/9/1/10).



Professor Philippa Gander is the Sleep/Wake Research Centre director.



# ALCOHOL AND SOCIAL MEDIA MARKETING

Dr Antonia Lyons talks to Paul Mulrooney and Sarah Wilcox.

New Zealanders are 'liking' alcohol in more than one sense. One New Zealand brand of beer alone has well over 100,000 Facebook likes.

The liquor industry, long a master of old-school marketing techniques, is leading the way in its social media marketing, says Associate Professor Antonia Lyons.

Young adults are the obvious target. They are digital natives and, for many, their online interactions and the manner in which they consume alcohol are already intertwined.

"Our research shows that young adults use photos, written comments and

notifications as part of their drinking culture. These extend the fun and the socialising around episodes of alcohol consumption."

The liquor industry uses social media to market alcohol to young people based on the drinks they prefer, where they live (or just happen to be) and the bars they frequent.

'Like' the page of a brand of beer for example, and a savvy company might send you regular updates (that are also seen by your friends), advise you about bars in your area where it is served, and offer discounted deals from local retailers.

Increasingly, this happens in real time. The geolocation technology embedded in smartphones and other

comes with a free app that counts the number of bottles and has an option to post updates to Facebook. Other apps offer services that will prevent unwanted embarrassments; Drunk Text Saviour sends out pre-emptive warnings if an abusive or derogatory text is about to be sent.

Are young drinkers aware of the extent to which they are targeted by

social media marketing campaigns? Not always, according to Dr Lyons.

"Young people are educated and media savvy, but don't always see themselves as targets of online alcohol marketing even though they spend their time on alcohol

“Our research shows that young adults use photos, written comments and notifications as part of their drinking culture.”

devices lets the marketers tailor their messaging according to the users' proximity to their products.

Websites and phone apps also promote drinking. The Drinkify website matches a person's musical tastes to particular drinks and one smartphone cover has been designed to double as a bottle opener - it

brand sites, friend them on Facebook, and engage in online interactions (such as playing alcohol-centred games and posting photos). Because the commercial activity replicates friend relationships on Facebook, it's simply very difficult to distinguish what is marketing and what is not any more."





Legal action taken by the French Government (which severely restricts alcohol advertising) to stop Facebook being a medium for alcohol marketing was unsuccessful; the multinational nature of Facebook makes it hard for national jurisdictions to regulate.

“Some people now think that the only way we are going to get change is to convince Facebook of its social responsibility towards its main market – young people – and stop alcohol companies using it to promote their products.”

But New Zealand’s drinking culture is not restricted to young people, and Lyons says we need to see matters in context. “It’s easy to focus on the harm young people are doing with alcohol – they drink and socialise in public and online, which makes them extremely visible. Everyone knows what goes on in our cities late at night, but we hear a lot less about how widespread alcohol consumption is across the rest of

society, and the associated harm it causes, such as domestic violence and its effects on health. I think young people are distracting us from a bigger issue.”

With society regarding alcohol not as a drug but as something to be purchased with the groceries, it is hard to recognise the extent of the problem.

“The drinking culture is not going to change until the Government does something about the legislation.”

“The drinking culture is not going to change until the Government does something about the legislation. To change the culture we need to change the environment and to change the environment we need to legislate and attend to the five big issues: price, purchase age, accessibility, marketing, and drink driving. It’s about much

more than young people’s individual drinking practices.”

The 2012 Alcohol Reform Act was a disappointment to Lyons, who sees it as largely toothless, a victim of alcohol industry lobbying.

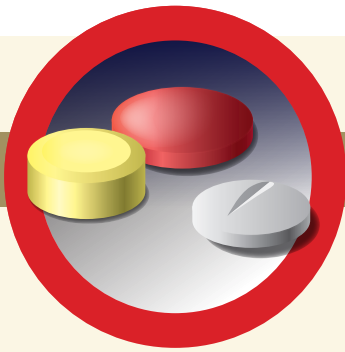
She sees parallels with unsuccessful efforts to regulate the tobacco industry in the 1970s.

“The liquor industry is also very powerful, and seems to have an equal disregard for the societal harms it is causing.”



Associate Professor Antonia Lyons from the School of Psychology received \$864,000 from the Marsden Fund in 2009 to lead a three-year research project exploring the convergence of social media and youth drinking cultures.





## NEW PSYCHOACTIVE SUBSTANCES

Dr Chris Wilkins writes.

**THE ISSUE:** In recent years a range of new psychoactive substances (NPS) has emerged around the world, with many sold as legal highs, including synthetic cannabimimetics (eg, Kronic), party pills (eg, BZP and DMAA), cathinones (eg, mephedrone) and plant extracts (eg, salvia divinorum). The number of NPS identified each year by the European Monitoring Centre for Drugs and Drug Addiction rose from 13 in 2008 to 24 in 2009, 41 in 2010 and 49 in 2011. In New Zealand, the proportion of frequent drug users who reported noticing a new drug rose from 9 percent in 2008 to 34 percent in 2011. The internet has played an important role in the marketing and sale of these products, with the number of online shops found to be offering NPS for sale in Europe increasing from 170 in 2010 to 314 in 2011 and 693 in 2012.

New Zealand has been at the forefront of the legal high phenomenon, with substantial legal markets for the party pills benzylpiperazine (BZP) from 2000 to 2008, and 1,3-dimethylamylamine (DMAA) from 2008 to 2011. Synthetic cannabinoids and plant extracts have emerged since 2010. The use of legal highs has been associated with emergency department admissions for seizures, renal failure and psychosis. Adolescents have been found to be particularly attracted to

legal highs and so be at risk from their use.

**THE DEBATE:** Proponents of legal highs argue that these products could potentially offer safer alternatives to existing legal and illegal drugs, and consequently their use could reduce overall levels of drug-related harm. Opponents argue that there are

seeking faster ways to prohibit compounds (such as emergency scheduling), and adopting broader definitions of psychoactive compounds and the selling of psychoactive products.

The New Zealand Government has decided to take a particularly bold and innovative approach to the problem by establishing the world's

first NPS regulatory regime, known as the New Psychoactive Substances Regime (NPSR). A bill establishing the new regime is currently before Parliament and the aim is to have the regime in operation by August 2013. Under the NPSR, manufacturers will be required to gain the approval of a regulator to legally

The proportion of frequent drug users in New Zealand who reported noticing a new drug rose from

**9 percent** in 2008 to **34 percent** in 2011.

significant gaps in our understanding of the health risks of these substances (particularly long-term health risks) and, contrary to what manufacturers claim, legal highs may actually contribute to greater levels of drug-related harm if they are combined with existing alcohol and drug use.

The principal policy response to legal highs around the world to date has been an attempt to prohibit their use. Manufacturers, however, have proven particularly adaptable and elusive – quickly replacing newly prohibited compounds with unregulated ones, and avoiding traditional monitoring by selling legal highs directly to users via websites. Many countries have responded by

manufacture and sell psychoactive products by providing scientific evidence that the products carry a low risk. All approved products will be sold subject to a range of retail restrictions, such as a minimum age of purchase. The intentions are to ensure that the psychoactive products available for legal sale are low harm, and to encourage a more responsible legal high sector. This is the first regulatory regime of its type anywhere in the world and a number of countries have expressed interest in adopting it if it proves successful.

**THE WAY FORWARD:** The NPSR will introduce a new legal drug market to New Zealand to join the existing



tobacco, alcohol and pharmaceutical industries. While the legalisation and regulation of NPS via the NPSR potentially provide a greater scope to control aspects of the manufacture and sale of these products, the historical record of the regulation of legal psychoactive products such as alcohol, tobacco and pharmaceutical products is decidedly mixed.

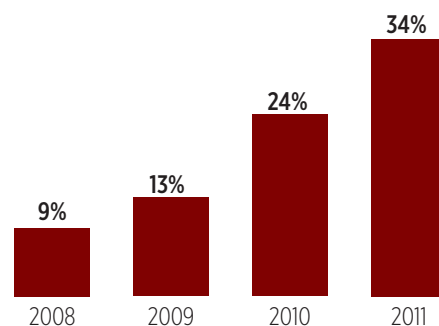
Consequently, we need to ensure that there are effective controls around the promotion, advertisement and sale of NPS, and that the harms of these products are closely monitored. We must also ensure that treatment services are available to those experiencing problems from them.

Finally, we need to ensure that there is a strong independent regulator of the sector who is resistant to the political power of the industry, and have effective enforcement of standards and rules, with appropriate penalties for the transgressors.

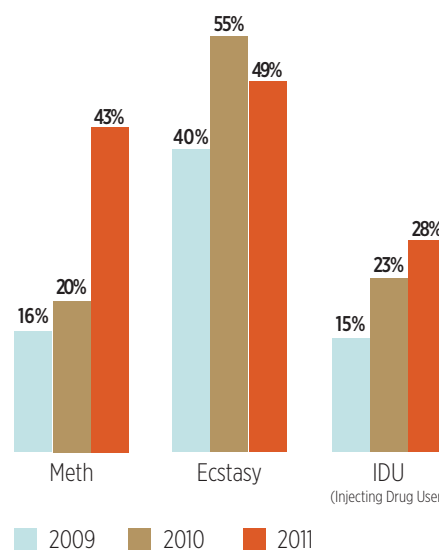


**Dr Chris Wilkins** is a senior researcher and leader of the illegal drug research team at **Social and Health Outcomes Research and Evaluation (SHORE)**. Dr Wilkins has a Doctorate in economics and research expertise in drug trends, drug markets, drugs and crime, and drug policy.

Finally, we need to ensure that there is a **strong independent regulator** of the sector who is resistant to the political power of the industry.

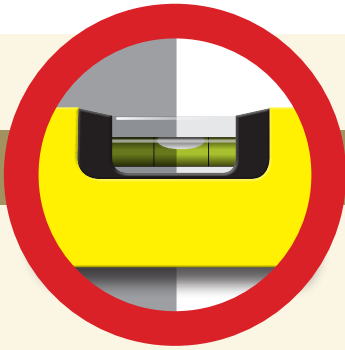


Proportion of frequent drug users who noticed a new drug type, 2008-2011.



Proportion of frequent drug users who had tried a drug for the first time, displayed by frequent drug user group, 2008-2011.

Wilkins, C, Sweetsur, P, Smart, B, Warne, C & Jawalkar, S (2012). *Recent Trends in Illegal Drug Use in New Zealand: Findings from the 2006, 2007, 2008, 2009, 2010 and 2011 Illicit Drug Monitoring System (IDMS)*. Auckland: SHORE and Whariki Research Centre, Massey University.



## FAIRNESS

Professor Don Matheson writes.

**THE ISSUE:** Different groups of New Zealanders live on average for different lengths of time. If you are on a low income, are from the Pacific or are Māori, then your life expectancy is at least five years lower than if you are a well-off Pākehā New Zealander.

We know that the underlying causes for this can be found in unequal access to the basics of life, such as a decent job, a living wage, warm housing with room enough for the family, a good education and healthcare.

Is this difference in life expectancy for the whole population fair? Is it the 'natural' order of things, along the biblical lines of "the poor you will always have with you"? What happened to the idea we all shared back in the day that 'Jack is as good as his master'? I don't recall some small print stating that Jack's allotted time on the planet was to be five years less than his master's.

A recent global commission made up of some of the great minds of our age (such as Amartya Sen and Michael Marmot) explored these questions and concluded that inequalities are not the natural order of things but very much man made:

"... a toxic combination of bad policies, economics, and politics is, in large measure, responsible

for the fact that a majority of people in the world do not enjoy the good health that is biologically possible".

Commission on Social Determinants of Health (2008). *Closing the Gap in a Generation: Health Equity Through Action on the Social Determinants of Health. Final Report of the Commission on Social Determinants of Health*. Geneva, World Health Organization.

So what policies, economic goals and politics should we be pursuing to best enable New Zealanders to live flourishing lives?

Perhaps we should begin with the health system. It plays a role alongside the other basics of life as an underlying cause. It also has a very important role in making sure that the casualties resulting from failures in other sectors – such as poor housing – do not end up as fatalities, but are given access to the benefits of a modern healthcare system.

Unfortunately, the New Zealand healthcare system does not do well at 'ameliorating inequities'.

Unfortunately, the New Zealand healthcare system does not do well at 'ameliorating inequities'.

Countries such as the Netherlands, Australia, the United Kingdom, Germany and Canada are better at providing access to healthcare than we are. In particular, poor New Zealanders face greater barriers to accessing healthcare.

**THE DEBATES: Should fairness feature as a driving instruction for our health system?**

Currently, we are mainly focusing on efficiency – on more health services for the dollar – with the idea being that greater efficiency will deliver better health services for more of the population in the long run. However, this has meant that less attention is being paid to who gets those services.

**Do tightly defined targets make equity better or worse?**

Currently, the public health sector is dominated by the small set of targets that the Minister champions. This can lead to neglect of those parts of the system that are not targets, with these ranging from specific preventive measures to control obesity to the system's overall fairness.

**Are ministerial-led targets a good way to run the health sector?**

The use of targets as the main ministerial-level tool is relatively new, and it is fast developing into yet another one of those public policy

experiments for which New Zealand is famous, such as the 1930s' social welfare reforms and the 1980s' immersion in neoliberalism. But is just focusing on a small number of things a good way to run a complex sector? Does it 'dumb down' the ministry and



the district health boards such that their intellectual resources are focused only on targets and the main business of the sector no longer gets their focused attention?

**How do we make a concerted effort to prevent illness?**

Currently we are doing well on preventing smoking, but we have moved away from any upstream activity to control the obesity epidemic, which largely affects low-income households. This is no accidental oversight: the food lobby (Coke, McDonald's, Fonterra, Foodstuffs) is more powerful than the public health lobby (there isn't much of one) and people have to eat. The food lobby fears regulation and the politicians fear being called a 'nanny', as in the 'nanny state'. But the rest of us are putting on the kilos year after year, and that is not a steady state.

**eight**  
or **more**

additional years of life expectancy at birth across both genders for non-Māori over Māori in 2006.

Blakely, T, Tobias, M, Atkinson, J, Yeh L-C, Huang, K. (2007). *Tracking Disparity: Trends in Ethnic and Socioeconomic Inequalities in Mortality, 1981-2004*. Wellington: Ministry of Health.

**one**  
in **seven**

adults who had not visited a doctor in the previous 12 months because of cost.

Ministry of Health (2012). *The Health of New Zealand Adults 2011/12: Key Findings of the New Zealand Health Survey*.

**How do we make sure that poor people can access the system?**

Successive governments over 60 years have struggled to improve access to the health system through primary care, but progress is very slow. Currently, because of access barriers such as price and the availability of services, almost one million New Zealanders do not get the care they think they need. Why is it so hard to make access to the most basic level of the system easy?

**THE WAY FORWARD:** Finding a way forward in this complex array of issues will not be easy, especially when the money is tight. What we do know about complex systems is that they are influenced by a shared value set, and strong relationships and feedback mechanisms. First, we need to come to some national agreement about fairness, about the life we all value (both its duration and its quality). Second, we now live in the information age, and access to the

health system, particularly for underserved populations, should be recorded and reported on more regularly. We have quarterly GDP results, but no such frequency with getting to the GP results. But most of all we need to unleash the huge potential of our people to solve the problems inherent in giving expression to values such as fairness. This will entail: a culture change both inside and outside government organisations where ideas and solutions are discussed openly; piloting and assessing interventions; and being willing to be open about and learn from both our successes and our failures. That would be both smart, and fair.



Professor Don Matheson of the **Centre for Public Health Research** is a former Deputy Director-General of Health.



## INACTIVITY

By Professor Karen Witten, James Faulkner and Sarah Shultz.

**THE ISSUE:** Physical activity is good for your health – it lowers risk for a range of chronic health conditions such as cardiovascular disease, stroke, type 2 diabetes and certain cancers, and reduces the risk of falls and osteoporotic fractures. Exercise can also improve people's general sense of wellbeing and contribute to better mental health. Yet despite the compelling evidence of the benefits of exercise only about half (52 percent) of New Zealand adults meet recommended levels of activity – 30 minutes of exercise on five or more days each week.

The situation for children is no better. Their activity levels have dropped markedly in the past 20 years. The New Zealand travel survey shows that the time children spend engaged in active travel (ie, walking and cycling) has almost halved from a mean of 130 to 72 minutes per week during this time period. The proportion of children who usually travel by car to school has increased from 31 percent to 58 percent.

We are an auto-centric society with one of the highest rates of car ownership in the world. Since the 1960s our cities have been purpose-built for car travel, and public transport infrastructure has been

largely neglected. As a consequence car journeys, as driver or passenger, now make up 79 percent of all trips taken by New Zealanders, with pedestrian trips next at 16 percent and public transport and cycling lagging at 3 and 1 percent respectively.

intervene in the lifestyle choices of individuals. Further, if intervention is supported, should it be pitched at the individual level through behaviour change programmes or at the population level through changing the environments in which we live – discouraging our reliance on the car

and encouraging walking, cycling, scootering and other active modes? Central government and the Auckland Council are currently debating the relative merits of metropolitan urban limits – a policy decision that is likely to have an impact on the physical activity environments of residents. The question that is being asked is this: should our growing city population be accommodated by building stand-alone houses on large lots on our city fringes, or by designing multi-unit housing on smaller lots, close to public transport

and other amenities? The former encourages car reliance whereas the latter is more likely to offer the choice of walking, cycling or using public transport to reach daily destinations.

**Inactivity accounts for**  
6 percent of  
deaths;  
**21 to 25 percent of breast  
and colon cancers;**  
27 percent of  
diabetes;  
**30 percent of ischaemic  
heart disease.**

Physical inactivity is costly and has been estimated at \$1.3 billion per year, when associated healthcare costs and productivity losses are taken into account.

**THE DEBATE:** Few people would argue against the benefits of physical activity for health and wellbeing. Rather, debate centres on whether it is the responsibility of government to

**THE WAY FORWARD:** A *Lancet* evidence review (July 2012) of interventions to increase physical activity concluded that intersectoral



approaches that operate at multiple levels – personal, family, workplace, community and environment – are most successful. In middle- to high-income countries like New Zealand there is also a place for high-visibility, multimedia campaigns that target messages to particular population groups to raise awareness and reinforce behaviour change.

Knowledge is growing on what works in an individual setting (such as a school or workplace) at environmental levels. Hallmarks of successful lifestyle change programmes at the individual level include an assessment of physical activity and readiness to change, and an activity plan tailored to the person's daily routine along with social support. Free community-based classes in public venues also have a place, particularly for women, older people and residents in poorer neighbourhoods.

Increasing children's physical activity participation is particularly important, as activity levels during childhood track through to adolescence and adulthood. School-based programmes can increase children's fitness and motor skills and reduce risk factors for cardiovascular disease.

There are substantial opportunities for increasing population-level physical activity through urban design and land-use policies that control suburban sprawl and encourage well designed, higher-density developments in city neighbourhoods. Research conducted in Auckland, Wellington and

In 2010  
**inactivity-  
associated  
medical  
costs** in  
New Zealand  
amounted to  
**\$1.3  
billion.**

Market Economics Ltd, Wellington Regional Strategy, Waikato Regional Council and Auckland Council (2012). *The Costs of Physical Inactivity: Towards a Regional Full-Cost Accounting Perspective.*

Christchurch clearly showed higher rates of physical activity, for transport and recreation, in neighbourhoods with more connected street networks, higher dwelling density and better service and amenity access.



Top to bottom: **James Faulkner** is a lecturer in exercise prescription. **Sarah Shultz** is a lecturer in exercise and sport science with a particular interest in orthopaedic complications associated with paediatric obesity during exercise interventions. Both are based in Wellington as part of the **School of Sport and Exercise**.

**Professor Karen Witten** is the Associate Director of **Social and Health Outcomes Research and Evaluation** (SHORE). Her research interests centre on interactions between the physical characteristics of neighbourhoods and cities and the social relationships, health and sustainability-related practices of the people living in them.



## OSTEOPOROSIS

Professor Marlena Kruger writes.

As Zealand's age profile skews towards older adults, a number of age-associated diseases are becoming increasingly prevalent. These include cardiovascular disease, cancer, arthritis, cataracts, type 2 diabetes, hypertension, Alzheimer's disease and osteoporosis.

Osteoporosis is a skeletal disorder characterised by compromised bone strength, predisposing to an increased risk of fracture. It is particularly common in women, partly due to an oestrogen deficiency that accelerates bone turnover following menopause, but men are susceptible too.

Unfortunately it is a disease that doesn't capture the public attention that its seriousness and prevalence warrant.

In 2007 there were an estimated 84,000 osteoporotic fractures in New Zealand, with 60 percent of these in women.

Hip fractures, which account for an estimated 5 percent of all fractures, can be particularly serious: according to the *Journal of the American Geriatrics Society*, around one in five people who experience a hip fracture dies within a year of the incident, and those who recover well often face diminished mobility and quality of life.

Then there are the costs to the health system. In New Zealand these amount to around \$1.15 billion per year and are climbing.

So what can we do?

Up to 80 percent of adult bone density and bone mass is genetically determined. Bone is continuously remodelled to maintain strength and mechanical competence and to provide calcium that is critical to other functions in the body. We accumulate bone mass, peaking in our 20s. The higher the peak bone mass, the less risk there will be of incurring fractures later in life. Although it's a natural process, we can influence it.

## One in 20 adults had a vitamin D deficiency.

University of Otago & Ministry of Health (2011). *A Focus on Nutrition: Key Findings of the 2008/09 New Zealand Adult Nutrition Survey*. Wellington: Ministry of Health.

Lifestyle factors such as physical activity, nutrition, alcohol consumption and smoking influence how high the peak is and how quickly we lose bone in later life.

One preventative is a healthy exercise regime; weight-bearing exercise and resistance training build bone and slow its loss.

Another is to accumulate enough vitamin D. In its active form, vitamin D is important for intestinal calcium absorption and helps to control bone formation and resorption. Vitamin D status is also related to muscle strength and the risk of falling in the elderly. Vitamin D is produced in the skin on exposure to ultraviolet (UV) rays and a small amount is obtained from diet.

How do we fare? The 2008-2009 New Zealand Adult Nutrition Survey

(NZANS) found that while most New Zealand adults had good blood levels of vitamin D, one in four was below the recommended level, and one in 20 had a vitamin D deficiency.

Bearing in mind that a balance should be struck with the UV-associated risks, such as skin damage and cancer, some degree of outdoor physical activity is recommended for maintaining healthy levels of vitamin D in the blood and for bone maintenance. Generally, exposing the face and hands to the sun for 10 minutes three times per week is sufficient to maintain vitamin D levels.

At-risk groups such as people with low mobility, the frail, the house-bound and those in residential care may need vitamin D supplementation.

An adequate intake of calcium is also essential for good bone health. While dairy products are an obvious source of calcium, there is a range of non-dairy options that are also calcium-rich: tinned fish (with bones), green leafy vegetables, nuts and seeds, and fortified soy and rice milk. Citrus fruit, food acids and fermentable carbohydrates eaten together with calcium help their absorption.

Do we currently get enough calcium? NZANS found that the median intake was 919 milligrams for males and 745mg for females – reasonably high but below the recommended daily intake of 1000mg per day.



Along with calcium, other minerals are essential for bone health including zinc, selenium, boron and magnesium.

An adequate protein intake is also essential for the healthy function of the musculoskeletal system, and a diet high in omega 3 long-chain fatty acids from oily fish has also been found to be associated with good bone health.

Inevitably, with the ageing of the population, increasing numbers of New Zealanders are going to suffer from osteoporosis. But there are public health strategies that may help to slow the growth and ameliorate its effects.

Public health campaigns should promote the importance of dietary calcium and physical activity for children and adolescents (particularly girls), building up that critical mass of bone, and such things as fall prevention programmes should be emphasised later on in life.

Similarly, medical practitioners should be educated to regard any unexpected bone fracture as a potential warning sign and a prompt to test for osteoporosis, which, once identified, will need drug-based treatments. If the patient is older and prone to or at risk of falling, intervention is required to reduce the fall risk.

Osteoporosis New Zealand (bones.org.nz) is leading the way with

initiatives such as these and is a good place to go for more information.

Finally, at universities such as Massey, food and nutrition researchers will continue working on new ways of addressing osteoporosis.



**Professor of Nutritional Physiology Marlena Kruger** of the **Institute of Food, Nutrition and Human Health** has an extensive research record in bone metabolism, structure and function.

**Osteoporosis** cost the  
New Zealand health system  
**\$1.15 billion** in 2007.

Brown, P, McNeill, R, Radwan, E & Willingale, J (2007). *The Burden of Osteoporosis in New Zealand: 2007 – 2020*. Osteoporosis New Zealand Inc.





## HOME SAFETY

Professor Chris Cunningham writes.

We know that New Zealanders spend about 75 percent of their time in their homes. Many of those 1.4 million homes suffer from deferred maintenance issues and many are damp, cold and overcrowded. Injuries at home, mostly from falls, the majority preventable, are a major cause of concern.

Research undertaken by the Research Centre for Māori Health and Development is focusing on injury prevention by identifying and remediating potential hazards in homes, to see if injury rates decrease over time. Two hundred and fifty homes across New Zealand are being identified and audited as part of a Health Research Council-funded study.

The study is using an audit tool developed by He Kainga Oranga, the Housing and Health Research Programme, called the Healthy Housing Index. The audit takes about an hour to complete, using an iPad. Trained staff follow an assessment process, photograph the house and potential hazards, and produce a report for the homeowner.

Falls are the biggest cause of hospitalisations and are sometimes fatal, with the young and old especially vulnerable. Potential hazards such as dangerous stairs, slippery bathrooms and loose flooring, which are identified in the audit, are then remediated by a builder who may fit handrails, stretch

lumpy carpets or improve lighting. An average of about \$500 per house is spent. Houses are also assessed for overall housing quality and emergency preparedness, and smoke alarms are fitted where needed.

The audit is potentially a precursor to the building warrant of fitness scheme for private homes. Warrants have been required for commercial buildings in New Zealand since 2005, and there is discussion about extending these to private homes. In the United Kingdom the housing health and safety rating system has

owners into the study. “We require access to people’s ACC records so that we can assess their injuries over a long period of time both before and after the remediations are made. Some homes need grab handles fitted over the bath, repairs to stairs or handrails, smoke alarms installed, or broken fittings improved,” she says.

Each participating home receives an emergency preparedness kit, which contains a range of resources for whānau should an earthquake or other emergency occur. “We are

encouraging whānau to think about exit plans, where to gather and the resources they will need in an emergency.”

If just one hospitalisation can be avoided, the cost of the work pays off, with savings to the health

system. As Māori households tend to be larger than average, typically with more children, the remediations have the potential to reduce falls and hospitalisations for more people over a long period of time.

The injury prevention intervention study is part of a broader programme of research undertaken in the past 12 years. He Kainga Oranga is well known for its community intervention studies, which have focused on insulation, heating and respiratory health risks, and now injury prevention. As part of a partnership between the University of Otago, Massey University and BRANZ, it

**Injuries at home**, mostly from falls, are a major cause of concern, although the **majority are preventable**.

been operating since 2004 but is designed for local authority use, rather than domestic homeowners.

The current study is specifically focusing on the quality of Māori housing, and recruiting houses in the Wellington, Marlborough, Manawatū, Gisborne and Auckland areas. Many of these houses have been participating in Massey University’s longitudinal study of Māori households, *Best Outcomes for Māori: Te Hoe Nuku Roa*, led by Professor Chris Cunningham, Dr Hope Tupara and Dr Michael Keall.

Dr Tupara, the fieldwork manager, has been recruiting houses and their



## MINING THE DATA

Dr Barry Borman talks to Sarah Wilcox.



provided much of the evidence for the government roll-out of home insulation retrofitting.

The injury prevention study runs for the next three years, with a pilot study in Taranaki already showing improvements following this level of inexpensive intervention.



**Professor Chris Cunningham** is the Director of the Wellington-based **Research Centre for Māori Health and Development**. In the Health Research Council's 2012 funding round, Cunningham was awarded \$787,000 to study injury hazards in Māori homes.

It soon adds up. Prescriptions dispensed: 59 million. GP consultations: 11.8 million. Hospital admissions: 600,000. Cervical smears: 441,000. Annual check-ups for people with diabetes: 81,000. With every interaction, the health system amasses more data.

Data, according to epidemiologist Associate Professor Barry Borman, Associate Director of the Centre for Public Health Research, is not the problem; analysis is.

"If I were being provocative, I would ban data collection until we'd analysed what we've got. New IT systems require a big investment in hardware and software and then most of it just sits there. I would put more resources into employing and training people to analyse it."

Dr Borman believes that information, gained from the analysis and 'translation' of data, provides the critical evidence to inform policy development and decision-making, but sees a lack of investment in the 'humanware' required to create it.

"Policy-makers don't have the time or expertise to sift through data. They need targeted information to see if the investment they are making is paying off, if the needs of a community are being met and if issues are emerging that they need to take account of.

"If the evidence needed to make a decision isn't available, a common response is to start another study or build another data collection system – but then you have policy-based evidence."

One of Borman's current projects is monitoring the interactions between the environment, animal health and human health.

In keeping with his views, rather than seeking to create yet another data source, the project is drawing on the data that is already being collected by a number of agencies.

"We're making use of a web-based reporting tool to analyse it and make both the data and our analysis available to the public."



**Associate Professor Barry Borman** is the Associate Director of the **Centre for Public Health Research** and the principal investigator on a number of contracts including a programme of environmental health indicators (ehi.ac.nz), and surveillance of hazardous substances and occupational diseases. From 2000 to 2008, he managed Public Health Intelligence, the epidemiology and surveillance group of the Ministry of Health.



***The Lonely and the Alone: The Poetics of Isolation in New Zealand Fiction***

By Doreen D'Cruz and John C Ross, Rodopi

## Literature of a lonely land

Bonnie Etherington talks to **Doreen D'Cruz** and **John C Ross** about ***The Lonely and the Alone: The Poetics of Isolation in New Zealand Fiction***.

Living at the bottom of the world, New Zealanders are no strangers to the idea of being isolated. The motif of 'man alone' has long been entrenched in our national literature, embodied in characters such as back-country farmers, gold prospectors, soldiers and hunters.

Dr Doreen D'Cruz, senior lecturer of English studies, and Dr John C Ross, honorary research associate, both based in Palmerston North, focus on the literary representation of isolation in selected New Zealand works of fiction in their recently published book, *The Lonely and the Alone*. The book, whose title is based upon a distinction made by a character in Janet Frame's *Living in the Maniototo*, examines different types of isolation (including geographical, historical, social, philosophical and linguistic isolation) in works that range from William Satchell's *The Greenstone Door* to Keri Hulme's *The Bone People*.

**How does your book approach the idea of isolation in New Zealand fiction?**

**DDC** We have revised the man/woman-alone motif: instead of just focusing on the man/woman-alone character, we have taken the abstract concept of isolation and examined it because it gives us much more flexibility. We look at character, but also at how character is constructed and affected through modes of narration, and how isolation itself provides us with a lens for understanding various works of New Zealand fiction.

**You suggest that isolation is one of New Zealand literature's strongest informing symbols. What main factors do you think have contributed to this?**

**JCR** Firstly, we now have more than four million people, but that's grown slowly and the population traditionally has been not only small, but also very widely



dispersed. We have people in back-country areas: shepherds, gold diggers, swaggers, farmers' wives and so on. There is that geographical isolation, and the problem of needing to reinvent communities for people who have left their traditional communities to come here. Then there is the fact that much of our culture has been so dominated by the culture of 'somewhere else' (whether it's the culture of Britain or the United States, etc) from which we are isolated.

### Can you give us some examples of New Zealand fiction that deals with isolation?

**DDC** George Chamier's *Philosopher Dick* is about an educated man who comes with his books from Europe, and becomes a South Island shepherd. He lives in a mountain hut in a landscape with which he cannot connect. In some ways he chooses that exile. But, in the end, nature starts to become an alien thing to him and it invades him. So that is one kind of isolation; it shows the tortured nexus between self and the new land.

You can see a second kind of isolation at work in Janet Frame's novels. We argue that Janet Frame, more than any other New Zealand writer, has dealt in depth with isolation. In *Living in the Maniototo*, a character thinks about two words: 'lonely' and 'alone'. To be 'lonely' is to weep for "yourself and your loneliness", while 'aleness' involves weeping for the world and for "the glimpse of God". If you're lonely you might see yourself as abandoned. But when you're alone you might be looking at the world itself as abandoned.

In *An Angel at my Table*, Frame talks about loneliness as giving you one of the best views in the world. She calls it a "nightmare" and a "treasure". Loneliness is a treasure because through it you can reach a profound sense of yourself.

A third example is Witi Ihimaera's *The Matriarch*. Right on the first page you have this word "alone". The main character Tamatea is alone because he is exceptional, and that exceptionality comes partly from his being the only begotten son of the matriarch. Not in a physical sense, but in a spiritual sense. The matriarch is also alone because she stands up for her right to speak. Aloneness is a number of things here: there is a kind of unique vision involved, but there is also the matter of facing the challenges of others, of standing up alone.

### The terms 'isolation' and 'exile' are usually seen negatively, but do you think they are explored in a positive sense within New Zealand fiction as well?

**DDC** There are three ways in which we can think of isolation and exile in positive terms. You could be exiled, that is put outside by others, which is negative, but there is also self-exile. Chamier's character chooses to live in a remote mountain area of New Zealand. In that place of solitary contemplation a change occurs within him. Secondly, we have the exile of the exceptional visionary, which involves a strong sense of destiny surrounding that character. Finally, isolation can start off with a negative meaning but arrive at a positive one. You can see that in Fiona Kidman's *The Book of Secrets*. The protagonist has an affair in the 1890s, gets pregnant, and is then ostracised and locked up in a house for 55 years. In the end she is able to go, but she doesn't want to leave any more. The exile that was negative and based on ostracism now turns into a positive symbol of her independence and autonomy.

### How might "the poetics of isolation" be relevant in today's New Zealand?

**JCR** I think people write literature, and we read it, to explore imaginatively all kinds of possibilities of character and situation. We are bombarded from the outside with books, films and other media that relate to somewhere that isn't New Zealand. Our own

“ In *An Angel at My Table*, Frame talks about loneliness as giving you one of the best views in the world. She calls it a 'nightmare' and a 'treasure'. ”

novels, and their aesthetics of narration, can help us to understand our nation's past and, in doing so, our present. In this way we can come to an enriched understanding of our differences, and also of our common humanity, which arises from confronting the difficulty of being in this country.

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