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Hormone replacement therapy – where to from here? (with response from Sandra Coney)

Anna Fenton

Over the past decade we have learnt much about the risks and benefits of hormone replacement therapy (HRT). On 17 July 2002, the Journal of the American Medical Association added to the debate by publishing the preliminary results of the Women's Health Initiative (WHI). These were widely quoted in the media as showing a 41% increase in the risk of stroke, a 29% increase in the risk of coronary events, and a 26% increase in the risk of breast cancer in women taking HRT. Despite the absolute risk increases being less than 1 additional woman in 1000, this immediately created alarm and panic among users of HRT. For many, it signified the end of post-menopausal hormone therapy.

The WHI was established with Congressional funding in 1993 and conducted under the auspices of the National Institutes of Health (NIH), USA. The aim was to design the definitive study to address many of the questions regarding the long-term risks and benefits of HRT. The primary outcomes of this large randomised double-blind placebo-controlled study were cardiovascular disease and breast cancer, with secondary outcomes including stroke incidence, venous thromboembolism (VTE), fractures and bowel cancer. Healthy women aged 50–79 were targeted for recruitment. Ultimately, two thirds were over the age of 60. Two separate studies have been running concurrently – one comparing placebo with conjugated equine estrogens (Premarin 0.625 mg daily) in women with a hysterectomy, and the other comparing placebo with Premarin plus medroxyprogesterone acetate (Provera 2.5 mg daily). It is the results from the combination HRT arm involving 16 608 post-menopausal women that have been reported.

Although the study was powered to run for eight years, it was terminated after 5.2 years of follow-up, when the balance of risks was felt by the Data Monitoring and Safety Board to exceed the benefits. This was largely due to a trend towards increasing risk of breast cancer. With time to review the data, it has been widely accepted that WHI has indeed confirmed the risk of breast cancer and VTE but also clearly shown benefit in fracture risk reduction. There was no change in overall mortality or cancer deaths. It is also clear that HRT is not useful in preventing coronary artery disease.

However, much of the cardiovascular data has been vigorously debated by the scientific community. To date, the only information published is related to the overall study population, who averaged 68.5 years of age at study termination. Two thirds of this group were overweight or obese, 50% were past or current smokers, and 35% had been treated for hypertension. Has the WHI merely confirmed the known risks of HRT in women with established coronary artery disease, or does the risk apply across the board to all women regardless of age and health? Analysis of the data from the younger study participants is vital as they represent the more typical HRT user.

It also becomes clear on reading the paper, that the risk of breast cancer was seen only in the group who had taken HRT prior to study entry, not in the group who were naive to hormone therapy at randomisation. This suggests that the increase in breast cancer risk may not, as reported, be seen after five years of use but after longer periods of use. That exact period of time also needs to be more clearly defined. There was no greater risk of breast malignancy among those women with a family history of breast cancer.

Many have taken some comfort from the fact that the estrogen-only arm of the WHI has continued and have taken this to mean that Provera is the cause for the risks seen in the Premarin/Provera study. This assumption is a giant leap of faith. The Premarin-only arm is following just 10 739 women and will take longer to detect any significant change in risks and benefits.

Other important questions have been raised by this study:

- do the findings relate to other forms of estrogen and other modes of estrogen administration?
- are other progestins safer?

These questions can not yet be answered. The WISDOM study, a UK-based trial very similar in design to WHI, is at present continuing. A formal decision on its continuation will be made in October, after an international panel of experts has been convened. New Zealand women are involved in WISDOM. To date very few have elected to drop out of the study. Continuation of WISDOM may provide further information on cognitive function, arthritis and genitourinary health.

So what do we tell our patients? I believe we can tell them that HRT is the most effective agent in dealing with symptoms of menopause and reduces the risk of fractures. It does, however, increase the risk of VTE and gall bladder disease in some women. In addition, less than 1 extra woman in 1000 may suffer a non-fatal stroke, myocardial infarction or develop breast cancer. These risks are small, but need to be considered by every woman. I believe it is important to put the risks into context, with for instance the effect of alcohol on breast cancer risk, and move away from using relative risks to the more precise absolute risks. In all areas of medicine we define risks and benefits for our patients. Decisions about HRT use need, more than ever, to be individualised. For women considering HRT use in the short term (less than five years) for management of menopausal symptoms, it remains an appropriate option.

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Response

Dr Anna Fenton questions the relevance of the WHI findings by claiming that the WHI participants differed significantly from potential users of HRT in New Zealand. However, she provides no proof of this. My article showed from published sources that the populations are broadly comparable, and that with regards to some risk factors

for disease, such as smoking, New Zealand women are more at risk than the WHI population. For example, she states that 35% of the WHI women had been treated for hypertension, implying that NZ users of HRT would be different. The WHI category was ‘treated for hypertension or BP higher than 140/90 mmHg’. In New Zealand, Ministry of Health figures taken from the National Nutrition Survey show that 18% of women aged 45–64 years, 38% of women aged 65–74 years, and 52 % of women over 75 are hypertensive. Hypertension was defined as BP higher than 160/95 mmHg. People on anti-hypertensive medications who measured below these levels were not considered to be hypertensive. On this single measure, it can be seen that it is likely that New Zealand women would be at risk at least as much as, if not more than, the WHI participants. Overall, the WHI study participants were a very healthy, active group of women, which makes the negative consequences to them of using HRT all the more alarming.

However, the major flaw in the argument centres around the different results between the treatment group and the matched control group. Arguments about the characteristics of study participants do not explain why the women using HRT suffered such excess harm.

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Hormone replacement therapy: the love affair is over (with response from Anna Fenton)

Sandra Coney

Hormone replacement therapy should have only a very limited role in the management of menopausal hot flushes, should not be used for the long-term prevention of heart disease, and should not be used for the long-term prevention of hip fractures, except in exceptional circumstances.

This message has been clearly articulated in the US, following the publication of early results from the Women's Health Initiative (WHI) trial. The WHI trial is one of the largest prevention trials ever conducted in the US.

The WHI trial was stopped early by the National Heart, Lung, and Blood Institute of the National Institutes of Health, because after 5.2 years the risks of heart disease, stroke, venous thromboembolism (VTE) and invasive breast cancer were increased in healthy women using continuous combined HRT, and these risks outweighed the benefits of reduced fractures and colorectal cancer. These results were valid, said the investigators, for women of all sub-groups defined by prior health status, age or ethnicity. The high drop-out rate in the treatment arm of the study (42%) could mean that the magnitude of effects, both adverse and beneficial, have been underestimated among women who adhere to treatment.[1]

One of the most startling results of the WHI trial was that even short-term use carries serious risks. The risks of VTE and heart attacks appeared immediately use was initiated; the stroke risk in the second year; and the breast cancer risk in the fourth year. This calls into question the wisdom of prescribing HRT for hot flushes, unless these are severe and women are fully informed of the risks. It is particularly ethically unsustainable to continue prescribing HRT for such unproven benefits as looking younger or improved wellbeing.

The oestrogen-only arm of the WHI trial is continuing, because the balance of risks and benefits is not clear at this stage. However, earlier communications from the investigators stated that there were increased numbers of cardiovascular events and VTE in all users, but these did not reach statistical significance.[2] In 2001, they reported there were 'still more heart attacks, strokes and blood clots in women taking active hormones'.[3] There are fewer participants in the oestrogen-only arm of the WHI trial compared to the combined therapy arm, so that the balance of risks and benefits will take longer to emerge.

No risk of breast cancer has emerged in users of oestrogen alone as yet. However, a very large meta-analysis (52 705 women with breast cancer and 108 411 controls) found an increased risk of breast cancer after five years of HRT use and no difference according to whether combined or oestrogen-only therapy was used.[4]

In an editorial accompanying the WHI paper, Fletcher and Colditz concluded that 'the WHI provides an important health answer for generations of healthy postmenopausal women – do not use estrogen/progestin to prevent chronic disease.'[5]

US healthcare officials have moved quickly to relabel HRT with the study results. The Food and Drug Administration (FDA) signalled that the label for these drugs could be further altered to recommend limited treatment for a limited amount of time, as well as a black box warning that is used to warn of potentially fatal risks of drugs. The FDA has required Wyeth (the company that produces the HRT products used in the WHI trial) to remove all references to 'replacement'. As part of a wider assessment, the FDA is examining the issue of whether or not pharmaceutical companies have encouraged women to believe menopause is a condition to be treated, rather than an inevitable and natural set of events to be managed.[6]

In New Zealand, women and their doctors have not received such clear guidance. The Ministry of Health took little action to warn women and/or their doctors of the risk. The Ministry informed around 1000 doctors of the results electronically, but otherwise relied on letters sent to doctors by Wyeth.[7] The downplaying by the Ministry of the risks was echoed in media statements made by the Family Planning Association and the New Zealand Medical Association, and in articles in local doctors' newspapers.[8]

There was a lack of consistent advice from medical opinion leaders, clinicians or public health specialists. Media statements were contradictory and these were reflected in stories from women who called the Women's Health Action HRT Hotline. In particular, there was silence from a number of local and Australian medical opinion leaders who, over many years, have promoted HRT use to GPs and specialists.

The lack of action from the Ministry of Health contrasted with the proactive advice it gave on the risks of third generation oral contraceptives (OCs), and Diane-35/Estelle-35, where the risks are far lower. Compared to women not using oral contraceptives, there are 5 more cases of VTE per 10 000 women using third generation OCs, and 7 more cases in women using Diane-35.[7] On the basis of these risks, the Ministry wrote to all doctors, and developed consumer fact sheets. For third generation OCs, the Ministry also advertised in newspapers and established a telephone helpline for women.

By contrast, the WHI found there would be 18 more cases of VTE per 10 000 women each year, as well as 7 more heart attacks, 8 more strokes and 8 more cases of breast cancer. Taking into account the benefits of 5 fewer hip fractures and 6 fewer cases of colorectal cancer, there would be 19 excess serious adverse events per 10 000 women using HRT each year. The investigators reported that within five years 1 in 100 women using HRT would have a serious adverse event.

Considering that women using HRT are well women, this is an unacceptable level of harm. It is doubtful that a drug with this risk profile would be accepted for marketing to healthy women were such approval to be sought today.

Yet the response from the Ministry has been, firstly, that the results are nothing new, and secondly, that the results are not applicable to New Zealand women, as New Zealand women using HRT are younger and less obese and use HRT for menopausal

symptoms.[9] The Ministry claimed that the New Zealand Guideline Group *Guideline on the appropriate prescribing of hormone replacement therapy*,[10] released in May 2001, promulgated advice that mirrors that of the WHI trial.[7] This has been used to justify the Ministry's present inaction.

In reality, the New Zealand Guideline has been effectually rendered redundant by the WHI study. It was neutral on the issue of benefit or harm from using HRT for primary prevention of heart disease, did not mention any risk of strokes, and was equivocal about the risk of breast cancer. It recommended oral HRT for other long-term uses – such as vaginal dryness – which should not be contemplated now. It did not attempt any overall assessment of risks against benefits.

Worst of all, Pharmac figures show that the Guideline had no effect on levels of HRT prescribing.[11] This throws into doubt the considerable effort that goes into developing guidelines for doctors, or at least the way they are promulgated, and emphasises the need to simultaneously get the same information out to the public.

It is difficult to come up with evidence to support the Ministry's claim that New Zealand women are different (particularly with regard to age and weight), and use HRT differently, to women in the WHI study.

The women in the WHI study ranged in age from 50–79 years, with a mean age of 63.2 years at baseline. Nearly 80% of the study participants were aged under 70 years. Mean body mass index (BMI) was 28.5. Thirty five per cent of the participants had a BMI of 25–29, and 34% a BMI of 30 or over.

The only information we have on the characteristics of New Zealand users of HRT is the study by North and Sharples,[12] which surveyed women aged 45–64 years, but unfortunately not older age groups. This found that between 1991 and 1997, the prevalence of HRT use in older age groups increased significantly. By 1997, an equal proportion of women in the 60–64 age group were using HRT to women 50–54 years. This suggests that the pattern of HRT use in New Zealand might not differ significantly from that of the WHI study.

North and Sharples' study[12] does not contain information about the BMI of the women using HRT, however, information about New Zealand women in this age group is available from other sources. Ministry of Health figures show that 26% of women aged 45–64 years and 22% of women aged 65–74 years have a BMI of 30 or over.[13] While this is slightly lower than the WHI figures, the lack of exact comparability in the age groups makes conclusions difficult. On the other hand, there is more comparable data on some other indicators of health. For example, the prevalence of smoking among New Zealand women ranges from 22% for 50- to 54-year-olds, to 10% among 75- to 79-year-olds.[13] In the WHI study, only 10% of the study participants overall were current smokers.

The Ministry maintained that NZ women used HRT for symptoms as opposed to prevention and implied that this would somehow make a difference to the risks. With regard to reasons for using HRT, the study by North and Sharples[12] showed that 82% used HRT for symptoms, but nearly half were also using HRT for prevention purposes. Of these, nearly half were using HRT for prevention of osteoporosis and one quarter for prevention of heart disease – a proportion that had doubled between 1991 and 1997.

The WHI investigators were studying the safety and effectiveness of HRT when used for long-term prevention. Whether or not the women had menopausal symptoms was irrelevant to this task, however, as risks do not present themselves according to the reason HRT was initiated. A woman using HRT for hot flushes runs identical risks to a woman using HRT for prevention in a comparable year of use.

An interesting aspect to note from the North and Sharples study[12] was the level of poor prescribing. Among women with an intact uterus, 11% were using unopposed therapy, whereas it is well known that progestogen is needed to protect the endometrium, and 15% of women who had had a hysterectomy were using combined therapy. Use of continuous combined HRT (the regimen used in the WHI trial) had increased from 0.4% in 1991, to 29% in 1997, despite the lack of evidence that this regimen produced the same level of benefits and risks as unopposed or sequential HRT. New Zealand is prone to huge shifts in prescribing habits, which can be put down to the activities of medical opinion leaders and the pharmaceutical industry.

The WHI results translate into a major public health concern. In the US, Jacques Rossouw, acting director of WHI, stated that 'Considering that millions of American women might consider taking the estrogen plus progestin therapy, that could translate into tens of thousands of cases of breast cancer or cardiovascular disease over several years'.[14] Nearly half a million New Zealand women are in the age group covered by the WHI study and are therefore potential users of HRT.[15] In 2001, Pharmac estimated from the number of prescriptions filled that around 100 000 New Zealand women were currently using HRT. This is consistent with the finding from North and Sharples[12] that in 1997, 20% of postmenopausal women were current users of HRT, up from 12 % in 1991, and 32% has used HRT at some time. Fifty four per cent were using combined therapy.

These figures would give rise each year to 40 extra cases of breast cancer (after three years of use), 35 more heart attacks, 40 more strokes and 90 more blood clots. It seems extraordinary to countenance such harm to health while at the same time putting in place expensive breast screening programmes and measures to reduce cardiovascular disease.

There are some larger lessons to be learned from the HRT saga. First, results from observational studies should be treated with great caution. Observational studies of HRT indicated that HRT might reduce the risk of heart disease by as much as 50%. Most studies showing a benefit of HRT on fractures were observational. More circumspect commentators argued that the heart benefit could well be the result of a 'healthy user' effect, as HRT users were known to be from higher socio-economic groups, slimmer, taller, and to adopt more health-enhancing behaviours than women not on HRT. The WHI trial showed that HRT actually caused harm to hearts, not benefits.

Second, positive effects on surrogate end-points do not always translate into reduction of disease. A number of studies, principally the PEPI study,[16] showed that HRT had a positive effect on blood cholesterol levels, and an overall benefit on cardiovascular risk was extrapolated from this. It was on the basis of the PEPI result that the Ministry of Health approved HRT for the prevention of heart disease in 1996, even though it was never approved for this indication by the US Food and Drug Administration. The

WHI study also found this positive effect on cholesterol levels, but some other mechanism, possibly the clotting effect of HRT, caused harm to the heart.

Third, diseases have been created to fit the drugs; a trend that has occurred in a number of areas of medicine over the past few decades.[17] Heart disease in women was put down to the lower level of oestrogen at menopause, even though there is no steep increase in CHD cases in women at menopause, rather, a gradual rise beginning in the 40s. It is not clear how much oestrogen contributes to bone loss, as opposed to the effects of ageing, and it is unclear how much oestrogen contributes to hip fractures, as opposed to the effects of ageing, polypharmacy and so on. Despite this, heart disease and fractures were redefined as menopausal diseases, in need of treatment.

Fourth, specialists from one specialty should not claim expertise in another realm. Gynaecologists promoted the use of HRT for prevention of heart disease: many cardiologists were highly sceptical. The gynaecologists bypassed other proven interventions, such as exercise, low-fat diet and smoking cessation, and other pharmaceuticals know from randomised controlled trials to be safe and effective.

Fifth, medicine regulatory authorities need to be much more rigorous in approving indications for medications and in monitoring safety. A re-evaluation is needed as to whether trans-Tasman harmonisation of drug regulation will enhance or harm these processes.

Sixth, more distance is needed between pharmaceutical companies and doctors, and between pharmaceutical companies and the public. In particular direct-to-consumer advertising should be halted.

Seventh, the trend to defining well populations as pathological must be rejected. Only a small proportion of menopausal women have severe hot flushes. Many of the other psychological and physiological symptoms ascribed to menopause are found in both sexes and people of all ages. The experience of HRT should provoke re-examination of other well populations that are being labelled with disease.

One of the most disturbing aspects of the current reaction to the WHI study is the culture of menopause that has been revealed. The stereotype of menopause as a disease or deficiency state appears to have been internalised by women and their doctors alike. Many callers to the Women's Health Action HRT Hotline do not know why they are on HRT but are convinced they cannot cope without it. They fear they will visibly age overnight if they stop their pills; many women have become psychologically addicted to their hormones pills and lack the confidence to go hormone-free.

The situation is providing a bonanza for companies with other pharmaceuticals to promote, both prescription medicines and complementary therapies. We will not move forward if women are simply transferred to bisphosphonates (which lack safety and effectiveness data past seven years) or spend hard-earned money on unproven therapies such as progesterone creams and phyto-oestrogen supplements. We must find good evidence of alternative approaches for women with disruptive menopausal symptoms, but most women simply need affirmation of the normality of the menopausal transition and of the benefits of a healthy, active lifestyle.

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Response

Although Ms Coney has made some valid points with regard to the WHI data, I would like to make the following points:

- The suggestion that very few women have severe menopausal symptoms devalues the experience of many women. Studies have consistently shown that 25% of women experience severe estrogen deficiency symptoms during the menopause transition. The use of HRT can be an important tool in maintaining quality of life over the 2–5 year period that symptoms may be a problem.
- Suggesting that the significance of osteoporosis has been inflated by the medical profession flies in the face of facts showing that fractures and the associated morbidity and mortality are major consumers of the health budget in Western nations. Statistics are readily available in New Zealand to show increasing rates of hip fracture. In 1994, 2276 women sustained a hip fracture.[1] This number is predicted to rise to 3500 in 2011.[2] The estimated cost for the first year of medical care after a hip fracture is $33 887.05 per person.[3]
- The role of estrogen in bone loss has been clearly demonstrated in both animal and human studies showing accelerated bone loss with loss of ovarian activity. This process occurs regardless of age.
- Bisphosphonates have been an effective therapy for a variety of bone disorders for over 20 years. To suggest that there is a paucity of safety and efficacy data is clearly incorrect.
- The medical profession has learnt to become less prescriptive over the last decade. The information from the WHI demonstrates more than ever that an individualised approach towards women reaching menopause is required. Not every woman requires or wants HRT. It is our job to provide the facts and evidence so that women can make an appropriate decision for themselves.

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Incentives for rural practice

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Retention and recruitment of rural practitioners remains high on the agenda of public health issues in New Zealand. Yet, compared to a burgeoning overseas literature, formal rural research in New Zealand is still in its infancy. The study of Hall, Martin and Farry in this issue of NZMJ supporting the perceived problems challenging the rural workforce is, therefore, welcome.[1]

The study explores the 'incentives' to which GP trainees might respond, rather than yet again focusing on the 'problems' of rural practice to which the authors refer from previous studies. While it is refreshing to take a positive view based on solutions rather than obstacles, the results are predictably, and perhaps reassuringly, essentially the reciprocal of previous findings. Demanding call rosters, difficulty sourcing and paying for locums, and the stress on families are reformatted and quantified into the desired conditions of: 1:4 rosters; 2–3 weeks' study leave; 3–6 weeks' annual leave and 'consideration' of partners' aspirations.

What is of interest is that income was one of the lowest ranked of the incentives. This may not be so surprising. One of the greatest needs defining 'adequate' income is to be able to afford time off. If this is already compensated for in other incentives, the pressure to earn a high income is lessened. Equally, however, it may simply reflect salary expectations of those still on a training grant, or indicate a naivety about a cheaper country lifestyle. Distance is inherently expensive, and transport of goods, services and materials plus access to some aspects of culture, recreation and education can be pricey.

Are these issues international? The current negotiations over the United Kingdom GP Contract indicate that the concerns of British GPs are also predominantly about working conditions and not income. A guarantee of adequacy, rather than throwing dollars at problems in the absence of meaningful infrastructure, seems to be the essence. This also reflects a more positive attitude amongst rural practitioners to move towards salaried service.

The desire for more training for rural practice is probably insatiable. With rural clinical exposure covering perhaps the widest field of any discipline, at what point has there been enough training, even after many years in rural practice? Yet, a quarter of respondents felt they had received enough to get started. It would be good to know if these respondents were already anticipating rural practice and actively tuned in to seeking the resources they required. However, there is a message that basic GP training falls short of providing the confidence and competence to meet the extra clinical demands in the rural context.

The fear of 'entrapment' in rural practice is explored under the more positive approach of 'career pathways'. What has been touted as a crucial issue in workforce planning seems to carry less weight in this study. Does this strike a hopeful note for the future? If the conditions in rural practice are seen to be favourable, sustainable and

professionally satisfying, could it be that the issue of entrapment might disappear? The manageable rosters, professional satisfaction and salaried employment possible when working in a well resourced rural teaching practice might be sufficient career in itself. Why leave? With the diverse skills demanded of a rural practitioner, there should also be many openings for those choosing to leave such prestigious positions.

With any study the question remains as to what extent it might influence future action. In this case the authors answer themselves: "The [rural health] support package is in keeping with the findings of the study." It appears that the importance of these factors was sufficiently evident from the previous 'problem oriented' studies for government action. Some attempts to alleviate the essential issues are already underway. The NZ Rural Locum Programme, proposed five years ago, has finally gone active over the past year.[2] The Rural Practice Support Scheme established three years ago and now being either supplemented or replaced by the Reasonable Roster Funding[3] is addressing on-call demands. Rural Retention Funding[3] is being directed to rural practices and their communities to be used in diverse creative ways via rural Primary Health Organisations. There is discussion in the schools of medicine, apparently supported by government, to see rural training taken to new levels for both undergraduates and postgraduates. Thus, rural training will go beyond 'by rural, for rural, in rural' to become '**part of rural**' – an essential feature of future vibrant rural practice.

With these first steps underway in advance of the new findings, it is tempting to summarise the practical significance of the study in the words of Tevye in Fiddler on the Roof (he had finally extracted from his Golde that she "supposed" she loved him):

> "It doesn't change a thing, but even so,
> After 25 years, it's nice to know."[4]

However, there are two important findings from this study that invite more attention.

First, the highest-ranking issue in the study seeking resolution is that of GP partners' aspirations. Little has been done to address this in New Zealand. While we have a vigourous Rural GP Network and Rural Nurse Network, the Rural Spouse Network is, after a period of quiescence, only just starting to regather momentum.[5] In contrast, in Australia there are strong and well financed rural spouse supports.[6] If spouses' needs in New Zealand are so important and yet neglected, perhaps this is a direction in which rural retention (and research) funding might be effectively directed.

Second, we should draw some encouragement from the study's indications that a sizeable proportion of young GPs might be swayed to consider rural practice given the right incentives, and that current initiatives could prove effective. Some 8% saw rural work as their natural choice. Sixty three per cent could be swayed by incentives, while 29% were committed urbanites. It seems (to misquote both Tevye and Shakespeare[7]):

> "As the Good Book says: some are born rural, some achieve rural and some have rural thrust upon them."

It is up to all those involved in the support and development of rural services to see that those 'born rural' are not exploited as 'missionary', and those who might 'achieve rural' are given the opportunity to do so. Using obligations of bonding or conditions

of residency to thrust rural practice upon GPs in the long run achieves little for either practitioner or community.

There is a further perceptual issue associated with incentives. If they are to be offered to draw young doctors into the rural workforce, what do we offer the old-timers who have been holding the fort for decades? Do they not deserve the same conditions? If they desire a salaried contract, will the government or community be prepared to compensate them for their personal, family and financial investments? Perhaps we need to draw back from framing the solution to rural workforce shortages solely in terms of special packages for newcomers, and rather concentrate on creating the contexts of rural practice everywhere that honour the broad needs of the existing practitioners and create interest for others to join them. If we attend to the retention issues, recruitment should look after itself.[8]

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What would attract general practice trainees into rural practice in New Zealand?

Douglas Hill, Isobel Martin and Pat Farry

Abstract

Aim The shortage of rural doctors is acknowledged worldwide. This study aimed to identify incentives that would attract doctors into rural practice in New Zealand.

Methods Registrars and seminar attendees of the General Practice Vocational Training Programme in 2000 and 2001 were surveyed using focus groups and subsequent questionnaire to find what conditions might attract young general practitioners (GPs) into rural practice in New Zealand. Themes identified included lifestyle, family issues, on-call work, financial incentives, career opportunities, training, and study leave/holidays.

Results Of the 140 questionnaires sent out, 91 were returned (65% response rate). Twenty nine per cent of respondents said they were unlikely to go into rural practice, despite a comprehensive incentive scheme; 8% said they would go into rural practice even if no incentive scheme were offered. The remaining 63% were more likely to go into rural practice if an incentive scheme were offered. The incentives most favoured were: reduction in on-call work; guaranteed time out of the practice; and consideration of options for partners and children.

Conclusion This study indicates that two thirds of trainee GPs might consider going into rural practice if an appropriate incentive scheme were available.

The shortage of doctors in rural practice is acknowledged worldwide. A number of studies have looked at ways to recruit and retain rural practitioners, but the majority of these have either approached the problem from a managerial[1] or marketing[2,3] viewpoint, or by interviewing doctors already in rural practice.[4–6] There have been many reasons speculated both in the press and in the medical literature as to why rural areas have difficulty recruiting new physicians. Some of the common reasons cited include poor remuneration, difficult workloads, medical and social isolation, lack of holiday or study leave cover, lack of availability of career options for spouses, and lack of educational opportunities for children.[4–7] This prospective study of young doctors in the General Practice Vocational Training Programme (GPVTP) investigates the factors that may entice them into rural practice.

Methods

The study design used a mixed methodology. A questionnaire survey was based on themes identified from focus groups.[8,9]

Two focus groups were held. The first comprised the six Otago–Southland registrars undertaking the intensive training year. The second group contained a convenience sample of six participants from the North Island registrars and seminar attendee programme. These two groups may be expected to be representative of those doctors undertaking general practice training in NZ.

Each group was interviewed on two separate occasions. The first interview was taped and the transcripts analysed to generate a number of themes relating to recruitment to rural practice. These

themes were then developed into a draft questionnaire, which was taken back to the focus groups, and each theme and question discussed. The questionnaire was further refined and then pre-tested among members of the Department of General Practice at the Dunedin School of Medicine. Minor changes were made before the questionnaire was posted to participants with the assistance of the Royal New Zealand College of General Practitioners (RNZCGP).

The questionnaire was sent to all doctors participating in the RNZCGP Stage 1 General Practice Education Programme throughout New Zealand. This included registrars on the intensive clinical training programme (who were attached to general practices, attended weekly day-release seminars and received a training bursary), and seminar attendees who funded themselves, in 2000 and 2001. The questionnaire was sent with a covering letter explaining the study, and a stamped, self-addressed envelope for its return.

The analysis of the data took place in two parts. The tapes of the interviews were transcribed. They were then analysed by a process of immersion and crystallisation, with emerging themes identified. These themes were then developed into questions as described above.

The questionnaire data were entered into Microsoft Excel for analysis. Descriptive statistics were calculated and the chi square test used to look for differences. An average score for each question was calculated. Each theme had a number of questions that explored the different aspects of the theme. The scores allowed a ranking system to be created, which indicated the relative importance of each theme and allowed a comparison between the themes. An additional theme summary linear analogue scale score was used (1 = least likely; 10 = most likely).

This study received ethical approval from the University of Otago Ethics Committee.

Results

The initial focus groups generated a total of seven themes listed in Table 1.

Table 1. Themes derived from focus groups

Lifestyle issues
Partner/family issues
On call/out of hours work
Finances/practice management
Career opportunities
Training
Study leave/continuing medical education (CME)/holidays

A total of 91 completed questionnaires were received. This was made up of 48 questionnaires in 2000 (response rate 71%), and 43 questionnaires in 2001 (response rate 58%).

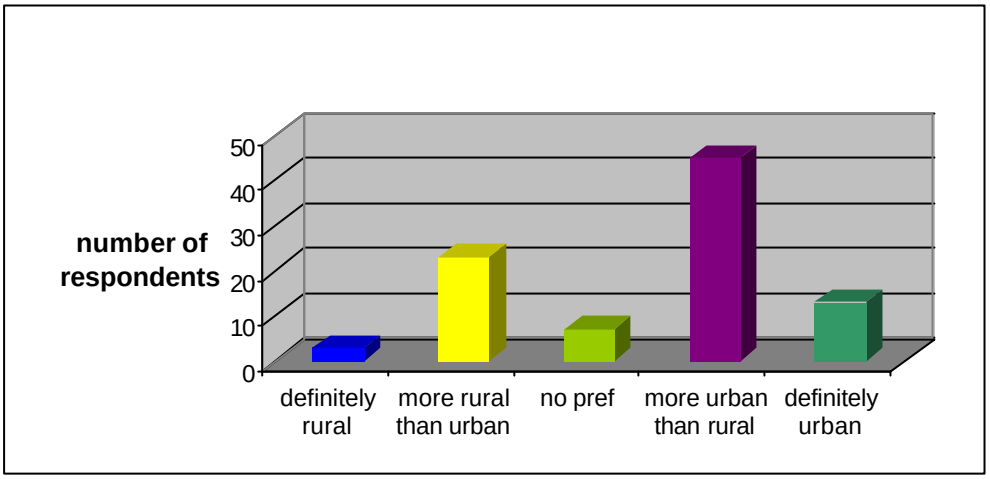
Of the 91 returns, 64% were sent from females, and 36% from males. Sixty eight (75%) were from registrars, and 23 (25%) were from seminar attendees. The age range of respondents shows the majority (68%) of respondents were under 35 years of age. The two years have a similar sex distribution, but there was a higher proportion of seminar attendees than registrars in 2001 (30% vs 21% in 2000) and this was reflected in a higher average age in 2001.

In Figures 1 to 6 results are presented under the theme headings from the questionnaire, and an overall summary is provided. The combined results for the two years are presented.

Lifestyle considerations

Figure 1 shows that, when asked where they would rather live, a wide variation in respondents' replies was noted. The majority of respondents (64%) would prefer more urban settings, but a significant number (29%) would prefer to live in a more rural setting.

Figure 1. Where would you rather live?



In comparison, when asked how close to a city they would need to be, most respondents stated within one hour's drive of the city (n = 66, 73%).

Overall, lifestyle factors scored a mean of 8.43 (out of 10) on the summary linear analogue scale at the end of the theme questions.

Partner/family considerations

Seventy five (82%) respondents described themselves as being in a long-term relationship. Of those in a long-term relationship, 62 (83%) regarded their partner's career as either very or extremely important in choosing their practice location. There were not enough responses from those not in a long-term relationship for analysis.

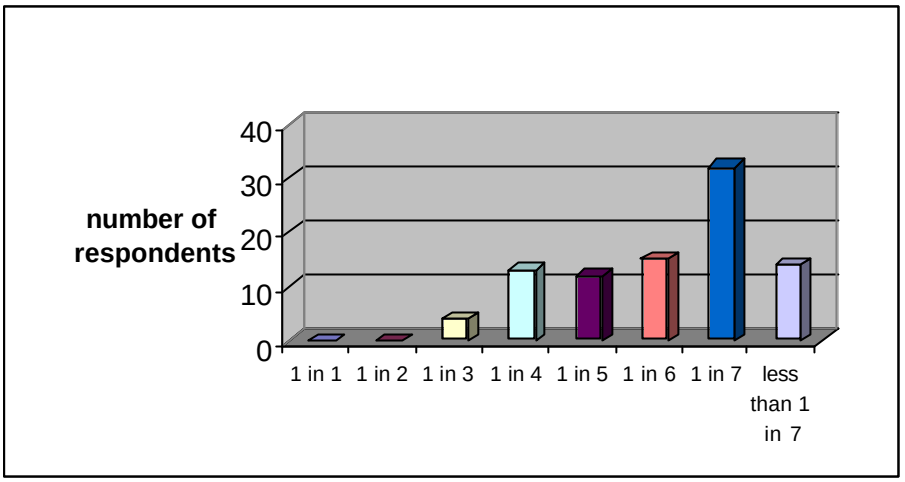
Overall, the partner/family considerations scored a mean of 8.80 (out of 10) on the summary linear analogue scale at the end of the theme questions.

On call/out of hours work

It can be seen in Figure 2 that no respondents felt that 1 in 1, or 1 in 2, call was acceptable. Only four respondents felt that 1 in 3 was acceptable. The rest of the responses were scattered between 1 in 4 and 1 in 7, with a tendency towards the less frequent options.

Also important to most respondents was to have another colleague in the practice with whom to consult. Seventy seven (85%) regarded this as very or extremely important.

Figure 2. What is the acceptable frequency of call?



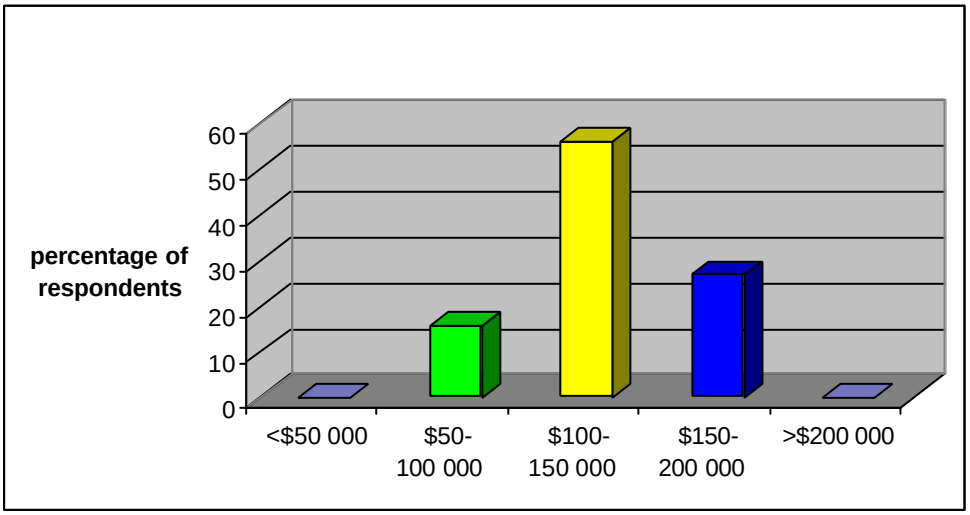
Overall, on call/out of hours considerations scored a mean of 8.38 (out of 10) on the summary linear analogue scale at the end of the theme questions.

Finances and practice management

Only 18% of respondents stated that they would prefer to work as private practitioners. Sixty eight per cent of respondents regarded a guaranteed minimum income as very or extremely important for rural practice.

When asked how much this minimum income should be, most respondents suggested between $100 000 and $150 000 per annum (Figure 3).

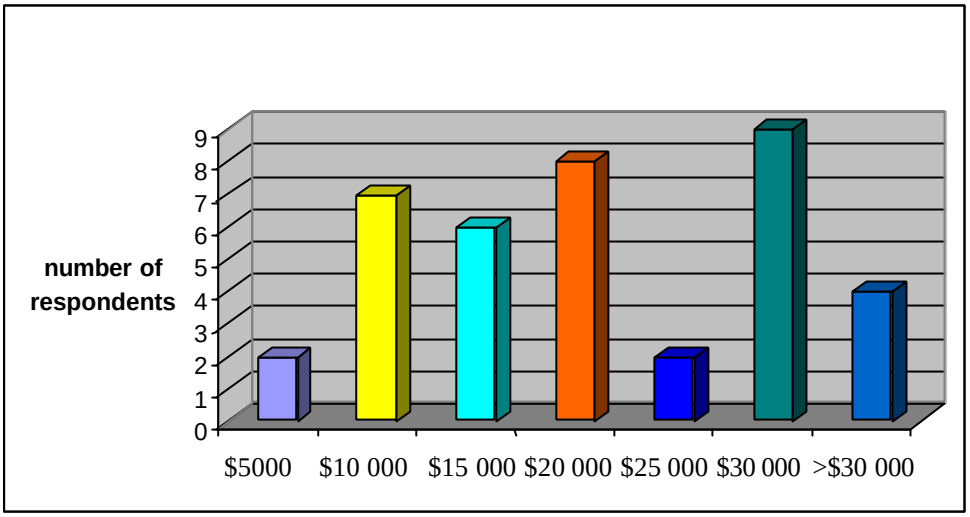
Figure 3. What is your required minimum income?



When asked what the required student loan repayments per year would be, a varied response was seen as shown in Figure 4. This question was the most poorly answered

in the questionnaire and this may reflect the fact that the maximum effect of the student loan scheme has not had an impact on this sample group as yet.

Figure 4. What is your required student loans repayment?



Overall, financial considerations scored a mean of 6.38 (out of 10) on the summary linear analogue scale at the end of the theme questions.

Career opportunities

Sixty seven (74%) respondents thought rural practice would not lessen their career opportunities. All of the career opportunities offered scored between 1.5 and 2.2 out of 5, using mean scores.

Overall, career opportunities scored a mean of 5.23 (out of 10) on the summary linear analogue scale at the end of the theme questions.

Training

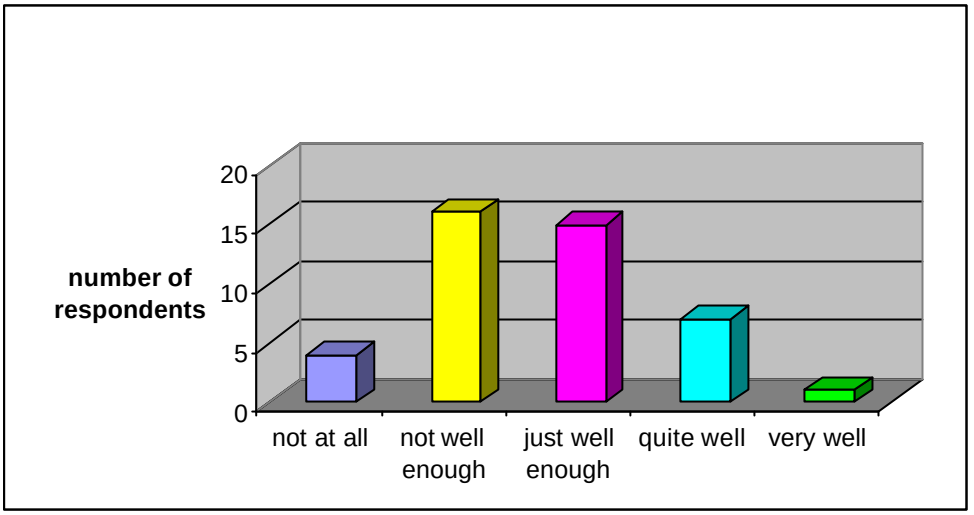
Sixty seven (74%) respondents felt their general practice training either had not been adequate, or to be just good enough for rural practice (Figure 5).

Of the additional types of training offered, all scored relatively highly, with a number of respondents suggesting that additional musculoskeletal training would be of benefit. Overall, the training theme scored a mean of 7.49 (out of 10) on the summary linear analogue scale at the end of the theme questions.

Study leave, CME and holidays

The majority of respondents (55%) felt that two to three weeks of study leave would be acceptable, while 91% felt that between three and six weeks annual leave (with guaranteed locum cover) would be acceptable. Overall, the study leave and holidays theme scored a mean of 8.66 (out of 10) on the summary linear analogue scale at the end of the theme questions.

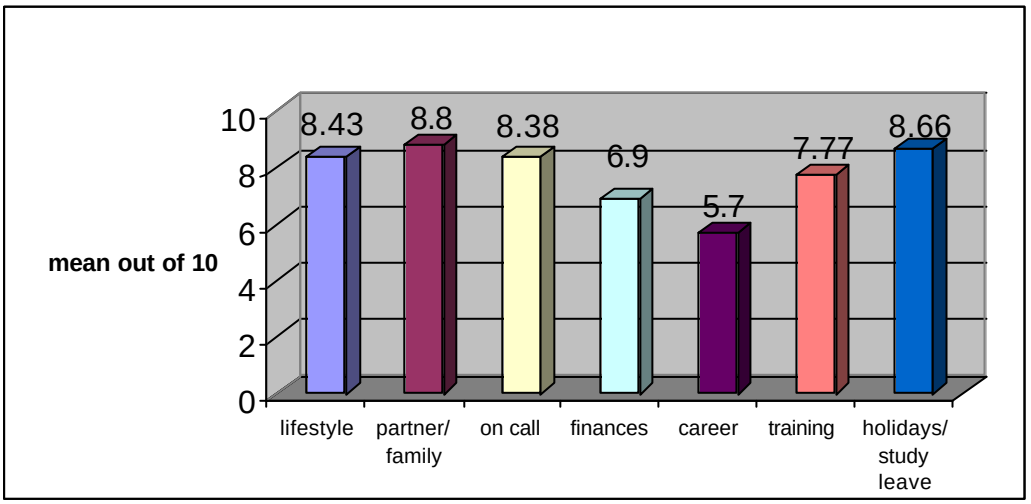
Figure 5. How well has your general practice training prepared you for rural practice?



Incentives versus no incentives

Respondents were asked what was the likelihood of their entering rural practice with or without incentives. The mean was 6.06 out of 10 if incentives were offered, versus 2.46 if no incentives were offered ($p < 0.001$).

Figure 6. Comparison of means for each theme



When the analysis is broken down further, it can be shown more clearly how incentive schemes influence the choice to go into rural practice. The results show that 26 (29%) respondents were unlikely to go into rural practice despite a comprehensive incentive scheme. It also shows that 7 (8%) respondents would go into rural practice even if no incentive scheme were offered. The other 58 (63%) respondents were more likely to go into rural practice if incentive schemes were offered, although it should be

noted that even with these schemes only 15% of respondents described themselves as very likely to go into rural practice.

The linear analogue scores at the end of each theme allow a direct comparison of the relative importance of each theme. Figure 6 shows that the four most important themes in making the choice between rural and urban practice are lifestyle, partner/family, on call arrangements, and study leave/holidays. An analysis of variance shows no significant difference between these means.

Discussion

The results show that close to 30% of general practice trainees will not consider rural practice despite the best incentive schemes. About 8% of trainees plan to go into rural practice even without incentives, although most would want to live close to a city. Therefore, almost two thirds of trainee GPs could be swayed towards rural practice by a comprehensive incentive scheme.

Although this study is the first of its type to be attempted in New Zealand, it is a descriptive study, and is therefore limited in its predictive ability. Although the respondents have suggested factors that may make rural practice more attractive, it is important to question the same group in five years' time to see where they are practising, and what influenced that decision.

The number of respondents does not allow us to demonstrate any differences between registrars and seminar attendees. In general, the questionnaire was completed well, implying that most of the questions were clearly worded and that the format of the questionnaire was acceptable.

This study indicates the incentives that need to be considered. The most important of these are: a guaranteed minimum income; grants that could be used to pay off student loans; reward schemes to encourage retention at the same practice location; reduction in nights and weekends on call; guaranteed holidays and study leave with guaranteed locum provision; specific education, training and qualification for rural practice during the registrar year and also during Advanced Vocational Education; and consideration of options for partners and children.

In New Zealand, the struggle to find doctors to serve rural areas has been well discussed in the media recently. There have been a variety of attempts made to address these problems. Te Waipounamu Rural Health Unit has been established by the University of Otago and South Link Health Inc. to serve the South Island, while the Institute for Rural Health has been established by Auckland Medical School. There are now Rural Health Directors in both the North and South Islands, and there is a Centre for Rural Health in Christchurch. These units offer support to doctors in rural practice by helping with targeted education programmes and post-graduate qualifications, establishing a rural locum service, and assisting in the recruitment of doctors to rural areas. Te Waipounamu Rural Health Unit is also actively involved in promoting rural health amongst medical students by ensuring that high quality rural placements are an integral part of their medical course. It is also investigating the possibility of a rural medical school.

Different health systems, methods of practice and geographical situations make it very difficult to generalise rural health research from other countries to New Zealand. However, significant North American and Australian studies have shown that students

exposed to rural practice at an early phase have an increased chance of returning to a rural area to practise medicine and that increasing the amount of exposure to rural medicine increases the likelihood of choosing rural practice as a career.[10] When combined with a policy of recruiting students from a rural background, an even higher percentage of graduates will choose rural practice as a career pathway.[11] Furthermore, although studies have speculated on the possible reasons young doctors may not want to choose rural practice, the factors that might entice them into rural practice have not been explored. This study has looked specifically at young doctors who have chosen to specialise in General Practice and the incentives that could be used to attract this group into rural health. This is the key group to target with incentive schemes, because once they complete the Stage 1 general practice education programme, they are looking for practices in which to work. From this group, the next generation of rural GPs will come.

Conclusion

The results of this study raise a number of issues for those working in the area of recruiting young doctors into rural health. The first issue is that there are a number of important factors that cannot be solved with incentive schemes – eg partners' career opportunities, wanting to live close to a city, increased frequency of call compared to urban areas. These factors will mean that no matter how many incentives are in place, the majority of young doctors will still choose urban practice. The second major issue raised in this study is that general practice trainees feel that at best their training was just adequate for them to go into rural practice, and that many of them have had no, or very little, experience of rural practice in their training. This is despite a rural attachment supposedly being compulsory in the registrar year.

This study does have some good news for rural health. The first is that the financial incentives currently being offered in New Zealand (usually approx $100 000 pa) are not too far from the mark. Unfortunately, they may still be too low to compete with overseas offers. It can be expected that these demands will rise as an increasing number of trainees come through with large student loans to pay back.

Secondly, we have shown that well designed and implemented incentive schemes have the potential to sway a significant number of young doctors towards rural practice. Rural general practice is in crisis in this country and the government has recognised the urgent need with the recent announcement of a considerable rural health support package. The support package is in keeping with the findings of this study.

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Self-reported injury rates in New Zealand

Carolyn Coggan, Rhonda Hooper and Brian Adams

Abstract

Aim The study aimed to obtain baseline information on the incidence and nature of self-reported injuries in New Zealand.

Methods A cross-sectional survey was conducted of approximately 400 randomly-selected households from each of 13 Territorial Local Authorities across New Zealand, giving a total sample size of 5282. Respondents were asked if anyone in their household had been treated by a medical doctor in the previous twelve months for any injuries and, if so, details of the injury event were recorded.

Results Forty one per cent of households reported that someone in the household had sustained an injury. The most common types of injuries were falls (33%), sports-related injuries (28%) and injuries caused by lifting an object (16%). Only eight per cent of the injuries required overnight hospitalisation.

Conclusion The findings from this study indicate that the total burden of injury in New Zealand is much larger than estimated by routinely-collected injury hospitalisation data.

Injury is a major public health problem in New Zealand. In 1998/99 injury was the third leading cause of hospitalisation, resulting in 68 472 public hospital discharges.[1] However, injury hospitalisations represent just a small fraction of the injury problem. In 2000/01 the Accident Compensation Corporation (ACC) paid compensation for 1.4 million new claims, at a cost of $1.2 billion.[2] This figure includes payments for 2.3 million GP visits and 2.2 million physiotherapist visits. As well as the financial cost of injury, and the resulting burden on the health system, there is also a huge social cost of injury in terms of pain and suffering.[3] Serious injury can also result in long-term disability. The 2001 Household Disability Survey estimated that 30% of all disabilities are caused by injury.[4]

Few studies have reported on the epidemiology of non-hospitalised injuries in New Zealand. A 1996/97 New Zealand Health Survey found that 26.8% of adult respondents had sought medical treatment for an injury in the previous twelve months.[5] However, this survey asked only whether the respondent had been treated for *any* injury, and not the total number of injuries occurring during the reference period. Although ACC data are another potential source of information on non-hospitalised injury, detailed information on the circumstances of the injury event is only available for entitlement claims (14% of paid claims in 2001).[2] In addition, ACC data are not collected in a consistent manner across years. For example, in 1999/2000 ACC did not provide cover for all workplace injuries,[2] resulting in an underestimate of workplace and total injury for that period.

Consequently, unlike information on injury deaths and hospitalisations, little is known about the nature and incidence of other injuries. The current study aimed to obtain baseline information on the incidence and nature of self-reported injuries in New Zealand.

Methods

The survey was conducted between the months of September and November 2001 as part of an ongoing evaluation of a national injury prevention programme. A computer-assisted telephone interviewing system (CATI) was used to randomly select approximately 400 households from each of 13 Territorial Local Authorities across New Zealand, giving a total sample size of 5282 households. The adult (18+ years) in the household with the next birthday was asked to complete a phone interview of 10–15 minutes in length. Up to eight call-backs were made to each household. The response rate for the survey was 65%.

The interviewers asked respondents: "Has anyone living in your household required medical treatment by a doctor in the previous twelve months for any of these injuries:

- an injury caused by a fall;
- an injury caused by lifting an object;
- an injury after being physically hurt by someone else;
- an injury caused by poisoning (excluding food poisoning);
- an injury caused by a motor vehicle crash;
- an injury sustained while playing sport (other than a fall);
- any other injuries (specify cause)."

These injury categories were based on the leading causes of injury as identified from hospitalisation data and ACC claims data. Free text information on the mechanism of 'other' injuries was used to reassign injuries that should have been listed under another injury category.

If the respondent reported that someone in the household had been injured, the following details were then collected: the number of times that an injury event occurred; the number of household members injured on each of these occasions; the age and gender of each injured person; whether the injured person had to stay overnight in a hospital; the location where the injury occurred (except for motor vehicle crashes and sports-related injuries, as pilot testing found that these occurred on a public road, and at a sporting venue, respectively); and whether the injury resulted in a fatality. Only cases of non-fatal injury will be considered in this article. In order to make the definition of 'injury' used in this article consistent with the reporting of injury hospitalisation data, one case of injury is defined as one person who sustains one or more injuries in a single injury event. For example, if three household members sustained multiple injuries in a single motor vehicle crash, this was counted as three cases of injury.

Denominator data for calculation of injury rates were collected by asking respondents to report the number of people in each age group currently living in their household. Whilst it is possible that the number of people living in each household could have changed during the 12-month recall period for injuries, it was beyond the resources of this study to collect details on changes in household composition. Similarly, details of the gender composition of the household were not collected due to time constraints on the questionnaire.

All data were analysed using SAS Version 8.1 for Windows. Chi-squared tests were used to test the hypothesis that the venue of the injury event and injury severity would differ by gender and age. Chi-squared tests were also used to compare sample demographics to 1996 Census data[6] for the regions sampled. Ninety five per cent confidence intervals for the injury rates were calculated assuming a Poisson distribution.

Results

Females accounted for 57.6% of the respondents, and while this was slightly higher than the percentage of females reported by Census data (51.3%), the gender

distributions did not differ significantly. With regard to the size of the households sampled, 19.5% were single occupant households and this did not differ significantly from the composition of households in the Census data (21.3% single occupant households). The age structure of the people in the households sampled was compared to Census data and no significant difference in distribution was found (sample: 0–4 = 7.2%, 5–14 = 16.4%, 15–24 = 14.6%, 25–64 = 51.7%, 65+ = 10.0%; Census: 0–4 = 7.1%, 5–14 = 14.2%, 15–24 = 15.9%, 25–64 = 50.5%, 65+ = 12.2%).

Table 1. Breakdown of injury types

Type of injury	Number of injuries	Percentage of all injuries
Injury caused by a fall	1186	33
Injury while playing sport (other than a fall)	996	28
Injury caused by lifting an object	568	16
Injury caused after being physically hurt by someone else	141	4
Injury caused by a motor vehicle crash	128	4
Injury caused by cutting or piercing	117	3
Injury caused by poisoning (excluding food poisoning)	50	1
All other injuries	392	11
Total	**3578**	**100**

Forty one per cent of the respondents reported that someone in their household had sustained a medically-treated injury during the previous twelve months. In total, 3578 non-fatal injuries were reported, an overall injury rate of 24 497 per 100 000 population. Eight per cent of the injuries required overnight hospitalisation. Twenty nine per cent of all injuries occurred at home; 28% occurred at a sporting venue; 16% occurred at work; 4% occurred at school; 4% occurred on a public road and 19% occurred at another location. As shown by Table 1, falls accounted for one third of all reported injuries. Sports-related injuries (28%) and lifting an object (16%) were also common. Males accounted for the majority (58%) of the injuries. Table 2 shows that young people aged 15–24 had the highest rate of injury (31 946 per 100 000), followed by adults aged 25–64 years (25 073 per 100 000).

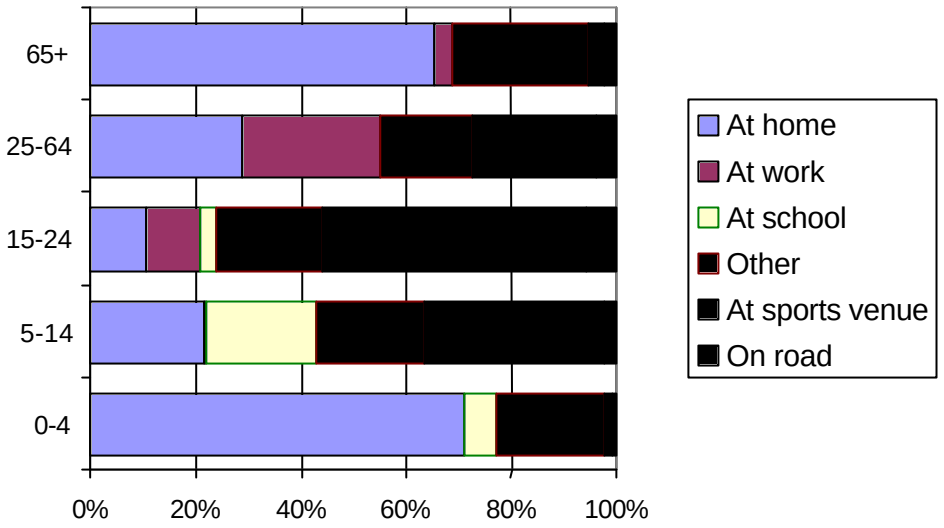
The patterns of where injuries occurred differed significantly by gender ($p < 0.001$), with females more likely to be injured at home (41%) than males (21%), and males more likely to be injured at work (male 20% vs female 11%) and sports venues (male 34% vs female 19%). The location where injury events occurred also differed significantly by age group ($p < 0.001$). As shown in Figure 1, young children and older people aged 65+ were most likely to be injured at home, and young people aged 15–24 were most likely to be injured at a sporting venue. Older people aged 65+ were significantly more likely to be admitted overnight to hospital (20%) than all other age groups (0–4 = 4%, 5–14 = 6%, 15–24 = 8%, 25–64 = 6%, $p < 0.001$). No significant gender differences were found for hospital admission.

Table 2. Reported injury rates by type of injury

Age group (years)	No*	Rate†	95% CI‡	No*	Rate†	95% CI‡
	All injuries			**Injuries caused by motor vehicle crashes**		
0–4	135	12 760	10 607 – 14 912	1	95	-91 – 280
5–14	536	22 361	20 468 – 24 254	13	542	248 – 837
15–24	683	31 946	29 550 – 34 342	39	1824	1252 – 2397
25–64	1895	25 073	23 947 – 26 205	69	913	698 – 1129
65+	322	22 131	19 713 – 24 548	6	412	82 – 742
Unknown	7					
Total	**3578**	**24 497**	**23 696 – 25 301**	**128**	**876**	**725 – 1028**
	Fall-related injuries			**Injuries caused by cutting and piercing**		
0–4	91	8601	6834 – 10 368	3	284	-37 – 604
5–14	254	10 597	9293 – 11 900	13	542	248 – 837
15–24	146	6829	5721 – 7937	15	702	347 – 1057
25–64	505	6682	6100 – 7265	73	966	744 – 1188
65+	187	12 852	11 010 – 14 694	13	893	408 – 1379
Unknown	3					
Total	**1186**	**8120**	**7658 – 8583**	**117**	**801**	**656 – 946**
	Sports-related injuries			**Unintentional poisoning**		
0–4	2	189	-73 – 451	5	473	58 – 887
5–14	185	7718	6606 – 8830	5	209	26 – 391
15–24	346	16 183	14 478 – 17 889	9	421	146 – 696
25–64	449	5941	5392 – 6491	25	331	201 – 461
65+	10	687	261 – 1113	6	412	82 – 742
Unknown	4					
Total	**996**	**6819**	**6396 – 7243**	**50**	**342**	**247 – 437**
	Lifting injuries			**All other injuries**		
0–4	0	0		22	2079	1210 – 2948
5–14	1	42	-40 – 123	45	1877	1329 – 2426
15–24	54	2526	1852 – 3199	43	2011	1410 – 2612
25–64	470	6219	5657 – 6782	228	3017	2625 – 3409
65+	43	2955	2072 – 3839	54	3711	2721 – 4701
Unknown						
Total	**568**	**3889**	**3569 – 4209**	**392**	**2684**	**2418 – 2950**
	Injuries caused by physical violence					
0–4	11	1040	425 – 1654			
5–14	20	834	469 – 1200			
15–24	31	1450	940 – 1960			
25–64	76	1006	780 – 1232			
65+	3	206	-27 – 440			
Unknown						
Total	**141**	**965**	**806 – 1125**			

* = Number of injuries; † = rate per 100 000 person years; ‡ = 95% confidence interval

Figure 1: Age group comparison of where injuries occurred



Falls

Seventeen per cent of the respondents reported that someone in their household had suffered a fall-related injury during the previous 12 months, resulting in a total of 1186 injuries. The falls were most likely to occur at home (41%), followed by work (10%) and school (9%). A significant proportion of the falls occurred at an unspecified location (39%). Ten per cent of the injured persons were admitted overnight to hospital. Table 2 shows that older people aged 65+ had the highest rate of fall-related injury (12 852 per 100 000), followed by children aged 5–14 years (10 597 per 100 000). Females (52%) accounted for slightly more fall injuries than males.

Sports-related injuries

Twelve per cent of the respondents reported that someone in their household had suffered a sports-related injury during the previous 12 months, resulting in a total of 996 injuries. Five per cent of the injured persons were admitted overnight to hospital. As shown in Table 2, young people aged 15–24 years had the highest rate of sports-related injury (16 183 per 100 000), a rate more than double the next highest age group, children aged 5–14 years (7718 per 100 000). Males (72%) were much more likely to suffer a sports-related injury than females.

Lifting injuries

Nine per cent of the respondents reported that someone in their household had suffered an injury caused by lifting an object during the previous 12 months, resulting in a total of 568 injuries. Half of the lifting injuries occurred at work, 40% occurred at home, and nine per cent occurred at an unspecified location. Four per cent of the injured persons were admitted overnight to hospital. Adults aged 25–64 had the highest rate of lifting injury (6219 per 100 000, Table 2), followed by older people

aged 65+ (2955 per 100 000). Males (58%) accounted for more of the lifting injuries than females.

Violence

Two per cent of the respondents reported that someone in their household had been injured as the result of physical violence inflicted by another person. A total of 141 injuries were recorded. Thirty five per cent of these intentional injuries occurred at home, and fourteen per cent occurred at work. A large proportion (37%) occurred at an unspecified location. Ten per cent of the injured persons were admitted overnight to hospital. Table 2 shows that young adults aged 15–24 had the highest rate of injury due to physical violence (1450 per 100 000), followed by pre-school children (1040 per 100 000). Males (55%) sustained more of the violent injuries than females.

Motor vehicle crashes

Two per cent of the respondents reported that someone in their household had been injured in a motor vehicle crash, resulting in a total of 128 injuries. Twenty one per cent of the injured persons were admitted overnight to hospital. Table 2 shows that young adults aged 15–24 had the highest rate of injury caused by motor vehicle crashes (1824 per 100 000), followed by adults aged 25–64 (913 per 100 000). Males (57%) accounted for more motor vehicle injuries than females.

Cutting and piercing

Two per cent of the respondents reported that someone in their household had suffered a cutting or piercing injury, resulting in a total of 117 injuries. Seven per cent of the injuries required overnight hospitalisation. More than half (57%) of the injuries occurred at home; 27% occurred at work; and 15% occurred at an unspecified venue. As shown in Table 2, adults aged 25–64 had the highest rate of cutting and piercing injury (966 per 100 000), followed by older people aged 65+ (893 per 100 000). Males accounted for the majority (62%) of these injuries.

Unintentional poisoning

Less than one per cent of the respondents reported that someone in their household had been unintentionally poisoned. A total of 50 poisoning episodes were recorded and 18% of these cases required overnight hospitalisation. Just over half (52%) of the poisonings occurred at home; 18% occurred at work; and 26% occurred at an unspecified venue. Table 2 shows that pre-school children had the highest rate of unintentional poisoning (473 per 100 000), followed by young adults aged 15–24 (421 per 100 000). Males accounted for the majority (64%) of the poisonings.

Other injuries

Seven per cent of the respondents reported that someone in their household had suffered another type of injury. A total of 392 ‘other’ injuries were recorded, and included incidents such as burns, animal bites, being struck by a person or object, overexertion, foreign bodies in the eye, and repetitive strain injuries. Six per cent of the injuries required overnight hospitalisation. Forty five per cent of the injuries occurred at home; 30% occurred at work; and 20% occurred at an unspecified venue. Table 2 shows that older people aged 65+ had the highest rate of ‘other’ injuries (3711 per 100 000), followed by adults aged 25–64 (3017 per 100 000). Males accounted for the majority (56%) of these other injuries.

Discussion

Injury is a public health problem in New Zealand and this study provides previously unknown information on the incidence and nature of injuries at the lower end of the injury severity pyramid. While ACC data provide a measure of injury incidence, detailed information is only available for entitlement claims, which are likely to under represent children, the unemployed, homemakers and the elderly.[2] Findings from the current study extrapolated to the New Zealand population would indicate that each day 2500 people sustain an injury serious enough to require medical treatment by a doctor. This study also found that only 8% of the reported injuries resulted in overnight hospitalisation, indicating that the total burden of injury in New Zealand is much larger than estimated by routinely collected injury hospitalisation data. As reflected by hospital discharge data,[7] this study found that people were most likely to be hospitalised for motor vehicle crashes (21%), falls (10%) and violence (10%).

It should be noted that this survey was not a random sample of all New Zealanders, and is representative of the regions surveyed only. Comparisons of the sample demographics with Census data indicated that the households sampled were representative of the regions surveyed. It is also possible that the data were subject to recall bias. Several other studies have found a decline in recall of injury events when comparing a 12-month recall period to shorter periods, thereby resulting in an underestimate of the annual injury rate.[8–10] To improve recall in this study, the interviewers read out a list of different injury mechanisms and this may have helped respondents to remember a greater number of injuries. The respondents may also have been less likely to recall less medically serious incidents of injury,[8–10] and injuries due to physical violence may have been under reported due to the sensitive nature and/or legal implications of such incidents. Whilst it is acknowledged that the question on physical violence did not specifically include the word “intentional”, pilot testing demonstrated that respondents associated this question with injury intentionally inflicted by another person. A limitation of this study is that respondents may not have been aware of all injury incidents for their household.

As with NZHIS hospital discharge data,[7] the leading cause of injury reported in this study was falls (33%). However, the other leading causes of injury – sports and lifting of objects – differed from the second and third leading causes of injury hospitalisation – motor vehicle crashes and cutting and piercing.[7] One explanation for these differences relates to the E codes used within the hospital coding system, as the ICD-9 coding system does not easily identify sports-related injuries.[11] It is also likely that the differences in ranking are due to the fact that while sporting and lifting injuries appear to be the most common self-reported injuries, they also tend to be less severe (5% and 4% were hospitalised respectively), compared to injury events such as motor vehicle crashes (21% hospitalised).

The finding that 29% of the injuries occurred at home indicates a need for health promotion programmes that emphasise the importance of safety in the home. Older people and parents of pre-school children would be particularly suitable target groups for such initiatives, given that these age groups are most likely to be injured at home. Since these age groups may have high levels of contact with general practitioners, GP consultation could provide an opportunity for counselling on injury prevention practices.

Sports injuries accounted for more than one quarter of all injuries, indicating a need for ongoing targeting of people involved in sports, especially those in the 15–24 age group. Sixteen per cent of the injuries occurred at work. Injuries caused by lifting, and cutting and piercing often occurred as the result of work-related activities and more than one third of injuries in the 25–64 age group occurred in the workplace. These findings highlight the need for continued effort to ensure safety in workplace environments. It is important to acknowledge that while females were more likely to be injured at home, it was not ascertained whether these women were in paid work at the time of their injury. However, from an injury prevention perspective, the home is an important target regardless of activity.

It was of some concern that pre-school children had the second highest rate of injury inflicted by another person. This reinforces the need to support current efforts to increase the early identification and management of at risk children.[12,13] It was also surprising to find that 14% of injuries caused by physical violence occurred in the workplace. Internationally, workplace violence has been identified as an important public health issue.[14] However, in New Zealand this issue has received little attention from policy makers, employer organisations, unions or the media. Further investigation is needed to ascertain the circumstances surrounding these events, so that appropriate preventive strategies can be developed.

The findings from this study highlight the need for injury prevention activities to continue to occur in general practice. These could take the form of one-to-one discussion with patients regarding the prevention of further injuries, as well as dissemination of injury prevention pamphlets in surgery waiting rooms.

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Privacy or life: how do women find out about screening mammography services?

Margaret Brunton and David R Thomas

Abstract

Aim This study investigated how women found out about the Waikato pilot breast cancer screening programme and what influenced them to participate.

Methods A sample of 1085 women who had undergone screening mammography were sent survey questionnaires in 1999 to investigate how they had found out about the programme and what had influenced them to participate. Data from 599 completed questionnaires were analysed.

Results The most common external sources of information about the availability of screening mammography were: letters of invitation (42%), family doctors (42%), television (32%), and newspapers (27%). The most important external sources of influence for attending screening were: letter of invitation (28%), and knowing someone with breast cancer (27%).

Conclusions Letters of invitation from the programme provide an important source of influence for attending screening mammography clinics. Up-to-date databases are needed to ensure that women receive information from the screening programme. There was an inconsistency between the government policy to provide a population-based screening programme and the operation of the Privacy Act 1993, which prevents use of other sources of information to update addresses for population groups most likely to benefit from screening. The high 'gone, no address' rate reduced ongoing screening among women who depend on receiving regular recall notices.

The incidence of breast cancer has been increasing throughout the industrialised world, 'even when earlier diagnosis and better cancer registration are discounted'.[1] New Zealand is no exception, and past trends indicate that rates of breast cancer may continue to increase.[2] Randomised controlled studies in other countries, such as that undertaken in 1963 by the New York Health Insurance Plan[3] and the 1977 two-county trial in Sweden,[4] have shown that screening mammography significantly reduces mortality from breast cancer in women aged 50 and older.

It has been estimated that at least 70% of the eligible population need to attend screening mammography programmes for the cost and mortality savings to be worthwhile.[5–7] In order to attain the desired criteria of accessibility, acceptability and efficiency, women need to be made aware of, and participate in, the programme. However, if women do not know about the screening programme they cannot present for screening, and thus breast cancer is unlikely to be detected early. The more effective and efficient means a programme has at its disposal to communicate its

presence to eligible women, the better. To determine how women found out about the breast screening programme and what influenced them to participate, women who had attended the third round of the Waikato pilot breast cancer screening programme were identified, and a stratified sample selected for a self-completion questionnaire survey.

Methods

Following approval from the Waikato Ethics Committee, the research commenced with a survey in Phase 1, designed to explore various influences on the communication process related to screening mammography. The questionnaire included both closed and open-ended questions to allow women to contribute feedback about their experience of the programme. Following pre-testing among 60 women, the survey questionnaire was distributed to 1085 women in October 1999. Completed questionnaires were received from 599 women. In Phase 2, the issues arising from the survey were explored in five focus groups (with 41 women in total) and with three women in individual interviews.

Sample selection

The sampling frame was the database of women who had participated in the third round of the Waikato pilot programme. As part of a national pilot, participants had given consent to participate in a survey evaluating the programme. However, this source also eliminated those eligible women who had not attended the pilot programme from the study. There were 14 392 women between 50 and 64 years old in the Waikato breast screening database in August 1999 who could have been selected to participate in this research. To protect the anonymity of the women on the database, the researcher was not given access to names and addresses of participants. Accordingly, the sample selection was obtained by request from the information technology staff of the breast screening programme.

To obtain data that included known groups within the population, a sample of 1100 women stratified by region, age and ethnic group, was selected from the database. Maori were oversampled to ensure adequate numbers, so specific ethnic samples were drawn to represent 35% of Maori and 4% of the NZ European groups respectively on the database. All women of ethnic groups other than NZ European and Maori were selected. Next, programme staff eliminated names without a current address, and a total of 1085 questionnaires were distributed in October 1999. A reminder letter was sent to those who did not respond within five weeks. The numbers of women sent questionnaires for each of the ethnic groups was: Maori 370, NZ European 505, Pacific 71, Asian 64, Indian 64 and Other 11. Due to the limited number of Pacific women on the programme database, questionnaires were hand delivered to them by the health workers where possible, and collected on completion.

In the initial mailing group of 1085, 13 people were found to be not available/suitable and were removed from the list (eight deceased, four living overseas, one male). Forty eight letters returned with the addressee listed as ‘gone, no address’ (GNA) and were replaced with 48 names randomly selected from the database. Subsequently, another 21 GNA letters were returned. Excluding the 21 GNA addressees and the 13 not available, the net number of questionnaires distributed was 1051. A total of 611 completed questionnaires were received (response rate 58%, 611/1051). Of these 611 women, 599 were in the sample frame, aged between 50 and 64 years. Twelve of the completed questionnaires were answered by telephone, as some women were not confident with written responses and requested assistance.

Sample profile

The sample of 599 included women across three specific age groups (50–54 = 38%, 55–59 = 35%, 60–64 = 27%) and area of residence (city = 32%, rural town = 53%, country = 15%). Many of the women attended the Waikato Hospital clinic (52%); the mobile van was used by 48%. Most had attended secondary school (62%) and a smaller proportion had attended university (12%) or a polytechnic (7%). Ethnic groups represented were: NZ European 348 (57%), Maori 155 (25%), Pacific 51 (8.5%), Asian 42 (7%) and Other 15 (2.5%). The Maori group included those who identified themselves as both Maori and another ethnic group.

Analysis

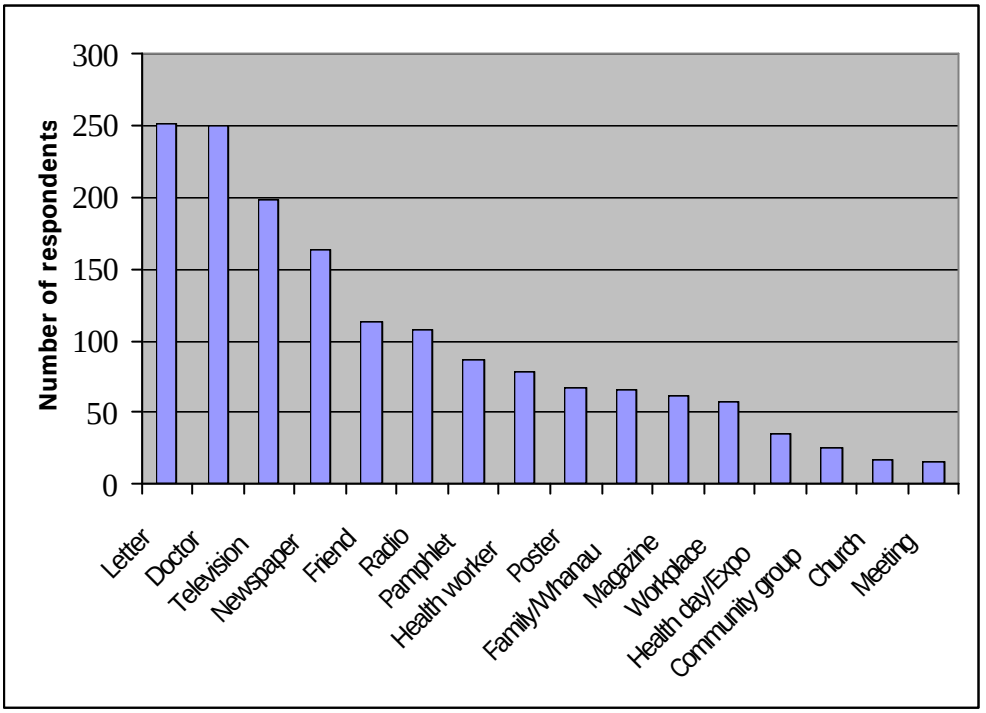
The data were analysed using SPSS (Release 8, 1997). Chi square was used to test the significance of associations between demographic characteristics and other variables. The 15 women categorised as ‘Other’ were not included in the analyses examining differences among ethnic groups because of their small number.

Results

Sources of information

To provide some indication of the 'visibility' of the various approaches used to communicate screening mammography to the eligible population, the questionnaire asked respondents how they obtained information about the screening programme. Their responses are shown in Figure 1. Most women reported multiple sources of information, so the frequencies for the categories shown in Figure 1 are not mutually exclusive.

Figure 1. How respondents obtained information about the programme.
(Numbers exceed 599 as respondents could nominate more than one category)



Letters of invitation from the programme and family doctors were the most common sources of information. When women registered on the Waikato database, they were sent a letter of invitation to participate in the screening programme. Ideally, this invitation was coordinated with a letter from their family doctors. Forty two per cent of women (251) heard about the programme through letters of invitation and 42% (249) from their doctors. The next most common sources of information were television (33%, 198) and newspapers (27%, 165). A higher proportion of older women (52% of women aged between 60 and 64 years) obtained information about the programme from the letter of invitation, than younger women (36% of those aged 50–54 years). The differences in sources of information by age (shown in Table 1) were significant ($p = 0.003$).

Table 1. Sources of information and influence by age

	Age		
	50–54 years	**55–59 years**	**60–64 years**
Number of respondents	231	208	160
% receiving information from letter of invitation	36%	38%	52%
% influenced to participate by letter of invitation	21%	30%	36%
% receiving information from health workers	16%	12%	10%
% influenced to participate by health workers	17%	11%	8%

Influence of ethnicity

All groups reported receiving information about screening mammography from their doctors (Maori = 41%, NZ European =39%, Pacific = 45%, Asian = 27%). Pacific women (59%) and Maori women (21%) were more likely to find out about screening from health workers (those people involved in health promotion other than doctors) than Asian women (9%) or NZ European women (3%) ($p < 0.0005$, see Table 2). Pacific women were more likely to report personal contact sources of information, such as family (35%), friends (22%), church (20%) and health days (16%), compared with other ethnic groups. Pacific women were also more likely to have obtained information from the radio (33%).

Table 2. Sources of information and influence by ethnicity

	Ethinicity			
	NZ Maori	**NZ European**	**Pacific**	**Asian**
Number of respondents	155	348	51	42
% receiving information from letter of invitation	38%	44%	31%	40%
% influenced by letter of invitation	28%	32%	6%	29%
% receiving information from health workers	21%	3%	59%	10%
% influenced to participate by health workers	22%	2%	61%	7%
% who made own decision about participation	28%	38%	18%	31%

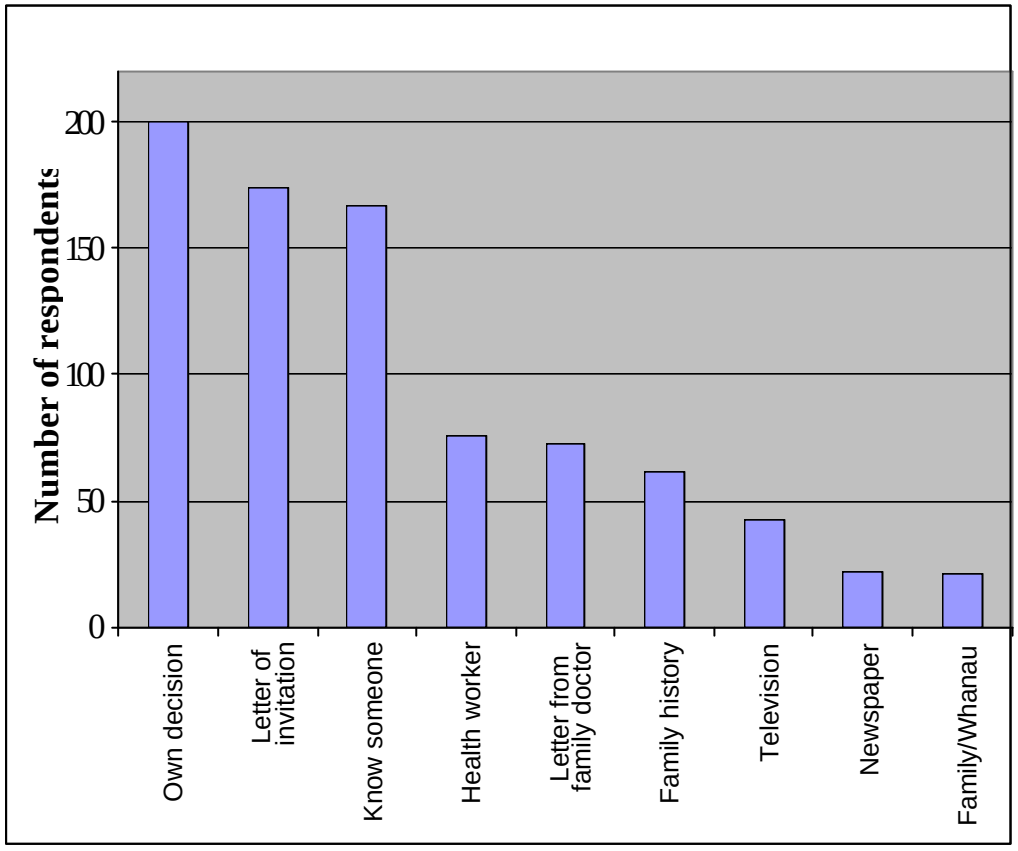
* Excluding ‘Other’ ethnic group (15 respondents)

Maori women reported that, in addition to the letter of invitation (38%) and health workers (21%), they also relied on family (20%) and friends (17%) as sources of information. For Asian and NZ European women, common sources of information besides the letter of invitation were newspapers (Asian = 33%, NZ European = 30%) and magazines (Asian 14%).

Sources of influence

Although the above methods demonstrated levels of programme visibility to women in the community, it was also important to identify the sources of communication women perceived to be **influential** in helping them to make a decision about participating in screening mammography. The most common influences reported are shown in Figure 2. During the pre-test phase of the questionnaire development, most women wished to nominate more than one source of influence. Accordingly, in the main survey they were invited to nominate more than one source of influence.

Figure 2. Sources of influence that encouraged participation in programme.
(Numbers exceed 599 as respondents could nominate more than one category)



Two hundred women (33%) believed they had made their own decision to attend screening irrespective of external influences. Of these, 115 reported this as a **sole** category of influence on their decision to participate in the breast screening programme. A further 85 respondents nominated between one and seven other influences as well as making their "own decision". The most commonly nominated other category of influence was "know someone with breast cancer" (6%, 37). NZ European women (38%) were more likely ($p = 0.009$) to report making their own decision about having a mammogram than other ethnic groups (see Table 2). Letters of invitation (29%, 174) were the most common external source of influence in the programme. These letters were more than twice as influential as letters from family

doctors (12%) and information on television (7%). There was significant variation between age groups, with women between 60 and 64 years of age more likely to respond to letters (36%) than women aged 50–54 years (21%, p = 0.006, see Table 1). Responses to the letter of invitation also varied among ethnic groups, with 32% of NZ European women responding to the letter, compared with 6% of Pacific women (p = 0.002, see Table 2). Twenty eight per cent of respondents reported that knowing someone with breast cancer had encouraged them to undergo screening mammography.

Although health workers influenced only 12% of all women to participate in screening mammography, health workers were significantly more influential (p < 0.0005) for Pacific (61%) and Maori women (22%), compared with Asian (7%) and NZ European women (2%). The pilot programme employed two Maori health workers through Tainui to promote the breast and cervical screening programmes. Mammography staff were responsible for promoting breast cancer screening to NZ European, Pacific and Asian women during this period. Twenty two per cent of Maori and Pacific women commented in the survey about their reliance on the input of health workers for decision making as well as for support through the process. The influence of health workers was also higher among younger women (17% among those aged 50–54 years) compared with older women (8% among those aged 60–64 years, p = 0.019).

Discussion

Women must participate in regular screening mammography if they are to benefit.[8] Given that 70% of the eligible population need to participate to ensure benefits in both cost and mortality are achieved, the programme must be able to communicate its presence to the target audience in the most efficient and effective way possible. This study provides information about the women who have chosen to participate in the pilot programme only. Obtaining a random sample of women who had participated in the third round of screening (between 1 November 1995 and 23 April 1998) from the breast screening database provided a sample of women who had been exposed to the communication from the breast screening programme. It did not include those who had not attended. As only those women registered on the database were included, the results may not be generalisable to Waikato women in general. However, a comparative analysis of ‘early’ and ‘late’ responders (pre- and post-reminder letter) in this study indicated a lack of significant differences. There are a number of eligible women in the Waikato who have not been identified, who have been identified but not invited to the programme, or who have been identified and have declined screening. Currently, BreastScreen Aotearoa has 54% coverage in the first round of screening. Of the 46% of eligible women who have not attended, there is no way of knowing whether they have not been identified, have been identified and not invited, or have declined screening or decided to undergo mammography in the private sector. One of the key criteria for the success of any population-based screening mammography programme is its ability to communicate its presence to eligible women. If a significant number of the target audience are not aware of a screening programme, they are unlikely to participate.

The health reforms introduced in 1991 encouraged primary health care services such as screening mammography. The breast screening programme presents the option of

regular screening mammography to eligible women in the community, and encourages them to register in addition to those women being directed towards the services by their doctors. In the present study, 64% of all women indicated that they wished to confer with their doctors about future health care decisions, and 50% consulted with their family doctor about the programme. However, the willingness of the remaining 50% to make that decision independently of their family doctors emphasised the importance of effectively communicating the presence of the programme.

Research in several countries (such as New Zealand,[9,10] Britain,[11] Australia,[12] Israel[13] and America[14–16]) has identified general practitioners as an important source of information for women who participate in screening mammography. The fact that half of the women who responded to this survey entered the screening programme without encouragement from their general practitioner, gave rise to the question of whether non attenders either did not receive information or encouragement from their family doctor, or received information, encouragement, or both, and chose not to respond. In New Zealand, GPs' letters ideally coordinate with those of the breast cancer screening programme. In this research, a review of coded registration forms distributed to GPs in the South Waikato towns of Mangakino, Tokoroa and Rotorua by the breast screening programme in late 1999 revealed a 7% response rate, assuming that all were distributed. However, due to the inadequacies of the information support system, it is not possible to identify how many women in the designated areas chose to respond by telephone. Because of this, the outcomes were inconclusive. In previous research, letters from a screening mammography programme were just as effective as letters from doctors in encouraging women to take part.[17] In the present study, 42% of respondents received letters about breast screening from their doctor. However, letters of recommendation from doctors were less influential (12%) than letters of invitation from the programme (29%), which is consistent with the results of an earlier Australian study.[18]

With the increasing visibility of the national programme in the media, it could be argued that women can obtain information from sources such as television or magazines and do not require direct targetting. In this study, although 64% of respondents reported they had seen breast screening advertisements on television recently, only 33% nominated television as a source of information, and only 7% of respondents had been influenced by television promotion to participate. Although exposure to sources of information may provide information about breast screening, it does not necessarily encourage participation. Furthermore, a British study argued that breast cancer is such a 'highly emotive, deeply threatening topic' that using mass media channels to promote screening mammography may heighten anxiety in some women unless it is combined with other more personal methods of communication.[19] Another recent British study has revealed that this anxiety can be so acute that some women avoid media information altogether.[20]

While sources of information such as television have some influence, letters of invitation from screening programmes have been consistently demonstrated as an efficient means of recruitment. An Australian study found that, in contrast to community promotional strategies, letters of invitation from the programme provided the most effective and efficient means of recruitment to screening mammography programmes.[21]

Regular, ongoing screening is required if mammography is to be an effective means of lowering mortality from breast cancer. Thus reminders are an important part of the programme. Over half of the study participants were working. It was commonly reported that they were "busy and relied on prompting" for health checks, especially as they occurred only once every two years. Reliance on an effective system of recall was shown in one study, which demonstrated that reminder letters from a screening programme can double the likelihood of participation.[18] It has also been reported that reminder telephone calls,[22] or a combination of both letters and telephone calls,[23] are likely to encourage participation.

Women in this study relied on the programme to let them know when they were due for re-screening. Without access to current contact details, staff were frequently unable to provide timely, appropriate information for women. Respondents often wrote of their reliance on local papers (27%) and radio (18%) as a source of information about the timing of the mobile van visits to their areas. They expressed their "disappointment" that they did not receive reminders, and perceived that the reminder service was "unreliable", and sometimes reported feeling "lost in the system". The difficulty in achieving ongoing participation through lack of current, accurate records was shown by 69 (12%) letters returned as 'gone, no address' during this survey. This indicates that at least 12% of women sent recall notices are not likely to receive them. Access to a current, population-based database to ensure that contact details for women are as accurate as possible is necessary if the national screening mammography programme is to achieve cost and mortality savings. Currently, the BreastScreen Aotearoa programme has no population database from which to send invitations. The three potential databases of the electoral roll, GP records and NHI figures, are inaccessible because of privacy issues. Only some of the GP databases are available. Thus, there is no way of knowing how many eligible women were not reached, not asked, declined, and for what reasons.

The effectiveness of a national database has been demonstrated in other countries. In Sweden, where a national population register is used to identify eligible women, a participation rate of between 83% and 89% has been reported.[24] Although identification of the eligible population for the Waikato pilot was achieved primarily through access to electoral rolls, the Privacy Act of 1993 precluded this source of identification for the national BreastScreen Aotearoa programme. The result is an anomaly in a government policy that provides a population-based screening programme designed to be as barrier-free as possible for women, but then creates a barrier for that programme (through the 1993 Privacy Act), preventing use of the most effective means of identifying the target population. Government has a responsibility to ensure that legislation does not directly contravene the successful attainment of goals it has put in place for population-based screening programmes.

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Do natural health food stores require regulation?

Bridget Healy, Carl Burgess, Robert Siebers, Richard Beasley, Mark Weatherall and Shaun Holt

Abstract

Aim To compare advice provided by health food stores (HFS) and pharmacies in relation to medical conditions and assess the need for regulation of HFS.

Methods We assessed the advice provided by 26 health food stores (HFS) and 26 pharmacies to an individual presenting with symptoms suggestive of moderate to severe asthma who had not seen a general practitioner.

Results The advice provided by the two stores differed markedly. 22/26 pharmacy staff diagnosed asthma/probable asthma, whereas only 15/26 HFS staff reached the same conclusion. 92.3% of pharmacy staff compared to 34.6% of HFS staff referred the investigator to a doctor; 5 HFS advised the investigator against seeing a doctor. A wide variety of remedies were recommended by the HFS, none of which are known to be beneficial in the treatment of asthma.

Conclusion HFS promoting herbal products for medical conditions should be regulated in a similar fashion to shops that dispense pharmaceutical products.

Herbal and other complementary medicines are increasingly being used to treat a variety of medical conditions.[1,2] In New Zealand, these compounds are available through health food stores (HFS) and pharmacies. Staff in HFS have the potential to provide valuable advice and offer treatment for minor medical conditions. However, they also have the potential to cause harm if their advice is incorrect, inappropriate, or delays treatment of proven benefit.[3] In contrast to pharmacies, where at least one qualified pharmacist is present at all times, staff in HFS are not required to hold any qualifications in pharmacology or nutrition, nor are there any regulations regarding their practice. Herbal remedies are not without risk; therefore advice regarding their use is important.[4]

The few studies that have investigated advice from HFS have been conflicting, both in regard to consistency in advice between stores and as to whether the advice was beneficial or harmful.[5–8] In general, however, the advice given has been found wanting, with poor recognition of the severity of an illness.[7]

This study compared the advice from HFS assistants with that of pharmacy assistants given to an individual presenting with symptoms suggestive of moderate to severe asthma who should be referred to a medical practitioner.

Methods

26 HFS and 26 pharmacies were visited by a 21-year-old researcher. She gave a two-month history of wheezing following a chest infection. She had developed a night-time cough and recurrent wheezing,

which was relieved with the use of her friend's blue asthma inhaler (salbutamol). The inhaler was shown to the assistants. Additional information was provided if requested: she was using the inhaler up to 20 times a day; she had not visited a doctor; the cough was dry and associated with chest tightness; she was becoming breathless and wheezy on exercise.
All details of the consultation, including products recommended or purchased, were recorded. The Medline, Embase and Amed databases were searched for evidence of the efficacy of these recommended products. The study was approved by the Wellington Ethics Committee.

Results

The additional information requested in the two types of shops differed in some respects. Although both groups asked about a previous history of asthma and other respiratory symptoms, HFS staff enquired more about diet and other allergies (Table 1). The diagnosis and advice proffered by the staff in the different stores is shown in Table 2. Pharmacy staff made a diagnosis of asthma/probable asthma more frequently than HFS staff (22 vs 15). Pharmacy assistants referred the researcher to the pharmacist on 11 occasions, who in turn recommended referral to a general practitioner. Immediate referral to a doctor, or referral if symptoms persisted, was recommended by 92.3% of pharmacies, compared with only 34.6% of HFS ($p = 0.0015$, McNemar's test). An unexpected finding was that five HFS assistants advised against seeing a doctor.

Table 1: Information requested by assistants

Information requested	Health food stores		Pharmacies	
	n	%	n	%
History of asthma	**19**	73.1	**25**	96.2
Cough with/out mucus	**19**	73.1	**22**	84.6
Prior medical advice obtained	**13**	50	**23**	88.5
Allergy	**13**	50	**7**	26.9
Food tolerance/dietary questions	**10**	38.5	**0**	0
Shortness of breath	**9**	34.6	**10**	38.5
Chest tightness	**6**	23.1	**10**	38.5
Smoking status	**2**	7.7	**4**	15.4

A wide variety of products were sold from the HFS (Table 3). Many of these were products containing a number of ingredients. Overall, echinacea was the most frequently recommended, either alone or as a combination product. Review of the literature failed to discover evidence to support the use of these agents in asthma. Five HFS did not recommend any compound to the researcher. Nine pharmacies sold a choline theophyllinate preparation (Broncelix), one salbutamol tablets, one bromhexine and one a cough mixture.

Table 2. Diagnosis and advice from health food stores and pharmacies

	Health food stores		Pharmacies	
	n	%	n	%
Diagnosis				
Asthma/probable asthma	**15**	57.7	**22**	84.6
Other diagnoses*	**6**	23.1	**0**	0
No diagnosis	**5**	19.2	**4**	15.4
Advice				
Immediate referral to doctor	**6**	23.1	**18**	69.2
Referral to doctor if symptoms persist	**2**	7.7	**6**	23.1
Referral to herbalist/naturopath	**3**	11.5	**0**	0
Referral to doctor/naturopath	**1**	3.8	**0**	0
Advised against seeing doctor	**5**	19.2	**0**	0
No onward referral	**12**	46.2	**2**	7.7

*Lung infection, food allergy, hay fever

Table 3. Products sold/recommended by HFS

Products	Ingredients
Adults Cough	Thyme, horehound, lavender, echinacea, peppermint
Convita Fortacold	Manuka and tawari honey, apple cider vinegar, vitamin C, propolis, echinacea, Irish moss, peppermint oil, eucalyptus, clover leaf oil, tea tree oil, fennel, fenugreek
Olive-leaf extract	Oleuroperin
Breathe-eeze	Elecampane, grindelia, thyme
Air Power	Glycerol gualacolate, fenugreek, marshmallow root, para-amino benzoic acid, mullein leaf
Horseradish, garlic and histidine tablets	Includes betacarotene, ascorbic acid, thyme, fenugreek and horseradish, garlic and histidine
Propolis plus	Echinacea and garlic
Echinacea and vitamin C tablets	
Garlic, echinacea and vitamin C	
Lung Elixir Syrup	Unknown
Emphysemol	Unknown

Discussion

The difference in advice provided by the HFS staff and the pharmacy staff was marked, with the pharmacy staff recognising the severity of our researcher's asthma. This was not the case with the majority of HFS staff. These findings are similar to those of Vickers et al,[7] who, using the scenario of a client presenting to HFS with frequent severe headaches, demonstrated that only 24% of the 29 shops visited recommended referral to a medical practitioner. Provision of inadequate advice from HFS, with consequent delay in the use of appropriate therapy, has been eluded to previously[3] and continues to be of concern both in New Zealand and elsewhere.[4–7] At present, the New Zealand Medicines and Medical Devices Safety Authority is seeking submissions on the future regulation of therapeutic products in New Zealand and Australia. This could lead to HFS being better regulated, particularly in relation to compounds for which therapeutic claims have been made. It is also likely that such regulation would require HFS staff to undergo some form of training, which should improve advice given.

Of major concern in the present study was that five HFS assistants positively discouraged our researcher from seeking medical advice. Reasons given included avoiding the prescription of antibiotics or corticosteroids, both of which may have numerous side effects. This advice was offered despite the fact that inhaled corticosteroids are the cornerstone of treatment for all but the mildest forms of asthma.[9]

A number of herbal products were recommended, however we were unable to find any references supporting their use in asthma. Of more concern was the frequency of recommendation to use echinacea. A recent report from Australia has documented that this substance is associated with asthma and other allergic responses, such as anaphylaxis and angio-oedema.[10] One can understand the difficulty that asthmatic patients would have in differentiating symptoms due to their underlying disease from those caused by substances containing echinacea, if this product were recommended. Plainly, closer regulation of this substance and other herbal products is required.

We recommend that HFS promoting herbal products for medical conditions be regulated in a similar way to medical practitioners and pharmacists that prescribe and/or dispense pharmaceutical products.

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To skin prick test or not to skin prick test – this is the question

Isobel R Martin and Julian Crane

Asthma is a major public health problem in the Western world. New Zealand has high prevalence, high morbidity and, until recently, high mortality relative to many other countries.[1] In 1996, there was a total of 28 379 deaths, with 134 (0.47%) registered as due to asthma. Of these, 22 people were under 50 years old, and 11 were aged 5–34.[2]

New Zealand has one of the highest hospital admission rates for asthma in the Western world and asthma is one of the most common causes of child admissions to hospital in this country.[3] By international standards, prevalence of asthma symptoms among New Zealand children is high[4] and previous studies have shown that up to 24–38% of children have current wheezing.[5–9] Approximately 9% of the New Zealand adult population takes regular medication to control asthma symptoms.[10]

This results in a considerable economic and social burden, both to the individuals with asthma and to society in terms of direct, indirect and intangible costs.[11–14] The cost of pharmaceuticals alone is estimated to be approximately $50 million per annum.[15] The cost of primary care has been estimated at $14.8 million and the cost of specialist services $0.77million.[16] Emergency Department and hospital admission costs are estimated to be $18.6 million.[16] The financial cost to individuals has been calculated at $25.6 million per annum.[15] Furthermore, the indirect cost of days off work resulting in loss of productivity has been estimated at $105 million,[16] and while it is not possible to estimate the indirect cost of time off school, the consequences are enormous, with 550 000 school days being lost each year due to asthma.[17]

While many factors are implicated in the cause of asthma, including both individual and environmental factors and subsequent interactions, so too the control and management of asthma is multifactorial. Factors involved include not only biological mechanisms, such as bronchial hyper-responsiveness, but also psychosocial, medical, environmental and self-management issues.[18] The last decade has seen the development of numerous guidelines and management protocols for asthma.[19–21] These have provided details on diagnosis, treatment and management, including self management. They recommend the assessment of allergic status and advocate allergen avoidance as an integral part of the management of allergic asthma.

Allergen avoidance techniques are enjoying increasing media attention and many patients are confused.[22] Not only patients, but also many health professionals, are unclear about their value. Such confusion was seriously compounded by the Cochrane review in 1998, which suggested that avoidance measures for house dust mite allergen in asthma showed no benefit.[23] This review was widely criticised at the time, both for inadequate sample size in the meta analysis and for including a large number of negative studies in which no change in reservoir allergen levels had been documented. Muncer[24] pointed out that the entire meta analysis (113 treatment subjects in total) would be unable to detect even a medium effect size. Platts-Mills[25] likened this to

reporting an analysis of trials of inhaled corticosteroids in asthma in which there was no evidence that subjects had received them. He went on to show that, in four of the five trials in which sustained reduction in mite allergen had been achieved for ≥ six months, highly significant improvements in the active groups resulted. The conclusions of the Cochrane review were clearly incorrect and illustrate the problems associated with such reviews. The truth is that in the small number of studies that reduce allergen, clinical benefit is to be expected. Larger trials are clearly needed, and in the meantime there is reason to recommend allergen avoidance, at least for house dust mite exposure. Furthermore, studies regarding the residence of house dust mite sensitive asthmatics in alpine regions (where there is no house dust mite exposure), show that asthma symptoms, airway hyper-responsiveness and sputum eosinophils are significantly reduced following ten weeks at altitude in patients already receiving high-dose inhaled corticosteroids and long-acting beta agonists.[26–28]

Anecdotal evidence suggests that some families are undertaking extensive allergen avoidance strategies without first identifying their specific allergies. It is widely believed that asthmatic patients know their specific allergies by experience, but many patients have only partial knowledge and some have no awareness of any specific allergic triggers. However, patients are frequently advised to instigate allergen avoidance strategies by allied health professionals, friends and/or vacuum cleaner salesmen, without prior identification of any specific allergic sensitisation. Clearly, it would be helpful for patients to know to what they are allergic, so that they can, if possible, undertake simple and appropriate avoidance procedures. The simplest method of determining atopy and specific allergic sensitivity is by skin prick testing.

Utility of skin prick testing

There appears to be some diversity of opinion among health professionals regarding the usefulness of skin prick testing for asthmatic patients. A recent pilot study indicated that secondary care health professionals believe that skin prick testing is helpful only in “difficult to manage” asthma, and that primary health care professionals rarely refer their patients for skin prick testing unless requested by the patient.[29] The principal purpose of establishing specific IgE mediated sensitivities by skin prick testing for the majority of asthmatic patients is to inform them about specific avoidance, such as for pets, most notably cat sensitivity, and to guide them regarding house dust mite avoidance. However, recent characterisation of partially-independent phenotypes of wheezing illness in early childhood, and the demonstration of a lack of effect of inhaled corticosteroids in chronic obstructive pulmonary disease (COPD), mean that the assessment of atopy in young children and in some patients with COPD should be re-examined.

Martinez et al have defined a number of wheezing syndromes in young children from which two stand out.[30] The first is a large group of children (20% in the study, but possibly more in New Zealand), who present with wheezing associated with viral upper respiratory tract infections in the first three years of life but whose symptoms disappear in later childhood. The second is a group (10% in the study, but we suspect significantly higher in New Zealand), who also wheeze during viral infections but exhibit the features of allergic asthma and are much more likely to be atopic.[31] In these children, symptoms of asthma are more likely to persist into later childhood and adult life. Our contention is that determining atopic status by skin prick testing (particularly for environmental allergens such as house dust mite, cat, moulds and

grasses), in these children would provide useful prognostic information regarding future persistence of symptoms, in addition to suggesting avoidance practices for house dust mite allergy.

Towards the other end of the age spectrum are adults in whom the distinction between asthma and COPD is unclear, and assessment of atopic status may have value in helping to distinguish an asthmatic component to airway obstruction and help inform decisions about the use of inhaled corticosteroids.[32] In a recent study of older patients, 75% with late onset asthma were found to be atopic, with radioallergosorbent (RAST) test scores and skin test reactions greater than a comparison group of younger atopic asthmatics.[33] Lastly, and perhaps most importantly, evidence is beginning to accumulate that IgE sensitivity to various environmental allergens may be important in the development of COPD, regardless of previous symptoms or asthmatic status. Sunyer et al, in examining data from the Spanish centres in the European Community Respiratory Health Survey, noted that a variety of allergens (cat, alternaria and olive) were independently related to reductions in FEV1 (forced expiratory volume in one second) both in smokers and non smokers, and were independent of symptoms or a prior history of asthma.[34] These results suggest that sensitisation to common allergens are important independent determinants of lung function and may operate both in conjunction with and independently of smoking.

Thus there are clearly a number of reasons for examining atopic status in children and adults presenting with obstructive airway symptoms, to help inform diagnosis, prognosis and response to treatment.

Feasibility of skin prick testing

Skin prick testing for allergy is a simple procedure, but few general practices in New Zealand offer this service to their patients. Martin and Hope found that, of 34 patients skin prick tested, only four (12%) had their test performed in general practice.[29] It is not known if the tests were performed in New Zealand or overseas.

However, work in the United Kingdom has suggested that skin prick testing in primary care is feasible, and that the results can significantly reduce the number of allergen avoidance interventions offered to patients who are unlikely to benefit.[35]

It is unlikely that identification of specific sensitisation could be harmful for the patient. Certainly, it may be difficult to avoid some allergens (eg pollen), but in other cases there may be simple things that the patient can do to alleviate symptoms. For example, if a patient is allergic to house dust mites, it might be unreasonable to expect rigorous house dust mite avoidance measures (such as increased vacuuming, removal of carpets etc) to be undertaken. However, simple measures, such as the application of an occlusive cover to the pillow, may greatly alleviate the symptoms of night wakening. Furthermore, if it is demonstrated that a patient is not sensitive to house dust mite, they have a sure retort for over-zealous vacuum cleaner salesmen!

One of the concerns of some health professionals appears to centre round the worry that their patients may become obsessive in their allergen avoidance measures. While this is a potential problem, discussion of this issue should be part of patient education while the health professional and the patient work together to decide what measures may be useful and practical. Obsessive allergen avoidance measures can reduce

quality of life but, conversely, alleviation of symptoms clearly improves quality of life.[22]

Safety of skin prick testing

It is practical and feasible to skin prick test patients in a general practice setting.[35] While there are reports of systemic reactions to food allergy testing,[36–37] reactions to environmental allergens are extremely rare, with only one published case study documenting a systemic reaction that required antihistamines, bronchodilators and steroids.[38] Isolated late reactions (ILR) to cockroach have been documented using intradermal skin testing, but this study showed no ILR with skin prick testing.[39]

New Zealand evidence suggests that the most prevalent allergic sensitisations are house dust mite, cat, grasses, mould and pollen, and we believe that these should be included in an allergic screen for every asthmatic patient.[40,41]

Identification of the allergic status of patients with asthma by skin prick testing is simple, inexpensive and non invasive, and can provide useful prognostic and management information.

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This file was updated on 16 October 2002 to correct a typographical error: FEV1 is forced expiratory volume in one **second**, not one minute as previously published.

THERE are depths and deeper depths, it is said, in all things, but surely the lead has reached the bottom in the instance referred to in the correspondence sent us by Dr. Milne, of Woodville. That any business concern should think it worth while to require a medical examination for which they offer the sum of 2s. 6d. seems to us ridiculous in the extreme. For the price of an ordinary lunch the medical man is asked to weigh and measure the proponent, examine his heart and lungs, and inquire into his habits and family history. Our readers will note that this benevolent company makes no mention of the envelope or the stamp required for carrying the result of the examination to the head office, and therefore we are entitled to assume that the medical man, for this half-hour's work, will be able to lay by for his old age—for the time when he is no longer able to prosecute this overpaid kind of work—the princely sum of, say, 2s. 4½d. We learn from the advertisements of this company that a medical man has a seat on the board of directors. Surely this phase of the working of his company has not come under his notice.

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Court of Appeal clarifies disciplinary process

The Court of Appeal (20/6/02 CAC v A Doctor CA 282/01) has recently looked at the powers of the Complaints Assessment Committee (CAC) of the Medical Council to inquire into matters and lay charges against medical practitioners.

The legal question was whether the CAC had the power to bring a charge that went beyond the allegations made in the original complaint.

The original complaint contained allegations concerning the practitioner's treatment of a patient and that he was addicted to a sleeping tablet. The particulars were notified to the doctor for his response. During her interview with the CAC the complainant also raised issues of the practitioner's treatment of the complainant's daughter. The CAC questioned the practitioner about the daughter's treatment and the taking of sleeping tablets and laid charges in relation to the patient, the daughter and self prescription of sleeping tablets.

The practitioner applied to the High Court for judicial review of the charges and those relating to the daughter and self prescription were struck out, as they had not been part of the original complaint notified to the doctor.

The CAC appealed to the Court of Appeal against the striking out. The Court of Appeal has canvassed the law relating to a CAC's power of investigation. The Court held that the CAC's powers are delineated by the complaint referred to it.

"The complaint is not an omnibus onto which further allegations can climb as it proceeds along its path. Everything turns on the scope of the original complaint."

Turning to the facts, the Court of Appeal took a different view of the self-prescribing issue from that of the High Court and held that the self prescribing could be said to arise out of the allegation of addiction and that particular was reinstated.

The Court of Appeal agreed with the High Court that the issues involving the daughter in no way arose out of the original complaint and the practitioner could not have anticipated that those issues would arise. Those particulars remained struck out. The Court cautioned that there was nothing to stop fresh complaints being laid. In addition, the Court held that the CAC could ask questions about matters outside the original complaint if they related to a practitioner's competence and/or ability to practise medicine and that the CAC should usually advise the practitioner if it sees that such matters will arise.

The decision is one that will help define the process adopted by CACs and confirms the importance of the notice given to practitioners detailing particulars of complaints.

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Proceedings of the Scientific Meeting of the Christchurch Medical Research Society, Friday 26 July 2002

Visuoperceptual and visuomotor deficits in developmental stutterers. R D Jones[1,2], A J White[3], K H C Lawson[4], T J Anderson[2,4]. [1]Department of Medical Physics and Bioengineering, Christchurch Hospital; [2]Department of Medicine, Christchurch School of Medicine and Health Sciences; [3]Speech-Language Therapy, University of Canterbury, Christchurch; [4]Neurology, Christchurch Hospital, Christchurch.

Although the precise cause of stuttering is unknown, there is strong evidence for it being a neuromotor disorder characterised by an abnormality of higher control, encompassing not only speech but other motor systems, and an overactive dopamine system. The aim of this study was to look for the presence of non-speech/language deficits – in particular, visuomotor and visuoperceptual deficits – in persons who stutter.

Twelve moderate to severe developmental stutterers were compared with a group of fluent speakers, matched for age and sex, on a range of computerized sensory-motor tasks. These tasks covered various aspects of visuoperceptual function – acuity, static perception, and dynamic perception – and visuomotor function – ballistic movement, dynamic steadiness, and several types of tracking. A novel technique was used to remove the visuospatial component from tracking performance (Jones et al. IEEE Trans Biomed Eng 1996;43:1001–10).

Stutterers had slower reaction times (11%, $p = 0.014$) and less accurate random tracking (preview: 16%, $p = 0.068$; non-preview: 16%, $p = 0.030$). They also exhibited impaired dynamic visual perception (44%, $p = 0.014$), and minimally impaired static visual perception (3%, $p = 0.054$). Severity of stuttering correlated with reaction time ($r = 0.58$, $p < 0.05$) and dynamic perception ($r = 0.79$, $p < 0.01$). Removal of the visuoperceptual component from tracking performance indicated that the impaired tracking in the stutterers was predominantly due to reduced dynamic perception.

This is the first study to demonstrate the presence of non-linguistic visuoperceptual and manual tracking deficits in people with moderate to severe stuttering. The finding of subtle visuomotor and visuoperceptual deficits supports a neurogenic aetiology for stuttering and is compatible with recent evidence for an overactive dopamine system in stutterers.

Ghrelin constricts coronary arteries in an isolated perfused heart model: role of L-type Ca^{2+} Channels and PK-C. C J Pemberton[1], H Tokola[2], J Pontinen[2], A Ola[2], O Vuolteenaho[3], H Ruskoaho[2]. [1]Christchurch Cardioendocrine Research Group, Christchurch School of Medicine, Christchurch; [2]Departments of Pharmacology and Toxicology, Biocenter Oulu; [3]Physiology, Biocenter Oulu, University of Oulu, Finland.

Ghrelin, discovered in 1999, is a novel growth hormone (GH)-stimulating peptide, which is primarily secreted from the stomach and is a potent endogenous regulator of energy balance and feeding. However, recent reports in humans have suggested that ghrelin also possesses cardiovascular actions, where it decreased mean arterial pressures in normotensive subjects. Added to this, the growth hormone secretagogue receptor (GHS-R), through which ghrelin acts, has been identified in cardiac endothelial cells. However, direct cardiac actions of ghrelin have not been reported. Accordingly, we administered incremental infusions of ghrelin (0.1–10 nM) to isolated, perfused rat hearts and neonatal cardiomyocyte cultures to determine its effects upon cardiac contractility and natriuretic peptide secretion and gene expression. At the dose of 1 nM, ghrelin increased coronary perfusion pressure (44 ± 9% (SD), $p < 0.01$) over one hour and this could be blocked by Diltiazem (Dil, L-type Ca^{2+} channel antagonist) and Bisindolylmaleimide (Bis, PK-C antagonist). The negative inotropic effect of Dil (-30 ± 3%, $p < 0.01$) was abolished during co-infusion with ghrelin. Dil and Bis induced decreases in atrial natriuretic peptide (ANP) secretion in isolated hearts were not altered by ghrelin co-infusion. Finally, administration of ghrelin to cardiomyocytes in culture for up to 48 hours did not elicit changes in ANP or brain natriuretic peptide (BNP) peptide secretion or gene expression. Thus, in isolated perfused heart preparations, ghrelin has a unique, slow acting coronary vasoconstrictor action that is partially dependent on Ca^{2+} and PK-C, and appears to have a role in Ca^{2+} gain with respect to cardiac contractility, but no effect on cardiac natriuretic peptide secretion/gene expression.

Sedative drug administration patterns in surviving and non-surviving critically ill patients. A D Rudge[1], G Shaw[2], J G Chase[1]. [1]Department of Mechanical Engineering, University of Canterbury, Christchurch; [2]Department of Intensive Care Medicine, Christchurch Hospital, Christchurch.

The effective delivery of sedation is a ‘core activity’ in any intensive care unit, yet it is perhaps one of the most arbitrarily applied therapies. Insufficient sedation leads to agitation, while over-sedation is potentially damaging, increases length of stay and is expensive. A semi-automated drug delivery algorithm using sedation-agitation scales was implemented to minimise patient sedation dosage while minimising agitation. The algorithm adjusts the background infusion rate based on the total average drug delivery (infusion and boluses combined) during the previous four hours, reducing the background rate in the absence of agitation. Fixed ratio morphine (1 mg/mL) and midazolam (0.5 mg/mL) solution was used in the study. Forty eight days of data from 10 patients were collected and grouped according to surviving and non-surviving patients. Data averaging and frequency analysis methods were employed to identify patterns in the drug administration profiles. Notable differences in drug administration profiles between survivors and non-survivors are evident. On average, survivors receive clusters of smaller (0.8 mL/h) extra boluses 4–12 times daily, whereas non survivors receive clusters of larger (1.6 mL/h) extra boluses 1–4 times each day. Each cluster may occur over 1–4 hours for survivors, indicating lighter more uniform control input, resulting in a relatively flat background sedation infusion rate of approximately 1.2 mL/h. Non survivors exhibit abrupt increases in infusion rate and experience large, daily agitation-sedation cycles, indicating heavier, less effective,

control effort. These results provide a better understanding of agitation and sedation in critically ill patients.

Postprandial resistance-vessel function is unaltered by improved glycaemic control in postmenopausal women with Type 2 diabetes. C H Strey, J M Young, B I Shand, C M Florkowski, R S Scott. Lipid and Diabetes Research Group, Hagley Building, Christchurch Hospital, Christchurch.

Type 2 diabetes is associated with atherogenic metabolic disturbances in the postprandial state. Atherosclerosis is preceded by endothelial dysfunction. The forearm blood flow (FBF) response to a meal is used to evaluate postprandial endothelial dysfunction. We hypothesised that improved glycaemic control enhances endothelial function in resistance vessels in the postprandial state.

FBF was measured with venous occlusion plethysmography before and 3h after a meal (660 kcal, 55% fat) in 19 Type 2 diabetic (DM) and 10 healthy postmenopausal women (control) during intra-arterial infusion of 0, 20 (A20), or 40 (A40) µg/min acetylcholine. Measurements were repeated in the DM group after optimising glycaemic control over three months. Lipoproteins and glycaemic indices were obtained immediately before all FBF measurements.

Postprandial triglycerides, insulin and glucose were higher in the DM group than in the control group ($p < 0.01$). In the DM group HbA1c was decreased by 0.96±0.26% ($p<0.01$) and postprandial glucose by 2.37±1.07mmol/L ($p<0.05$) without a concomitant increase in insulin. In the absence of acetylcholine FBF did not differ between the study groups, irrespective of the prandial state. During acetylcholine infusion FBF was lower in the DM group before and after the meal ($p<0.05$). The meal increased FBF in the DM and the Control group in the absence of and during acetylcholine infusion ($p<0.05$, NS for A40 in Controls). This meal-induced increase in FBF did not differ between the study groups and did not correlate with postprandial metabolic changes. Improved glycaemic control was associated with higher FBF during A40 infusion (pre-meal $p=0.064$, post-meal $p<0.05$). Better glycaemic control did not significantly alter the meal-induced increase in FBF.

A high-fat meal does not impair endothelium-dependent FBF in postmenopausal women. The FBF response to a meal is not altered by the presence of diabetes or by improved endothelial function after 3 months of better glycaemic control, suggesting that the meal-induced increase in FBF is independent of the functional state of the endothelium.

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NF-kB activation in pulmonary inflammatory cells from premature infants with respiratory distress syndrome. **F C Cheah[1,2], C C Winterbourn[1], B A Darlow[2], M C M Vissers[1]. [1]Free Radical Research Group, Department of Pathology; [2]Department of Paediatrics, Christchurch School of Medicine and Health Sciences, University of Otago, Christchurch.**

Respiratory distress syndrome (RDS) is the most common pulmonary disorder affecting premature infants. Progression of RDS to chronic lung disease (CLD) of prematurity has been described as the neonatal pulmonary injury sequence. Inflammatory and oxidative damage and the lack of lung defence capacity, are the major factors involved. As activation of the cellular transcription factor, nuclear factor kappa-B (NF-κB), has been implicated in amplification of the inflammatory process in lung injury, we have investigated whether NF-κB activation occurs in premature infants with RDS.

Tracheal aspirate samples from mechanically ventilated infants were collected and the cells separated to be fixed for immunocytochemistry. Using an antibody targeting the p65 subunit of NF-κB and counter-staining this with anti-IgG-Cy3 antibody, the activation state of NF-κB was determined by its location in the cell; cytoplasm (inactive NF-κB), or nucleus (activated NF-κB).

The median gestation and birth weight of 20 premature infants who provided 58 tracheal aspirate samples, were 27 weeks and 795 g respectively. Fourteen infants (70%) had samples containing cells that showed activated NF-κB. Neutrophils were the predominant cells showing this activation in the first week of life. Macrophages with activated NF-κB were mainly seen in later aspirate samples. Occasionally, groups of epithelial cells were present but none showed activated NF-κB. Five infants with *Ureaplasma urealyticum* in their tracheal aspirates also showed NF-κB activation, and in two the activation continued despite treatment with erythromycin. Two thirds of infants with aspirates showing NF-κB activation progressed to develop CLD.

NF-κB activation in pulmonary inflammatory cells of premature infants with RDS indicates that these cells could amplify the inflammation that occurs in the neonatal pulmonary injury sequence. Inhibiting NF-κB activation may potentially limit acute lung injury and prevent the progression to CLD.

Urocortin-1 adsorption: implications for dose administration. **M Whitteker[1], M E Davis[2], E J Begg[1], G Hammond[2], J Livesey[2], M G Nicholls[2], A M Richards[2], Timothy G Yandle[2]. [1]Department of Clinical Pharmacology, Christchurch Hospital; [2]Christchurch Cardioendocrine Research Group, Christchurch Hospital and Christchurch School of Medicine.**

The aim of this work was to determine if urocortin-1 (Ucn-1) adsorbs to apparatus used in infusion studies.

Urocortin-1 is a 40aa vasoactive peptide currently under investigation with infusion studies in sheep and man. Peptides such as insulin and adrenomedullin adsorb strongly to PVC and glass. Given this, Ucn-1 adsorption characteristics needed investigation to enable accurate calculation of infusion dose, pharmacokinetics and dose/response data.

"Bench" infusion studies of radiolabelled Ucn-1 alone (pilot studies), unlabelled Ucn-1 (for RIA), and mixed (labelled plus unlabelled) Ucn-1, were undertaken to mimic infusions in sheep and man. Samples were taken for analysis at stages along the infusate preparation phase and at timed intervals during the bench infusions.

There was 20–45% loss of labelled hormone by 6 minutes at the end of infusion apparatus from both labelled and mixed (labelled and unlabelled) Ucn-1 infusate. Delivery appeared stable over the subsequent 48 minutes. In preliminary unlabelled studies, delivery of hormone was also stable over that time but recovery was variable between studies. In separate experiments, loss onto test tubes was up to 70% by 24 hours, less with glass than PVC.

Few peptide infusion studies have taken apparatus loss into account when assessing dose/response or pharmacokinetics. Without this information, doses delivered are unknown and the dose/response conclusions potentially invalid. The adsorption characteristics of Ucn-1 appear different to those of insulin and adrenomedullin. We suggest all peptides should undergo adsorption studies prior to use in infusion studies or in clinical practice.

Regulation of the adrenocorticotropin (ACTH) response to arginine vasopressin (AVP): mechanisms of desensitisation and resensitisation. A M A Hassan, D R Mason. Department of Zoology, University of Canterbury, Christchurch.

Recently, we have shown that treatment of ovine anterior pituitary cells with AVP, a physiological regulator of ACTH secretion, results in reduced responsiveness to subsequent stimulation with AVP. This desensitisation is rapid and readily reversible, suggesting that it might be mediated by receptor phosphorylation. Recovery from such desensitisation is thought to involve receptor internalisation and subsequent dephosphorylation by protein phosphatases. This study was aimed at investigating involvement of these processes in resensitisation of the ACTH response to AVP.

Perifused dispersed ovine anterior pituitary cells were stimulated with a 5 min pulse of AVP (100 nM). The response to this pulse was reduced by 55.8 ± 2.6% ($n = 18$, $p < 0.01$) if it was immediately preceded by a 15 min pre-treatment with 10 nM AVP. When a recovery period of variable duration was allowed between the pre-treatment and the pulse, resensitisation occurred. Recovery from desensitisation was complete within 20 min. Inhibition of receptor internalisation by treatment with 0.25 mg/ml concanavalin A for 70 min prior to the AVP pulse, reduced the extent of desensitisation induced by AVP pre-treatment rather than affecting resensitisation. Treatment with 10 nM okadaic acid, an inhibitor of protein phosphatase 1 and 2A, had no effect on either resensitisation or desensitisation. Inhibition of protein phosphatase

2B (PP2B) with 1 μM FK506 decreased the rate of resensitisation. Complete recovery from desensitisation took 40 min.

These results suggest that desensitisation of the ACTH response to AVP requires receptor internalisation and that resensitisation is dependent upon PP2B-mediated receptor dephosphorylation.

Adaptation of saccade amplitude in Parkinson's disease. M R MacAskill[1,2], T J Anderson[1,2,3], R D Jones[1,2,4]. [1]Christchurch Movement Disorders and Brain Research Group; [2]Department of Medicine, Christchurch School of Medicine; [3]Department of Neurology, Christchurch Hospital; [4]Department of Medical Physics and Bioengineering, Christchurch Hospital.

The accuracy of saccades (fast eye movements) is maintained over time, an adaptive ability usually ascribed to the cerebellum. Adaptation might occur elsewhere in certain tasks, such as in the prefrontal cortex for memory-guided saccades. We hypothesised that adaptation of memory-guided saccades would be impaired in Parkinson's disease (PD), as basal ganglia dysfunction can disrupt the operation of the prefrontal cortex, while adaptation of visually-guided saccades would be preserved.

Adaptation was induced by consistently yet imperceptibly displacing targets as saccades were made toward them, causing artificial saccadic inaccuracy. 12 PD subjects (off medication) and 12 age-matched controls performed 245 visually- and memory-guided horizontal saccades in two separate sessions. An infrared eye tracker detected the saccade, during which the target was displaced by 12.5% of the size of the initial jump, either in the same (centrifugal) or the opposite (centripetal) direction. PD subjects made smaller visually-guided saccades than did controls ($F(1,20) = 9.10$, $p < 0.01$), yet both groups modified saccade size appropriately. PD memory-guided saccades were also smaller than those of controls ($F(1,19) = 5.93$, $p < 0.05$). While controls decreased (by 8.6%) or increased (by 4.1%) the size of these saccades appropriately, PD subjects decreased saccade size in response to both centripetal adaptation (by an excessive 18.3%) and centrifugal adaptation (by 3.5%).

PD subjects were less able to modify saccadic size appropriately when the movement size was specified in motor memory: a predilection for hypometria was invoked, regardless of adaptation direction. This indicates that in certain tasks adaptation may involve structures other than the cerebellum.

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Is underuse of arc the cause of osteoarthritis? P Jones[1], N Lynskey[1], C Alexander[2]. [1]Queen Elizabeth Hospital for Rheumatic Disease and Rehabilitation, Rotorua; [2]Department of Anatomy with Radiology, Faculty of Medicine and Health Science, Auckland University.

The cause of primary osteoarthritis is unknown. One theory is that underuse of arc may result in both joint contracture and osteoarthritis. Observations in human cultures that have not adopted chair sitting show a low prevalence of knee and hip osteoarthritis. Primates have a low rate of osteoarthritis despite relative longevity, leading to an evolutionary theory of osteoarthritis causation. This invokes the change from arboreal to terrestrial habitats and a change from four-limb ambulation (knuckle walking) to bipedal locomotion. Immobility is known to lead to joint contracture. Contracture is an invariable component of clinical osteoarthritis, and usually precedes symptoms.

This study aimed to test the hypothesis that underuse of arc accounts for the pattern of joint involvement seen in primary osteoarthritis. Measurements of the range of movement of 14 small joints of each hand were made from 50 normal subjects aged 35–55. Those with clinical signs or symptoms of primary osteoarthritis were excluded. Individual joints affected by prior trauma were excluded. The ranges of movement obtained were compared with data previously obtained from a group of younger normal subjects aged 20–35. The reduction in joint range for each joint was compared with the known prevalence of osteoarthritis in each joint.

The range of joint movement was significantly reduced by an average of 10% in the older sample. This was true at all joints measured and was manifest by a loss of extension. However, the degree of contracture did not correlate at all with the known prevalence of osteoarthritis in the individual joints.

We conclude that there is a significant reduction in finger joint range, particularly extension, associated with increased age. This is in contrast to the pattern of joint contracture seen in osteoarthritis, which usually affects the flexor compartment. No evidence to support the hypothesis that underuse of arc is the cause of primary osteoarthritis was found.

Spatial distribution and generation of frontal slow waves in general anaesthesia. J W Sleigh[1], M Williams[1], B Johnson[2], I Kirk[2]. [1]Department of Anaesthesia, Waikato Hospital, Hamilton; [2]Department of Psychology, University of Auckland, Auckland.

It is unknown if anaesthetics cause spatial inhomogeneities across the scalp EEG, but studies using 19 electrode arrays show that there is a shift to increased frontal power with increasing sedation. However, it has been shown that, to achieve adequate spatial localisation of generators of the scalp EEG, it is necessary to use a minimum of 128

sensors. The aims of this study were therefore to collect EEG data using a 128 electrode array in subjects having sedation with either propofol, or xenon to the point of loss-of-consciousness. By this means we could compare the spatial EEG effects of a 'GABAergic' anaesthetic agent (propofol) with those observed when using a NMDA antagonist (xenon). We analysed changes in the overall EEG, changes in spatial EEG distribution, and also calculated the underlying EEG source distributions.

After manual editing for artifact, five 2 sec epochs of EEG data from each of the five subjects were analyzed. They were representative of the following scenarios: 1) before any anaesthetic drugs had been given (termed 'Start'); 2) while unresponsive under xenon anaesthesia ('Xenon'); 3) after recovery from the xenon ('Pre-Propofol'); 4) while unresponsive under propofol anaesthesia (Time Propofol); and 5 min after recovery from propofol anaesthesia (Post-Propofol).

mean (SD) EEG Power (uV^2)	**Start**	**Xenon**	**Pre-Propofol**	**Time Propofol**	**Post-Propofol**
Delta	24.6 (1.5)	39.6 (71.5)	28.7 (10.8)	68.9 (74.2)	28.9 (12.9)
Theta	21.1 (6.4)	61.2 (26.5)	22.5 (9.2)	51.7 (43.5)	25.9 (14.7)
Alpha	34.3 (21.2)	47.8 (17.8)	39.4 (19.6)	47.7 (33.0)	41.8 (25.9)
Beta	67.3 (17.8)	92.2 (12.4)	82.2 (37.0)	81.4 (35.9)	84.0 (29.2)
Gamma	21.1 (2.9)	33.8 (10.7)	31.7 (18.3)	16.5 (3.0)	23.7 (10.4)
Total	**169.0 (31.3)**	**297.1 (100.0)**	**204.6 (86.9)**	**266.3 (177.5)**	**204.6 (72.5)**

We found a consistent shift to frontal EEG dominance in all subjects when they became unresponsive under both propofol and xenon. Because of our higher electrode density, we were able to demonstrate that the theta power was concentrated close to the midline in all subjects. In contrast, the delta power was usually maximal off the midline – either over the right or left prefrontal cortex. When source localisation tomography (LORETA) was applied to the EEG signal, we demonstrated spatial agreement between the scalp distribution and calculated sources. It is likely that these EEG changes reflect anaesthetic-induced alterations in frontal and cingulate gyrus memory processing.

Psychological intervention in reflex sympathetic dystrophy. J Frazer. Psychology Department, University of Waikato, Hamilton.

Reflex sympathetic dystrophy (RSD), also called chronic regional pain syndrome type-1, causes sufferers extreme distress and disability. Although psychological interventions have been researched and validated with other chronic pain conditions, they have not been investigated for RSD. The current research hypothesises that the psychological processes of fear and avoidance mediate RSD, and investigates two alternative interventions aimed at reducing fear and avoidance, restoring function and decreasing disability. The theoretical basis for the hypotheses will be explained, the interventions detailed, and preliminary data presented. The research is being

conducted through the Pain Clinic at Waikato Hospital, and involves four patients with long standing RSD.

Effect of deer velvet on male sexual function: a double-blind placebo controlled study. H M Conaglen[1], J M Suttie[2], J V Conaglen[3]. [1]The Psychology Centre, University of Waikato, Hamilton; [2]AgResearch Invermay Agricultural Centre, Mosgiel, Dunedin; [3]Waikato Clinical School, Hamilton.

The use of alternative medicines and herbal remedies is an increasing trend in Western societies. For years, people have taken products made of deer velvet for their alleged beneficial effects on sexual function. There has been no scientific investigation of the effects of deer velvet powder on the sexual functioning of human males. This study investigated male sexual function during a 12-week double blind placebo-controlled trial of deer velvet.

Thirty four volunteer male participants, aged 45–65 years, and their partners, were randomly assigned to either the deer velvet or placebo study group, with participants and investigators both blind to the assignment. The males took capsules containing ground deer velvet or placebo every day for 12 weeks. Sexual function questionnaires, the International Index of Erectile Function, and the Brief Index of Sexual Function for Women, used pre and post 'treatment', assessed changes in sexual functioning in males and their partners. Blood tests at baseline, and end of study, determined levels of sex-related hormones in male participants.

There were no significant differences in the sexual behaviour of the men taking deer velvet compared with the men taking placebo capsules. There were no significant hormone changes from baseline to the end of the study in either group of men.

We conclude that in normal males there was no advantage in taking deer velvet to enhance sexual function. All 'alternative' health products or nutritional supplements should be subjected to randomised placebo-controlled trials.

Demographics of cervical spine trauma in the Waikato region. R M Subramaniam, C Kim, K Gilbert. Academic and Research Division, Department of Radiology, Waikato Hospital, Hamilton.

168 patients with acute, unstable cervical and cervio-thoracic junction fractures following blunt trauma were identified from our trauma registry, the emergency department records, the inpatient clinical notes and the imaging study reports between 1991 and 2000.

The incidence of cervical spine fractures between 1991 and 2000 was 4.8 patients per 100 000 population per year. 60% of the study population was under 40 years old. Males (69.6%) suffered the injury twice as often as females (30.4%). There was no ethnic predominance in the study population for total population as well as age specific population. Motor vehicle accidents (61.3%) were the predominant cause of the injury. Intoxication of the driver (24.2%) and high speed greater than 100km/hr (23.3%), were found in significant numbers of these motor vehicle accidents. Drivers suffered the injury more frequently than passengers. Motor vehicle accidents and

sports contributed to 70% of these injuries in the study population younger than 60 years and falls were the main contributory factor in those older than 60 years.

Neck pain (76.7%), midline tenderness (35.7%), and focal neurology (39.2%), were significant findings in the patients who suffered an unstable fracture. Based on Glasgow Coma Scale (GCS) Score, 17.2% had moderate (GCS 8–12) to severe (GCS < 8) head injury. 13.7% of patients suffered radiologically demonstrable head injuries and 15.4% of patients suffered thoracic injuries requiring surgical intervention.

Activation of the transcription factor, Stat5 by insulin in target tissues. T Wheeler[1], H Sadowski[2], C Sadowski[2]. [1]Dairy Biotechnology, AgResearch Ruakura, Hamilton; [2]Department of Biochemistry, Mt Sinai School of Medicine, New York, USA.

Diabetes Type 2 is characterised by the insensitivity of peripheral tissues to the effects of insulin. This phenomenon of insulin resistance appears in most cases to be the result of impaired transduction of the insulin in target tissues at a point beyond the insulin receptor. The molecular defect(s) responsible for this have not been established.

The binding of insulin to its receptor results in activation of its intrinsic tyrosine kinase activity. The insulin receptor kinase phosphorylates itself as well as a number of other intracellular substrates including IRS-1, -2, -3, -4, Gab 1, Gab 2, p62dok-1, -2 and -3. These serve as docking proteins, resulting in the activation of at least two major intracellular signalling pathways – the MAP-kinase and PI kinase pathways – that propagate the signal to various cytoplasmic and nuclear effectors.

We have shown that the insulin receptor interacts with at least one member of the Stat family of latent cytoplasmic transcription factors, Stat5b, resulting in its activation as a transcription factor through phosphorylation. We have also shown that Stat5 is involved in insulin stimulated induction of the SOCS-2 and SOCS-3 genes in C2C12 myoblast cells. Furthermore, administration of glucose or refeeding of fasted mice results in stimulation of Stat5a and b phosphorylation and DNA-binding activity in liver, muscle and adipose tissue. These results suggest that Stat5 may also mediate insulin effects in target tissues in vivo, and conceivably may play a role in insulin resistance in diabetes Type 2.

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Scientists create polio virus from scratch

Researchers in New York have created infectious polio viruses from ordinary, inert chemicals obtained from a scientific mail-order house, marking the first time a functional virus has been made from scratch and raising a host of new scientific and ethical concerns.

A massive vaccination program sponsored by the World Health Organization aims to rid the world of polio by 2005 and has eliminated it from all but a handful of countries. But the latest work indicates that polio and perhaps other viral ailments – including some with bioterror potential such as smallpox – can be made from raw materials and so may never be eliminated.

Guardian Weekly, July 18–24, 2002

Aspirin shown to reduce risk of pancreatic cancer

Aspirin, already known to reduce the risk of colon cancer, may also prevent cancer of the pancreas.

In a seven year study of more than 28 000 postmenopausal women aged 55 to 69 who were participants in the Iowa women's health study, the risk of pancreatic cancer was 43% lower in women who took aspirin or products containing aspirin than in women who did not (relative risk 0.57 (95% confidence interval 0.36 to 0.90)). The more often that women took aspirin, the lower their risk of the cancer (*Journal of the National Cancer Institute* 2002;94:1168-71).

BMJ 2002;325:356

Eurocrats perk up on Viagra

The long list of perks enjoyed by Eurocrats is already the stuff of legend: outrageously low tax rates, chauffeur-driven BMWs, three-hour lunch breaks and, for MEPs, their own in-office showers.

But to the undoubted horror and bemusement of Eurosceptics, the officials in Brussels everyone loves to hate have just been given another "fringe benefit" to perk them up: a cut-price monthly ration of Viagra.

"We can claim for Viagra but only for so much," a spokesman from the European Commission conceded this week. "However, I haven't felt the need to claim any myself."

Guardian Weekly, August 15–21, 2002

To age or not to age?

Australians are living longer than ever before. At the end of the 20th century, 20% of our people were aged 65 years or more and 1% were aged 85 years or more; at the

beginning of the century these figures were 4% and 0.01%, respectively. With death rates continuing to fall, life expectancy will inevitably increase. Indeed, the world record, currently 122 years and five months, is predicted to reach 150 years.

MJA 2002;176:509

New law in Germany compensates patients for drug side-effects

The German government passed new legislation on Aug 1 that will make it easier for patients who have adverse drug reactions (ADRs) to get compensation from pharmaceutical companies.

The new law shifts the responsibility for an ADR back to the drug firms so that to receive compensation, patients no longer have to prove that a drug caused an unexpected side-effect. From now on the drug manufacturer, to avoid paying compensation, must prove that the adverse effect was not produced by its product.

To prove liability, patients must identify medical evidence proving that the drug can cause an ADR. To help potential claimants, the new law gives patients the right to make enquiries about adverse effects before starting legal action. The manufacturer and licensing agency will be obliged to respond with complete disclosure.

Lancet 2002:360;471

Antiretroviral-drug resistance among newly HIV-infected patients

In a study of 377 patients with newly acquired human immunodeficiency virus (HIV) infection in 10 cities in North America, the prevalence of antiretroviral-drug resistance increased from 3.4 percent in 1995 through 1998 to 12.4 percent in 1999 through 2000. The frequency of multidrug resistance at presentation also increased, from 1.1 percent to 6.2 percent. After initial antiretroviral therapy was administered, it took longer to achieve viral suppression in those who were infected with resistant virus, and the time to virologic failure in these patients was shorter.

The frequency of drug-resistant virus is increasing among patients with newly diagnosed HIV infections, reflecting a higher rate of transmission of resistant virus. Drug-resistance testing before treatment is now indicated even for patients who are newly infected and have never received antiretroviral therapy.

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Overseas access to the eJournal

As an ex-pat New Zealander and a New Zealand-trained doctor (graduated Otago 1974), and one who left practice there in 1989, I feel somewhat starved of ways to keep in touch with the New Zealand scene. I was delighted when the Internet made this sort of thing possible, but have always been frustrated by the lack of up-to-date information on the New Zealand medical web sites, especially that of the NZMA. So it is with even greater disappointment I now find that, not being a member, I can access virtually nothing from the new New Zealand Medical Journal site. I'm afraid that, with the number of subscriptions we have to pay (and this is rapidly getting worse, especially with the outrageous indemnity subs we now face), paying out to belong to more institutions just to be able to access the journal is not possible. However, it is great to be able to keep abreast of developments, possibly even contribute something in terms of a viewpoint from another system, especially when you are remote from 'home'.

Might I ask why it is that I can access and contribute to (via email letters to the Editor), the full BMJ – incidentally a magnificent web site example of its kind – and even most of our own MJA, not to mention many other prestigious journals, but not the NZMJ? Surely it would not be hard, or cost you much in lost subscriptions to make most of this site available free to readers from outside of New Zealand?

Peter Bradley
General Practitioner
Springwood, Queensland, Australia

Response

The decision to move from a printed NZMJ to an online-only NZMJ was made for financial reasons. The print journal faced a large and increasing six-figure deficit, and the NZMA Board decided it was not a responsible use of our members' finances to continue funding this deficit. The online journal is much more cost-effective, but still has technical and editorial costs associated with it. These costs are met by NZMA members (through their annual subscription) and paying subscribers. The NZMJ is the journal of the NZMA, and as such it is considered a benefit of membership. We acknowledge that the wider profession has much interest in the Journal, and many people access it through libraries and other subscribing institutions, while not supporting it financially. If the Journal were made freely accessible on the website, the NZMA would lose in excess of $100 000 of subscription income. This is clearly unreasonable.

While it is flattering to be compared with the British Medical Journal, which is freely available on the Internet, the reality is that the BMJ publishing company has resources that the NZMA can only dream about. It also has 20 or so other online journals for which it charges a subscription, so it can afford to put its flagship journal free online. As for Dr Bradley's suggestion that the NZMJ should be freely available to those

outside New Zealand, we feel that such an arrangement would be unfair to our New Zealand-based members who pay for the Journal. If Dr Bradley values the NZMJ as much as he says, I am sure he will consider joining as an overseas member or subscribing.

John Adams
Chairman
New Zealand Medical Association

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Conduct unbecoming – gynaecologist

Charge: A Complaints Assessment Committee charged Dr Parry with professional misconduct alleging serious deficiencies in Dr Parry's gynaecological practice, namely, that he failed to adequately assess and examine a patient after she presented with post-coital bleeding, by either visualisation of the cervix using the naked eye and/or the use of a colposcope.

Background: The patient was first referred to Dr Parry in May 1993 by her general practitioner. At that time, she had experienced some intermittent inter-menstrual bleeding.

After taking a brief history Dr Parry carried out an abdominal ultrasound on the patient which did not disclose any abnormalities. Dr Parry did not carry out an internal examination at any time during this consultation. The patient thought this was unusual and asked if such an examination would be appropriate. Dr Parry told the patient that he did not need to examine her internally as he could see all he needed to from the scan. He advised her to monitor the bleeding and to see him again if the bleeding became more regular or got worse.

The patient continued to experience persistent inter-menstrual bleeding and she returned to see Dr Parry again on 21 September 1993. During this consultation Dr Parry discussed various treatment options with the patient including dilatation and curettage (D&C), hysteroscopy and hysterectomy. She agreed to a D&C and a hysteroscopy.

The D&C was performed on 19 October 1993 at Whangarei Hospital. A cervical smear was taken at the time of the procedure at the patient's request. However the hysteroscopy was not performed due to a problem with the sterilising equipment on the day of the operation that meant the equipment could not be used. After the D&C procedure the patient was told that nothing untoward had been detected and that no further action was required at that stage. It was Dr Parry's evidence that he would have visualised the cervix in the course of carrying out this procedure. Post-operatively, he advised the patient that if bleeding persisted she should consult with him again after six months.

The patient was again referred to Dr Parry and she saw him on 15 May 1995. The patient complained of occasional episodes of post-coital bleeding and continuing pre-menstrual spotting. It was Dr Parry's evidence that because of the regular cyclical nature of the bleeding he considered that its cause was likely to be hormonal in nature. At the consultation Dr Parry carried out another abdominal ultrasound scan to exclude uterine causes of the bleeding. He did not carry out any internal examination, or any other examination, nor did he refer the patient for any other examination or investigation.

The patient's post-coital and inter-menstrual bleeding continued until 6 December 1996. On that occasion the general practitioner whom she saw examined her and took another cervical smear. The results reported a high grade abnormality (CIN III). The

patient underwent a colposcopy on 19 December 1996 and a Lletz biopsy was carried out on 20 December 1996. The results of the biopsy returned CIN I on histology and confirmed no evidence of malignant disease.

Finding: The Tribunal found Dr Parry guilty of conduct unbecoming and that conduct reflected adversely on his fitness to practise medicine.

The charge alleged serious deficiencies in Dr Parry's management of the patient after she presented with post-coital bleeding. The patient did not present to Dr Parry with post-coital bleeding until the May 1995 consultation. Dr Parry did not dispute the allegation that he did not examine her cervix visually during that consultation. The Tribunal considered therefore that it needed to determine whether that was conduct that constituted professional misconduct.

The Tribunal considered its task was to assess the conduct of the practitioner at the time of the relevant event, in this case, May 1995. The fact of a favourable outcome for the patient did not excuse any poor or inadequate management of her care by Dr Parry just as an unfavourable outcome would not, per se, be culpable.

Dr Parry did not resile from the fact that as the specialist gynaecologist to whom the patient was referred it was up to him to determine the cause of her abnormal bleeding and it was his professional duty to exclude all possible causes especially those that were potentially most serious.

Dr Parry accepted that all he had done to exclude the major concern of the post-coital bleeding, namely a malignancy of the cervix, was to rely on the examination of the general practitioner reported in the referral letter, and the results of the patient's previous cervical smears. He accepted that cancer of the cervix is "number one" of the most serious possible causes of post-coital bleeding. Dr Parry also accepted that a cervical smear test is a screening device rather than a diagnostic tool.

The Tribunal was satisfied, taking into account the presenting clinical features including:

- persisting symptoms;
- a change in the nature and frequency of abnormal bleeding;
- the patient's age;
- the possibility of the presence of a cervical malignancy and the potential consequences of such disease;
- the possibility of false negative smear report/s; and
- a specialist referral

that Dr Parry's care and treatment given to the patient was unsatisfactory and, in the circumstances, that it did constitute a professional disciplinary offence and determined that he was guilty of conduct unbecoming and that conduct reflects adversely on his fitness to practise medicine.

Penalty: The Tribunal was satisfied that this case demonstrated that Dr Parry's standards of practise as a specialist gynaecologist fell short of the standards which the public of New Zealand are reasonably entitled to expect.

The Tribunal ordered that Dr Parry be censured, pay a fine of $250.00 (the maximum being $1000.00), pay 10% of the costs and expenses incidental to the investigation, prosecution and hearing of the charge, and a notice of the hearing be published in the New Zealand Medical Journal.

It further ordered that in the event Dr Parry seeks to resume his gynaecological practice then, for a period not exceeding two years from the date of his resuming his specialist gynaecological practice, he is to practise as a specialist gynaecologist only under the supervision and/or oversight of a specialist obstetrician and gynaecologist appointed by the Medical Council of New Zealand.

Appeal: Counsel for Dr Parry has filed a notice of appeal in the District Court. He is appealing both the substantive and penalty Decisions of the Tribunal.

The full decisions relating to the case can be found on the Tribunal web site at http://www.mpdt.org.nz Reference No: 01/80C.

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Health Innovation Awards

The Ministry of Health and the Accident Compensation Corporation have established the Health Innovation Awards, to celebrate innovation and success within the health sector. We are looking for entries from all parts of the sector, including public health, accident and emergency care, general practice, community care, primary care and rehabilitation. No innovation is too big or too small.

Entries will be independently evaluated by the Business Excellence Foundation and prizes of between $5000 and $15 000 will be awarded at a special ceremony at Te Papa on 23 April 2003.

We have tried to ensure the application process is as simple as possible. To get started all you need to do is fill out a one page Expression of Interest form.

Applications will be accepted until 5.30pm Friday 25 October 2002. To find out more about the awards, and better still to enter, or nominate a colleague, visit http://www.healthinnovationawards.co.nz

These awards are for you, so get involved.

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Cardiac Society/MSD Research Fellowship 2003

The Cardiac Society of Australia and New Zealand, New Zealand Branch, and Merck Sharp & Dohme are pleased to announce the successful applicant for the 2003 Cardiac Society/MSD Research Fellowship is Dr Callum Young, currently Senior Cardiology Registrar at Christchurch Hospital.

This prestigious Fellowship was made possible by a generous donation from the New Zealand Branch of Merck Sharp & Dohme. The Fellowship is administered by the New Zealand Regional Executive Committee of the Cardiac Society of Australia and New Zealand, and is designed primarily to support cardiovascular research projects within New Zealand. Priority is given to registrars in cardiac medicine or surgery to complete an MD thesis in New Zealand, or for specific research projects. Successful research fellows are Associate Members of the Cardiac Society and their research is supervised by a full member of the Cardiac Society of Australia and New Zealand.

Dr Young intends that his research, which is entitled “Assessment of acute chest pain in Christchurch, New Zealand. Impact of a protocol-driven management system for low-risk patients” will form the basis of an MD thesis. His interests in acute chest pain assessment have led to the opening of the Christchurch Hospital Chest Pain Assessment Unit in December 2001, and his work on this subject is already well advanced. This is a very important area of cardiology management and we hope and expect this project will benefit not only Christchurch but all cardiac units in New Zealand.

Specific enquiries about the Cardiac Society/MSD Research Fellowship in New Zealand can be directed either to the current Honorary Secretary-Treasurer, New Zealand Branch, Dr Phil Matsis, C/o Cardiology Department, Wellington Hospital, Wellington; or Dr Hugh McAlister, New Zealand Councillor, C/o of Cardiology Department, Waikato Hospital, Hamilton, New Zealand.