THE NEW ZEALAND MEDICAL JOURNAL
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This Issue in the Journal

Medication beliefs and adherence to antidepressants in primary care
Judith Russell, Nikolaos Kazantzis

The aim of this study was to determine whether patient beliefs about the necessity and concerns about medication were associated with adherence among those presenting with depression in primary care. Patients completed questionnaires including measures of beliefs about medication, self reported adherence, depression severity, and demographic information. Patient concerns with medications were positively associated with non-adherence. Where beliefs about the necessity outweighed concerns about taking the medication, significantly greater adherence was observed. Fewer depressive symptoms were also associated with greater adherence. A balance between beliefs about the costs and benefits of medication are likely to be important in understanding adherence with other medications.

The use of the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC) by caregivers in dementia care
Gary Cheung, Peter Choi

The prevalence of pain in elderly nursing home residents is 40 to 80%. Older people with severe dementia are often unable to communicate their pain and discomfort because their language ability can be affected by the process of dementia. PACSLAC is an observational tool which can be used by nursing staff to improve the detection of pain in severe dementia. This pilot study found that PACSLAC can also be reliably used by caregivers working in dementia care facilities. One of the advantages of using a pain assessment tool is that it can increase nurses and caregiver' awareness and encourage them to take the process of pain management more proactively.

General practitioners' views on the major psychiatric classification systems
Steven Lillis, Graham Mellsop, Gaelle Dutu

Mental illness is common and often treated by general practitioners. Placing a label on the illness can be difficult—due to overlap of symptoms, a desire not to 'medicalise' normal reactions, and the acceptability of the diagnosis to those with mental illness. General practitioners do not find the methods of diagnosis used by psychiatrists to be useful. The major focus of a GP is management and methods of diagnosis that are management focused are needed.

Experts' views on long-term care in New Zealand
Mark Booth, Edward A Miller, Vincent Mor

This paper gives the results of a comprehensive survey of experts in long-term care in New Zealand. The survey canvassed experts' opinions in a variety of areas such as funding, quality, and workforce. Experts supported current direction in funding of services but felt that more needed to be done to tackle well-known problems of recruitment and retention and quality. The paper gives a variety of solutions including improved training for doctors, better wages for care staff, and increased knowledge of quality initiatives focussing on client-centred approaches.

Prevalence of vitamin D deficiency among patients attending a multidisciplinary tertiary pain clinic
Jim Bartley

The prevalence of vitamin D deficiency in patients attending a multidisciplinary pain clinic is similar to if not better than that of the normal New Zealand population. Recent African immigrants and south Asian females (e.g. Indian) are two patient groups that are frequently vitamin D deficient. The identification and treatment of vitamin D deficiency has the theoretical potential to help a number of chronic pain patients. Only a limited number of interventional clinical trials have looked at this.

The effects of seasonal variation of 25-hydroxyvitamin D on diagnosis of vitamin D insufficiency
Mark J Bolland, Weldon W Chiu, James S Davidson, Andrew Grey, Catherine Bacon, Greg D Gamble, Ian R Reid

Vitamin D levels are highest in late summer and lowest in late winter and early spring. We explored the effect of this seasonal variation on the diagnosis of adequate vitamin D status (vitamin D sufficiency) in a very large database of vitamin D measurements from Auckland City Hospital. We found that about 50% of individuals had inadequate vitamin D status in the month of measurement, but another 15% were predicted to have inadequate vitamin D status during the winter months based on expected seasonal variation. Therefore, it is important for anyone who measures vitamin D levels to take into account the month of measurement when interpreting the results. We present tables which allow this to be done accurately and also to take into account age, gender, and ethnicity which are all known to impact on vitamin D status. In general, vitamin D levels of at least 60-75 nmol/L in summer months are required to ensure year round adequate vitamin D status (i.e. vitamin D level at least 50 nmol/L) in New Zealand. We also found that average vitamin D levels were very low in people of Indian, Middle Eastern and African descent.

Vitamin D insufficiency in New Zealanders during the winter is associated with higher parathyroid hormone concentrations: implications for bone health?
Jennifer E P Rockell, C Murray Skeaff, Bernard J Venn, Sheila M Williams, Tim J Green

Parathyroid concentration (PTH) is higher in people with low vitamin D. If PTH concentrations remain elevated over a long period this may lead to bone breakdown and possibly osteoporosis. In our study, vitamin D levels were lower in the winter than summer. PTH concentrations were higher in the winter than summer. This suggests that low vitamin D in the winter in New Zealand may be having an adverse effect on bone health possibly contributing to the high burden of osteoporosis in this country. New Zealanders who are concerned about their vitamin D status should consider taking a vitamin D supplement, especially in the winter months.

Defensive practice in mental health
Richard Mullen, Anita Admiraal, Judy Trevena

Defensive practice is where doctors or nurses act in ways to avoid themselves being blamed for bad outcomes, rather than in the best interests of their patients. Psychiatrists and psychiatric nurses in Dunedin perceive defensive practice to be widespread. In particular, questions to patients about their safety are often perceived as being defensive. It is possible that New Zealand's Mental Health Services have a culture of avoiding risk that, instead of promoting good patient care, is an obstacle to it.

Telling the truth to Asian patients in the hospital setting ((viewpoint article))
John A Windsor, Jeremy I Rossaak, Danny Chaung, Alexander Ng, Ian P Bissett, Malcolm H Johnson

Full disclosure of health information to patients is considered important in Western culture, but may be less appropriate for patients from other cultures, particularly when conveying news about a diagnosis with a poor prognosis. This issue is becoming important in New Zealand, given the rapidly increasing ethnic diversity of patients presenting to our hospitals. This paper explores culturally appropriate ways of breaking bad news to patients of different ethnicities in the hospital setting, with emphasis on identifying the locus of decision-making within families and decision-making about end-of-life care. Given that the most rapid population growth is presently occurring in the Asian community, attention is focussed on culturally sensitive ways of breaking bad news to Asian patients and their families.

Inquiries into health care: learning or lynching? ((viewpoint article))
Ron Paterson

The primary purpose of health inquiries is learning, not lynching. The issues considered through inquiries form the visible tip of an iceberg of serious, preventable adverse events. Inquiries give us the opportunity to learn and to improve the quality of health care so that similar failures do not happen again. New Zealand needs a culture of inquiry that encourages health professionals to discuss their concerns, to share, learn, and implement changes for improvement.

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The doctor, the pills, the patient, and the actor-spectator paradox

Pete Ellis

Taking medication regularly is a complex process. Words such are compliance, adherence, and treatment collaboration are fraught terms, conveying issues of power and responsibility in an potentially provocative manner. Compliance implies subjugation; adherence is what wallpaper does; and collaboration has had a bad press, particularly during wartime. But whatever term we use, we are left with a conundrum for the clinician: after an apparently successful interview, medication is not taken as apparently or implicitly agreed; desirable health outcomes are often not achieved; and suffering continues.

Clearly, effective communication is central to a better outcome. Ingelfinger, a former editor of the *New England Journal of Medicine*, argued strongly in his 1977 address 'Arrogance' that the responsibility for what is now termed adherence lay with the doctor. He stated:

> Perhaps one of the most flagrant examples of non-empathic arrogance today—an example not confined to the medical profession—is the pervasive idea that the failure of medical ministrations is the patient's fault. If he does not follow instructions and appears to disregard words of medical wisdom, the patient is labelled as noncompliant—another word in vogue. Blaming the victim is currently a popular excuse for therapeutic failure, but to me it smacks of arrogance. It is a doctor's obligation, by explanation and persuasion, to get the patient to take his medication as prescribed. If the patient fails to do so, the blame is often as much the physician's as the patient's. [1]

This robust attribution of responsibility interestingly echoes its era, with its complete lack of consideration of the patient's right to involvement in making decisions about treatment.

Treatment non-adherence is common in medicine in general, and in mental health in particular. However, it is often a relative construct—in a US outpatient study of treatment non-adherence among people with bipolar disorder, only 2.5% missed all their medication in the preceding 10 days but 34% reported missing at least one dose.[2] Variously defined, adherence rates of around 40% are not uncommon among those treated for depression in primary care.[3]

As Ingelfinger suggested, the answer appears to lie in effective, empathic communication. While this includes providing information, information alone is not sufficient—written pamphlets alone appears to do little to enhance treatment adherence.[3] Personal engagement in follow-up (by telephone or otherwise) by a practice nurse working within a case management model has been shown to be effective in improving outcomes.[4,5]

So, communication matters, but what should be communicated? The actor-spectator paradox described by Lilja et al refers to the spectator making different presumptions about the actor's thoughts than the actor herself is actually making. Such

misconstructions by the doctor of the patient's thought processes can foster miscommunication, leading to non-adherence.[6]

In this issue of the *Journal*, Russell and Kazantzis[7] explore such differences of perception in an interesting study of the interaction of health beliefs and adherence to antidepressants. While they found no relationship between adherence and patients' perceptions of their individual need for antidepressants, concerns about medication, particular when they considered they had little need for these, was associated with low treatment adherence. The most common concerns related to stigma and concerns with others' impressions of antidepressant medication. Traditional advice on counselling about antidepressants (side effects and how to cope with them, delayed onset of action, lack of addiction potential, etc) has not covered these topics. This paper indicated the importance of their inclusion, within the broader framework of maintaining clinical contact and support during an episode of depression, when motivation and self-confidence are already at a low ebb. The Depression Awareness campaign featuring a high-profile former All Black, John Kirwan, is directed at changing these attitudes at a community level, but prescribers need to discuss them at an individual level.

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Pain assessment in dementia

Edward A Shipton

Previous studies have demonstrated a high prevalence of pain among the elderly. Pain can have a profound impact on older adults' lives, irrespective of cognitive status.[1] The high prevalence of pain is associated with high rates of chronic health conditions, particularly musculoskeletal conditions such as osteoarthritis and back pain.[2] Pain is also associated with acute medical conditions such as cancer, surgical procedures, and cardiovascular diseases.

Pain prevalence rates in older people with dementia are estimated to be between 28% and 83%[3] and research has consistently shown pain is underestimated and undertreated in this vulnerable population. Several comprehensive guidelines for the assessment and management of pain in elderly persons have been released, although the current evidence-base used to guide clinical practice is extremely limited. The Verbal Reporting Scale (VRS) has been found to be a feasible pain scale in elderly patients immediately after major surgery, followed by the visual 50-cm red-coloured horizontal wedge scale (RWS).[4] The traditional 10-cm Visual Analogue Scale (VAS) seems unsuitable for pain measurement in this population.

Pain is an unpleasant subjective experience. Its assessment is based on the subject's direct verbal report. This method of assessment is, however, impossible in patients who cannot or find it difficult to communicate their feelings.

Dementia affects patients' verbal and non-verbal communicative ability. Dementia (Alzheimer's disease, vascular dementia, frontotemporal dementia) is progressive and debilitating and is characterised by severe cognitive deficits, loss of language, and the inability to carry out activities of daily living.[5] As dementia constitutes a large and growing problem, clinicians have been encouraged to learn about appropriate strategies for the assessment and management of pain in this patient population.[1]

Patients with dementia and pain may be: unable to describe the qualitative characteristics and associated features of their pain; less able to alert their care providers to the presence of adverse effects from pain medicines than cognitively intact older adults; and unable to discern variations in the level of pain, or compare their current pain to their pain experience the day (or even hours) before.[6] These deficits can lead to a delayed or incorrect diagnosis, suffering due to adverse effects, and over-treatment.[7]

Recently, efforts have been directed at developing innovative ways to assess pain by using methods that do not rely on older adults' verbal ability to communicate their pain.[5]

Tools to assess pain in older adults with dementia have been developed. A pain assessment instrument for use in daily practice should be simple, and be able to be administered by nurses or caregivers. These should be used prior to implementing pain treatment. They include the following:[5] the Checklist of Nonverbal Pain

Indicators (CNPI); the Pain Assessment for the Dementing Elderly (PADE); the Non-Communicative Patient's Pain Assessment (NOPPAIN); the Pain Assessment in Advanced Dementia (PAINAD); the DOLOPLUS-2; and the Pain Assessment Checklist for Seniors With Limited Ability to Communicate (PACSLAC).

Sample sizes using these instruments have, however, been small. For example, the CNPI showed an acceptable test–retest and inter-rater reliability and concurrent validity only in a small study.[8] The PADE was found to be a reliable and valid tool to assess pain in a small population sample.[9]

The Non-Communicative Patient's Pain Assessment (NOPPAIN) was found to be a valid measure of pain in those with cognitive impairments in two small sample studies.[2] Patients with severe dementia do not experience less pain intensity. The inability of some behavioural observation methods to capture pain intensity can limit their clinical utility.[5]

In this issue of the *Journal*, Cheung and Choi[10] have undertaken a pilot study to evaluate the inter-rater reliability of the PACSLAC in patients with severe dementia when caregiver staff administer it. In each of the 50 patients studied, the researcher and the caregiver independently completed a PACSLAC rating during the patient's usual personal care.

The authors refer to the American Geriatrics Society categories of behavioural pain indicators such as:[2] facial expressions (e.g. rapid blinking and other facial expressions); verbalisations and vocalisations (e.g. crying or moaning; becoming withdrawn and quiet); body movements (e.g. guarding of a body part, noisy breathing, and fidgeting); changes in interpersonal interactions (e.g. social withdrawal, aggression, or subtle changes in behaviour); changes in activity patterns or routines; and changes in mental status (e.g. confusion).

In their article, Cheung and Choi describe the DOLOPLUS-2 (recently shortened from 10 to 5 items known as the DOLOSHORT), the PAINAD and the PACSLAC. Evidence of validity and reliability for these three-pain assessment scales have been provided by Zwakhalen et al.[11] Two systematic reviews have suggested that further testing of these tools is needed, using more rigorous designs and larger sample sizes.[12,13]

In their pilot study, Cheung and Choi have demonstrated the PACSLAC to have good inter-rater reliability when used by caregivers; the PACSLAC scores were positively correlated to the level of cognitive impairment as measured by the Mini Mental State Examination. Fuchs-Lacelle et al have recently provided preliminary normative data on the PACSLAC.[14] Not only did regular use of the PACSLAC result in increased usage of medications prescribed on an 'as needed' basis, but it led to reduced levels of caregiver stress and burnout as well, when compared with a control condition.

All healthcare professionals should think about the possibility of pain in all contacts with older people, enquire about it routinely and be aware of behaviours that indicate underlying pain. In particular, in older people with cognitive impairment or difficulty in communication, the possibility should always be kept in mind. Pain creates solicitude and disability that significantly influence depression, life-control, and life-interference. If the presence of pain was sought after (in a systematic pain

assessment), and addressed and relieved, the lot of older people would be greatly enhanced.

Substantial research has focused on the development and testing of tools to assess pain in the cognitively impaired elderly. Behavioural observation methods (such as the new 24 item Dutch version of the PACSLAC) offer a promising future for the pursuit of improved pain management practices in older adults with dementia in both acute and long-term care settings.[5]

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The rise and rise of anaesthesia in New Zealand

Wyn Beasley

It is timely that Basil Hutchinson's paper on Eric Anson[1] is published in the *Journal* at this time, because 2008 marks another milestone in a journey that may be said to have begun with Anson.

For Anson was a pioneer, one might say *the* pioneer of anaesthesia as a specialty in this country. In the period between the wars he secured a comprehensive training in the new specialty, then brought his expertise back to his native Wellington. As Hutchinson describes, he strove to establish a niche for specialist anaesthetists in the local College of Surgeons, then a mere 5 years old. He was a clubbable man, and would probably have become president of the Wellington Club if he had stayed in the capital (it was to be his brother Tom who came to occupy the position!)

After the Second World War, in which he served with no less distinction—if a trifle less *élan* —than in the First, he was drawn to Auckland and appointment as its first Director of Anaesthetic Services. He built up an enviable department, and at Green Lane he endeared himself to [Sir] Douglas Robb by his ability to have his patients wake up promptly enough to say 'Thank you, Mr Robb' before leaving theatre.

He was a foundation Fellow of the Faculty of Anaesthetists of the English College in 1949, and of the Australasian College 3 years later, where the luck of the alphabet brought him diploma No. 1. Here he was one of six New Zealand anaesthetists to become foundation Fellows, along with Alf Slater of Wellington, Charles Morkane, Margaret Smith, and EHH "Tim" Taylor of Christchurch, and John Ritchie of Dunedin. Both he and Ritchie would be awarded the Faculty's Orton medal. And the protégés of this group would drive the further development of anaesthesia as a specialty in this country: Jack Watt and Stan Hunt in Auckland; David Wright and Bruce Cook in Wellington; Bill Pryor in Christchurch and Bill Meldrum in Timaru; and Mack Holmes later in Dunedin.

The association between anaesthetists of that generation and their surgical colleagues was a happy and fruitful one; there was much common ground to be explored, especially as the College became involved in public health issues such as the early management of road trauma, in which both groups had an important role as clinicians and also as advocates.

Jack Watt would become the first New Zealander to be elected Dean of the Faculty, 1976–78; he was later Chancellor of the Order of St John in this country. The next time the office of Dean came to these parts was to an Australian expatriate, Barry Baker, then occupying the Dunedin chair, and it would be he who in 1992 led the anaesthetists to their Promised Land, as the Australian and New Zealand College of Anaesthetists [ANCZA]. Within its first decade, the new College spawned two faculties of its own: Intensive Care and Pain Management.

The College of Anaesthetists soon settled into *Ulimaroa*, a stately home in St Kilda in Melbourne; its New Zealand office remained with the College of Surgeons in the shared property of Elliott House until this year, when it too obtained premises of its own in the city.

But this year has been notable in the chronicle of New Zealand anaesthetics in another way: the first New Zealander to be elected President of ANZCA, Leona Wilson of Wellington, assumed office in May. Her appointment has attracted widespread approval, and it would be fair to assume that her predecessors in the development of anaesthesia in New Zealand share the satisfaction felt by her contemporaries.

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Medication beliefs and adherence to antidepressants in primary care

Judith Russell, Nikolaos Kazantzis

Abstract

Aim The aim of this study was to determine whether patient beliefs about the necessity and concerns about medication were associated with adherence among those presenting with depression in primary care.

Methods At the end of a routine consultation with their general medical practitioner, patients completed questionnaires including measures of beliefs about medication, self reported adherence, depression severity, and demographic information.

Results A significant relationship between beliefs in the necessity of antidepressants and adherence was not found. However, patient concerns with medications were positively associated with non-adherence. Where beliefs about the necessity outweighed concerns about taking the medication, significantly greater adherence was observed. Fewer depressive symptoms were also associated with greater adherence.

Conclusions This study extended prior research on the role of patient beliefs in medication adherence for chronic physical health problems by showing the belief-adherence relationship in a depressed patient sample. A balance between beliefs about the costs and benefits of medication are likely to be important in understanding adherence with other medications.

Major depressive disorder is the most common mental health condition seen in primary care. The MaGPIe (2003) study,[1] estimated a 12-month prevalence rate of 18.1% among primary care patients in New Zealand, with 4.4% meeting the criteria for severe depression. The economic burden of depression is heavy,[2] and the burden of depression experienced by the patient and their families is significant.[3–5]

It is widely accepted that primary healthcare providers deliver treatment for the vast majority of patients with mental health concerns.[1,6] Antidepressant medication, such as serotonin-specific and serotonin and noradrenergic reuptake inhibitors are effective and frequently used treatments for the symptoms of depression.[7–9] Research suggests that 40–70% of depressed patients adhere to medication.[10]

Recent research on the determinants of medication adherence has focused on patient beliefs or perceptions.[11] This research has stemmed from the Self-Regulatory model which proposes that adherence is based on an "active decision" by the patient in response to their interpretation of the symptoms they experience. That is, the patient balances their concerns regarding the potential adverse effects of taking the medication with the benefits in deciding whether to adhere.[12]

Various theoretical models have been posited to explain patient adherence with medications, which may be understood as patient feedback or patient satisfaction with the benefits of the treatment versus the costs.[13]

The Beliefs about Medicines Questionnaire (BMQ) has been developed to assess patient's medication beliefs about the potential costs and benefits of taking medication.[14]

A "depression specific" BMQ measure, consists of two constructs assessing the patient's beliefs in the *necessity* of the medication for their health and their *concerns* about the adverse effects of the taking the medication (e.g. stigma, fear of dependency, and concerns about side effects). Patient's perceived benefits of taking the medication is calculated in relation to the perceived harm using a *necessity-concern* differential on the BMQ.[11,14] If the patient perceives that the benefits of taking the medication outweigh the costs or *concerns*, the differential is positive and adherence is predicted to be higher. In contrast, if the patient perceived that the costs of taking the medication are greater than the benefits, the differential is negative and adherence is predicted to be low.

Prior research has shown that the medication beliefs using the BMQ is predictive of medication adherence for patients suffering with asthma, renal disease, coronary heart disease and cancer,[11] asthma,[15] HIV/AIDS,[16] haemodialysis,[17] renal transplant recipients,[18] and haemophilia.[19]

The present study was designed to examine the relationship between medication beliefs and adherence to antidepressant medication in primary care. It was expected that medication beliefs in depressed patients would be similar to those with chronic physical illness. Specifically, it was hypothesised that stronger beliefs about the *necessity* of antidepressants for the treatment of depressions measured by the BMQ would be associated with higher rates of adherence. It was also hypothesised that stronger beliefs about the potential adverse effects (*concerns*) of taking their antidepressants would be associated with lower rates of adherence.

A third hypothesis was that greater medication adherence would be observed when patients had stronger beliefs about the *necessity* of medication compared to their *concerns* about taking it (BMQ differential). Finally, we expected that patients who had more severe depressive symptoms would be less adherent to medication.

Method

Participants—Depressed primary care patients were invited to participate in this study by their general medical practitioner at the end of a routine medical consultation. Due to the unique treatment adherence behaviours associated with adolescents,[20] and older adults,[21] inclusion criteria required that patients were between 18–65 years of age. Patients were also selected on the basis that they were prescribed antidepressant medication of the selective serotonin reuptake inhibitor type (SSRI), specifically for a DSM-IV-R diagnosis of major depressive disorder.

Patients were required to have taken their antidepressants for a minimum period of 6 weeks. This time period was to allow for a pattern of adherence behaviour to be well established at the time of assessment. A priori power analysis identified that 85 participants would be required to detect an effect size of r=0.30 (range r=0.21–0.44[13,15,22,23]) with 80% power, and an alpha criterion of 0.05.

Participants were aged between 21 and 64 years (mean=43.7, median=45.0, SD=11.49). Over half of the participants were female (n=61; 72%) and identified themselves as New Zealand European (n=72; 84%). A high percentage of participants stated that they had received education at tertiary or postgraduate levels (n= 49; 58%).

Measures—Information regarding gender, age, ethnic identity, and highest academic achievement were collected in order to describe the demographic profile of the sample. The general medical practitioners (GP) provided medication information including type and duration of treatment.

The Beliefs about Medication Questionnaire (BMQ)[13] is a reliable and validated questionnaire for the assessment of medication beliefs. In the present study, a specific variation of the BMQ designed to assess medication beliefs a depressed population was employed (R Horne, personal communication, 2005).

This BMQ depression questionnaire consisted of two subscales. The first subscale consisted of five questions measuring the patient's beliefs about the *necessity* of taking the antidepressants (e.g. "My health at the moment depends on these antidepressants" and "Without these antidepressants I would be very ill"). The second subscale consisted of fourteen questions measuring patients' beliefs about the negative affects or *concerns* about taking the antidepressants (e.g. My antidepressants disrupt my life" and "I sometimes worry about the long-term effects of these antidepressants"). The BMQ's psychometric properties have been demonstrated in previous studies.[13,23]

The Medication Adherence Report Scale (MARS) is a reliable and valid self report measure of non-adherence.[22] The MARS was developed to reduce the problems of self-report bias with the development of scale items specifically related to non-adherent behaviours that were phrased in a non-threatening and non-judgemental manner.[22] The MARS has been used in prior research including hospital outpatient samples with chronic pain and hypertension and was shown to have good psychometric properties (R Horne, personal communication, 2005).

The Beck Depression Inventory-Revised (BDI-II),[24] is a widely used self-report measure of depressive symptoms The BDI-II contains 21 items to assess the severity of depression and has excellent data supporting its psychometric properties.[25]

Statistical methods—Data was analysed using Statistical Package for the Social Sciences (SPSS) for Windows (version 11) software. Descriptive statistical techniques were utilised to assess the central tendency variability and normality of the test variables. Due to the non-normal distributions of the study variables, non-parametric statistical analyses and a logarithmic transformation was conducted for the dependent variable (MARS scores).

Spearman correlations were used to establish the relationship between medication beliefs and self reported adherence. Due to the uneven number of items in the two BMQ subscales (*necessity* and *concern*), the individual scale totals were converted to standardised *Z* scores. The *concern* score was then subtracted from the *necessity* score to give the BMQ differential for each participant.

Results

100 questionnaires were distributed to 15 GPs in the Auckland region; 3 questionnaires were returned unanswered, 6 participants who did not meet the selection criteria were excluded from data analysis, and 6 patients who produced statistically significant outliers or missing data were also excluded. Missing data were not imputed. A total data of 85 participants were included in the final dataset for analysis.

Participants in the present study reported high levels of medication adherence. Fifty-four percent (n= 46) had a score above the median (total score of 24 or more) on the MARS (possible range 5-25). Over half of the sample (51%) reported "minimal" symptoms of depression or less as assessed by the BDI-II. The remaining 49% of the sample reported "mild" or "moderate" depressive symptoms and 13% reported "severe" symptoms.

Table 1 shows the Spearman correlation coefficients used to detect the strength and direction of relationship between medication beliefs, depression, and adherence. These correlations indicate that there is no significant relationship between beliefs in the *necessity* of medication and adherence with antidepressants. However, high scores on the BMQ *concern* subscale were positively associated with non-adherence.

In addition, where beliefs about the *necessity* outweighed *concerns* about taking the medication (BMQ differential), significantly greater adherence was observed. Finally, greater depressive symptomatology was associated with non-adherence.

Table 1. Correlations between medication beliefs and adherence

Variables	Adherence to medication
BMQ	
Necessity	0.03
Concern	-0.34*
BMQ-Differential	0.24*
BDI-II	-0.33*

*p<0.001

Discussion

The findings from this study suggest that medication beliefs of depressed patients are consistent with the medication beliefs of those with chronic physical illness. Specifically, adherence to medication was higher for those participants with lower concerns about taking the medication. Furthermore, adherence was greatest in participants whose perceived need for medication exceeded their concerns about taking the medication.

The significant correlation detected between stronger levels of *concerns* about taking antidepressants and levels of adherence deserves further attention. Questions on the BMQ *concern* scale relating to stigma and concern with other people's impressions of antidepressant medication, were the most strongly endorsed questions in the scale. This finding differs from AIDS related research where items rating concern about the long-term effects, side effects and disruption to life were the most strongly endorsed.[16]

Theoretical models predict that the views of others influence the performance of health behaviours such as medication adherence. Depression is the subject of considerable social stigma with many regarding depression as a sign of personal weakness. Thus, the detection of a significant correlation between levels of concern and adherence suggests social stigma may be an important factor in adherence to antidepressants in New Zealand.

The lack of correlation between *necessity* beliefs and adherence is also interesting. Taking into consideration the theoretical background of the study and the high level of adherence reported by this participant group, we predicted that high adherence is related to stronger belief in *necessity* beliefs. Whilst there are limitations to the design of this study, one interpretation of this finding might be that as a group, depressed patients have low levels of belief in the *necessity* of medication. Indeed, this interpretation would be consistent with prior research showing non-adherence with antidepressants can be due to perceived necessity.[26]

The statistically significant correlation between the "BMQ differential" and adherence is similar to other research findings suggesting that adherence may result from a risk-

benefit analysis where beliefs about the necessity of medication to treat depression are balanced against the concerns about adverse effects.

Certain limitations of the present study should be acknowledged. As detailed in the results, the sampling procedure inadvertently resulted in the recruitment of a highly adherent group of patients. This may have been attributed to a selection bias on behalf of patients and GP's and limits the extent to which the findings can be considered representative of primary care in New Zealand. In other words, it is possible that the relationships identified in the present study are only applicable to a highly compliant depressed population.

A prospective study where medication beliefs are measured at the outset of therapy and monitored during the course of therapy alongside adherence would take account of the methodological limitation in the present study and prior research on medication adherence. [27] Assessment of a depressed sample with more severe and complex depression presentations and the nature of the doctor-patient relationship would also provide valuable information, and may account for a greater proportion of the variance in the relationships between beliefs and adherence.

It should also be acknowledged that although the adherence measure used in the present study was developed to minimise the potential for bias, it was still a self report measure and the use of multiple measures of treatment adherence in research is highly recommended (e.g., medication counts).[28]

In conclusion, findings of the present study support the hypothesis that medication beliefs of depressed patients are important in determining adherence with antidepressant treatment. These preliminary results also indicate that perceived social stigma could be important in determining adherence with antidepressants.

The practical implications for those prescribing antidepressant therapies are twofold: assessing patient beliefs about the necessity of the medication, and assessing patient concern about potential adverse effects are likely to provide important indicators of adherence, and by implication prognosis for therapy. This research would suggest that concerns about social stigma might be a particularly important factor for those deciding to begin antidepressant therapy in New Zealand.

Further research examining whether treatment beliefs prospectively predict treatment adherence and outcome is required. Research investigating the effects of tailoring regimens to patients' beliefs is also warranted.

Competing interests: None known.

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The use of the Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC) by caregivers in dementia care facilities

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Abstract

Aim Pain is often under-detected and under-treated in nonverbal patients with severe dementia. PACSLAC is a behavioural assessment tool designed to improve the detection of pain in severe dementia. Previous studies on PACSLAC were primarily with qualified nurses in Canada and the Netherlands. This pilot study is aimed to evaluate the inter-rater reliability of the PACSLAC when it is administrated by caregiver staff.

Method 50 patients from four dementia care facilities were included. For each patient, a PACSLAC rating was completed independently by a medical undergraduate researcher and a caregiver following the caregiver attended the patient's usual personal care with the researcher observing in close proximity.

Results 36 (72%) were female and 14 (28%) were male. The mean age was 82.9 years (SD=7.2) and the mean MMSE score was 7.5 (SD=7.9). A total of 12 caregivers participated in the study. The total PACSLAC scores ranged from 1 to 22 with a mean of 5.7 (SD=4.0). The average percentage of agreement was 0.89 and the Pearson correlation coefficient was 0.83 ($p<0.01$) for the total PASCLAC scores rated by the researcher and the caregivers.

Conclusion This pilot study demonstrated PACSLAC has good inter-rater reliability when it is used by caregivers. We believe a baseline PACSLAC could be performed for each patient at the time of admission to a dementia care facility and re-administered on regular intervals to detect pain-related behaviour and to prompt earlier pain management. Future studies with larger samples and collaboration between different centres will be useful in providing normative PACSLAC values in New Zealand.

In the past decade, pain assessment in patients with dementia has received increasing attention as one of the attempts to improve dementia care in the community.[1–3] The prevalence of pain in elderly nursing home residents is 40–80%.[4–9]

Previous studies suggest that pain is under-detected, and under-treated in older people with dementia.[10,11] Self-reporting is often regarded as the "gold standard" in pain assessment. However, nonverbal older people with dementia are unable to communicate their pain and discomfort. Their ability to interpret pain may also be reduced in the presence of cognitive deficits.

The American Geriatrics Society (AGS) recommends the use of behavioural observation in the assessment of pain in dementia.[12] The six categories of potential pain indicators are: (1) facial expressions, (2) verbalization/vocalizations, (3) body

movements, (4) changes in interpersonal interactions, (5) changes in activity patterns or routines, and (6) mental status changes.

Several structured behavioural pain assessment tools are available for nonverbal patients with dementia. Two recent systematic reviews evaluated the psychometric qualities and clinical utility of a total of 15 existing pain assessment tools.[13,14] Both reviews concluded that existing tools are still in the early stages of development and testing. Zwakhalen et al suggested PACSALC[15] and DOLOPLUS2[16] are the most appropriate scales currently available and further research should aim to improve these scale by testing their psychometric properties and clinical utility.

PACSLAC (Pain Assessment Checklist for Seniors with Limited Ability to Communicate) is a checklist with a total of 60 items organised under four conceptually defined categories: facial expressions (13 items), activity/body movements (20 items), social/personality/mood (12 items), and physiological indicators/eating and sleeping changes/vocal behaviours (15 items) [Appendix 1].

Each item is scored on a dichotomous scale as present or absent. The checklist addresses all six pain behaviour categories included in the AGS guidelines. The initial study on PACSLAC demonstrated good construct validity, internal consistency, and discriminant validity.[15] Prospective studies have also shown PACSLAC has good internal consistency, inter-rater and intra-rater reliability, construct and congruent validity.[17,18]

Previous studies on PACSLAC were primarily administered by qualified nurses and took place in Canada and the Netherlands. The aim of this pilot study is to evaluate the inter-rater reliability of PACSLAC when it is administrated by caregiver staff. Caregivers working in dementia rest homes in New Zealand are involved in the day-to-day care of older people with dementia and they have an important role in monitoring changes in their behaviour.

Method

Study design—This is an observational study. Patients were observed and rated during their usual personal care.

Participants—Participants were stable residents recruited from four specialist dementia rest homes in Hamilton and Cambridge, New Zealand. In New Zealand, residents of dementia rest homes are mobile and confused requiring specialist care in a secure and safe environment.

Due to the presence of severe cognitive impairment, informed consents were obtained from each patient's next of kin and/or welfare guardian. This study was approved by the Northern Y Regional Ethics Committee, New Zealand. We also obtained permission from the managers of the rest homes to conduct this study in their facilities.

Procedure—Caregivers in the four rest homes were given an hour in-service teaching on the presentation of pain in nonverbal dementia patients by an experienced community psychogeriatric nurse (20 years working experience) and a medical undergraduate researcher. The teaching was based on the material "Assessing Pain in Loved Ones with Dementia: A guide for family and caregivers".[19] PACSLAC was introduced and demonstrated to the caregivers.

For each participant, a PACSLAC rating was completed independently by the researcher (rater 1) and the caregiver (rater 2). The ratings were completed after the caregiver attended to the participant's personal care in the morning or evening while the researcher observed the participant in close proximity.

We chose to complete the PACSLAC ratings following personal care because observation for pain behaviour at rest can be misleading, with increased indicators of pain observed during activities.[20–22]

The researcher also asked the participants directly to determine any verbal expression of pain (YES/NO/No response).

The researcher obtained information on demographics (age, gender) and completed a standardised Mini-Mental Status Examination (MMSE) on each participant. Information on the caregivers (including years of experience in dementia care and training) were obtained.

In New Zealand, most rest homes use the education courses provided by Health Ed Trust NZ.[23] The ACE Core Programme is a 12-module programme developed to provide on-site education for caregivers. The topics covered are: an introduction of residential care facilities, the ageing process, physical care of residents, infection control, lifting and physical safety, continence promotion and management, communication skills, nutrition and hydration, basic first aid and medications.

The ACE Dementia series is a 8-module series and included topics on delirium and dementia, caring for carers, person-centred care, managing the effects of dementia, understanding the behavioural and psychological effects of dementia and restraint minimisation and safe practice.

Statistical analysis—The computer statistical package SPSS was used to perform descriptive statistics on demographics and PACSLAC scores. ANOVA was performed to determine differences in MMSE and PASCLAC scores between groups. Inter-rater reliability for the PACSLAC was estimated with (1) percentage of agreement on the 60 items between the researcher and caregivers, and (2) Pearson correlation between the PACSLAC total scores rated by the caregivers and the researcher

Results

Characteristics of the participants—52 of the 100 patients in the four dementia rest homes were recruited. Two patients were excluded because they did not require assistance from the caregivers for their personal care; 36 (72%) were female and 14 (28%) were male. The mean age was 82.9 years (SD=7.2) and the mean MMSE score was 7.5 (SD=7.9).

Characteristics of the caregivers—12 caregivers participated in the study. Two of them have since resigned, before we could obtain information on them. For the 10 remaining caregivers, their ages ranged from 21 to 61 years, with a mean of 43.6 (SD=12.3). They were mainly female (n=9).

Their number of years of experience in dementia care ranged from 3 months to 23 years, with a mean of 7.9 (SD=8.0). Six had completed all modules of the ACE Core Programme and ACE Dementia Series. Two had no training at all with the ACE Programme. One had completed two modules from each of the ACE Core Programme and ACE Dementia Series, whilst one had completed six modules of the ACE Core Programme but none of the ACE Dementia Series.

PASCLAC ratings—The total PACSLAC scores ranged from 1 to 22 with a mean of 5.7(SD=4.0) The mean scores for the four subscales are shown in Table 1. There is no statistically difference between the mean total PACSLAC scores for female (5.6, SD=4.5) and male (5.7, S.D.=2.7) (p=0.953). The 50 patients were classified into two groups according to their MMSE scores (Group 1: MMSE < 10, n=30; Group 2: MMSE ≥10, n=20) and a sub-analysis was performed to determine the mean PACSLAC scores for the two groups. The cut-off point of 10 was chosen because a MMSE score of less than 10 is generally suggestive of severe dementia. The mean PACSLAC score was 6.9 (SD=4.4) and 3.8 (SD=2.5) for Group 1 and Group 2 respectively (p=0.006). These results suggest patients with more severe dementia have higher PACSLAC scores.

Table 1. The mean (and SD) for the total PACSLAC scores and the four subscales

Subscales	Mean	SD
Facial expressions	1.4	1.3
Activity/body movements	2.2	1.8
Social/personality/mood	1.0	1.6
Others	1.1	1.0
Total	**5.7**	**4.0**

SD=standard deviation.

Table 2 shows the mean PACSALC scores for patients who (1) responded "YES", (2) responded "NO", and (3) no reply when they were asked directly on their experience of pain. There were no significant differences between the PACSLAC scores for the three groups.

Table 2. Mean PACSLAC scores for patients who (1) responded "YES", (2) responded "NO", and (3) no reply on direct questioning on pain

	Verbal expression of pain	n	Mean	SD	P value (ANOVA)
Mean PACSLAC	Yes	6	4.3	3.6	0.198
	No	25	5.0	4.1	
	No reply	19	7.0	3.9	

Inter-rater reliabilities—The average percentage of agreement for the 60 items was 0.89. Table 3 shows the Pearson correlations between the total PASCLAC scores and the subscales scores rated by the researcher and the caregivers. The correlations were strongly significant which support the inter-rater reliability of PACSLAC.

Table 3. Pearson correlations between the total PASCLAC scores and the subscales scores rated by the researcher and the caregivers

		Caregivers				
		Facial expression	**Abnormal body movements**	**Social/personality/ mood**	**Others**	**Total PACSLAC**
Researcher	Facial expression	0.59**				
	Abnormal body movements		0.72**			
	Social/personality/mood			0.85**		
	Others				0.67**	
	Total PACSLAC					0.83**

**Correlation is significant at the 0.01 level (2-tailed).

Discussion

One of the advantages of using a standardised pain assessment tool is that it can increase nurses and caregivers' awareness and encourage them to take the process of pain management more proactively.

Previous studies have found nurses, family/caregivers, and certified nursing assistants can recognize the presence, but not intensity, of pain in cognitively impaired patients.[24–27] This study has demonstrated PACSLAC has good inter-rater reliability when it is used by caregivers working in specialist dementia rest homes.

At the present time, PACSLAC is not recommended by its authors to be used for routine clinical purposes.[17] However, when adequate psychometric properties are demonstrated in further prospective studies, we believe a baseline PACSLAC could be administered for each patient at the time of admission to dementia care rest homes and re-administered on regular intervals (e.g. every 3 to 6 months) to detect any pain related behaviour.

Early detection of painful medical conditions could result in earlier investigation and treatment to improve the quality of life of patients with dementia. Resources in dementia rest homes are usually limited and a tool which can be reliably and easily administered by nurses and/or caregivers is certainly welcomed. Caregivers could also be empowered as part of the treatment team by being able to provide information on pain behaviour in patients with dementia.

Self-reporting of pain (a simple yes/no or vocalization) from a patient with limited verbal and cognitive skills has been suggested as the first step in pain assessment.[3,28] However, a large proportion of older people living in institutions are unable to understand and answer even simple yes/no questions, and therefore cannot self-report pain.[6,29]

In this study, there was little difference found in PACSLAC scores for the group of patients who answered "YES" and the group who answered "NO" to pain. It appears that direct question on pain is neither useful nor reliable. It can also be misleading for clinicians or caregivers who have had little training or experience in the presentation of pain in dementia.

This study found that PACSLAC scores were positively correlated to the level of cognitive impairment, a similar finding by its authors.[15] This does not necessary imply a patient with a more severe dementia will exhibit more severe pain-related behaviour. Dementia itself is associated with a number of behavioural and psychological symptoms and many of them (such as wandering, aggression, anxiety, and agitation) are present in the PACSLAC checklist. Nevertheless, in the development of PACSALC, it was believed the checklist could differentiate between painful and non-painful conditions in patients with dementia.

The PACSLAC checklist is long and covers a broad range of possible pain cues.[14] Although a longer and a more comprehensive checklist may be more sensitive, it could mistakenly identify patients for whom pain is not present.[1]

Nurses also found the PACSALC 60-items checklist had too many items and several items seemed superfluous and other items overlapped. In light of these, a shorter

Dutch version of PACSLAC (PACSLAC-D) with 24 items was developed.[30] Ongoing research with PACSLAC-D is taking place in the Netherlands.

The mean total PACSLAC score in this study was 5.7 which is much lower than the mean score of 11.0 found in another study conducted in Canada.[17] Possible explanations of this difference include differences in the samples (e.g. culture, degree of cognitive impairment, medical comorbidites, use of analgesics) in care facilities in Canada and New Zealand.

The authors of PACSLAC highlighted the importance of collecting local norms for this tool in order to facilitate clinicians' ability to draw conclusions about the pain status of individual patient.

A recent Dutch study[18] explored the psychometric quality and clinical usefulness of three pain assessment tools (PACSLAC, DOLOPLUS2[16] and PANIAD[31,32], Pain Assessment in Advanced Dementia Scale) for elderly people with dementia.

DOLOPLUS2 consists of 10 items covering the somatic, psychomotor, and psychosocial impacts of pain. Each of the 10 items can be described at one of four different levels—rated from 0 to 3—representing increasing intensity of pain. A score of at least 5 out of 30 is considered to indicate pain.

PAINIAD consists of 5 items with three response options scored from 0 to 2 (with a range for the total scale of 0 to 10). Increasing levels reflect increasing degrees of pain. Examples of response modalities included in the "facial expression" item are 0=smiling, 1=sad, frightened, frowning; 3=facial grimacing.

In this Dutch study, PASCLAC was valued as the most useful scale by care providers; while PAINAD had lower scores for clinical usefulness and DOLOPLUS2 was considered more difficult to use.

There are several limitations in this pilot study:

Firstly, it has been acknowledged that the experience of pain can be different in different types of dementia.[33] The types of dementia were not specified in this study. Mixed types of dementia are common. It was beyond the scope of this study to have all the patients reviewed by a specialist psychogeriatrician or geriatrician and/or to have neuroimaging to determine the types of dementia.

Secondly, ratings by the medical undergraduate researcher who has little experience in dementia care was used to compare with those by the caregivers. The authors of PACSLAC recommend qualified nurses for its administration. However, feedback from the medical undergraduate researcher and the caregivers suggest PACSLAC is relatively simple to learn and it takes about 5 minutes to complete.

Thirdly, the sample in this study was recruited in one part of New Zealand and may not be representative of other specialist dementia rest homes in the country. Future observational studies can be designed to address some of these limitations. For example, including patients who meet the DSM-IV criteria for dementia; collaboration between different centres in New Zealand and other countries; intra-rated and inter-rater reliability can be improved with standardised training and calibration exercises by qualified trainers (particularly if different centres are

involved); and the shorter 24 items version of PASCLAC will be the preferred assessment tool.

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Appendix 1. Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PASCLAC)

Facial Expressions	**Present**	**Social/Personality/Mood**	**Present**
Grimacing		Physical aggression	
Sad Look		Verbal aggression	
Tighter face		Not wanting to be touched	
Dirty look		Not allowing people near	
Changes in eyes		Angry/mad	
Frowning		Throwing things	
Pain expression		Increased confusion	
Grim face		Anxious	
Clenching teeth		Upset	
Wincing		Agitated	
Opening mouth		Cranky/irritable	
Creasing forehead		Frustrated	
Screwing up nose			
Activity/Body Movement	**Present**	**Others**	**Present**
Fidgeting		Pale face	
Pulling away		Flushed, red face	
Flinching		Teary eyed	
Restless		Sweating	
Pacing		Shaking/trembling	
Wandering		Cold/clammy	
Trying to leave		Changes in sleep	
Refusing to move		Changes in appetite	
Thrashing		Screaming/yelling	
Decreased activity		Calling out	
Refusing medications		Crying	
Moving slow		A specific sound or vocalization for pain	
Impulsive behaviour		Moaning and groaning	
Uncooperative/resistant to care		Mumbling	
Guarding sore area		Grunting	
Touching/holding sore area			
Limping			
Clenched fist			
Going into foetal position			
Stiff/rigid			

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General practitioners' views on the major psychiatric classification systems

Steven Lillis, Graham Mellsop, Gaelle Dutu

Abstract

Aim To understand the views of general practitioners on the utility of diagnostic schema as used by specialist psychiatrists and principles that would increase the value of diagnostic schema to general practitioners.

Method A postal survey of 1000 vocationally registered general practitioners in New Zealand

Results Diagnostic schema such as the DSM-IV and ICD-10 are seldom used by general practitioners due primarily to their complexity and a lack of familiarity with them. Providing decision support on pharmaceutical treatment, appropriate secondary care referrals and improving communication across the primary/secondary care divide are principles that should guide the development of future diagnostic schema. Integration of schema into existing computerised practice management systems is considered a key success factor.

Conclusion Specialist devised schema fit uncomfortably into general practice. There is need for management orientated diagnostic schema that meet the requirements of general practitioners.

Systematic community surveys have demonstrated a disease burden of mental health which well exceed the capacity of specialist mental health services, even in the more affluent countries.[1,2]

It has been shown that one in three people presenting to their general practitioner (GP) have had a diagnosable mental disorder within the previous year;[3] one-third of those will seek help for their disorder.[4]

Recognition of this mismatch between total community psychiatric morbidity and available specialist resources has led to worldwide commitment to increasing the delivery of skilled mental health care within the setting of primary care.[5]

Recognition of the clinical profiles of psychiatric morbidity seen in primary care has been limited. The 10th Edition of the Mental and Behavioural Disorders Section (Chapter V) of the International Classification of Diseases has a primary care version.[6] However, the principles underlying classification of psychiatric morbidity have been specialist driven and no systematic attempts to inform the development of classification that would be useful in primary care in the context of the current developmental work for ICD-11 and DSM-V have been published.

Conversely, several studies have been conducted to determine the views of psychiatrists on the utility of current diagnostic schemata.[7,8]

A qualitative study was undertaken to canvass the opinions of 34 GPs in rural and urban practices regarding diagnosis and diagnostic schema in primary care and has been previously reported.[9] The topics discussed in the focus groups were:

- The use and utility of diagnostic classification systems such as the DSM4 and ICD.
- What factors (including cultural) influence the diagnostic process.
- Perceived differences in the diagnostic process between GPs and psychiatrists.
- Factors that would increase the utility of a diagnostic schema.

That study concluded that the ICD-10 and DSM-IV were regarded as unhelpful by the participant GPs, and that any new schema should:

- Incorporate a strong focus on clinical management in a general practice setting,
- Integrate with computerised practice management systems,
- Be reflective of the epidemiology of the psychiatric morbidity seen in primary care settings, and
- Be consistently used across undergraduate and postgraduate training.

To understand the generalisability of the results across a wider population of GPs, a survey was undertaken. We report the results of this survey of 403 vocationally trained GPs.

Method

Ethics approval was obtained from the Multi-Region Ethics Committee. A power study suggested that at 30% response rate, we would need to approach approximately 800 practitioners to obtain data that would show significant differences. The register of all New Zealand vocationally registered GPs was obtained and 1000 randomly chosen.

The New Zealand questionnaire was based on the conclusions of the previous qualitative results and tested on a group of general practice trainees. Slight modifications were made as a result of this pilot and the survey was posted with a stamped addressed envelope attached. Respondents were assured of anonymity by having no personal identifying information on the survey form sent. Cross tabulations between replies and demographics were performed. A Chi-squared test was used to calculate the independence of variables.

Results

Of the 1000 sent, 26 replies indicated that the doctor had retired or the address was wrong. There were 403 valid responses to the remaining questionnaires thus giving a response rate of 41%.

Demographics—A comparison of survey respondents with national data for vocationally registered GPs showed very similar gender distribution as well as almost identical age distribution (see Table 1).

Table 1. Demographics

Variables	National data	Study data
Female	37%	41%
Male	63%	59%
Age 31–40	8.8%	8.9%
Age 41–50	45.1%	43.7%
Age 51– 60	35.8%	36.3%
Age 61 +	10.3%	11.1%

Using diagnostic schema—A significant majority of respondents indicated that they rarely or never used formal diagnostic schema to diagnose mental illness in general practice. Less than 10% reported using schema either 'half the time' or 'often/always' (see Table 2).

Table 2. Diagnostic schema

Use of schema	Percentage
Never/rarely	82.0%
Half the time	8.8%
Often/Always	9.1%

Reasons for not using schema—To the question "When you do **not** use either of these classification systems, what are your reasons?" the responses were as shown in Table 3:

Table 3. Reasons for not using schema

Reasons	Strongly agree/agree	Neutral	Strongly disagree/disagree
Limited experience and knowledge of schema	75%	13%	12%
Too complex	66%	22%	12%
Too rigid	57%	33%	11%
Other reasons	56%	34%	10%
Don't reflect mental illness seen in general practice	51%	30%	19%
Not management focused	49%	39%	13%
Poor reliability of coding between practitioners	44%	42%	14%

Increasing age of practitioner is positively correlated with stating 'poor reliability of coding between practitioners' as a reason for not using diagnostic schema. This was reported by 21.9% between 31–40 years old, 44.9% between 41–50 years old, 43.7% between 51–60 years old, and 67.7% over 61 years of age (p=0.018).

Increasing years since graduation was also positively correlated with indicating 'poor reliability of coding between practitioners' as a reason for not using diagnostic schema, the data showing 57% for the 6-10 years, 67.7% for the 11-15 years, 75.7% for the 16-20, 76.9% for the 21-25 and 76% for the >25. (p=0.10).

Increasing age of practitioner also correlated positively with 'Too rigid' as a reason for not using schema and 'Not management focussed'. Conversely, those with less experience felt that schema were 'Too rigid'. GPs with the most experience were less likely to indicate 'Not management focused' as a reason. These most experienced practitioners were also less likely to state 'Too complex'.

Female GPs were more likely to consider 'Not management focused' as a reason for not using schema than their male counterparts as were practitioners who receive a rural bonus.

Factors influencing a diagnosis—The question posed was: "Please rate how often each of the following factors influences you when you apply a diagnostic label to mental disorder." Replies are shown in Table 4.

Table 4. Factors influencing a diagnosis

Factors	Always/Very often	Sometimes	Rarely/Never
Assist in choice of pharmacological treatment	70%	18%	12%
Communication with other health workers	67%	24%	10%
Assist in decision regarding referral	55%	29%	16%
Providing the patient with a label for their symptoms	52%	36%	12%
Assessing the safety of the patient or others	48%	33%	20%
Medico-legal documentation	36%	33%	31%
Other factors	24%	47%	29%

Cross tabulations with demographics revealed only that GPs with more than 25 years experience were less likely to be influenced by 'Communication with other health workers' (68% for the ≤25 years compared to 64% for the >25 years, p=0.046).

New classification—The replies to the question 'If there were to be a new diagnostic classification for mental illness, would the following features be useful?' are shown in Table 5.

Table 5. Features of a new diagnostic classification for mental illness

Features	Strongly agree/agree	Neutral	Strongly disagree/disagree
Assist with management decisions on pharmacological therapy	94%	5%	1%
Provides information that assists in distinguishing between various diseases	92%	7%	1%
Assist in accuracy of diagnosis	92%	7%	1%
Assist with decision on referral to secondary services	85%	12%	3%
Gives information concerning prognosis	78%	19%	3%

Cross tabulation with demographic data showed that 88.6% of those greater than 50 years old agree that a new classification system would 'Assist in accuracy of diagnosis' compared to 95.7% of those age 50 or less years old (p=0.020).

Management features—Respondents were asked to indicate their agreement with three specific issues regarding a schema identified in the previous study. See Table 6.

Table 6. Management features

Features	Strongly agree/agree	Neutral	Strongly disagree/disagree
Same system across primary and secondary care	93%	6%	1%
Integrated with computerised notes	89%	10%	2%
Limit coding options to only common illness seen in general practice	50%	27%	23%

Discussion

Clearly, GPs seldom use diagnostic schema when making a diagnosis of mental illness. It would seem that even the development of a primary care version of the ICD-10 has failed to induce systematic application of diagnostic schema in the study general practices, a finding supported by previously published research.[10] Indeed, the published literature conveys a sense of frustration over the failure of intervention to improve diagnosis, management and treatment of mental illness in general practice.[11]

Exhortations are commonly made for GPs to embrace schema based diagnostic systems that are prevalent in specialty psychiatry.

In searching for an explanation as to why such a rift has opened between general practice and specialty psychiatry, Jacob commented *"The culture of primary care psychiatry borrows heavily from academic psychiatry and attempts to adapt it to the reality of primary care. The compromise is uneasy, unstable and difficult to apply in general practice."*[12] As noted by Kendrick in a BMJ editorial, the bimodal distribution of 'disease-no disease' implicit in diagnostic schema conflicts with the continuously distributed nature of symptoms in the population presenting to GPs.[13]

This study revealed that the reasons for minimal use of schema are that GPs believe they have little knowledge or experience with such schema, as well as a perception that the schema are too complex and rigid. Lesser reasons are that current schema are not management focused, may not reflect the nature of mental illness seen in general practice and concerns over the reliability of schema as a diagnostic tool. Concerns over reliability of coding mental illness became more prominent with increasing age and increasing years since graduation.

The importance of diagnosis in the management of mental illness was revealed as a contentious issue. Although only half of practitioners stated that a lack of management focus was a reason for not using schema, the majority of those surveyed felt that the role of diagnosis was to inform pharmacological therapy and to assist in decisions regarding the boundary between primary and secondary care.

The vast majority felt that an important role for a new schema would be to assist in choice of pharmacological management in mental illness. It would seem that for GPs there is a strong desire for the diagnostic process to inform management even if there is little faith in, or familiarity with, the current and accepted diagnostic processes used by specialist psychiatry. A surprising finding was the relatively low priority placed on

medico-legal documentation as a reason for making a diagnosis in comparison to the management imperative of assisting with clinical decision-making.

The most desired attribute of a new classification was that it would assist with choice of pharmacological management. This accords well with the finding that the most valued outcome from making a diagnosis is greater clarity of pharmacological therapy. These combined findings would suggest that GPs would welcome an enhanced level of decision support beyond what is currently available concerning selection of appropriate pharmacological therapy.

Diagnostic accuracy (sensitivity) and being able to distinguish between disease entities (specificity) were also considered important in any future classification system.

There was a clearly expressed desire for sharing of future classification systems across primary and secondary care. A shared classification system would considerably improve communication between primary and secondary health services. Communication between health providers was considered important as an influencing factor when making a diagnosis.

In comparison, the support for restricting a coding system to only those conditions seen in general practice was limited. It is likely that these results reflect a desire to create high levels of effective communication across the primary/secondary care divide, a clinical area where communication has historically proved problematic.

The majority of general practices are highly computerised; clinical notes, disease coding, generating prescriptions as well as ordering and collecting laboratory and radiology data are standard modules of practice management systems. It is therefore not surprising to find strong support for the concept of integrating classification systems into the practice management system.

It is apparent that GPs are faced with an ‘unworkable system’ in current schema based methods of classification that are externally imposed. Similarly, methods of classification designed principally for primary care use would equally represent an unpalatable solution to those in secondary care. Of further consideration is the missing voices; those who suffer from mental illness and the social networks that support them. It is timely, therefore, to begin new conversations regarding the purpose of diagnosis, the purpose of classification and the primacy of management. Such conversations need to involve the society in which we practice.

Conclusion

Current schema are almost never used by GPs due to their complexity, rigidity and a sense of unfamiliarity with them. There is a perceived need amongst GPs for decision support principally concerning pharmacological management of mental illness and the diagnostic process has a pivotal role in such decision support mechanisms. There is also a desire for effective communication between primary and secondary providers of care for which diagnostic schema would provide a common language. Integration with existing information systems is a key success factor for increasing utilisation of diagnostic classifications. Future developments of diagnostic schema should involve those affected directly and indirectly by mental illness and reflect both primary and secondary care needs.

Competing interests: None known.

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Experts' views on long-term care in New Zealand

Mark Booth, Edward Alan Miller, Vincent Mor

Abstracts

Aims This study reports findings from the first national survey of long-term care opinion leaders in New Zealand.

Methods Potential respondents were chosen purposively based on their knowledge and experience in long-term care policy and planning. Questions focused on assessing views regarding long-term care quality, financing, services, workforce, organisation, and regulation. The survey was administered via Web-based format during May–June 2007. Seventy-three individuals responded for an overall response rate of 47.7%.

Results Experts support cost-sharing, insurance, and individual savings/preparation as supplements to predominately government-based financing. They view increased compensation and improved work environments as the key to recruiting/retaining paraprofessionals and educational assistance and curriculum reform as the key to attracting professionals. Most would expand access to home-based support through adoption of comprehensive service packages and various navigational aides (e.g. care coordination, counselling). Consumer-direction and public payment of family members were also deemed desirable. There was a lack of knowledge regarding emerging models of culture change/client-centred care in long-term care. Promoting quality by advising providers about how to improve quality and increasing public availability of comparative provider information was highlighted.

Conclusions There are varying degrees of consensus regarding the kinds of solutions to long-term care problems that are viable from a policy perspective. Results should help determine how best to improve the current system to meet the needs of the growing elderly population.

Introduction—Industrialised nations such as New Zealand face growing concern associated with the way long-term care is delivered, regulated, and financed.[1–5]

Indeed, the demand for chronic care and disability services will rise precipitously over the next quarter of a century as the leading edge of the "baby boom" generation reaches 85 years of age. Yet despite the well known issues associated with a rapidly ageing population and several previous international surveys, both of healthcare experts and the general public,[6–11] there has been no previous research profiling the views of long-term care opinion leaders.

This is problematic because long-term care experts are in an excellent position with which to help articulate existing problems in meeting the needs of frail older people and to contribute solutions to the challenges of financing, delivering and improving the quality of the services used by this population.

This article reports findings from the first national survey of long-term care opinion leaders in New Zealand. Students of the policy process have long recognised that

policy proposals are typically generated, debated, redrafted, and accepted for consideration through the gradual accumulation of knowledge among communities of specialists.[12] Thus, the primary purpose of the survey was to characterise the views of those active in the long-term care specialist community, in particular.

Views were elicited on a wide range of issues, including provider quality and challenges, financing, linking individuals and families to services, workforce recruitment and retention, physical and organisational change, and quality improvement and regulation.

Long-term care in New Zealand—New Zealand is ageing rapidly. Currently, 12% of the population is 65 years or older; a figure projected to increase to 22% by 2030. In addition, life expectancy is growing steadily, with life expectancy at birth increasing 2.2 years for females and 3.5 years for males between 1995–97 and 2004–06 to 81.9 and 77.9 years, respectively.[13]

This means that in the future New Zealand will have considerably larger cohorts of individuals in the oldest age groups, thereby increasing requirements for care in both residential and home-based settings. Thus, whereas only 0.5% of individuals aged 65–69 years were in subsidised residential care in 2006, 20% of those aged 85 or older received those services.[13]

Going hand-in-hand with population ageing is an increase in age-related ailments, physical and cognitive impairments, and acute incidents (e.g. falls) which necessitate the need for support from formal institutional and home- and community-based caregivers, as well as familial and other informal providers.

The vision for long-term care in New Zealand promulgated by the Ministry of Health is to enable individuals to live within their own homes for as long as feasible and to have appropriate residential care available for those who need it.[14]

In 2006, 56,673 persons, or 70.0% of those aged 85 years or older, lived in their own homes, a small percentage but large absolute increase from the 67.0% (or 25,974 persons) who did so a decade earlier.[13]

Both residential- and home-based care in New Zealand is predominantly provided by private sector organisations–a mixture of for-profit, religious and voluntary groups–but funded through the District Health Boards (DHBs) who purchase services on behalf of their populations.

Historically, residential care (but not home-based care) has been subject to means testing, with individuals having to make substantial out-of-pocket contributions depending on available income and assets. This situation changed in 2005, with a government announcement that asset testing would gradually be phased out.

Methods

Instrument construction—The primary objective of the survey was to characterise the views of long-term care opinion leaders in New Zealand. The definition of long-term care guiding development of the survey instrument encompassed the full panoply of ageing-related services, ranging from long-term residential care provided in rest homes and other facilities to paid home- and community-based care provided by local agencies and contractors to unpaid assistance provided informally by family and friends.

Initial construction was informed, in part, by the authors' knowledge of the field, literature review, and previously conducted in-depth interviews.[15] It was then further refined through peer review and focus group feedback as well as the results of cognitive interviews, which provide observers insights into respondents' understanding and processing of each question.[16]

Questions focused on respondents' views and policy recommendations. Response formats varied, with some questions asking respondents to select the top/most preferred option, others to select and rank order the top three.

All others questions asked respondents to assess items on five-point Likert scales ranging from 1 (poor/strongly-oppose/do-not-prefer/not-at-all-effective/not-at-all-familiar/not-at-all-well/not-promising/entirely-central) to 5 (excellent/strongly-favour/strongly-prefer/very-effective/extremely-familiar/very-well/very-promising/entirely-local). Basic demographic and other background information were also collected.

Sampling frame development—Potential respondents were chosen based on a combination of purposive and snowball sampling.[17] With purposive sampling, prospective respondents are chosen for specific purposes and for specific representation. With snowball sampling, you begin by identifying people who meet the criteria for inclusion in your study. You then ask them to recommend others they know who also meet the criteria who in turn recommend others, and so on.

Thus, the combined purposive-snowball strategy selection of potential respondents was based on our own knowledge regarding which individuals would best inform the study, with additional names being added based on the recommendations of those who had been identified initially. When no additional names were being added and the same names kept coming up as a result of our inquiries, sampling ceased.

The combined purposive-snowball approach to subject recruitment is most appropriate in situations such as ours where, in the absence of a known population, a truly random sample is not possible but a respondent pool consisting of individuals with carefully specified characteristics needs to be assembled. Here, our goal was to identify persons of known or demonstrable experience and expertise in long-term care policy development and planning.

Thus, we sought to recruit well published and respected academics, leading provider and consumer advocates, and government officials charged with this area. Our final sample of 153 potential respondents consisted of individuals representative of five general constituency groups: academic-/non-academic based policy experts and analysts (10%); policymakers in central government (15%); district health board employees (primarily funding and planning mangers and health of older people portfolio managers) (37%); provider representatives/consumer advocates (24%), and others such as Union representatives (14%).

Because we sought to characterise the views of long-term care opinion leaders, we did not survey individual consumers or providers but instead members of the organisations that represent them in higher level discussions about long-term care policy and planning.

Survey administration—The survey was administered via the World Wide Web during May-June 2007. Use of Web-based surveys has proliferated in recent years, resulting in considerable refinement in the strategies and protocols used in Internet data collection.[18,19] This combined with the associated convenience and seeming anonymity of Web-based administration may have enabled us to recruit more respondents than if we had relied on a mail- or phone-based strategy. Furthermore, we were able to maintain tight control over both the respondent pool and the order of question administration.

The survey was administered using software developed by an online vendor, DatStat Illume (http://www.datstat.com/index.shtml). Each prospective respondent was sent an email cover letter from the investigators. This email introduced the survey and provided enough information to ensure informed consent. It also included a Web-link to the survey along with a unique identification number (ID) and password that could only be used once.

Respondents were sent a series of four reminder emails over the next 35 days. Respondents were asked to answer the questions in the survey based on their personal knowledge and attitudes as key stakeholders in the field of long-term care and aging.

Respondents brought their own definitions of long-term care to bear when answering the questions The research protocol was approved by the Institutional Review Boards at Brown University and Auckland University.

Analysis—Simple counts and proportions are calculated for the survey responses. These are based on the number of respondents answering particular questions. We have opted not to present statistical testing partly because our sampling process was purposive rather than random, and partly because we took a population census approach to putting our pool of potential respondents together.

Results

Respondent characteristics—Of 153 potential respondents 69 completed the entire survey; 73 at least part of the survey for an overall response rate of 47.7%. Response rates varied across the five constituency group surveyed. These were 38% for academic/non-academic policy experts, 56% for central government policymakers; 49% for district health board employees; 31% for provider representatives / consumer advocates; and 38% for others. The overall response rate, however, is considerably higher than other Web-based surveys, including the 18.6% response rate associated with an October 2007 health care opinion leader survey in the USA.[8]

Table 1 reports characteristics of the respondents. A slight majority were female with more than three quarters living on the North Island, a large percentage in the Capital and Coast DHB area due, primarily, to the location of pertinent government ministries and the headquarters of influential lobbying groups. Most were mid-career professionals between the ages of 35 and 54. Thus, although there was a wide range of experience (up to 30 years), two-thirds reported working in long-term care for 10 years or less.

Nearly half had at least some postgraduate education; most had incomes greater than $75,000 per year. The majority worked in government, either at the central- or DHB-level. A large proportion had close friends or family who had been served by the long term care system, with approximately three quarters reporting use of a rest home, more than half paid home care.

The current state of long-term care—Respondents were asked to assess the quality of care provided by the main types of support currently available in New Zealand. At 71.2%, a considerably higher percentage ranked the quality of care provided by the average hospice “very good” or “excellent” than any other provider type (Table 2).

By contrast, a little more than one third ranked home-based support services “fair” or “poor.” Much higher percentages (>21.0%) indicated “don’t know” for assisted living, adult day, and hospice than for rest homes (4.1%), home-based support (5.5%), and hospital care (6.9%). This implies that respondents had less knowledge and experience with which to judge the quality of the former three provider types than the latter.

Table 1. Characteristics of respondents (n=69)

Characteristic	Number (%)
Current employment position[1]	
District Health Board	32 (46.4)
Central Government	13 (18.8)
Provider Organisation	12 (17.4)
University/Academic Medical	9 (13.0)
Other	10 (14.5)
Gender:	
Female	37 (53.6)
Male	32 (46.4)
Age:	
25-34 years	6 (8.7)
35-44 years	18 (26.1)
45-54 years	29 (42.0)
55-64 years	9 (13.0)
65-74 years	5 (7.3)
75-84 years	2 (2.9)
Years working in long-term care:	
1-5 years	30 (43.5)
6-10 years	16 (23.2)
11-15 years	10 (14.5)
16-20 years	8 (11.6)
21-30 years	5 (7.3)
Family member/friend served by long-term care system:	
No	21 (30.4)
Yes	48 (69.6)
If Yes:[1]	
Rest home	35 (72.9)
Paid home care	26 (54.2)
Unpaid home care	16 (33.3)
Assisted living	11 (22.9)
Adult day care	10 (20.8)
Other	12 (25.0)
District Health Board of residence:	
Capital and Coast	20 (29.0)
Auckland	8 (11.6)
Canterbury	7 (10.1)
Waikato	4 (5.8)
Other North Island	21 (30.2)
Other South Island	9 (13.3)
Highest grade of education completed:	
Some college	2 (2.9)
Some tertiary	4 (5.8)
Tertiary graduate	29 (42.0)
Masters level post-graduate work	23 (33.3)
Doctoral-level post graduate work	11 (15.9)
Pre-tax household income:	
$15,001-$30,000	3 (4.4)
$30,001-$50,000	2 (2.9)
$50,001-$75,000	3 (4.4)
$75,001-$100,000	18 (26.1)
$100,001-$150,000	15 (21.7)
$150,001+	26 (37.7)
Don't Know	2 (2.9)

[1]Respondents could check more than one category

Table 2. Experts' views on long-term care (LTC): quality, funding, linkages, technology, regulation

	Response Category				
Approach	**1**	**2**	**3**	**4**	**5**
Quality: ranking the quality of care provided by the average….(1=poor to 5=excellent, don't know) (n=73)					
Rest home	1.4% (1)	12.3% (9)	57.5% (42)	24.7% (18)	0.0% (0)
Home-based support agency	5.5% (4)	30.1% (22)	39.7% (29)	17.8% (13)	1.4% (1)
Assisted living facility	2.7% (2)	8.2% (6)	31.5% (23)	17.8% (13)	0.0% (0)
Adult day care centre	1.4% (1)	14.9% (11)	3 9.2% (29)	18.9% (13)	1.4% (1)
Hospital	1.4% (1)	8.2% (6)	52.1% (38)	31.5% (23)	0.0% (5)
Hospice	0.0% (0)	1.4% (1)	5.5% (4)	49.3% (36)	21.9% (16)
Funding: Responsibility for paying for LTC needs (1=strongly oppose, 5=strongly favour) (n=73)					
Government programmes cover most LTC costs	1.4%(1)	8.2% (6)	21.9% (16)	35.6% (26)	32.9% (24)
Individuals should pay for most of their LTC costs	13.7% (10)	32.9% (24)	39.7% (29)	12.3% (9)	1.4% (1)
Employers should contribute to their employees/retirees LTC Costs	45.2% (33)	24.7% (18)	23.3% (17)	5.5% (4)	1.4% (1)
Adult children should contribute to their parents LTC costs	41.1% (30)	34.3% (25)	19.2% (14)	4.1% (3)	1.4% (1)
Funding: strategies to supplement government funding for LTC (1=do not prefer to 5=strongly prefer) (n=72)					
Beneficiaries cost sharing with government contingent on income	8.3% (6)	8.3% (6)	27.8% (20)	29.2% (21)	26.4% (19)
Adopt government incentives to promote greater savings for LTC	15.3% (11)	9.7% (7)	13.9% (10)	37.5% (27)	23.6% (17)
Provide tax incentives for individuals to purchase LTC insurance	19.4% (14)	13.9% (10)	16.7% (12)	31.9% (23)	18.1% (13)
Provide government incentives to expand use of reverse mortgages	27.8% (20)	25.0% (18)	27.8% (20)	13.9% (10)	5.6% (4)
Linkages: helping people make informed choices when navigating LTC (1=Not at all effective to 5=very effective) (n=72)					
Formal care coordination that explicitly link people to available options	2.8% (2)	1.4% (1)	9.7% (7)	41.7% (30)	44.4% (32)
Counselling services that help people navigate available options	6.9% (5)	11.1% (8)	20.8% (15)	37.5% (27)	23.6% (17)
Production of comparative provider information to help people choose	1.4% (1)	13.9% (10)	31.9% (23)	36.1% (26)	16.7% (12)
Public information campaigns stimulate people to plan for LTC	12.5% (9)	22.2% (16)	27.8% (20)	23.6% (17)	13.9% (10)

Linkages: supporting family/other informal caregivers providing LTC (1=not at all effective to 5=very effective) (n=72)					
Expand care coordination/counselling	0.0% (0)	2.8% (2)	16.7% (12)	36.1% (26)	44.4% (32)
Expand availability of respite services	1.4% (1)	4.2% (3)	11.1% (8)	36.1% (26)	47.2% (34)
Expand availability of adult day care services	0.0% (0)	5.6% (4)	20.8% (15)	36.1% (26)	37.5% (27)
Allow public payment for family members providing assistance	2.8% (2)	9.7% (7)	37.5% (27)	30.6% (22)	19.4% (14)
Health information technology: application improving quality/efficiency (1=not promising to 5=very promising) (n=69)					
Improve quality of clinical assessment data	0.0% (0)	1.5% (1)	11.6% (8)	36.2% (25)	50.7% (35)
Enable computerised clinician order entry/review	1.5% (1)	2.9% (2)	23.2% (16)	42.0% (29)	30.4% (21)
Facilitate LTC provider access to patient hospital information	1.5% (1)	11.6% (8)	20.3% (14)	40.6% (28)	26.1% (18)
Enable greater uniformity in regulatory inspection	4.4% (3)	13.0% (9)	39.1% (27)	23.2% (16)	20.3% (14)
Enable remote electronic monitoring of patients by clinicians	7.3% (5)	15.9% (11)	29.0% (20)	24.6% (17)	23.2% (16)
Regulation: how well does government regulate rest homes (1=not at all well to 5=very well, don't know) (n=69)					
Establish quality standards for rest homes	2.9% (2)	10.1% (7)	24.6% (17)	42.0% (29)	10.1% (7)
Consistently apply regulation of rest homes across the country	2.9% (2)	18.8% (13)	21.7% (15)	36.2% (25)	5.8% (4)
Enforce quality standards for rest homes	4.4% (3)	23.2% (16)	34.8% (24)	24.6% (17)	2.9% (2)
Apply sanctions to facilities with poor inspection records	11.6% (8)	24.6% (17)	15.9% (11)	31.9% (22)	4.4% (3)
Advise rest homes on how to improve care quality	5.8% (4)	24.6% (17)	23.2% (16)	21.7% (15)	4.4% (3)
Regulation: how well does government regulate home-based nursing (1=not at all well to 5=very well, don't know) (n=69)					
Establish quality standards for home-based community nursing	14.5% (10)	23.2% (16)	27.5% (19)	15.9% (11)	1.5% (1)
Advise home-based nursing on how to improve care quality	21.7% (15)	23.2% (16)	21.7% (15)	7.3% (5)	1.5% (1)
Consistently apply regulation of home-based nursing across the country	18.8% (13)	31.9% (22)	21.7% (15)	4.4% (3)	1.5% (1)
Enforce quality standards for home-based nursing services	21.7% (15)	31.9% (22)	18.8% (13)	4.4% (3)	1.5% (1)
Apply sanctions to services with poor inspection records	23.2% (16)	30.4% (21)	17.4% (12)	1.5% (1)	1.5% (1)
Regulation: strategies for ensuring/improving quality of care provided (1=not at all effective to 5=very effective) (n=69)					
Increased public availability of comparative information on providers	1.5% (1)	8.7% (6)	31.9% (22)	34.8% (24)	23.2% (16)
Provision of technical assistance to improve quality	1.5% (1)	5.8% (4)	30.4% (21)	47.8% (33)	14.5% (10)
Increased payment rates to providers of LTC services	4.4% (3)	15.9% (11)	26.1% (18)	43.5% (30)	10.1% (7)

Payment incentives for quality such as pay-for-performance	4.4% (3)	18.8% (13)	30.4% (21)	33.3% (23)	13.0% (9)
Establishment of higher staffing requirements for rest homes	2.9% (2)	23.2% (16)	26.1% (18)	36.2% (25)	11.6% (8)
More aggressive enforcement remedies/sanctions	1.5% (1)	31.9% (22)	23.2% (16)	30.4% (21)	13.0% (9)

Table 3. Experts' views of long-term care (LTC): challenges, rebalancing, workforce, culture change, end-of-life care, and assisted living

Characteristic	Number (%)
Challenges: most important challenges facing long-term care (among top three) (n=73)	
Inadequate workforce	71 (97.3)
Insufficient home-based support services	38 (52.1)
Inadequate financing	37 (49.3)
Ageing of the population	29 (39.7)
Poor quality care	13 (17.8)
Uninformed consumers/families	10 (13.7)
Insufficient regulation/enforcement	5 (6.9)
Rebalancing: most effective way to shift LTC away from institutions to home-based supports (among top three) (n=71)	
Establish programmes that offer a comprehensive package of home-based support services	67 (94.4)
Provide a single point of entry for individuals to access home-based support services	60 (84.5)
Increase the rates of reimbursement for home-based support service providers	45 (63.4)
Expand eligibility for home-based support services	32 (45.1)
Limit supply of rest home beds	6 (8.5)
Workforce: most effective option for improving recruitment and retention of paraprofessionals (among top three) (n=69)	
Expand opportunities for career advancement among paraprofessionals	62 (89.9)
Increase compensation (wages, benefits)	61 (88.4)
Promote work environments that value and respect the contributions of direct care workers	59 (85.5)
Provide paraprofessionals with more structured orientation to job responsibilities	14 (20.3)
Redesign work processes to give greater autonomy to paraprofessionals	11 (15.9)

Workforce: most preferred option for increasing professional trainees making a career in LTC (top option) (n=69)	
Increased emphasis on geriatrics in professional schools' curricula	25 (36.2)
Educational assistance programmes targeted at individuals considering a career in geriatrics	23 (33.3)
Redirecting a portion of graduate medical education funding toward settings that provide geriatric care	10 (14.5)
Higher salaries for geriatric specialists	9 (13.0)
Expansion of online resources and training in geriatrics	2 (2.9)
Culture change: most important features culture change or resident-centred care in rest homes (top option) (n=69)	
Residents direct their own living choices (e.g. daily schedules, food choices, other decisions)	33 (47.8)
Close relationships are present between clients, family members, staff, and the community	17 (24.6)
Personnel are organised around the needs and desires of clients rather than by departments	13 (18.8)
The environment is structured to be more home-like with small units (e.g., households, neighbourhoods)	6 (8.7)
Culture change: most significant barriers to culture change/resident-centred care in rest homes (among top three) (n=69)	
Leadership resistance	53 (76.8)
Cost	52 (75.4)
Direct care staff resistance	48 (69.6)
Regulation	22 (31.9)
Resident impairment	21 (30.4)
Family resistance	11 (15.9)
Assisted living: most effective strategy for assuring quality of care in assisted living facilities (among top three) (n=31)[1]	
Implement quality improvement efforts	26 (83.9)
Survey assisted living residents about the care received	23 (74.2)
Mandate collection of resident assessment data for quality improvement purposes	20 (64.5)
Regulate primarily through a comprehensive survey and inspection process	17 (54.8)
Regulate primarily through licensure standards	7 (22.3)

[1]Respondents limited to 31 individuals who thought that regulation of assisted living facilities should be more stringent

Respondents were also asked to identify the top three challenges facing long-term care. Nearly all identified "inadequate workforce"; more than half both "insufficient home-based support services" and "inadequate financing" (Table 3). A large percentage also identified "aging of the population"; relatively few "poor quality care," "uninformed consumers/families," and "insufficient regulation/enforcement."

Financing long-term care—When asked to identify who should be responsible for paying for long-term care needs, more than two-thirds indicated "favouring" or "strongly favouring" having government programmes cover most costs, with considerably less support being expressed for individuals covering most costs themselves, even less for adult children and employer contributions (Table 2).

When asked to identify strategies for supplementing government funding in this area, however, one half to two thirds "preferred" or "strongly preferred" incentives to promote savings and long-term care insurance purchases and beneficiary cost-sharing contingent on income level. There was little support to expand use of reverse mortgages.

Linking individuals and families to services—When asked to assess strategies for helping people make informed choices, nearly all (86.1%) believed formal care coordination services "effective" or "very effective." Also deemed effective by more than half were the provision of counselling services and comparative provider information (Table 2).

By contrast, only a little more than one-third viewed public information campaigns this way. At least three-quarters viewed each of three service options—care coordination/counselling, respite, and adult day care—as "effective" or "very effective" for supporting informal caregivers. Public payment for family members received support from half as well.

More than half "favoured" or "strongly favoured" the adoption of consumer-directed personnel care programmes; just 18.1% "opposed" or "strongly opposed" them. When asked to select the three most effective ways to rebalance long-term care toward home- and community-based settings more generally, most highlighted establishing comprehensive programmes (94.4%) and single points of entry (84.5%) (Table 3).

Increasing the rates of reimbursement for home-based providers received support from two-thirds of respondents as well. Comparatively few believed expanding eligibility or limiting the supply of rest home beds effective in this regard.

Workforce recruitment and retention—When asked to select the three most effective ways to improve the recruitment and retention of paraprofessionals (e.g. nurse aides, home health aides), most (>85.0%) highlighted the need for higher wages and benefits (88.4%), opportunities for career advancement (89.9%), and work environments that value and respect worker contributions (Table 3).

Few highlighted the need to provide more structured orientation to job responsibilities or enhanced autonomy. Few (13.0%) identified higher salaries as the most preferred strategy for increasing the proportion of professional trainees making a career in long-term care (e.g. nurses, therapists, physicians, administrators). Here, the most preferred options included educational assistance (33.3%) and curriculum reform (36.2%).

Neither expanding online resources and training (2.9%) nor redirecting graduate medical education funding received substantial support.

Physical and organisational change—Only 31.4% of respondents reported being "familiar" or "extremely familiar" with culture change or resident-centred care in rest homes. By contrast, most reported being "not at all" (28.6%), "slightly" (20.0%), or only "moderately" (20.0%) familiar.

Nearly half identified residents directing their own living choices as the most important feature of culture change; one-quarter close relationships among clients, family members, staff, and the community (Table 3). Most point to cost and resistance on the part of rest home leadership and staff as being among the three most important barriers to more widespread adoption of the culture change ethos.

More than two-thirds viewed health information technology (HIT) as "promising" or "very promising" for improving the quality of clinical assessment data, enabling computerised clinician order entry/review, and for facilitating long-term care provider access to patient hospital information (Table 2). Slightly less than half viewed the role of HIT in enabling more uniform regulation and remote electronic monitoring this positively.

Quality improvement and regulation—Respondents were asked to indicate their preferred allocation of central and local government responsibility for regulating long-term care providers. Most (78.3%) preferred joint central and local government responsibility; the remainder entirely central regulation. Respondents were also asked how well they thought the government was doing regulating rest homes and home-based nursing services (Table 3).

A little more than a half believed that the government was doing "well" or "very well" establishing quality standards for rest homes, slightly fewer that it was consistently applying those standards (42.0%) or sanctioning facilities with poor inspection records (36.3%). Only a little more than one-quarter felt that government was doing well enforcing quality standards or advising rest homes on how to improve quality.

There was a clear feeling amongst respondents that regulation is performed better within the rest home than home-based nursing sector. On none of the criteria analysed did the percentage ranking the government's performance "well" or "very well" exceed 18.0% (Table 3).

Respondents seemed to have more knowledge about rest home than home-based nursing regulation, with the percentage of "don't knows' exceeding 20.0% for each home-based nursing question but only for one rest home question.

Only 44.9% of respondents thought that regulation of assisted living facilities should be more stringent. Of these, most (83.9%) included quality improvement efforts among the top three most effective strategies for assuring quality in this area; large percentages also supported surveying residents about the care received (74.2%) and mandating collection of resident assessment data (54.8%) (Table 3). Very few wanted to regulate assisted living primarily through licensure standards.

Respondents were asked to assess the effectiveness of strategies for ensuring and improving the quality of care provided by long-term care providers more generally.

Although a large percentage ranked each option "effective" or "very effective," increased public availability of comparative provider information (58.0%) and the provision of technical assistance (62.3%) were deemed most noteworthy (Table 2).

Discussion

Inadequate financing was one of the top three issues highlighted by long-term care opinion leaders in New Zealand. This concern is prevalent in most OECD countries which have been grappling with how to pay for long-term care in light of population aging.[2,4]

The survey revealed broad support for the current funding policy direction whereby government assumes most responsibility, with the extent of beneficiary cost-sharing being based on income and/or asset levels. Though this perspective reflects New Zealand's long standing emphasis that individuals should have the same level of services regardless of ability to pay, respondent support for cost-sharing, long-term care insurance, and individual savings/preparation reflects recognition that it will soon become increasingly difficult to meet the needs of the growing elderly population through government financing alone.

Perhaps this is best illustrated by the old-age dependency ratio (or the number of elderly people 65 years or older relative to the working-age population 20 to 64 years), which will more than double from approximately 20.0% to 50.0% over the next 50 years.[2] This implies that over the coming decades the number of elderly long-term care recipients will increase markedly compared to those who typically pay the taxes (and provide the goods and services) necessary to support them.

Consistent with reports internationally,[1,4] New Zealand experts recognised that a well-trained, stable workforce specialising in care for the chronically ill and disabled elderly is a necessary prerequisite for quality long-term care. This concern derives, in part, from the well established linkage between staffing and the quality of care in rest homes.[20]

It also derives from evidence demonstrating that rest homes with greater turnover exhibit greater costs associated with vacancy, recruitment, and replacement (e.g. temporary staffing, overtime pay), not to mention costs associated with lost productivity, poor service quality, and the lack of employee morale.[21]

There was recognition, however, that the underlying factors inhibiting recruitment and retention vary. Thus, experts suggest that efforts targeted at nurse aides, home health aides, and other personal care workers focus on improving the image of geriatric care through improved compensation and work conditions, whereas efforts targeted at physicians, nurses, and therapists focus on attracting individuals to geriatrics through revisions to professional school curricula (e.g., geriatric-specific courses and rotations) and incentive programmes (e.g. scholarships, loan forgiveness).

Responsibility for adopting measures to improve recruitment and retention needs to be assumed at both the local- and national-levels. At the local-level this should include more competitive wages and benefits, extensive training and career programmes, and redesigned work environments that value and respect the contributions of direct care workers.

Perhaps this point-of-view is best summarised by the comments of one respondent who observed that "the rate of staff turnover in aged care residential facilities is high—40%. This is directly attributable to the low pay and support and the value that is placed on the 'care' profession."

At the national-level, efforts to improve the long-term care workforce should reinforce its commitment to producing geriatric specialists, including making greater financial commitments to professional trainees and/or the institutions that train them.

Recently, the government acknowledged the need to improve long-term care workers' salaries. This is reflected in the 2007 budget, which invested $150 million over 4 years into residential care with the aim to "raise pay levels in the aged care sector while providing quality care and positive choices for older people"[22]

Opinion leaders also highlighted insufficient access to home-based support services. This is an important topic because although most chronically ill and disabled individuals would prefer to live independently in their own homes and communities, very few are prepared financially or emotionally when the need for long-term care arises; most would not know where to turn for advice or information if they or a family member needed services.[11]

Furthermore, most long-term care is provided by unpaid family and friends,[23] many of whom are overwhelmed and would greatly benefit from additional formal care support.

Although the government hopes to enable individuals to stay at home as long as possible,[13] just 24.4% of public long-term care expenditures were directed toward home care in 2000; the remainder towards institutions.[4]

In light of the prevailing imbalance in government financing, most experts support adopting programmes that offer a comprehensive package of home- and community-based services, including respite and adult day care. Experts also support efforts to use formal care coordination, counselling, and single points of entry to steer people toward needed services. Experimentation with consumer-directed programmes was deemed desirable as well.

Interest in public payment of family members and other informal caregivers has risen in recent years with the introduction of Cash & Counselling and other consumer-directed programmes in the USA, England, and other countries.[24–26] Though choices are typically guided by case workers, these programmes provide care recipients with their own budgets which they are free to use to purchase the care that they require, including employing family members who are then able, in many cases, to give up work to care for their elderly relatives.

Clearly, support for consumer-directed care is consistent with the more general desire to enable individuals to live within their own homes for as long as possible.[13] Although the cost-effectiveness of non-institutional long-term care has yet to be demonstrated, studies in the USA find home- and community-based care associated with greater client and caregiver welfare.[27] Furthermore, evaluation of Cash & Counselling demonstration sites in the USA have yielded positive results, with substantially fewer unmet needs and greater satisfaction on the part of consumers, as well as family members, at comparable public sector costs.[28]

Perhaps the overriding issue for long-term care opinion leaders is the quality of the care provided. Quality assurance in long-term care is based upon inspections of patients' records, some observations of patient care practices, and review of policies and procedures. It may also involve release of publicly available information, continuous quality improvement, and rewards for better performance.[29]

With widespread public concern regarding the quality of care in rest homes, home care, and assisted living, countries throughout the OECD have sought to improve the regulation and monitoring of quality in long-term care.[4,5] Indeed, the regulation of the long-term care sector is particularly a challenge where the majority of funding for formal care services derive from the state but most care is delivered privately by non-governmental agencies and institutions.

Concern over quality assurance in New Zealand is best reflected in the context of home-based care, which despite its promise, was judged to have lower quality than other service providers and to be subject to less effective government regulation than rest homes.

No expert judged rest home or assisted living services 'excellent', however, indicating that similar perceptions about quality extend to other service sectors as well. Though it may be unrealistic to expect care to be consistently excellent all of the time, organisational and regulatory changes can be made to spur providers to improve quality and to better identify consistently poorly performing agencies and institutions.

One approach would be to reallocate responsibility for long-term care regulation among the central and local governments. That no respondent favoured wholly local responsibility, however, likely reflects concern that quality of care standards be applied consistently across the country. That most preferred joint responsibility likely reflects the current system where national standards are defined centrally but contracts with service providers are put into place locally by the DHBs.

Furthermore, whereas provider inspections are undertaken by auditing agencies designated by the Ministry of Health, DHBs are responsible for ensuring that the standards set forth in contracts with providers are being met.

Another approach to improving quality would be to promote culture change or client-centred care. Essentially, the "culture change" movement consists of those who would like to change the context within which frail and disabled individuals live and are treated by placing clients at the centre of the care giving process in long-term care.[30]

Rather than treating clients as clinical cases, downplaying their psychosocial and spiritual needs, advocates for culture change believe that systems of care should be adopted that accommodate individuals' choices rather than forcing them to adhere to the routines of the provider.[31]

Despite positive experiences overseas,[30] and the introduction of culture change principles of choice, autonomy, and client-centred care in particular rest homes,[32] the government's *Health of Older People Strategy*,[13] and various stand alone programmes,[33] less than one third of opinion leaders were familiar with culture change or client-centred care.

This implies that central policy makers need to take the lead in ensuring that the culture change principles reflected in the *Health of Older People Strategy* are more

widely known and incorporated into the day-to-day practices of long-term care providers.

Central policymakers should also take the lead in improving and maximising the use of data in long-term care. This is especially important because long-term care is deficient in the application of HIT despite a strong tradition of improving quality and efficiency in the primary and acute care sectors.[34] Indeed, the role of information for improving quality is reflected in opinion leader assessment of the potential for HIT, as well as the potential for increased technical assistance and comparative provider information.

Enacting these suggestions would involve adopting the necessary electronic information sharing bridges, in addition to a common data collection tool with which to systematically describe patient functioning. This and other information could then be used to inform regulatory inspections and contracting and third party consultations with providers about how to improve quality.

It could also be used to improve the transfer of critical information between the acute and long-term care sectors while stimulating investment in internal quality improvement efforts by enabling consumers to choose providers based on public reports of performance.[29,35]

Before concluding there are several limitations worth noting. First, the survey focused exclusively on individuals with knowledge and experience in long-term care policy development and planning. Thus there may have been bias inherent in the purposive sampling approached used.

Since there was no sampling frame, potentially knowledgeable individuals may have been excluded. Furthermore, we did not recruit individual providers, consumers, or members of the general public. Although there have been previous population-based surveys,[7,11] none have sought to elucidate views in the comprehensive manner employed in the present study.

It would be useful, therefore, to administer the survey to individual providers and consumers, to gauge the extent to which the views of those who grapple with long-term care on the front lines coincide with the views of those who help to formulate and implement policy in this area.

Second, the survey collected information on a wide range of issues associated with the provision of long-term care services to older populations. Although this helped to minimise survey length, a key factor in promoting responses, doing so sacrificed depth for breadth. Since there is room to delve deeper, future surveys should build on the results reported by exploring certain areas in greater depth.

The present survey, for example, was aimed at rest home care but we acknowledge that many rest homes also provide care at the hospital level. Consequently, it is important that future studies differentiate more fully between different levels of care provided within the same institution.

Third, we achieved an overall response rate of 47.7%. This is considerably higher than other Web-based surveys.[8] However, it still leaves room for improvement if response bias is to be minimised.

Although we sent up to four reminder emails, 10 callbacks have become the norm in phone-based administration, suggesting that additional reminders might have yielded more responses. Incentives—financial or otherwise—might have promoted additional responses as well. So too might have mixed administration whereby follow-up phone or fax administration is used to supplement Web-based administration to further maximise responses among those unreceptive to the Web-based format. Of course, sufficient contact information must be available if this approach is to be used.

Conclusion

This is the first survey of long-term care opinion leaders in New Zealand. It revealed varying degrees of consensus among those working in long-term care regarding the nature of the problem and the kinds of solutions that are viable from a policy perspective. In doing so, it provides a better sense of which policy changes might garner more support and hence, be easier to implement, versus those that garner less support and pose more of a challenge for those trying to effectuate change.

Findings should be of interest to policymakers, providers, advocates, researchers, and others struggling with how best to improve the current long-term care system and to modify it in ways to better meet the needs of the growing elderly cohort ahead.

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Prevalence of vitamin D deficiency among patients attending a multidisciplinary tertiary pain clinic

Jim Bartley

Abstract

Aim To estimate the prevalence of vitamin D deficiency in a tertiary multidisciplinary pain clinic.

Methods From 14 July 2006 to 30 November 2007, the author requested vitamin D status from all patients with chronic persistent pain presenting to The Auckland Regional Pain Service (a tertiary multidisciplinary pain service). Serum 25-hydroxyvitamin D levels were determined by radioassay.

Results Of 177 patients, 3% had 25-hydroxyvitamin D levels ≤17.5 nmol/L—a level associated with osteomalacia, 32% had 25-hydroxyvitamin D levels ≤50 nmol/L—a level associated with vitamin D deficiency, and 73% had 25-hydroxyvitamin D levels ≤80 nmol/L.

Conclusions The prevalence of vitamin D deficiency in patients attending a multidisciplinary pain clinic is similar to if not less than that of the normal New Zealand population. Recent African immigrants and south Asian females are two patient groups that are frequently vitamin D deficient. The identification and treatment of vitamin D deficiency has the theoretical potential to help a number of chronic pain patients. Only a limited number of interventional clinical trials have looked at this.

Vitamin D deficiency has been increasingly implicated in a number of pain syndromes. Pain refractory to narcotics is well recognised in severe vitamin D deficiency.[1] Plotnikoff and Quigley have documented that vitamin D deficiency is common in patients presenting with persistent non-specific musculoskeletal pain in a primary care setting.[2]

In New Zealand, Chiu has reported that vitamin D deficiency is common in a private rheumatology practice.[3] Similarly vitamin D deficiency has been reported in pain syndromes such as low back pain,[4] migraine,[5] and diabetic peripheral neuropathy.[6] Because of these observations, a survey was conducted to determine the prevalence of vitamin D deficiency among patients attending a tertiary multidisciplinary pain clinic.

Methods

All new patients presenting to the author as part of their initial evaluation had their 25-hydroxyvitamin D level requested. Pathology forms were given to patients and the assay was performed by the Auckland District Health Board laboratories. The laboratory uses the Diasorin assay kit, which has a coefficient of variation of 6% between tests which approximates to ±12% for confidence limits. Those patients already taking colecalciferol were excluded from the survey.

Because 25-hydroxyvitamin D measurement is an expensive test, if 25-hydroxyvitamin D levels had been measured in the previous 3 months, the test was not repeated. These patients were still included in the survey if they had not been treated.

Within the pain clinic, a number of doctors have specific pain interests. While a broad range of pain conditions were seen, the population assessed reflected the author's particular interest in facial pain.

Results

From 14 July 2006 to 30 November 2007, the author saw 187 patients. Two patients did not have their 25-hydroxyvitamin D levels measured. Three patients did not have their 25-hydroxyvitamin D levels done because they were already taking colecalciferol.

Patients taking multivitamin supplements, which can include low doses of vitamin D, were included in the survey. Another patient with a previous vitamin D level consistent with osteomalacia (13 nmol/L) had stopped her medication 6 months earlier. Four additional patients taking colecalciferol 1.25 mg monthly, where there were still concerns about their vitamin D status, had their 25-hydroxyvitamin D levels checked. One of these patients despite taking replacement therapy had a 25-hydroxyvitamin D level of 33 nmol/L. These ten patients were not included in the survey. Two patients who had had their 25-hydroxyvitamin D levels done in the 3 months prior to being seen at the pain clinic were included.

Female patients comprised 66% of the patients seen. Of the 177 eligible patients who had 25-hydroxyvitamin D levels performed 3% had levels ≤17.5nmol/L—a level associated with osteomalacia, 32% had levels ≤ 50nmol/L—a level associated with vitamin D deficiency, and 73% had levels ≤80nmol/L. No seasonal variation was observed.

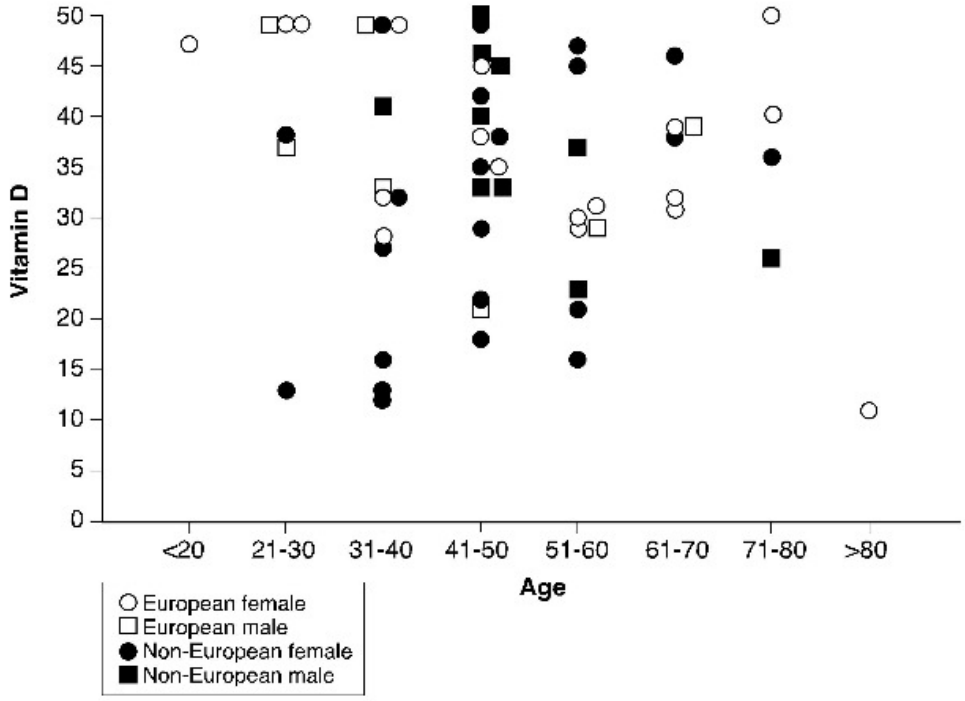
The majority of the patients seen were European. Four patients were of African ethnicity (average 25-hydroxyvitamin D level—25 nmol/L); 14 patients were South East Asian (average vitamin D level—54 nmol/L); 17 patients were South Asian (average vitamin D—65 nmol/L; 80% of the females had levels less than 50 nmol/L); 7 patients were from the Middle East (average vitamin D level—47 nmol/L); 6 patients were from the Pacific Islands (average vitamin D level—40 nmol/L); and 10 patients identified themselves as Māori (average vitamin D level—54 nmol/L).

The average 25-hydroxyvitamin D level of those referred specifically with low back pain (20 patients) was 54 nmol/L. Of those patients with vitamin D levels ≤17.5nmol/L, a level typically associated with osteomalacia, all were female with a wide range of age ranges being represented (Table 1). Vitamin D deficiency was observed in all age groups with a slight female predominance (Figure 1).

Table 1. Race, sex and age of those patients whose 25-hydroxyvitamin D levels were less than 17.5 nmol/L (n=6)

Ethnicity	Sex	Age	25-hydroxyvitamin D level (nmol/L)
Middle East	Female	35	13
South Asian	Female	48	13
European	Female	80	11
African	Female	39	12
Māori	Female	51	16
South Asian	Female	32	16

Figure 1. Vitamin D level (nmol/L) by age, sex, and ethnicity (European/non-European) in patients with vitamin D deficiency (25-hydroxyvitamin ≤50 nmol/L)



Discussion

This survey has shown that vitamin D deficiency is common in patients attending a multidisciplinary pain clinic, however the prevalence of vitamin D deficiency is similar if not less than that seen in the general New Zealand population.

In a recent national sample of 2946 New Zealanders aged 15 years and over, 84% of people had a mean serum 25-hydroxyvitamin D concentration of ≤80 nmol/L, 48% had levels of ≤50 nmol/L, and 3% had levels of ≤17.5 nmol/L. Mean serum 25-hydroxyvitamin D levels were 5 nmol/L lower in females and were lower in the South Island. Mean serum 25-hydroxyvitamin D levels were also lower in Maori (42 nmol/L) and Pacific Island people (37 nmol/L) compared to people of other ethnicities (51 nmol/L).[7]

An Auckland survey in women ≥55 years of predominantly Caucasian/European women found a high prevalence of vitamin D deficiency even in summer.[8] In a similar Auckland survey in predominantly European men, 9% of men had vitamin D levels <50 nmol/L.[9] A substantial seasonal variation was demonstrated in both studies.

Many of the patients with vitamin D levels ≤17.5 nmol/L, a level indicative of osteomalacia, could be predicted on the basis of age, sex, and ethnicity. One African

patient receiving vitamin D supplementation remained vitamin D deficient. Increasing his vitamin D dosage led to a significant reduction in his pain.

Heaney et al showed in men that 1 microgram of colecalciferol/ day raises serum vitamin D levels 0.7 nmol/L.[10] Bacon et al showed that 1.25mg of colecalciferol/month raised serum vitamin D levels on average 20 nmol/L. Because it can take up to 5 months for vitamin D levels to plateau, they recommended a loading dose of 12.5 mg.[11]

In some patients, current dosage regimes may be inadequate. Another South Asian lady with a vitamin D level of 13 nmol/L diagnosed in the previous year had stopped taking her medication. Some patients remain unaware that they may need to continue taking vitamin D on a long-term basis.

Previous surveys have shown that patients presenting with non-specific musculoskeletal pain have a high incidence of vitamin D deficiency.[2,3] The incidence of vitamin D deficiency in this tertiary pain clinic population, while high, reflects that of the normal New Zealand population.

One of the limitations of this survey and other previous observational studies is the lack of an adequate control group.

While a large percentage of the New Zealand population is vitamin D deficient, many people in the New Zealand population also suffer from diffuse musculoskeletal pain.

In New Zealand, 15% of general practice consultations between 1996 and 1999 were for musculoskeletal disorders.[12] A pilot postal survey of 540 adults in New Zealand randomly selected from the electoral roll for the lower North Island, found that almost half of the 289 responders reported musculoskeletal pain, defined as muscle or joint pain, swelling, or stiffness that lasted more than 1 week during the last month.[13] Vitamin D deficiency could be a factor in the pain experienced by some of these people.

While Vitamin D deficiency has been increasingly implicated in several pain syndromes, the benefits of vitamin D supplementation in these syndromes has not been well documented in clinical trials. Theoretically vitamin D deficiency may have a role in a number of pain states.

Vitamin D inhibits inducible nitric oxide synthesis (NOS) and increases glutathione levels in astrocyte detoxification processes.[14] Glial hypersensitivity has been implicated in a number of pain syndromes.[15] Nitric oxide has an important role in pain transmission and administration of NOS inhibitors results in reduced pain and reduced hyperalgesia.[16]

Vitamin D would also appear to have an important role in neural repair being a potent up-regulator of nerve growth factor. Thus vitamin D has a potential pharmacological role in the treatment of neural disorders, as well as in nerve repair.[14]

Vitamin D also has an important role in musculoskeletal health with improved muscle strength seen up to 80 nmol/L.[17] Vitamin D supplementation has been recommended as part of pain rehabilitation,[18] however only a limited number of clinical studies looking at the benefits of vitamin D supplementation in the pain population have been

performed.[1-6,18,19] The significance of vitamin D deficiency in chronic pain patients may have been over emphasised.

This study confirms a high prevalence of vitamin D deficiency within a tertiary pain clinic. The levels of vitamin D deficiency were similar, if not less, than that seen in the normal New Zealand population.

Recent African immigrants and south Asian females are two high-risk patient groups that would benefit from routine vitamin D supplementation. The identification and treatment of vitamin D deficiency has the theoretical potential to help a number of chronic pain patients. Only a limited number of interventional clinical trials have looked at this.

Competing interests: None known.

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The effects of seasonal variation of 25-hydroxyvitamin D on diagnosis of vitamin D insufficiency

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Abstract

Aims To explore the effects of seasonal variation on the diagnosis of vitamin D sufficiency and to determine whether age, gender, and ethnicity modify these effects.

Methods 21,987 adults had a measurement of serum 25-hydroxyvitamin D (25OHD) at Labplus, Auckland City Hospital, between January 2002 and September 2003, and sine curves were fitted for 25OHD versus day of year to predict the 25OHD nadir for each individual.

Results 48% (range: 30–63%) of individuals had 25OHD <50 nmol/L in the month of measurement, but 63% were predicted to have 25OHD <50 nmol/L in late winter or early spring based on expected seasonal variation. The 25OHD levels required to ensure 25OHD levels >50 nmol/L throughout the year varied substantially by season (in summer at least 60–75 nmol/L), and tended to be higher in men than women, decrease with age, and vary with ethnicity. Mean 25OHD levels were very low (<40 nmol/L) in people of Indian, Middle Eastern, and African descent.

Conclusion Seasonal variation in 25OHD affects the diagnosis of vitamin D sufficiency. Clinicians should consider the month of sampling when interpreting the results of 25OHD measurements. In New Zealand, a summertime 25OHD >60–75 nmol/L is generally required to ensure year-round 25OHD levels >50 nmol/L.

Vitamin D insufficiency is common in adults living in New Zealand[1] and can cause myopathy, osteopenia, secondary hyperparathyroidism, and osteomalacia.[2] The serum level of 25-hydroxyvitamin D (25OHD) is considered to be the best estimate of body stores of vitamin D,[2] but estimates of the serum 25OHD level above which vitamin D stores are considered adequate vary widely, from 25 nmol/L to 100 nmol/L.[3] For this report, we have adopted the widely used but arbitrary definitions of vitamin D insufficiency as serum 25OHD <50 nmol/L and vitamin D deficiency <25 nmol/L.[2]

The major biological determinant of 25OHD levels is ultraviolet B (UV-B) exposure.[4,5] In New Zealand and other countries distant from the equator, there is seasonal variation of UV-B levels due to the lower angle of the sun and greater cloud cover in winter months.[4,6]

More clothes are also worn in winter thereby reducing skin exposure to UV-B. As a result of this seasonal variation in UV-B, there is seasonal variation in 25OHD levels, such that levels are highest in late summer and early autumn and lowest in late winter and early spring.[1,4–6]

Such seasonal variation in 25OHD levels means that individuals could have adequate 25OHD levels in the summer and autumn months yet have suboptimal levels in winter and spring.

Previously, we reported that seasonal variation of 25OHD has a significant impact on the diagnosis of vitamin D insufficiency.[7] In cross-sectional studies, 49% of healthy older women and 9% of healthy middle-aged and older men were vitamin D insufficient in the month of measurement. However, much higher proportions (73% of women and 39% of men) were predicted to be vitamin D insufficient in late winter/early spring based on expected seasonal variation.

Using these data, we estimated that the 25OHD level required to ensure vitamin D sufficiency throughout the year varied by season and, in summer, was at least 70–90 nmol/L in men and 60–70 nmol/L in women.

In this report, we set out to validate these previous findings in a much larger cross-sectional sample of 25OHD measurements, to determine the minimum summertime 25OHD levels needed to ensure year-round vitamin D sufficiency in adults in Auckland and whether these levels vary by age, gender, or ethnicity, and to determine whether sine curves derived from cross-sectional data accurately predict future measurements of 25OHD.

Methods

Study subjects

We used all measurements of serum 25OHD between 1 January 2002 and 30 September 2003 at Labplus, Auckland City Hospital, in which date of birth and gender were available (98.4% of samples). 21,987 adults aged >18 years (17,265 women and 4722 men) had at least one measurement of 25OHD available for cross-sectional analysis. Where there was more than one 25OHD measurement during this period, the first measurement chronologically was included in the cross-sectional analysis.

3146 individuals had more than one measurement of 25OHD available for longitudinal analysis. Ethnicity data were obtained from the National Health Index (NHI) database using the NHI number for each sample recorded in the Labplus database. Ethnicity data were available for 13,817 individuals.

25-hydroxyvitamin D assay

Serum 25-hydroxyvitamin D was measured in duplicate using the Diasorin radioimmunoassay. Labplus takes part in, and meets the performance targets for, the Vitamin D External Quality Assessment Scheme (DEQAS).[8] The interassay CV for the Diasorin assay was 7.6% at 46 nmol/L.

Statistical analysis

Cross-sectional analysis—The methods have previously been described in detail.[7] In brief, 25OHD levels were plotted against the day of the year the blood sample was taken and a sine curve fitted. We assumed that 25OHD levels throughout the year for each individual would follow a similar sine curve to the population.

By solving the population sine curve equation for each individual, we were able to predict the 25OHD nadir for each individual, and by solving the population equation for each month, we were able to predict the 25OHD level required to ensure year round vitamin D sufficiency.

We performed these analyses with the cohort divided by gender and age, and then repeated the analyses dividing the cohort by ethnicity and age. We used analysis of variance (ANOVA) to compare the baseline, amplitude and phase shift coefficients of the sine curves between genders, age groups, and ethnic groups.

Longitudinal analysis—We sought to determine whether the sine curves from the population cross-sectional analysis would predict repeated 25OHD levels for an individual. Because we did not have

access to medication history and individuals who had more than one measurement of 25OHD were more likely to have started or stopped vitamin D supplementation, we restricted the analysis to those individuals with baseline 25OHD >50 nmol/L and <100 nmol/L whose change from baseline was <1.5 times the population seasonal excursion. Such individuals were unlikely to have started or stopped vitamin D supplements between measurements. 1018 individuals met these criteria.

For each individual, we used the population sine curve equation to predict later 25OHD results based on the baseline 25OHD and the dates of the measurements. We then compared these predicted results to the measured 25OHD.

The equation for each sine curve was: 25OHD = baseline + amplitude * sine (angular frequency * day of year + phase shift). The amplitude of the sine curve is the maximal deviation from the baseline [(peak value - trough value)/2]; the angular frequency is $2*\pi$/period ($2*\pi/365$); and the phase shift is the amount of translation along the x-axis.

Curve fitting and other statistical calculations were carried out using the SAS software package (SAS Institute, Cary, NC version 9.1). All tests were two-tailed and statistical significance was set at $p<0.05$.

Results

The age and gender distribution of the population is shown in Table 1. There were no differences in the mean 25OHD levels between men and women in any of the age groups after adjusting for the month of the year by ANOVA ($p>0.14$). Therefore, while we fitted sine curves separately for men and women, for ease of interpretation we have presented the results with data for men and women pooled.

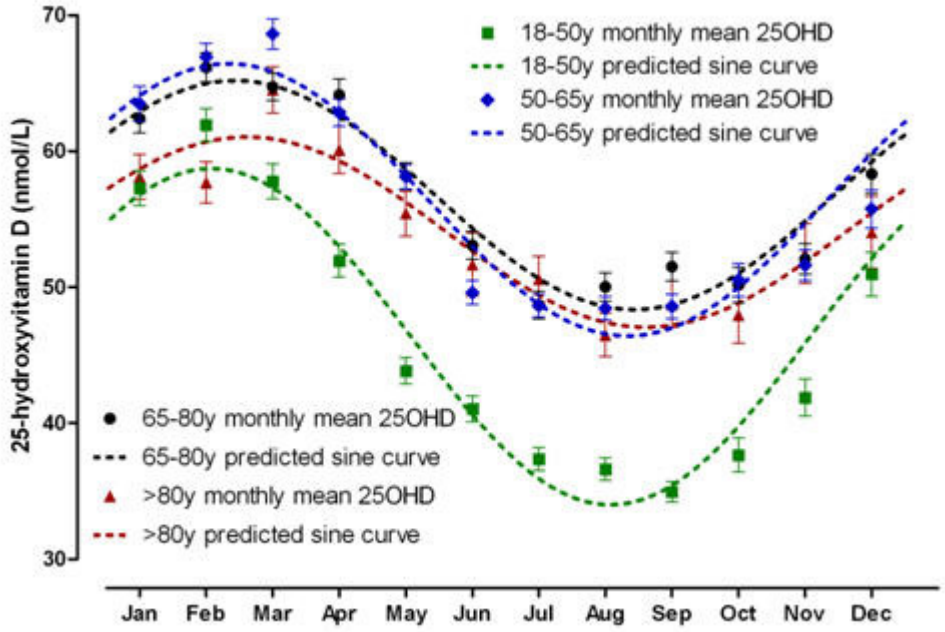
Table 1. Age and gender distribution of the study populations

Age	Female	Male	Total
18–50 years	4788	1708	6496
50–65 years	5109	1218	6327
65–80 years	4654	1127	5781
>80 years	2714	669	3383
Total	**17265**	**4722**	**21987**

Figure 1 shows the sine curves fitted for each age group together with the mean monthly 25OHD levels. There was excellent agreement between the fitted sine curve and the mean monthly 25OHD levels in all age and gender groups.

Table 2 shows the parameters of the fitted sine curves for each age group by gender. The amplitude of the sine curves tended to be higher in men than women but the difference was only statistically significant for people aged 50 to 65 years ($p=0.0061$). There were no significant differences between genders in any other parameter for any age group. There were significant differences between the age ranges for the baseline and amplitude parameters ($p<0.01$ for each parameter).

Figure 1. Sine curve of best fit for 25-hydroxyvitamin D (25OHD) versus day of the year by age with measured mean monthly 25OHD for comparison



Note: The error bars represent the standard error of the mean.

Table 2. Parameters of the fitted sine curves for 25-hydroxyvitamin D versus day of year by age and gender

Age	Female			Male		
	Baseline	Amplitude	Phase	Baseline	Amplitude	Phase
18–50 years	46.4	12.0	0.7	46.4	13.5	0.8
50–65 years	56.7	9.5	0.6	55.3	12.2	0.7
65–80 years	56.7	8.5	0.5	57.1	8.3	0.8
>80 years	54.2	6.4	0.4	53.6	9.1	0.5

The baseline represents the mean seasonally adjusted 25OHD level, the amplitude the amount of seasonal excursion from the baseline, and the phase the timing of the peak 25OHD levels (a phase value of 0 means the peak 25OHD levels occurs on the 1st April and with each 0.1 unit increase in the phase value, the peak occurs 5-6 days earlier in the year).

From the derived sine curves, 63% of people had a 25OHD nadir <50 nmol/L consistent with vitamin D insufficiency, and 25% had a 25OHD nadir <25 nmol/L consistent with vitamin D deficiency.

In comparison, the observed prevalence of vitamin D insufficiency at the time of sampling was 48%, ranging from 30–35% between January and March to 61–63% between July and September. The observed prevalence of vitamin D deficiency was

15%, ranging from 7–8% between January and March and 21–23% between July and September.

From the sine curves, we determined the minimum 25OHD level for each month required to ensure that the 25OHD level was maintained >50 nmol/L throughout the year (Table 3). In summer, this value was at least 60–75 nmol/L, and tended to be higher in men than women, and to decrease with age.

Table 3. The minimum 25-hydroxyvitamin D level (nmol/L) required to have a predicted 25-hydroxyvitamin D nadir >50 nmol/L—by month of measurement, age, and gender

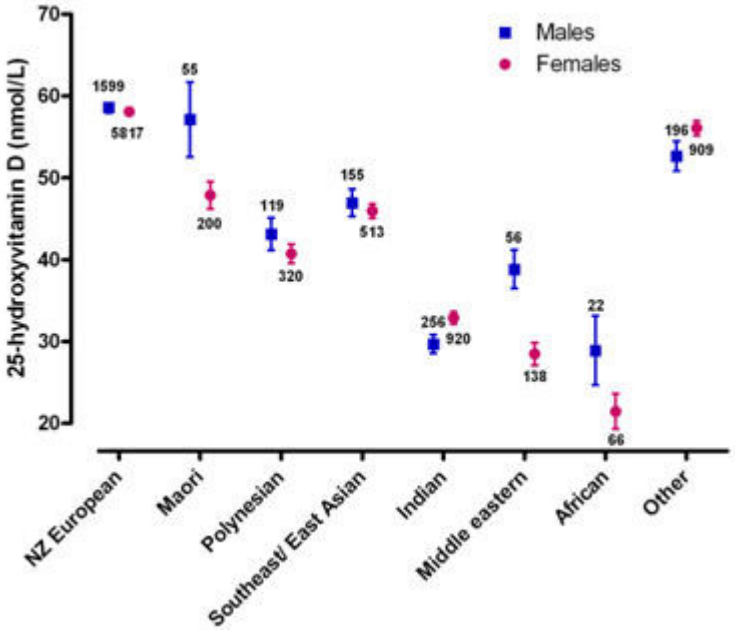
Age	18–50 years		50–65 years		65–80 years		> 80 years	
Month	Women	Men	Women	Men	Women	Men	Women	Men
January	70	73	65	70	63	64	59	64
February	73	76	68	74	66	66	62	67
March	71	73	68	72	66	64	62	67
April	66	67	64	66	63	61	60	64
May	60	60	59	60	59	57	57	59
June	54	54	55	54	55	53	54	55
July	51	50	51	51	51	50	51	51
August	50	50	50	50	50	50	50	50
September	51	51	50	51	50	50	50	50
October	53	54	52	53	51	52	51	51
November	58	60	55	58	54	56	53	55
December	64	67	60	65	58	60	56	59

We repeated these analyses on the data for which ethnicity information was available. Figure 2 shows the baseline values of the fitted sine curves for each of the ethnic groups by gender. These values represent the seasonally-adjusted mean 25OHD level. People of Indian, African, and Middle Eastern descent had markedly low 25OHD levels.

To ensure suitable group sizes, we restricted all further analyses to the four broad ethnic groups for which more than 500 samples were available and subdivided the groups into only two age groups (18–50 years and >50 years). There were insufficient samples to permit subdividing the groups by gender, however there were no significant differences in monthly mean 25OHD levels between genders for each ethnic group ($p>0.07$).

Figure 3 shows the sine curves fitted for each ethnic group by age range. There was excellent agreement between the fitted sine curves and the mean monthly 25OHD levels in all age and ethnic groups (data not shown).

Figure 2. Mean 25-hydroxyvitamin D (nmol/L) by gender for ethnicity categories recorded in the NHI database.



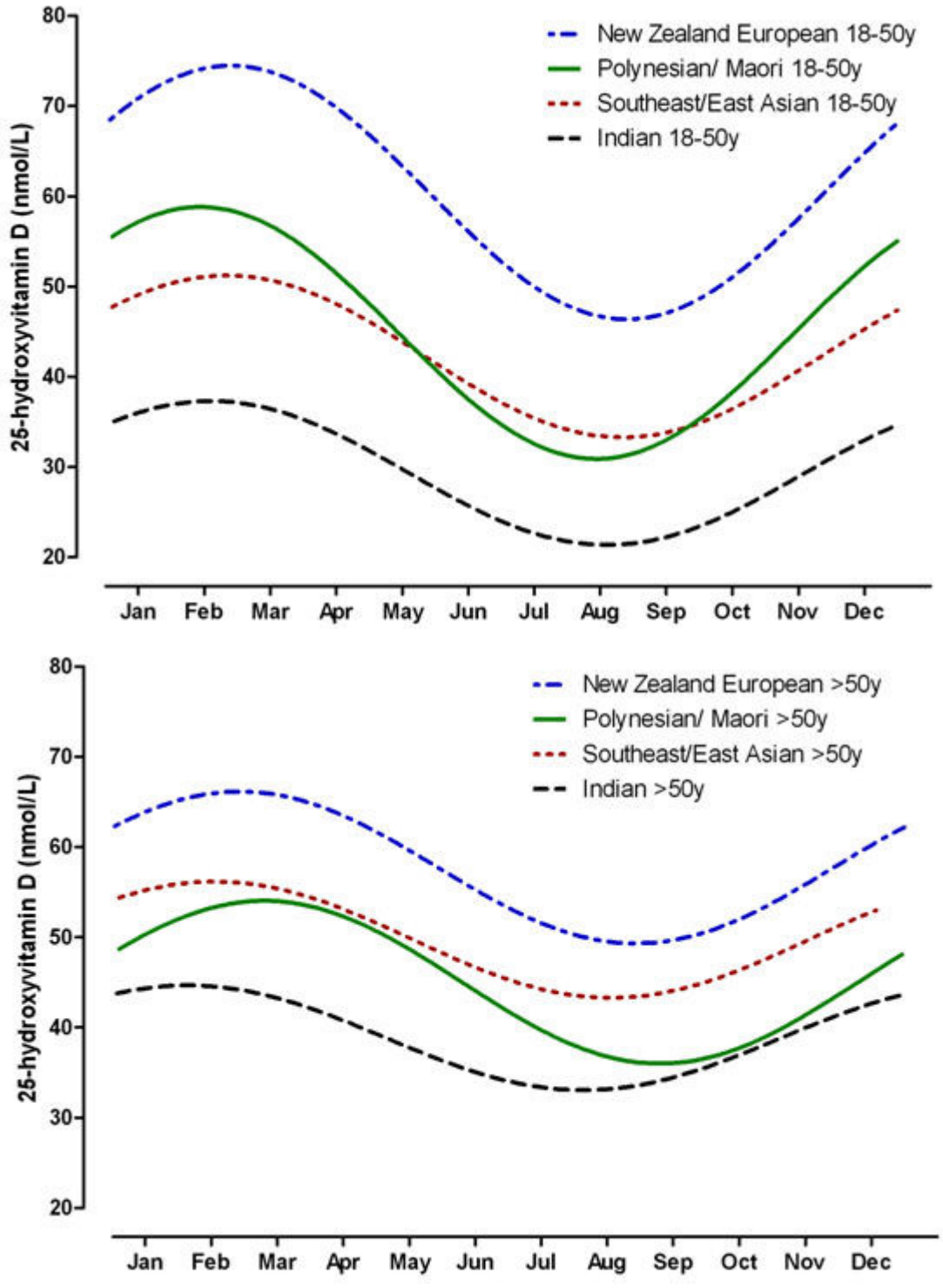
The error bars represent the standard error of the mean. The numbers above or below the points are the number of measurements.

Table 4 shows the parameters of the fitted sine curves for each ethnic group by age group. The baseline of the sine curves varied with ethnicity ($p<0.001$), and the amplitudes with age ($p=0.05$), but there was no significant differences in any of the other parameters with age or ethnic group.

Table 4. Parameters of the fitted sine curves of 25-hydroxyvitamin D by age and ethnicity

Ethnicity	Age	Baseline	Amplitude	Phase
Southeast/East Asian	18–50 years	42.3	9.0	0.6
	>50 years	49.7	6.4	0.8
New Zealand European	18–50 years	60.4	14.0	0.6
	>50 years	57.7	8.4	0.6
Polynesian/Māori	18–50 years	44.9	14.0	0.8
	>50 years	45.0	9.0	0.4
Indian	18–50 years	29.3	8.0	0.7
	>50 years	38.9	5.8	1.0

Figure 3. Sine curve of best fit for 25-hydroxyvitamin D versus day of year by ethnicity



The baseline represents the mean seasonally adjusted 25OHD level, the amplitude the amount of seasonal excursion from the baseline, and the phase the timing of the peak

25OHD levels (a phase value of 0 means the peak 25OHD levels occurs on the 1st April and with each 0.1 unit increase in the phase value, the peak occurs 5–6 days earlier in the year).

Table 5 shows the minimum 25OHD levels in each month required to ensure that the 25OHD level was maintained >50 nmol/L throughout the year for the different ethnic groups. These values were between 60–80 nmol/L in the summer months.

Table 5. The minimum 25-hydroxyvitamin D level (nmol/L) required to have a predicted 25-hydroxyvitamin D nadir >50 nmol/L—by month of measurement, age, and ethnicity

Age	Southeast/East Asian		New Zealand European		Polynesian/Māori		Indian	
	18–50 years	>50 years	18–50 years	>50 years	18–50 years	>50 years	18–50 years	>50 years
January	64	61	72	63	74	62	63	61
February	67	63	76	66	77	66	65	62
March	66	61	76	66	74	67	64	59
April	63	58	71	63	68	65	61	56
May	58	55	64	58	60	61	56	53
June	54	52	57	54	54	56	53	51
July	51	50	52	51	50	52	50	50
August	50	50	50	50	51	50	50	51
September	50	50	50	50	51	50	50	51
October	52	52	52	51	54	51	52	53
November	55	55	58	55	61	53	56	55
December	60	58	65	59	68	58	60	58

Finally, we assessed whether the sine curves derived from the cross-sectional analysis of the entire population could predict repeated 25OHD levels for an individual. 1018 individuals had more than one 25OHD measurement (total 1487 measurements, median 2, range 2–18) and were unlikely to have started or stopped vitamin D supplementation between measurements. For the repeated measurements, the mean (SD) measured 25OHD level was 67 (17) nmol/L and the mean predicted 25OHD level was 65 (15) nmol/L, resulting in a difference of 2.0 (13) nmol/L.

The differences between the measured and predicted level for each age group were 1.7 (16) nmol/L, 1.2 (14) nmol/L, 2.4 (12) nmol/L, and 2.4 (12) nmol/L for 18–50, 50–65, 65–80, and >80 years respectively. The mean differences between measured and predicted levels were similar when the results were grouped by the month of the year of the measured sample (range -3.7 to 4.9 nmol/L) and when grouped by the number of months between the measured and predicted levels (range -1.4 to 5.7 nmol/L).

Overall, 74% of predicted 25OHD levels were within ± 10 nmol/L of the measured 25OHD level, and there was a 95% probability that the measured 25OHD level would be in the range of the predicted level ±26 nmol/L. By comparison, for a single 25OHD measurement, there is a 95% probability that the true level lies within approximately 10% of the measured value, or ±6.5 nmol/L at a 25OHD level of 65 nmol/L.

Discussion

In this very large sample of 25OHD measurements, we have confirmed our previous findings that seasonal variation in 25OHD substantially impacts upon the diagnosis of vitamin D sufficiency.[7] 48% of individuals (range: 30-63%) had 25OHD levels <50 nmol/L in the month of measurement, but based on expected seasonal variation, a much higher proportion (63%) were predicted to have vitamin D insufficiency in late winter/early spring. Thus a substantial proportion of individuals tested were predicted to have suboptimal 25OHD levels in the winter and spring months despite having apparently adequate levels at the time of testing.

Using these data, a 25OHD level in late summer to early autumn of 60–75 nmol/L is required to ensure vitamin D sufficiency throughout the year, and this value tends to be higher in men than women, and to decrease with age.

There were significant differences in 25OHD levels between the ethnic groups, as expected, with New Zealand Europeans having higher levels than people of Māori, Polynesian, or Southeast/East Asian descent; with people of Indian, Middle Eastern, or African descent having the lowest levels. The mean seasonally-adjusted 25OHD levels for the latter three groups were very low, identifying people of these ethnic groups as being at high risk for complications of vitamin D deficiency. A low threshold for vitamin D supplementation in these groups is warranted.

However, there were no significant differences between ethnic groups in the amount of seasonal variation of 25OHD, and in all groups older adults had less seasonal variation of 25OHD than younger adults. A late summer or early autumn 25OHD level of 60–80 nmol/L is required to ensure vitamin D sufficiency throughout the year, consistent with the results from the entire cohort.

Using the equations from the population sine curve together with one measurement from an individual accurately predicted future 25OHD results at a cohort level, with the mean predicted level for an individual differing by only 2–3 nmol/L from the mean measured level. The results were similar regardless of the time of the year the samples were drawn and the duration of time between the samples. However, this approach is associated with less precision at an individual level: the precision of a predicted 25OHD level was about ¼ of the precision of a single laboratory measurement of 25OHD, although the majority of the predicted measurements were within 10 nmol/L of the measured level.

The precision of this approach might potentially be improved if information regarding usage of vitamin D supplementation was known.

The monthly thresholds for the diagnosis of vitamin D sufficiency depend primarily on the amount of seasonal variation of 25OHD and the threshold for vitamin D sufficiency adopted.

The amount of seasonal variation of 25OHD is determined by the latitude, the climate, and lifestyle. At higher latitudes, lower angles of incidence of incoming solar radiation during winter result in UV rays travelling a greater distance through the atmosphere and therefore increased atmospheric absorption of UV radiation. Increased cloud cover in winter may also cause increased atmospheric absorption of

UV radiation. In addition, more clothes are worn in winter leading to reduced exposure of the skin to UV-B.

In this study, the 25OHD measurements were obtained from people living in northern New Zealand. However, the seasonal change in 25OHD was similar to a recent study from Christchurch[6] and a New Zealand population-based study[1] suggesting that these findings are broadly applicable across the whole of New Zealand to a wide range of ethnic groups. However, the seasonal changes in 25OHD were greater in our previous studies of healthy volunteers[4,5,7] than in this study, suggesting that such individuals might require higher summertime 25OHD levels than we report here. For example, in those studies older women (mean age 74 years) required 25OHD of at least 60–70 nmol/L and middle-aged and older men (mean age 57 years) required 25OHD of 70–90 nmol/L to ensure year-round 25OHD levels >50 nmol/L.

The differences in the monthly thresholds for vitamin D sufficiency between men and women and across different age groups arise from differences in the amount of seasonal variation of 25OHD which in turn are due to differences in the amount of UV-B exposure.

The differences in the thresholds were generally small and are most likely related to differences between the groups in behavioural and cultural factors associated with sunlight exposure, physical activity, and skin protective practices.[5] 25OHD levels may also decline with age because photolysis of steroid precursors in the skin by UV-B is less efficient in the elderly than in younger people.[9]

There is no universally accepted definition of vitamin D sufficiency, with the most commonly recommended thresholds between 50–80 nmol/L.[3] Such thresholds are usually stated without reference to the season of the year, but presumably refer to the lowest 25OHD level during the year.

Although we have used a threshold of 50 nmol/L for vitamin D sufficiency, our findings can be readily applied to other thresholds by adding the difference between any selected level for vitamin D sufficiency and 50 nmol/L to the values in Table 3 or Table 5. For example, to maintain 25OHD levels greater than 80 nmol/L year-round, individuals would need levels >90–105 nmol/L in the summer months.

It is well recognised that vitamin D deficiency causes musculoskeletal effects including myopathy, falls, osteopenia, osteomalacia, and fractures.[2] Recent observational evidence has suggested that vitamin D deficiency is associated with increased occurrence of a number of chronic medical conditions including ischaemic heart disease, hypertension, autoimmune diseases (such as multiple sclerosis and Type 1 diabetes), chronic lung diseases, and a variety of cancers.[10] However, currently there is little evidence from randomised controlled trials that vitamin D supplementation can prevent development or progression of such diseases.

There are limitations to our study, particularly related to selection bias and the lack of information regarding vitamin D supplements. The study was restricted to individuals who had a measurement of 25OHD. It is likely that such individuals were at higher risk of vitamin D deficiency and therefore had lower 25OHD levels and different amounts of sunshine exposure to the population.

Selection bias might also account for the lower-than-expected 25OHD levels observed in the young adults and the lack of a reduction in 25OHD levels with age that is commonly reported. It is also possible that some individuals had requested a measurement of 25OHD because they were more health conscious. Such individuals may have had higher 25OHD levels than the population.

We did not have any knowledge of the use of vitamin D supplements which would be expected to reduce the amount of seasonal excursion of 25OHD. However, the 25OHD levels and amount of seasonal excursion of 25OHD were broadly similar to those in the New Zealand population-based survey,[1] suggesting that any impact on our findings is small.

In summary, seasonal variation of 25OHD levels significantly impacts on the thresholds for diagnosis of vitamin D sufficiency. In northern New Zealand, 25OHD levels of at least 60–75 nmol/L in late summer to early autumn are required to ensure year round 25OHD levels of >50 nmol/L. This threshold tends to be slightly lower for women than for men, to vary with ethnicity, and to decrease with age, but is probably broadly applicable across New Zealand.

People of Indian, Middle Eastern, and African descent are at particular risk of vitamin D insufficiency. It is important that clinicians take into account the season of sampling when determining whether a patient is at risk of vitamin D insufficiency during the year.

Competing interests: None known.

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Vitamin D insufficiency in New Zealanders during the winter is associated with higher parathyroid hormone concentrations: implications for bone health?

Jennifer E P Rockell, C Murray Skeaff, Bernard J Venn, Sheila M Williams, Tim J Green

Abstract

Background Parathyroid hormone concentration (PTH) is elevated in vitamin D insufficiency and when prolonged, this condition leads to reduced bone mass and possibly osteoporosis. The threshold of 25-hydroxyvitamin D above which PTH plateaus, is a criterion often used to define vitamin D adequacy.

Aims To determine whether the higher rates of vitamin D inadequacy reported in the winter than summer months in New Zealand also result in higher PTH concentrations. Also to explore the relationship between 25-hydroxyvitamin D and PTH concentrations in a New Zealand population to determine if a threshold exists for plasma 25-hydroxyvitamin D concentration.

Methods Plasma 25-hydroxyvitamin D and PTH concentrations were determined in 342 volunteers living in Invercargill and Dunedin (latitude 45–46°S) in late summer (February) and early spring (October).

Results Mean plasma 25-hydroxyvitamin D concentration was higher in the late summer versus early spring (79 vs 51 nmol/L; $p<0.001$). The lower plasma 25-hydroxyvitamin D in early spring versus summer was associated with a 0.2 pmol/L ($p<0.001$) higher PTH concentration. A threshold of 61 nmol/L was estimated for plasma 25-hydroxyvitamin D, above which there was no further decrease in PTH concentration.

Discussion The higher PTH concentration in winter than summer suggests that the low 25-hydroxyvitamin D concentration in the winter months may be having an adverse effect on bone health. Many New Zealanders have 25-hydroxyvitamin D concentrations less than 62 nmol/L, especially in winter. Strategies to improve the vitamin D status of the population such as supplementation and food fortification may be needed.

The prevalence of rickets and osteomalacia due to vitamin D deficiency is probably low in New Zealand.[1,2] Of greater public health concern is that lesser forms of vitamin D deficiency, often termed insufficiency, may increase the risk of chronic diseases such as osteoporosis, multiple sclerosis, Type 1 diabetes, and certain types of cancer.[3,4] The circulating concentration of 25-hydroxyvitamin D is the best indicator of vitamin D status.

Serum 25-hydroxyvitamin D concentrations of New Zealanders are suboptimal.[5–7] Nearly 50% of adult (≥15 y) participants in the 1997 NNS had vitamin D insufficiency, based on a serum 25-hydroxyvitamin D <50 nmol/L.[6] Rates of

insufficiency were higher in the winter than summer months and higher amongst Pacific People than Māori and Europeans, presumably due to their darker skin colour.

Despite evidence of a high rate of vitamin D inadequacy, we lack evidence that low 25-hydroxyvitamin D concentrations are negatively impacting New Zealanders' health. In the absence of this evidence a public health programme to improve vitamin D status is unlikely to be implemented.

Circulating parathyroid hormone (PTH) concentrations have been inversely associated with 25-hydroxyvitamin D concentrations up to a threshold, above which PTH concentrations plateau at a minimum level.[8]

PTH is elevated in vitamin D insufficiency and when prolonged, this condition leads to reduced bone mass and an increased risk of osteoporosis.[3] If the high rates of vitamin D inadequacy reported in New Zealand are having an adverse effect on bone health, PTH concentrations should be higher in the winter than summer, given the marked seasonal variation in 25-hydroxyvitamin D concentrations.

The threshold of 25-hydroxyvitamin D above which PTH concentrations plateau is a criterion often used to define vitamin D adequacy. This threshold has varied considerably by population studied but has not been estimated in a New Zealand population.[8]

The purpose of this study was to determine whether the higher rates of vitamin D inadequacy reported in the winter than summer months in New Zealand also resulted in higher PTH concentrations. To do this we measured plasma 25-hydroxyvitamin D and PTH concentrations in a cohort of people living in the south of NZ (latitude 45–46°S) in late summer (February) and early spring (October). We also explored the relationship between 25-hydroxyvitamin D and parathyroid hormone concentrations in this population to determine if a threshold concentration exists for plasma 25-hydroxyvitamin D.

Method

Participants—Volunteers 18 years or older were recruited from Dunedin and Invercargill by direct mailouts to participants in a folic acid supplementation trial carried out in 2000 as well as by advertising in newspapers and flyers. Although there were no exclusion criteria for the present study folic acid supplement users, pregnant or lactating women, or women planning a pregnancy were excluded from the folic acid trial.

To ensure a sample with a range of 25-hydroxyvitamin D concentrations Pacific People were specifically targeted through local Pacific churches and community leaders. Volunteers were asked to attend morning clinics in February (late summer) and October (early spring) of 2005. These two times points were chosen because they corresponded to the lowest and highest vitamin D concentrations in the 1997 National Nutrition Survey.[6] At each clinic visit participants were asked to complete a demographic questionnaire. The University of Otago Human Ethics Committee approved the study and written informed consent was obtained from all participants.

Blood collection and analyses—Blood was drawn from subjects following an overnight fast. Blood samples were processed for storage within 4 hours of collection. Blood was centrifuged (2500 × g, 10 min) and the plasma was aliquoted to cryovials. Both summer and spring samples were stored at –70˚C until analysed in November 2005.

Plasma 25-hydroxyvitamin D and intact parathyroid hormone concentrations were determined using radioimmunoassay kits (DiaSorin Stillwater, MN). Two levels of control provided by the manufacturer were run in each assay. Inter- and intra-assay coefficient of variations based on repeated analysis of pooled controls for vitamin D were 13% and 9%, respectively, and for PTH 11% and 7%, respectively.

We defined vitamin D deficiency as a 25-hydroxyvitamin D less than 17.5 nmol/L, and vitamin D insufficiency as a 25-hydroxyvitamin D less than 50 nmol/L.

Statistical analyses—All statistical analysis was performed using STATA (version 9, 2005, Statacorp, College Station, TX). Associations were considered significant at the 95% level. Pearson χ^2 tests were used to determine if there was a difference in characteristics between those followed up in spring and those not followed up. Paired t-tests were used to determine seasonal differences in biochemical indices. Two approaches were used to examine the relationship between 25-hydroxyvitamin D and PTH. First, to allow a visual inspection of the relationship, which made no statistical assumptions, 25-hydroxyvitamin D concentrations were categorised and plotted against PTH. Second, two mixed models, with a random effect for person were fitted to the data. The first assumed that the association was linear over the whole range of the data, the second assumed a point of inflection and included extra terms from which the point of inflection and the slopes of both lines were estimated.[9] A term for time was also included. The models were compared with the AIC.

Results

A total of 342 participants attended the summer clinic; 87 Pacific and 255 New Zealand European and Others (NZEO) (Table 1). NZEOs were primarily of European ancestry, but a small number of persons identified as Māori (n=16) or Asian (n=1). Of the participants, 65% were female. Mean age was higher in NZEO than Pacific volunteers [53 (SD, 12) vs 41 (15) y]. Eighty percent of the study group returned for follow-up in October (early spring).

A lower proportion of Pacific than NZEO participants returned (56% vs 88%) for the follow-up visit (χ^2=40.0, p<0.001). In general, a greater proportion of older participants returned in spring than younger participants (χ^2=25.4, p<0.001).

Table 1. Follow-up of participants by baseline characteristics

Characteristics at baseline	Summer	Spring	% Followed up
	n	n	
All participants	342	273	80
Male	119	92	77
Female	223	181	81
Ethnicity			
NZEO	255	224	88
Pacific	87	49	56
Age category (years)			
18–29.9	32	17	53
30–44.9	83	61	73
45–59.9	138	117	85
60–74.9	73	67	92
75+	7	5	71

NZEO, New Zealand European and Others; Age not available for 9 people.

Mean (95 % CI) plasma 25-hydroxyvitamin D (nmol/L) and intact parathyroid hormone concentrations (pmol/L) by ethnicity and season are given in Table 2. Mean 25-hydroxyvitamin D concentrations were 82 (79–86) nmol/L for NZEO and 68 (63–75) nmol/L for Pacific people in summer. Mean 25-hydroxyvitamin D fell in both ethnic groups by approximately 30 nmol/L from summer to spring (p<0.001).

Table 2. Plasma 25-hydroxyvitamin D (nmol/L) and parathyroid hormone (pmol/L) by ethnicity

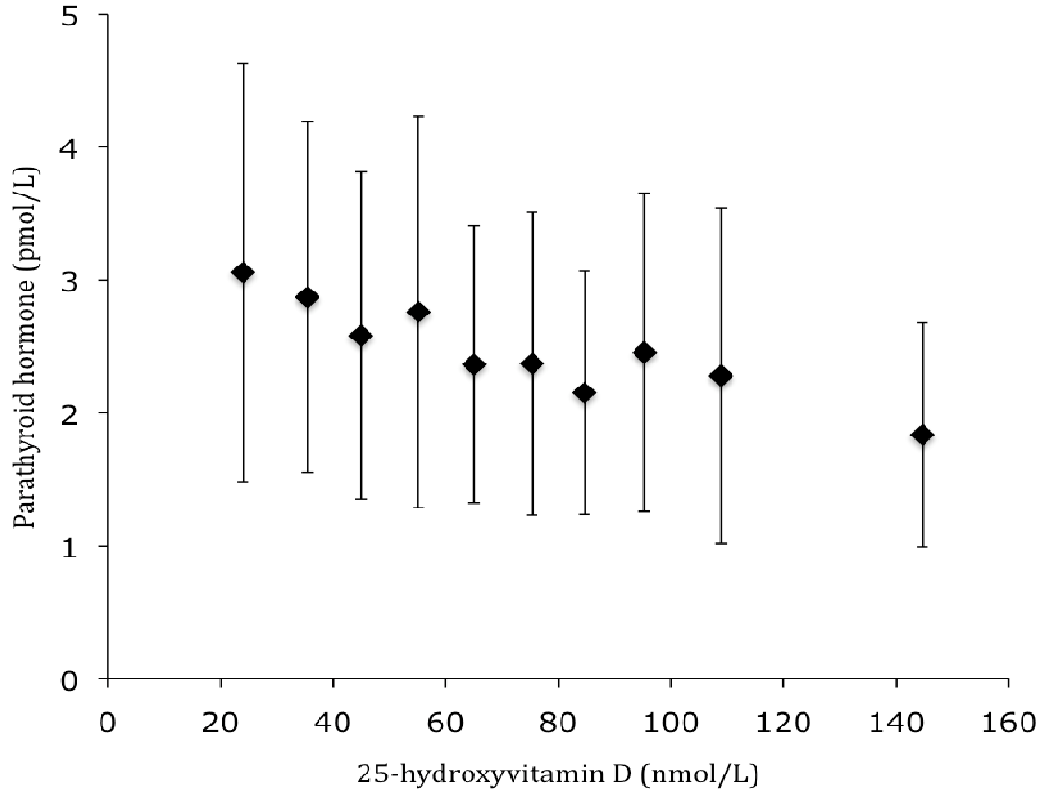
Variables	Summer			Spring			Seasonal difference*		
	n	Mean	95% CI	n	Mean	95% CI	Mean	95% CI	P
25-hydroxyvitamin D (nmol/L)									
ALL	342	79	(75, 82)	273	51	(48, 54)	30	(29, 30)	<0.001
NZEO	255	82	(79, 86)	224	53	(50, 57)	29	(28, 29)	<0.001
Pacific†	87	68	(63, 75)	49	40	(35, 46)	31	(28, 35)	<0.001
Pacific vs NZEO (% difference)[1]		-14	(-23, -4)		-11	(-26, 7)			
P		0.003				0.213			
PTH (pmol/L)									
All	342	2.1	(2.0, 2.2)	273	2.3	(2.2, 2.5)	-0.21	(-0.19, -0.22)	<0.001
NZEO	255	2.1	(1.9, 2.2)	224	2.3	(2.2, 2.5)	0.23	(-0.22, -0.25)	<0.001
Pacific	87	2.3	(2.1, 2.5)	49	2.4	(2.1, 2.8)	-0.05	(0.01, -0.12)	0.632
Pacific vs NZEO (% difference)1		12.8	(-0.8, 28.2)		5.4	(-20.7, 12.8)			
P		0.065				0.533			

*Mean seasonal difference calculated only for those participants with values for both time points; †Mostly of Samoan, Tongan, Niuean, or Cook Islands origin; [1] For percent difference calculations by ethnicity within each season, a regression model was used adjusting for age, sex, and BMI and vitamin D supplement use; NZEO=New Zealand European and Others; PTH=parathyroid hormone.

The seasonal drop in 25-hydroxyvitamin D was accompanied by a rise in PTH. Mean PTH concentrations rose significantly by 0.21 (0.19–0.22) pmol/L ($p < 0.001$). In NZEO participants, vitamin D insufficiency (< 50 nmol/L) rose from 10% in summer to 40% in spring. For Pacific people, insufficiency rose from 23% in summer to 36% in spring.

In summer, no participants were found to be vitamin D deficient (25-hydroxyvitamin D <17.5 nmol/L); 5 participants (2 NZEO, 3 Pacific) were deficient in spring.

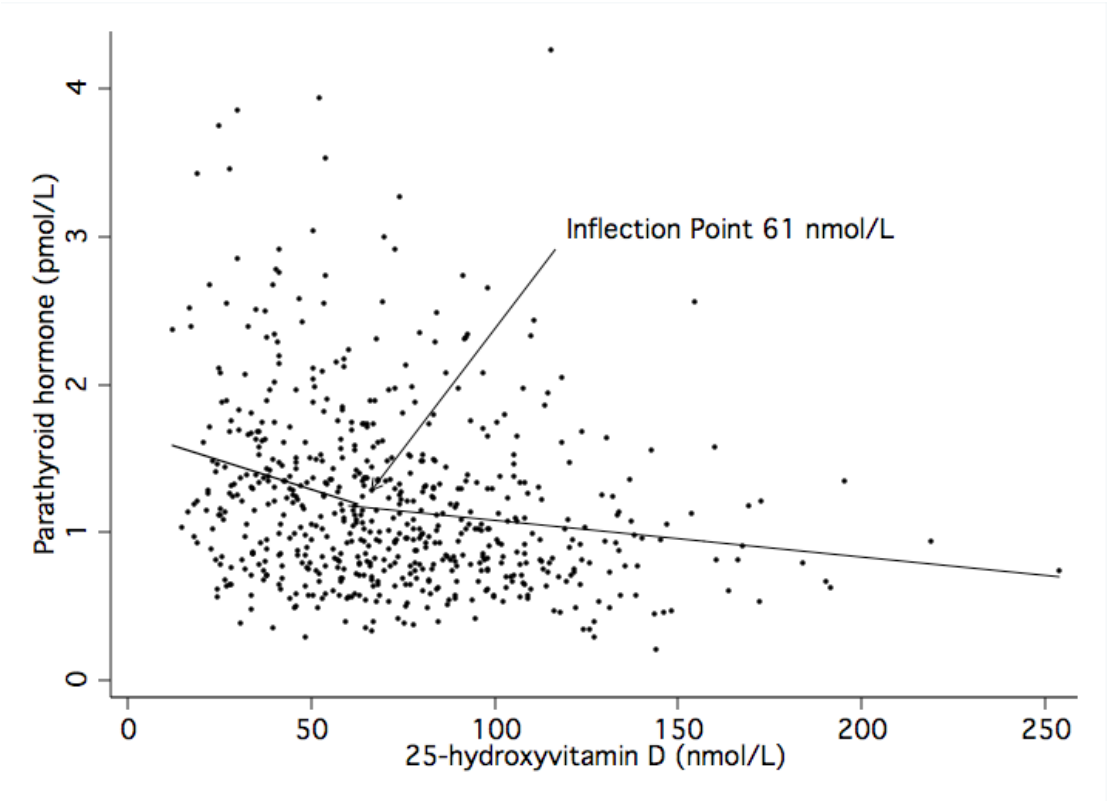
Figure 1. Plasma 25-hydroxyvitamin D by plasma parathyroid hormone including both summer and spring values (n=625)



Plasma 25-hydroxyvitamin D was categorised into the following; <30, ≥30–<40, ≥40–<50, ≥50–<60, ≥60–<70, ≥70–<80, ≥80–<90, ≥90–100, ≥100–<120, >120. The mean plasma 25-hydroxyvitamin D for each category is presented.

From Figure 1 it would appear that the inflection point for 25-hydroxyvitamin D, above which the increase in PTH concentration was small, lies between 60–80 nmol/L. Using regression analysis a point of inflection of 61 nmol/L was estimated for plasma 25-hydroxyvitamin D (Figure 2).

Figure 2. Plasma 25-hydroxyvitamin D by plasma parathyroid hormone including both summer and spring values (n=625)



Solid line is the line of best fit with two regression lines and indicates an inflection point at 61 nmol/L.

Below and above a 25-hydroxyvitamin D concentration of 61 nmol/L the slopes (SE) are –0.14 (0.035) (different from 0; p<0.001) and -0.05 (0.02) (p=0.011), respectively. The difference between the slopes of the two lines was 0.09 (0.04) (p=0.014).

Discussion

We have shown a high rate of vitamin D insufficiency in this multi-ethnic sample of adults living in the far south of New Zealand (~46°S), especially in the spring. As expected, mean 25-hydroxyvitamin D concentrations were higher in the summer than in the spring—79 nmol/L and 51 nmol/L, respectively.

A seasonal change in vitamin D status is well described in other populations especially those living at higher latitudes.[10–18] Concomitant with the seasonal changes in 25-hydroxyvitamin D, parathyroid hormone concentrations were higher in the spring than summer. Our findings suggest that vitamin D concentrations are not high enough in the spring months to suppress parathyroid hormone concentrations.

Several lines of evidence support the notion that seasonally elevated PTH concentrations secondary to vitamin D insufficiency increase bone fragility and increase fracture risk.

Firstly, PTH is correlated with increased bone remodelling,[19] which has been associated with higher fracture rate.[20]

Secondly, a seasonal variation has been reported in biomarkers of bone turnover in some studies.[21,22]

Thirdly, a higher incidence in proximal femur fractures has been reported in the winter in Auckland and other places with temperate climates.[23-25]

Pasco et al reported in the Geelong Osteoporosis study that the winter fall in 25-hydroxyvitamin D and the rise in PTH of women >55 y was accompanied by increases in bone resorption, the proportion of falls leading to fracture, and the frequency of hip and wrist fracture.[26]

The mean 25-hydroxyvitamin D concentration in the present study is somewhat higher and the prevalence of inadequacy lower than we reported in the 1997 National Nutrition Survey (NNS97).[6] In the NNS97 the mean plasma 25-hydroxyvitamin D was 50 nmol/L and over 50% of participants were vitamin D insufficient (< 50 nmol/L). However, our mean 30 nmol/L difference in 25-hydroxyvitamin D concentrations between spring and summer months is very similar to that reported in the NNS97 (31 nmol/L in women and 28 nmol/L in men).

As expected we report lower 25-hydroxyvitamin D concentrations in Pacific compared to NZEO participants. However, the magnitude of ethnic difference was smaller in our study than those we reported for the NNS97 and by others.[27] In summer, we found a 14% lower 25-hydroxyvitamin D concentration in Pacific participants compared to NZEO, adjusted for age, sex, and BMI and vitamin D supplement use.

In spring, the mean ethnic difference was 11%. In the NNS97 mean ethnic differences (adjusted for age, regions, season and BMI) were 16 nmol/L (33%) in women and 12 nmol/L (23%) in men.

Scragg et al[28] measured 25-hydroxyvitamin D concentrations in a sample of predominantly male North Island factory workers and reported that mean plasma 25-hydroxyvitamin D levels were significantly lower in Pacific Islanders (n=95) (56 nmol/L) compared with NZEO (n=221) (75 nmol/L) after adjusting for age, sex and time of year.

A significant seasonal change in PTH was observed amongst NZEO but not Pacific participants. This may be due to small number of Pacific participants and the high dropout rate in this group. It is not known to what extent elevated parathyroid hormone concentrations affect the bone health of Pacific people.

Osteoporosis rates in New Zealand Pacific people are lower than those of European descent,[29] and bone density is greater, [30,31] despite having lower calcium intakes and vitamin D status.[32] A decreased skeletal sensitivity to parathyroid hormone has been observed in small metabolic studies of African Americans.[33,34]

In New Zealand, Reid et al,[35] found no differences in levels biochemical indices of calcium metabolism between Polynesian and white subjects. However, the 25-hydroxyvitamin D concentrations of these groups were relatively high (65 nmol/L and

95 nmol/L respectively) and parathyroid hormone concentrations did not differ between the groups.

It may be that the larger bones and greater body mass of Pacific people exerts a protective effect against osteoporosis through its positive influence on bone mass.[29,36]

A threshold of 61 nmol/L was estimated for plasma 25-hydroxyvitamin D, above which there was no further increase in PTH concentration. This threshold has varied considerably by population studied but has been reported to be somewhere between 25 and 122 nmol/L.[8]

The wide range of these estimates may be related to the varied ethnicity and ages of the populations studied, varied calcium intake, the presence of illness that may affect PTH concentrations in the elderly, renal insufficiency, and lack of standardization of assays for 25-hydroxyvitamin D.

We also acknowledge that the statistical model applied to the data may influence the threshold, and many approaches have been used. However, a visual inspection of Figure 1 suggests a plateau between 60–80 nmol/L. PTH does appear to drop in the highest category but this includes a very broad range of 25-hydroxyvitamin D and may reflect the arbitrary nature of the categorization. Using 60.6 nmol/L as a cutoff to define vitamin D adequacy, over 60% of participants in the NNS97 would be classified as vitamin D insufficient.[6]

We have demonstrated a seasonal change in parathyroid hormone concentrations, concomitant with change in vitamin D status. Annually recurring cycles of low vitamin D with elevated PTH may contribute to age-related bone loss and increase fracture risk. Based on maximal suppression of PTH we estimate that 25-hydroxyvitamin D concentration should be maintained above 60 nmol/L year round, a concentration that most New Zealanders fail to achieve. However, even higher plasma 25-hydroxyvitamin D concentrations may be required to reduce the risk of non-skeletal disease outcomes.

Given the difficulty in obtaining enough ultraviolet light for vitamin D synthesis in the winter months and the high risk of skin cancer associated with sun exposure, dietary intakes of vitamin D need to be increased, by increasing the availability of supplements to high risk groups and possibly vitamin D fortification of a food staple.

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Defensive practice in mental health

Richard Mullen, Anita Admiraal, Judy Trevena

Abstract

Aim This study aimed to assess the extent of defensive clinical practice by psychiatrists and psychiatric nurses in a New Zealand Mental Health Service.

Method An anonymous questionnaire survey, addressing perceptions of a variety of defensive practices, was sent to all psychiatrists and psychiatric nurses working in acute clinical settings in the publically funded mental health service in Dunedin, New Zealand.

Results Defensive practice is perceived as widespread in psychiatric settings. In particular, practices such as questioning patients about their safety, admissions to hospital, and delayed discharge from hospital were often perceived as occurring for defensive purposes. Psychiatric nurses were more likely than psychiatrists to perceive such practices as defensive.

Conclusion Defensive practice is common in mental health. This is despite New Zealand's no-fault compensation scheme, and so presumably results from concerns other than the risk of financial liability. There may be particular pressures in mental health to practice defensively.

Defensive practice occurs whenever a practitioner gives a higher priority to self-protection from blame than to the best interests of the patient. Two forms, positive and negative, are conventionally considered.[1]

Positive defensive practice (assurance behaviour) is where additional effort, of marginal clinical utility, is made to avoid complaint or legal liability. Examples include the ordering of extra tests or the keeping of excessively detailed notes. Such practice may be wasteful of resources and have little or no beneficial impact on individual patients.

In contrast, negative defensive practice (avoidance behaviour) consists of avoiding certain procedures, patients or clinical scenarios because of the perception of the hazard of liability.[1,2] Negative defensive practice appears by definition to be adverse in its clinical impact. Both positive and negative defensive medical practice appear commonplace.[2–5]

Defensive practice is commonly attributed to concern at malpractice litigation, in particular financial liability.[4,6] This is particularly so in the USA where the overall costs of defensive practice amount to several billions of dollars annually.[7,8] Concern at potential litigation may be a common reason for professional dissatisfaction amongst psychiatrists.[9] However, concerns other than the financial may contribute to defensive practice in mental health. For example patient suicide appears to have a substantial emotional impact on psychiatrists and psychiatric nurses, and to result in a more defensive approach to risk.[10–12]

In a survey of defensive practice among psychiatrists in England most reported practicing defensively in the past month, 21% admitting to over-cautious admission to hospital, and 29% to using higher levels of observation than were judged clinically necessary. Defensive practice appeared to be a consequence of concern at complaint and litigation.[13]

Mental health practice may raise particular pressures to practice defensively. Questions of diagnostic validity and reliability are such that the evidence base for mental health practice is less easily interpreted, so that clinical decisions are based more on the impression and opinion of individual clinicians than is the case in other areas of medicine.

Where practice is informed by evidence, variations in patient's individual circumstances, preference, and psychopathology are probably greater in psychiatry than other specialties. Mental health interventions are also counterintuitive. For example, intrusive precautions, such as the use of constant observation on an inpatient unit, has been argued to increase the risk of suicide.[14]

Some patients who make repeated suicide attempts may appear to be in need of admission and close monitoring, or (it may equally be argued) to be in need of a limit setting approach, one that may seem to be a negligent denial of care.[15]

Defensive practice may also occur because psychiatric practice deals with matters that are emotionally charged such as suicide, aggression, and sexual abuse. Clinicians in mental health are under pressure to respond not just to the needs and preferences of individual patients, but also to those of their families, and to wider societal concerns.

Controversies in mental health, and occasional tragedies, are often the subject of close media attention and reporting which may be inflammatory. Negative public perception of the mental health service may influence practitioners' decision making and so contribute to defensive practice.

New Zealand (NZ) might be expected to be an environment that does not encourage defensive practice. Established no-fault legislation means that medical practitioners are rarely sued. The cost of malpractice insurance in NZ is minimal. Payouts after medical error are via the established national Accident Compensation Corporation that separates the process of complaint from compensation. However NZ doctors remain concerned about the complaints process.[16]

NZ studies of medical practitioners report high rates of defensive practice and concern regarding complaints.[17,18] In NZ, mental health clinicians may feel vulnerable in relation to ambiguity regarding clinical accountability, and they have reported feeling forced to practice in a defensive manner by the impression that they are increasingly being held to account for inadequacies within the mental health sector as a whole.[19]

The NZ Parliament has legislated for a Health and Disability Commissioner (HDC)—an independent agency designed to facilitate the rapid resolution of complaints about the quality of healthcare and disability services. Complaints are considered an opportunity to improve health services and they rarely end in the censure of a practitioner.[20]

Method

An anonymous questionnaire was sent to all 83 registered nurses and 31 psychiatrists (consultants and those in training grades) practicing in acute inpatient and community settings within the local Dunedin mental health service. The questionnaire covered several forms of practice: hospital admission, use of the Mental Health Act, prescription of psychotropic drugs, inpatient seclusion, referrals within the clinical team, delayed discharge from hospital, questions to patients regarding their safety, close follow-up in the community, and close observation on inpatient wards. The survey was resent to initial non-responders.

Survey questions were in a form that invited respondents to consider their own practice and that of their clinical (medical and nursing) colleagues, for example: "In your experience of your own practice, and that of your nursing and medical colleagues, what proportion of questions to patients about their safety are the result of defensive practice and may be contrary to the interests of the patient or their family?" Available responses to questions were on a 7-point scale in the form: none/a few/some/about half/a majority/nearly all/all.

Information about age or gender, or any other details of participants was not collected, in an attempt to emphasise the anonymity of the responses.

The project received ethical approval from the Lower South Regional Ethics Committee.

Results

A total of 86 usable questionnaires were returned (59 from nurses and 27 from psychiatrists) representing a 75% response rate overall. Some data was missing; for example, several community based nurses indicated that they were unable to comment on items concerned with use of seclusion and close supervision on inpatient units.

Responses were coded numerically, from 0 (none) to 6 (all) according to the proportion of each practice that was perceived as being defensive. Averages are shown in Table 1, separately for doctors and nurses. Also shown is the proportion of all respondents who considered that the practice was defensive "about half" the time or more.

Table 1. Mean perceptions of defensive practice for doctors and nurses, and combined percentage rating half or more practice as defensive

Variables	n	Mean (doctor)	Mean (nurse)	P	Half or more practice rated as defensive
Questions to patients about safety	83	2.0	2.7	0.08	48%
Inpatient admission	86	1.7	2.4	0.01	34%
Delayed discharge from inpatient unit	79	1.4	2.4	<0.001	27%
Close community follow up	85	1.3	2.1	0.001	25%
Internal referrals	85	1.5	2.0	0.01	21%
Close inpatient supervision	75	1.3	2.1	0.002	17%
Use of mental health act	86	1.5	1.9	0.09	19%
Drug prescription	85	1.0	2.0	<0.001	18%
Seclusion	69	0.8	1.7	<0.001	10%

Defensive practice was commonplace, with many mental health practitioners reporting that some practices were defensive more often than not. Practices most often perceived as defensive were questions to patients about their safety (48%), inpatient admission (34%), and delayed discharge (25%).

Overall, nurses perceived more practice as defensive than psychiatrists (p values for comparisons are shown in Table 1.) However, there were no significant differences in perceptions of defensiveness between nurses in inpatient compared to outpatient settings.

Discussion

This study indicates that defensive practice is widely perceived to be commonplace in mental health practice. In particular, questions to patients about their safety, hospital admissions, and delayed discharge were often perceived as being due to defensive practice.

This study has limitations. Defensive practice, by definition, requires the measurement of a motivation, rather than being the direct measurement of certain practices.[21] As such, it may be difficult to reliably and validly identify instances of defensive practice. In addition, an anonymous survey may result in inflated rates by encouraging over reporting. Non-responders may not perceive defensive practice as commonly as responders.

Compared with psychiatrists, psychiatric nurses perceived more practice as defensive. This held for practice that is mainly medical (drug prescription, admission to hospital) as well as that commonly initiated by nurses (seclusion and close supervision on ward).

Several possible reasons may be entertained. Nursing staff may feel they are more regulated by detailed protocols, and that they have less license to use their own discretion. Nursing practice structures may possibly be more hierarchical, with the implication that the clinical judgement of individuals has to be adjusted in line with perceived organisational priorities.

We suspect that nurses perceive themselves as highly vulnerable in the event of adverse outcome and that this may account for a greater impression that practice is defensive.

That both psychiatrists and nurse rated questions about safety to be most commonly defensive, and possibly counterproductive, raises questions about the value of such monitoring, which has elsewhere been considered to represent excessive concern about risk.[22]

In New Zealand, national guidelines for risk assessment in mental health acknowledge that risks have to be taken, however they also assert that “risk should be reassessed at regular intervals” (p4) and provide an extensive list of factors to be considered in assessment of risk, possibly contributing to a risk-averse culture.[23]

The increasing prominence of clinical algorithms and other protocols detracts from the individual assessment and circumstances. Even when expert committees who produce such guidelines explicitly recommend flexibility and the use of individual clinical judgement, deviation from such guidelines risks being assumed to be evidence of poor practice.

Clinical decision-making has at its heart, the judgments regarding what is best for an individual patient. Such judgment can be usefully informed, but not replaced, by protocol and algorithm. In psychiatry, in particular, there are grounds for concern that

diagnoses and treatment protocols are of limited validity. As such, the application of what has been termed tacit knowledge to clinical decision-making is unavoidable and unobjectionable.[24]

Prominent advocates of evidence-based medicine also emphasise the need for individual clinicians to interpret the problems of the individual patient, using available evidence in a critical manner, generally in the context of a dialogue with the patient.[25] What is in question is the validity of protocols and ethical conventions, the extent to which they accurately represent the body of knowledge and values that should guide practice.

Judgment of the acceptability or adequacy of care can be made from two main viewpoints: the evidence for or against certain approaches, and customary practice. Both would appear to give clinicians little need to practice defensively. However, if a group of clinicians has defensive norms, practicing less defensively carries a greater risk as it violates rather than reflects those norms. It seems that it is not enough to make the right decision, or the best available decision, the decision must also look right to outsiders.

A rule of thumb for defensible medical practice has been the Bolam Principle, whether or not an individual clinician's practice corresponds to prevailing local practice.[7,26] The Bolam Principle is accepted, to varying degrees, in the UK, NZ, and US. Its effect on practice is unknown. It may plausibly provide a barrier against defensive practice, or encourage it. Either way, the Bolam principle will tend to make clinicians behave as they believe other clinicians behave. Thus, if excessively defensive practice is the norm, less defensive practice appears correspondingly maverick and hard to justify.

The defensive response to the risk of inpatient suicide (making inpatient environments bleak and excessively custodial in an effort to remove all potentially dangerous items) has been considered more likely to increase rather than decrease the risk of suicide; its justification being freeing the institution from being blamed, rather than the needs of the potentially suicidal inpatient.[27]

Is widespread defensive practice a problem? There is no evidence base that examines the effect of defensive practice on clinical outcomes. It has been argued that defensive avoidance of certain patient groups can result in a useful concentration of service provision by those with the most expertise.[28]

A case can be made that defensive practice offers the best available way of ensuring clinical adherence to good practice, protecting patients against otherwise overconfident mavericks. However such an argument presumes that the relevant clinical situation can be codified in a treatment protocol.

Defensive practice, even if not directly desirable, may be an inevitable consequence of emphasising cautious and evidence-based practice, and may make clinicians err on the side of safety rather than heroic or idiosyncratic interventions. Complaints about practice are seen in the USA as an important means of improving healthcare quality.[29]

There are two main reasons why defensive practice may be on the increase. Firstly, defensive practice may be an inevitable part of a risk-averse culture, increasingly a concern in New Zealand as elsewhere [30]. Secondly, the proliferation of treatment

protocols and guidelines may make practitioners reluctant to substitute their own judgement.

Claims that there is a climate of defensive practice may tend to be self-fulfilling. Nonetheless, attention to the matter is warranted. A start would be realism about the likely impact of clinical interventions, a realism not always encouraged in a culture that values optimism above caution.

The need for clinical discretion, using guidelines about best practice to inform rather than to replace judgement, could be asserted more strongly. Clinical protocols and guidelines could be phrased to reflect this. Some well articulated publicity may allow concerns about defensive practice to be more widely considered. Finally, greater continuity of clinical care may plausibly provide a clinical context where clinicians feel able to use such discretion.

Our results are similar to those of other NZ studies of defensive practice.[18] New Zealand's no–fault compensation scheme does not prevent defensive practice, which presumably has origins other than in concern at the financial hazards of adverse events and complaint. Mental health practice may involve particular pressures to practice defensively.

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Telling the truth to Asian patients in the hospital setting

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Abstract

Full disclosure of health information to patients is considered important in Western culture, but may be less appropriate for patients from other cultures, particularly when conveying news about a diagnosis with a poor prognosis. This issue is becoming important in New Zealand, given the rapidly increasing ethnic diversity of patients presenting to our hospitals. This paper explores culturally appropriate ways of breaking bad news to patients of different ethnicities in the hospital setting, with emphasis on identifying the locus of decision-making within families and decision-making about end-of-life care. Given that the most rapid population growth is presently occurring in the Asian community, attention is focussed on culturally sensitive ways of breaking bad news to Asian patients and their families.

Western medicine is taught and practised using a model of full disclosure.[1] This is considered important for patients to be able to make decisions about their treatment and to be informed fully prior to giving consent to treatment. However, a full disclosure model may be less appropriate for patients from other cultures.

The communication of bad news, such as a complication or a poor prognosis, is where this issue arises most often and is particularly difficult when dealing with Asian patients. Asian family members often ask health professionals for communication to be with a member of the family and not with the patient.[2,3]

Medical interpreters are often useful in finding the correct approach and terminology, but they can complicate matters if they fail to grasp key clinical details, introduce personal bias, or communicate in a manner that the health professional does not intend. A form of "Chinese whispers" can occur, with information passing from the health professional, to interpreter, to key family member, to extended family, to the patient, and then back again.[3] The potential loss of control over the content and intent of the information can make a Western-trained health professional uncomfortable.

Cross-cultural communication of health information is becoming more important because of the changes occurring in the ethnic makeup of the New Zealand population. In 2006, the European population represented 67.6% of New Zealand residents, with Māori at 14.6%, Asians at 9.2%, Pacific Islanders at 6.9%, and the rest comprising Middle Eastern, Latin American, and African at 0.9%.[4]

Auckland is the most ethnically diverse region in New Zealand, with 66.1% of the Asian population living there and comprising 18.6% and 19.0% of the total male and female populations, respectively.[4] It has been predicted that between 2006 and 2026 the Asian population in New Zealand will increase by 95% compared with 60% for Pacific Islanders, 31% for Maori, and 7% for Europeans.[5] The largest population

growth is therefore occurring in our Asian community, the birth rate for which is increasing 2.5 times faster than that in the European population.

There has also been a marked increase in the proportion of doctors from Asian cultures practising here, particularly in the last decade.[6] According to the most recent census data, New Zealand's Asian population is dominated by people who identify with either Chinese (41.6%) or Indian (29.5%) ethnicity. The People's Republic of China (32%) and India (17.3%) are the commonest countries of birth of New Zealand's Asian immigrants, followed by Korea (11.9%), the Philippines (6.2%), and Malaysia (5.7%).[7]

The increasing proportion of Asian patients presenting to the New Zealand healthcare system raises a number of issues concerning language, cultural practices, and religious beliefs that clinicians should understand for the delivery of optimal patient care.

Ethnic diversification of both patients and health professional groups in this country means that the need for cultural sensitivity extends beyond the focus on Western-trained doctors and Asian patients, with wide implications for training in cultural skills and competency.

This paper examines how to tell the truth in a culturally sensitive way with particular emphasis on breaking bad news, identifying the locus of decision-making within a family, and end-of-life decision-making. The three models that are discussed in this context are *patient autonomy, nonmaleficence*, and *beneficence*.

Patient autonomy model

The rights of the individual are considered paramount in Western culture and are reflected in the patient autonomy model. Following this model, bad news is communicated directly and honestly to the patient, who is then able to choose whether or not to be actively involved in all aspects of decision-making about the management of his or her illness.

A minority of patients will forego their right to decide, preferring to defer to the health professional. Guidelines for breaking bad news based on the autonomy model were developed by Rabow and McPhee[8] and later adapted by VandeKieft[9] (ABDEE, **A**dvanced preparation, **B**uilding a therapeutic relationship, **C**ommunicating well, **D**ealing with patient and family reactions and **E**ncouraging and validating **E**motions). There is also the SPIKES approach (**S**etting up, **P**erception, **I**nvitation, **K**nowledge, **E**motions, **S**trategy and **S**ummary) which attempts to accommodate different cultural expectations of health care.[10]

Common features in these guidelines are truthful explanation of a diagnosis with a poor prognosis, provision of time for the patient to respond, and then offering support. The concept of patient autonomy is so powerful in Western culture that people can safeguard their right to make future decisions about their own health by arranging living wills and by providing advance directives in the event of loss of their ability to make such decisions.[11]

Nonmaleficence model

At the opposite end of the spectrum is the nonmaleficence model, whereby the patient is not told of a poor prognosis in the belief that this will protect him or her against unnecessary physical and emotional harm. Following this model, diagnostic and prognostic information is given to the patient's immediate family members who then make treatment decisions on behalf of the patient. This practice is more common in Eastern European communities, Italy, and Africa—and several reasons have been given for this approach.

Some cultures view discussion of serious illness and death as impolite and even cruel. Others view it as provoking unnecessary anxiety, depression, and a sense of helplessness, thereby eliminating all hope.[12] In these cultures there is the concern that terminally ill people may not be able to enjoy the remainder of their lives if they are aware of their poor prognosis, and may feel as if they are "walking amongst the dead".

Some cultures believe in the power of the spoken word to the extent that even speaking about such matters might make death become a reality[2], and this is common in indigenous American, Bosnian, and Chinese communities.[13,14]

Beneficence model

Somewhere in the middle of the spectrum is the model of beneficence, where family members actively participate in the communication, share the burden of a poor prognosis with the patient, and encourage hope. The beneficence model is widely practised in a number of Eastern countries including India,[15,16] Korea,[17] Singapore,[18] Thailand,[19] and China.[20]

Decisions about health care and treatment in Asian communities tend to be made jointly by family members (who are often the main caregivers) and the patient, rather than by the patient alone. In this setting the family rather than the patient is the first to be informed of the diagnosis and/or the suggested management plan. However, an overly optimistic prognosis might be given to the patient in an attempt to preserve hope.[21]

Common to all Asian cultures is a deep respect for the dignity of others, and in particular for one's parents. There are a number of words used in the Asian languages to describe this concept, none of which have adequate English equivalents. For example, the Japanese word *amae* refers to the deep embedding of an individual in their family or social group. Another such Japanese word is *omakase,* which refers to the traditional Asian practice of elderly parents leaving important life decisions to their adult children, in the knowledge that they will act in their best interests out of gratitude for their earlier nurturing and sacrifices.

Nonverbal communication appears to have a greater role in Asian cultures than in Western society, and its purpose is to preserve the dignity of others and to avoid embarrassment. Body language is known as *zhih li* in Chinese, *inshin denshi* in Japanese, and *nunchi* in Korean.

In many situations, the unspoken word can be more important than the spoken word, to the extent that an entire conversation might be understood quite clearly from body language alone.

The traditional Asian practice of nondisclosure of bad news directly to a patient was tested in Japanese law as recently as the 1980s.[22] The case concerned a patient who presented to her doctor with abdominal pain and was suspected to have an adenocarcinoma of the gallbladder. Instead of disclosing this to the patient, the doctor offered a diagnosis of gallstones. The patient declined surgery in the reasonable belief that gallstones were not life-threatening, but subsequently died of gallbladder cancer. The patient's family later sued the doctor.

The suit was unsuccessful, on the grounds that "at that time most physicians did not reveal the true diagnosis of cancer to their patients". The outcome of this case highlights the deeply entrenched concept of nondisclosure in traditional Asian culture.

Navigating between the cultural poles

Determining how much information to give to patients from different ethnic groups regarding a serious diagnosis is not straightforward, and "one size does not fit all". There is a wide range of preferences, and this appears to be more so for Asians than for Europeans.[2] This may, in part, relate to the length of time a person has lived in his or her adopted country and its social environment.

In New Zealand, for example, a first-generation Asian person with a limited command of English may have had little exposure to Western culture and have fully retained his or her traditional Eastern cultural beliefs and preferences. In contrast, a second- or third-generation New Zealand-born Asian is likely to have developed a mixture of Eastern and Western beliefs.

Therefore, decision-making about how to deliver bad news cannot be made on ethnicity alone. Interestingly, recent evidence from China indicates that most patients want to be informed of a cancer diagnosis, although this preference reduces as the diagnosis becomes more pessimistic.[23,24]

Determining how to best communicate bad news to Asian patients presenting in the New Zealand hospital system presents a notable challenge. To inform the patient's relatives of bad news before telling the patient is in breach of the *New Zealand Code of Health and Disability Services Consumers' Rights*.[25]

Therefore it is necessary to offer patients a choice about whether they or nominated family members should be told bad news first, even though offering the patient this choice might not be completely in accord with their cultural expectations.

Searight and colleagues have developed a questionnaire to assess a patient's preference regarding how bad news should be conveyed.[2] This questionnaire asks whether or not patients want to be told directly about their medical condition and whether or not they want someone else to make decisions, but does not clarify whether or not they want a family member to be informed first.

A modified form of this questionnaire that clearly asked whether or not the patient wanted someone else informed first has been developed (Appendix 1). It was translated into Mandarin and then evaluated with a small pilot study by the

Department of Psychological Medicine, University of Auckland to determine whether it was understood, acceptable, and if it assessed what it was intended to. It was administered to an opportunistic sample of 10 Chinese people (male 3: female 7, ages 40–60 years) in the community.

Participants were asked to respond as if they had been admitted to hospital and to complete the questionnaire. Participants were then asked for verbal feedback and they all considered that the suggested use of such a questionnaire was an excellent idea and important for Asian immigrants. Participants made some suggestions to clarify the questionnaire further but indicated that not only should the name of the person to be informed first be recorded but also the relationship of this person to the patient. They commented that in Asian cultures the acknowledgement of relationships is essential in terms of family hierarchy and social networks.

The authors suggest that such a questionnaire should be completed on first presentation to hospital and be part of the patient's clinical record, providing a quick and useful reference for staff. This is in keeping with other preferences that are recorded including those relating to diet (e.g. vegetarian), treatment (e.g. transfusion and Jehovah's Witnesses) and resuscitation status.

The authors are not aware of any hospital in New Zealand where such a questionnaire has been used. It might be argued that such an approach is too formal and that a good clinician should ascertain these preferences as a matter of routine. Indeed, such a questionnaire undoubtedly needs to be tested with patients and their families in the hospital setting to determine its reliability, validity, and usefulness.

It is hoped that this type of approach, which could be readily integrated into admission questionnaires, would become a practical and useful tool to ensure that communication between patients, families, and staff in the hospital setting is culturally sensitive and appropriate.

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Appendix 1. Example of a questionnaire to determine the best way to communicate with patients and their families in relation to their medical condition, treatment options and outcomes (modified from Searight and Gafford[2])

The person who is interpreting for the patient should read the following and record the answers.

Introduction

In New Zealand, patients have the right to know all about their medical condition and treatment options. Sometimes patients prefer that someone else, particularly family members, are told first about their medical condition and treatment options. We are asking you these questions so that we can know how you want to receive information. We will record your wishes on your hospital file so that everyone knows your preferences. If you change your mind at any time just tell one of the staff and they will ask you these questions again and change the information on your file.

Questions

1. Some patients prefer to know all about their medical condition and treatment options, others don't want to know or would prefer someone else who cares about them is told first. Do you want to be told, or would you prefer someone else is told first? *(please tick).*

Tell me first ☐ *(go to Question 5)*

Tell somebody else ☐

2. If you would prefer that we tell somebody else about your medical condition who can help make decisions about your care, who would that person be and what is your relationship to that person?

Name .....

Relationship to you .....

Contact phone number(s) .....

3. Would you be more comfortable if this person were spoken with alone, or would you like to be present? *(please tick)*

I want to be present ☐

I do not want to be present ☐

4. If you change your mind at any point and would like more information, please let me know. I will answer any questions you have. *(please tick)*

I know that I can change my mind at any time ☐

5. Sometimes people are uncomfortable discussing their medical condition and treatment options with a doctor who is of a different race or cultural background. Is this an issue for you?

No ☐ *(go to Question 7)*

Yes ☐

6. Can you please explain why this is an issue and how we might assist*? (Continue over page)*

……

……

.....

7. Is there anything that would be helpful for me to know about your background/family/community/culture/faith that is relevant to how we talk with you about your medical condition and treatment options and outcome? *(Continue over page)*

……

……

.....

Signature of the interpreter confirming that the patient has understood the questions.

…….. (Signature)

..... (Name)

…… (Contact phone number)

…… / ….. / …….. (Date)

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Inquiries into health care: learning or lynching?

Ron Paterson

Nordmeyer Lecture (Wellington School of Medicine, University of Otago,[1] 17 September 2008)

Abstract

There is a spectrum of reasons for inquiries into health care: learning, catharsis, reassurance, and accountability. The tension is immediately obvious. Is the primary purpose learning or lynching? We need to learn from major health inquiries. New Zealand needs a culture of inquiry that encourages health professionals to discuss their concerns. We need mechanisms that enable health professionals to share, learn, and implement changes for improvement. We need processes that support more informed scrutiny of health service quality by the public and media. There will continue to be a place for inquiries by the HDC and Coroners where external scrutiny is necessary.

For many children of the 1950s, like myself, Nordmeyer was the infamous Minister of Finance who delivered the "Black Budget" of 1957. I also knew that he was a former Presbyterian Minister, which rather endeared him to me. And that was about it.

Thanks to a superb new biography *Nordy* by Mary Logan,[2] I now know that as Minister in Kurow (Waitaki Valley, North Otago), Nordmeyer witnessed terrible suffering during the depression years of the early 1930s, and became convinced of the need for better health service provision for the public. He was impressed by the example of the Public Works Department health scheme for workers on the Waitaki Hydro Dam.

With his friend Gervan McMillan (the local GP), Nordmeyer developed the concept of a health and social security scheme. McMillan and Nordmeyer both entered Parliament as MPs in the Labour landslide of 1935, and Nordmeyer (as chair of the Select Committee) became the architect of the *Social Security Act 1938*, which made comprehensive provision for health, for security of income, and for the general welfare. It paved the way for free hospital care and access to a wide range of health benefits, many of which were rolled out while Nordmeyer was Minister of Health from 1941 to 1947, and which endure today.

One of the most fascinating aspects of Mary Logan's biography is the tenacity and good grace with which Nordmeyer debated with the New Zealand branch of the British Medical Association, in trying to ensure free primary medical care without a surcharge. The BMA ran a very effective public relations campaign, and demonised Nordmeyer and his reforms. Debate about free primary medical care and fees surcharges continues to this day.

If you have spent 8 years undertaking health inquiries, and dealing with the official representatives of the medical profession, you learn a little bit about tenacity, and the

power of myth and perception to obscure evidence and reality. Which leads me to the topic of my lecture: *Inquiries into health care: learning or lynching?*

Why do we inquire?

Why do we hold inquiries into health care? In the foreword to the recent Law Commission report *A New Inquiries Act*, Geoffrey Palmer says that "[s]ince its inception, the New Zealand Government has had a culture of inquiry" and that "[m]odern government is an endless procession of policy reviews, investigations, and inquiries of one sort or another".[3] If that is true of government generally, it is certainly true of health care.

In a report in 2005, the British House of Commons Public Administration Select Committee drew up a list of the purposes of government inquiries—establishing the facts, learning from events, catharsis or therapeutic exposure, reassurance, accountability, blame and retribution, and political considerations,[4] to which the Law Commission has added "policy development".[5] A 1996 collection of essays entitled *Inquiries after Homicide* (in the context of inquiries after homicides by psychiatric patients in England) offers a shorter list: learning, catharsis, reassurance, and accountability.[6]

I think these are the main reasons why inquiries are held. I take "learning" to encapsulate "establishing the facts". After all, finding out what actually happened is a prerequisite to any learning. Political considerations are doubtless often relevant to a Government's or Minister's or Select Committee's decision to call an inquiry—we saw this with the *Gisborne Cervical Cancer Screening Inquiry*, which enabled the Minister of Health to get the issue off the front pages in the run-up to the 1999 election. And some Commissions of Inquiry are clearly intended to help develop policy—the current *Royal Commission of Inquiry into Auckland Governance* is a good example. Warwick Brunton's research has identified five major policy-advisory inquiries from 1858 to 1996, which helped shape national mental health policy.[7]

So, if we focus on the shorter list, the tension is immediately obvious. There is a spectrum of reasons: learning, catharsis, reassurance and accountability. It is this tension that I sought to capture in my question, "Learning or lynching?"

What kind of inquiries into health care?

When something goes wrong in health care, the health professionals involved in the incident will often engage in long, hard self-reflection about their own practice. They may discuss a case informally in a peer review meeting. Or they may present it more formally in a setting like a mortality and morbidity meeting. These are important, highly desirable activities. They reflect the long and honourable tradition of a "culture of inquiry" in medicine. In an important paper in 1983, Neil McIntyre and Karl Popper argued for "the critical attitude in medicine", what they called "the need for a new ethics", to "search for our mistakes and investigate them fully…to be self-critical".[8]

Criticism and review by peers is an essential form of inquiry. But it does not connote the element of formal, external review that comes to mind when we speak of an "inquiry into health care".

This leads me to a further distinction. If a hospital or district health board launches an investigation into an adverse event, or even into a series of events, we call that an internal inquiry. Of course the board might decide to commission an external reviewer (often another clinician from the same field, but sometimes a panel). Canterbury District Health Board (CDHB) did this last year, to review the care provided to 25-year-old Dean Carroll, who died as a result of overwhelming sepsis less than 12 hours after being discharged from Christchurch Hospital Emergency Department. It was a careful review by people external to CDHB—but it was dismissed by the family as a whitewash.

This is an important distinction. Internal inquiries (even if undertaken by external reviewers) may be equally effective for learning purposes—finding out what happened and making recommendations for improvement—and they have become the primary vehicle for reviewing serious events in hospitals. However, a lack of independence may prevent internal inquiries fulfilling the purposes of catharsis, reassurance and accountability.

And so we come to the sort of inquiries I had in mind with my topic for this lecture: inquiries undertaken by an independent, external body.

Inquiry bodies

Independent inquiries in the health sector take a variety forms. The main types of health inquiry are those undertaken by a Coroner, by the Health and Disability Commissioner (HDC), or by a one-off inquiry, usually appointed by a Minister. Each has formal status or official standing. They also have specific powers (for example, to compel the provision of relevant evidence), either under the statute that creates the inquiry body (such as the *Coroners Act* or the *Health and Disability Commissioner Act*), or by Ministerial appointment as a Commission under the *Commissions of Inquiry Act 1908*, or as a "special health inquiry" under the *New Zealand Public Health and Disability Act 2000*, with more limited powers.

All inquiries have a specific function and terms of reference. In the case of the Coroner, the purpose of an inquest is to establish the cause and circumstances of a reported death (such as during medical or surgical treatment), and to make recommendations or comments to reduce the likelihood of other deaths in similar circumstances.

In the case of HDC, the inquiry is limited to investigation of "any action of a health care provider…if the action is, or appears to the Commissioner to be, in breach of the *Code of Patients' Rights*". The focus is on the possibility of substandard care. In an important ruling during Robyn Stent's *Canterbury Health Inquiry*,[9] the High Court in the *Nicholls* case upheld the Commissioner's jurisdiction to investigate systemic issues at the organisational level, so long as the investigation relates to alleged breaches of the Code.

Commissions of inquiry or "special health inquiries" appointed under the New Zealand *Public Health and Disability* (NZPHD) *Act* may inquire into (a) funding or provision of health services; (b) management of any publicly owned health or disability organisation; or (c) a complaint or matter arising out of the administration of the NZPHD Act.

Note the important differences between these external inquiry bodies. The Coroners and HDC are permanent bodies whose core business includes the conduct of inquiries, whereas a Commission of inquiry or a "special health inquiry" is exactly that: a one-off, special event. It is no surprise that Commissions of inquiry are often headed by judges. A judge is called upon to hear evidence and reach conclusions about every aspect of life, so no special expertise (beyond legal acumen and wisdom) is called for. Coroners are judicial officers. They do, naturally, develop expertise in end-of-life issues. But they are not part of the health sector.

The HDC, in contrast, is not a judge and is not even required to be a lawyer. No doubt there are pros and cons to the appointment of lawyer to this key role of a statutory decision-maker inquiring into health care. The appointee is required by statute to bring knowledge of the health care system and of the needs of health consumers to the role.[12]

HDC is, I think, very much seen as part of the health system, rather than simply part of the legal system. This also has important implications for the many inquiries that HDC undertakes into health care.

One final distinction relates to the form of the inquiry. Coroner's inquiries and Commissions of inquiry are usually referred to as public inquiries, because they hold public hearings and the evidence is publicly available. HDC inquiries may be conducted in public or private, but to date every inquiry has been held in private—even though the terms of reference of an HDC inquiry, and its findings and recommendations, may be publicly released and highly publicised. This distinction between public and private hearings may be important in seeking to achieve learning without lynching.

Reflections on the Cartwright Inquiry

So much for the landscape of health inquiries in New Zealand. I want to look at some specific inquiries. No discussion of health inquiries in New Zealand would be complete without acknowledging the pivotal role of the *Cartwright Inquiry*. It is timely to do so.

August 2008 marked 20 years since Judge Silvia Cartwright delivered her *Report of the Cervical Cancer Inquiry*, having been appointed as a Committee to inquire into "allegations concerning the treatment of cervical cancer at National Women's Hospital and into certain other related matters".[13]

It took just 10 days for the Government to announce a judicial inquiry in June 1987, after *Metro* published the article by Sandra Coney and Phillida Bunkle entitled *An Unfortunate Experiment at National Women's Hospital*, which told the story of "Ruth" (who later revealed herself as Clare Matheson), one of many women with carcinoma *in situ* left untreated by Associate Professor Herb Green as part of a study to see whether doing nothing was as effective as standard treatment (cone biopsy, hysterectomy, etc) in preventing invasive cancer.

The very public inquiry, and the Report that followed, led to a seismic shift in the patient–doctor relationship in New Zealand. Judge Cartwright recommended that patients' rights (in particular, the right to informed consent) be enshrined in legislation and enforceable by a complaint system overseen by a Health Commissioner; an overhaul of the medical disciplinary system; independent patient

advocates; and a rigorous system of ethical review. All this came to pass in the years that followed, including the appointment of the first Commissioner in 1994, and the enactment of the *Code of Patients' Rights* in 1996.

It is interesting to speculate whether these changes would have occurred without a public inquiry, and the legal process—notably cross-examination of witnesses by lawyers funded by legal aid—that tested the evidence. The simple answer is "no".

As Silvia Cartwright noted in a recent conference paper, "[t]his was a drama unfolding in the nation's living rooms." Dame Silvia also made another interesting comment, "[It was] a drama in which there were *goodies and baddies*" (emphasis added).[14] It reflects the natural human tendency to look for a scapegoat whenever a great disaster is uncovered. The urge to lay blame runs deep.

Learning, catharsis, reassurance, and accountability? All of these were achieved to varying degrees by the Cartwright Inquiry and its aftermath. But the learning has been contested. The revisionists, most recently in the guise of University of Auckland historian Lynda Bryder, continue to argue that Judge Cartwright got it wrong; that the women who were part of Green's study had the same outcomes in terms of invasive cancer as those treated before or after.

As Charlotte Paul has commented, "Not a scrap of empirical evidence has been published by the revisionists."[15] Indeed, a new follow-up study of the National Women's patients (led by Margaret McCredie, with Charlotte Paul, David Skegg and others) confirms the poor outcomes for the untreated women.[16]

What this tells us is that if the stakes are high enough, the learning from an inquiry will be hotly contested. And the stakes were very high indeed in the Cartwright Inquiry. Women had died and suffered from "the unfortunate experiment". Although the inquiry was an inquisitorial process, it felt like a trial: of Drs Green and Bonham, of National Women's Hospital and the University of Auckland, and even of the medical profession.

How cathartic the inquiry was remains contested territory. Clare Matheson says in her personal reflections that it has been a "never-ending story",[17] but I think she would acknowledge the importance of being able to tell her story publicly and have her concerns vindicated. Some colleagues of Green and Bonham continue to refer to the inquiry as a "witch-hunt", which "did a huge injustice in totally discrediting" them.[18] For them, it was certainly a public humiliation—even though the formal accountability processes (including the Medical Council disciplinary process finding Professor Bonham guilty of disgraceful conduct) followed and were separate from the Inquiry.

But for those not directly involved in the inquiry, the Report and the implementation of most of its recommendations were cathartic. Stephen Hilgartner, writing in the aftermath of Hurricane Katrina, has commented that "[p]ublic inquiries…offer a ritualised process for collectively 'moving on' ".[19] Yet Hilgartner also notes that inquiries "do not have a guaranteed capacity to reassure".

As shown by the Gisborne Cervical Cancer Inquiry in 2000, and the 2001 report from the Committee of Inquiry headed by Ailsa Duffy QC, there was still "unfinished business" relating to the national cervical cancer screening programme.[20] The Duffy Report concluded that the under-reporting of cervical smear abnormalities by Dr

Michael Bottrill in Gisborne was not an isolated case, but evidence of systemic flaws in the national programme due to lack of rigorous audit and quality assurance. The Inquiry's 46 recommendations led to changes in the legislative basis of the National Cervical Screening Register and in the operation of ethics committees.

The learning from the Gisborne Inquiry did not come without its own costs—it involved millions of dollars, months of argument and counter argument between lawyers, and mountains of paper and legal documents. This is one reason why governments are increasingly wary of embarking on large-scale public inquiries.

Recent legislation in New Zealand and the United Kingdom seeks to control the scope and cost of inquiries and regulate their form. Under the *New Zealand Public Health and Disability Act*, for "special health inquiries", the Minister is required to give "procedural instructions" to the inquiry board covering the nature of the inquiry (whether inquisitorial or adversarial), limits on the questioning of witnesses by parties and their lawyers (if an inquisitorial hearing), and directions that the inquiry be conducted efficiently, with due expedition, procedural flexibility, and minimal formality.[21]

Inquiry hearings are to be held in public and evidence is to be publicly available, unless the inquiry board rules otherwise having regard to "the interests of any person and to the public interest".[22]

HDC inquiries

I want to turn now to what have become the most common inquiries into health care in New Zealand: inquiries by the Health and Disability Commissioner. HDC undertakes around 100 investigations a year, but our inquiries into matters of major public concern, initiated on the Commissioner's own initiative, with the terms of reference publicly released and the publication of a final report, have probably had the most impact. There have been several major Commissioner-initiated inquiries into DHBs over the past decade, starting with Robyn Stent's Canterbury Health Inquiry in 1998, and continuing through my own inquiries into Gisborne Hospital,[23] Southland DHB,[24] and this year Whanganui DHB.[25]

Each of these inquiries has focussed on hospital and DHB systems, and made recommendations for improvements. As Commissioner, I have quite consciously sought to bring a systems focus to my inquiry analysis—reflected in the motto adopted by HDC, "Learning, not lynching, Resolution, not retribution" (phrases that came to me one day in 2001 when I was mowing the lawns). Others will judge how successful we have been. NZMA chair John Adams said of our Gisborne Hospital report, "HDC looked beyond the culpability of individual practitioners to the system."[26]

Alan Merry and Mary Seddon writing in the *New Zealand Medical Journal* in 2006 commended HDC on "a world-leading focus on addressing aspects of the system which contribute to patient harm, rather than only seeking to identify individual scapegoats when things go wrong".[27]

But we have our critics, and they have been fierce. Unsurprisingly, as in the aftermath of the Cartwright Inquiry, they have not all been disinterested. Colleagues and the Southland DHB chair rallied behind the psychiatrist found in breach in HDC's Southland Inquiry, and demanded a formal apology when the disciplinary tribunal

found no basis for discipline. I did not apologise; how could I, when I had given my honest assessment of a mass of evidence, and had been charged with a different question: whether psychiatric patient Mark Burton received mental health services of an appropriate standard.

HDC's Wellington Hospital Inquiry

Challenges have also come from professional leaders. Last year, the President of the New Zealand Medical Association (NZMA), in a Presidential Address entitled *Loyal to the Profession of Medicine and Just and Generous to its Members*[28] (the title gave a hint of what was to come), fiercely criticised an HDC decision involving Wellington Hospital.[29] The case involved Mr A, a 50-year-old patient with a chest infection admitted to hospital in September 2004, and the care he received over the 40 hours prior to his death. In a decision released publicly in April 2007, I reported on serious failings on the part of individual nursing and medical staff and the hospital system: failing to respond to signs of deterioration (not reading a chest X-ray until it was too late), and a lack of compassion for the dying patient and a lack of candour with his family and the Coroner after his death.

Let me give you a sample of the NZMA criticisms. My experts had engaged in "self-deception"; they were guilty of hindsight bias; their advice had been "clearly influenced by the weight [they] put on the family's anger and the fact that the patient eventually died"; the report did not identify the true cause of death; they had proposed untried "system fixes" (the use of medical emergency teams), thereby demonstrating "enthusiastic, but potentially arrogant…expertise or ignorance".

The Commissioner himself was guilty of a media "launch"—presumably a reference to my three-page media statement entitled *A tragic case at Wellington Hospital*, highlighting the lessons for other DHBs.[30] HDC was also accused of "broaden[ing] the range of targets of blame" to include managers as well as staff. The President of NZMA concluded by calling on the profession to "alert others to the path of arrogance of ignorance".

I take these criticisms seriously, and I want to respond to them, because they go to the heart of my discussion of the nature of inquiries into health care, and whether they amount to learning or lynching. Let me first deal with the smear of the "arrogance of ignorance". I went back and read Frank Ingelfinger's Harvard lecture on "Arrogance", delivered in 1977 but not published until 1980, after his death.[31]

Interestingly, Ingelfinger reserves his most trenchant criticism for what he calls "the brand of arrogance subsumed under lack of empathy", and cites as "the most flagrant example" the labelling of the patient as "non-compliant". *This* is the true arrogance in the case of Mr A, who was treated without empathy and blamed for wanting to leave his hospital bed for a smoke. To focus on the exact cause of Mr A's death (a matter that will fall to the Coroner to determine) is to miss completely the key learning from the case.

It is, of course, valid to worry about hindsight bias (that is, the fact that the inquiry body and its advisors look through "the retrospectoscope") and outcome bias (the reviewers' knowledge of the patient's death). But these concerns do not justify a sideswipe against inquiries; they highlight the need for *care* in inquiring. Here we see at play a fundamental difference between medicine and law.

Medicine is essentially concerned with the prognosis for the patient—looking at treatment options having established a diagnosis. Law, in particular a legal inquiry, is necessarily retrospective. It is impossible to hold an inquiry *in advance*. Of necessity, the inquirer looks back at events that have already occurred. HDC, in undertaking an inquiry, asks what health care the patient *should* have received. That is a normative question, rather than a moralistic question. Nor is it totally irrelevant to note that the patient died. The fact that there was a bad outcome, and that a complaint resulted, presents an opportunity to learn from what happened—in the same way that a mortality review does.

What are the safeguards against "ignorant", hindsight-biased expert advice? There are several. I inherited a system where expert advisors were not named in HDC reports, the basis of their appointment was unclear, and their advice was not always set out in full. In my view, fairness and confidence in the HDC process demanded that advisors be nominated by professional colleges, that they be named, and that their full advice be available to the providers under investigation, and (upon publication of the final report) to the profession and the public. Those checks are not a guarantee of wise advice, but they significantly mitigate the risk of ill-founded advice.

The sanction of professional critique of an expert's published advice is an important one. And in the rare cases where there has been disquiet from a specialty group about the advice relied upon (for example, because it is seen to be "gold standard"), I have been willing to ask a College to undertake its own review and provide me with feedback. It has seldom proved necessary.

It is also important to note that advice is simply that: *advice*. We might debate the merits of a non-clinically qualified inquirer *not* relying upon the advice of suitably qualified expert advisors. I have signalled to health professionals that in determining whether appropriate care was provided, HDC will scrutinise whether *custom* amounted to *care*. But of course in matters of assessment, diagnosis, and treatment, expert opinion will carry significant weight. That does not mean that an expert's suggested solution will automatically be endorsed.

Although HDC's advisor in the Wellington Hospital case flagged the need for rapid response systems to respond to physiologically unstable patients, my actual recommendation to Capital and Coast DHB was to "review its systems of care for physiologically unstable patients" *in light* of my expert's advice. I agree that inquiry recommendations should be evidence-based, although in seeking to improve patient safety we cannot always wait for randomised controlled trials.

The denigration of experts is not a new phenomenon. It continues to this day—I recently learnt that a specialist under investigation by HDC had sent a threatening email to the expert who had provided preliminary advice on a file, and to his Clinical Director. Charlotte Paul and Linda Holloway discussed this point in the aftermath of the Cartwright Inquiry. Writing in the *New Zealand Medical Journal* in 1990, they asked:[33]

> "Is anyone involved in a critical assessment of a colleague's work to be regarded as a proper target for…denigration? Only by withstanding such attacks and refusing to become cynical can we assist society in finding better ways to deal with error in medicine."

Sack the Commissioner

Denigration of an inquiry body is not confined to health professional critics. At the risk of giving my critics an idea, let me tell you what happened across the Tasman. In December 2003 the New South Wales Health Minister sacked the Health Care Complaints Commissioner, Amanda Adrian. According to the Minister, the Commissioner's findings in her Campbelltown and Camden Hospitals inquiry report "did not go far enough" and "failed to hold a single person accountable".

The Commissioner's 374-page inquiry report examined 47 clinical incidents at Campbelltown and Camden Hospitals (southwest of Sydney) between 1999 and 2003, following a complaint by whistle-blowing nurses.[34] It revealed disturbing patterns of inadequate care and treatment at the two hospitals, and at least 17 deaths were attributed to substandard care. The report made detailed recommendations to address the multiple systemic problems. But not one individual doctor or nurse was named or blamed for the litany of tragedies—although the possibility of disciplinary action remained open.

For that, the Health Minister dismissed the Commissioner and launched a special commission of inquiry headed by a leading lawyer, to re-investigate patient care at the two hospitals. A Coroner was also asked to examine the 19 deaths. Two doctors were suspended and another nine faced investigation into their performance. The Health Minister told the media: "The report does detail in great length instances of clinical failure, deficiencies in management systems, and the failure to ensure appropriate supervision. But…[it] simply doesn't go far enough in terms of finding anyone accountable for these failures."[35]

Any Minister of Health oversees a complex and politically charged portfolio. The New South Wales (NSW) Minister found himself caught up in a media and political storm about patient deaths at local hospitals. The heat was turned up once the Commissioner's provisional report was leaked.

The whistle-blowing nurses considered that the report did not go far enough, and were given plenty of airtime on Sydney radio. The Opposition seized the opportunity to accuse the Government of mishandling the health portfolio. Meanwhile, a parliamentary committee had turned its spotlight on the Commission, highlighting investigation delays and a backlog of cases.[36] The Minister's media comments in sacking the Commissioner—"Today is about accountability, about having a clear and transparent process…to provide closure and justice"—say more about politics than health care.[37]

Could it happen here? I think not. The Health and Disability Commissioner is appointed by the Governor-General, and can be removed (by the Governor-General on the advice of the responsible Minister given after consultation with the Attorney-General) only for "misconduct", "inability to perform the functions of office", "neglect of duty", or breach of duty (depending on the seriousness of the breach).[38]

Like any public agency, Health Commissioners must be accountable for their performance, but they must also be able to undertake health inquiries without fear or favour, independent of the Government of the day. I am happy to report that I have always been able to do so.

Learning or lynching?

I want to return to the tension between learning and accountability. Some inquiries into health care are expressly enjoined not to assign fault or blame. A Coroner's inquest is a good example. Its purpose is not to determine fault although, in identifying the cause and circumstances of the death, and making comments or recommendations so that lessons may be learnt, it is sometimes inevitable that fault is attributed to a party.

But HDC is required to make findings about whether an individual provider or an organisation breached the patient's rights. We must walk a delicate balance between holding systems to account, but attributing individual responsibility where professionals fail to fulfil their duty of care when working within a flawed system. We do so in an often acrimonious environment, where health professionals, aided and abetted by lawyers, bridle at any proposed criticism of their care.

Far more often, we single out DHBs and other organisational providers as being in breach of the Code, and acknowledge the impossible situation faced by individual medical staff. The combination of HDC's approach to finding doctors in breach of the Code, and the Medical Council's use of competence reviews to help the poorly performing practitioner, has led to a dramatic decline in discipline.

A just culture does not mean that we should turn a blind eye to individual failings. In the New Zealand health inquiry system, the Commissioner is required to attribute responsibility in determining whether the Code has been breached. It is a key aspect of our modern system on health professional accountability. Stephen Sedley has noted that "no responsible inquiry can be silent about professional misjudgements if it uncovers them".[39]

Furthermore, I do not believe that accountability can be equated with lynching. Indeed, I recall the American-trained psychiatrist who complained to HDC about the lack of care by a nurse found in breach of the Code for failing to undertake regular checks on a mental health patient in seclusion, who died overnight.[40] The psychiatrist took umbrage at my use of the phrase "learning, not lynching", when I declined to refer the nurse for discipline. He was right to do so.

Research from Marie Bismark and colleagues shows that the majority of complainants are motivated to prevent the same thing happening to someone else.[41] Only a tiny minority of complainants seek punishment, yet a significant proportion of doctors interpret a complaint as an assault on their person, and perceive themselves as victims of retribution.

Curiously, when doctors become aggrieved patients or family members themselves they are often very unforgiving of their peers' mistakes and unsympathetic towards HDC's rehabilitative approach. As an aside, in 2005, a senior doctor wrote to me that "[l]earning and resolution are noble sentiments if we are talking about milk products at Fonterra. But we are in the death, disease, and disability industry…so while learning and resolution are under way…deaths can occur."[42]

Minimising the toxic effects

We do need to minimise the collateral damage that health inquiries can cause. To quote Sedley again, "For the individuals under the spotlight public inquiries are a

disease, not a cure."[43] That, of course, is not the same as lynching, which is characterised by a lack of fair process and the substitution of mob rule. But we do need to recognise what I have called the "toxic effects" of complaints and inquiries.[44]

Whatever the good intentions of complainants and inquiry bodies, it may sometimes feel like a modern-day lynching if an individual provider is publicly revealed as the Dr X who is criticised (but not named) in a publicly released inquiry report. Our Bill of Rights enshrines freedom of expression as a fundamental right[45] (it even permits nude fishing on the Kapiti coast!), and parties are free to tell their story to the media, but we are right to worry about the long-term effects of such publicity.

After a major public consultation earlier this year, HDC adopted a policy of naming DHBs, hospitals, and rest homes whose systems are found in breach of the Code, unless it would not be in the public interest to do so; but individuals found in breach will continue to be named by HDC only in exceptional cases where public safety or flagrant misconduct requires it.[46] The recent publication, on an Internet blogspot, *PsychwatchNZ*,[47] of allegations about a named mental health nurse who had not even been subject to a formal inquiry, let alone an adverse finding, was a sad development.

I will continue to caution journalists who check with me about the risk of premature publicity before an inquiry is complete. This is a particular risk if an inquiry is being conducted in private, pending public release of a final report. One legacy of the Privy Council's overturning of Justice Peter Mahon's *Erebus Inquiry Report*[48] (for breach of natural justice in making the "litany of lies" comment that had not been put to Air New Zealand) is the requirement that proposed adverse comment be released to affected persons, with an opportunity to respond.[49] This can have its own adverse effects. Complainants may be aggrieved if the proposed findings are not "hard-hitting enough" or will be watered down as a result of submissions by adversely affected parties on provisional findings.

If a provisional report is leaked, the media can be used (as it was during the Campbelltown and Camden inquiry) in a pre-emptive strike, to build public pressure for more punitive inquiry findings.

As Onora O'Neill demonstrated so compellingly in her 2002 Reith lectures, trust is fragile.[50] Health professionals and health care delivery systems are also fragile, and the price of the full glare of publicity during an inquiry process (when grieving families and their lawyers may make sensationalist allegations that garner far more publicity than the eventual inquiry findings) may be irreparable damage to reputation, and systems that close ranks in the future and become more, not less, susceptible to failure.

If a primary purpose of an inquiry is to improve public safety in the future, there may be a case for suppression of the names of individual clinicians at least until an inquiry reports its findings, or for private hearings followed by a public report.

Learning from inquiries

Let me conclude with a few observations about learning from inquiries, and the implementation of inquiry recommendations. Kieran Walshe has examined the use of inquiries in the United Kingdom's National Health Service (NHS).[51] In a 2003 report, he notes that inquiry reports often gather dust, their recommendations are frequently not implemented, and the themes of organisational failure are recurrent.[52]

Recent research from Joanne Travaglia and Jeffrey Braithwaite of the University of New South Wales notes that patient safety inquiries across the world consistently identify the same problems: health care below promulgated standards; lack of quality-monitoring processes; patients, family members, and concerned staff being ignored and excluded; whistle-blowers being vilified; and persistent deficiencies in teamwork, systems, and communication.[53] A list to which one might add shortage of staff and other resource constraints.

I think we are right to worry about indiscriminate public inquiries of the sort that have become fashionable in NSW. In my view, at least if a country has a permanent health inquiry body, one-off Ministerial inquiries should be reserved for issues giving rise to widespread public concern and loss of public confidence. The events that led to the Cartwright and Gisborne Cervical Cancer Screening Inquiries warranted such intervention. Conversely, the Tauranga Hospitals Inquiry in 2005 is a good example of a Minister resisting calls for a government-appointed inquiry, and letting HDC get on with the job.[54]

We need to learn from our major health inquiries. As Travaglia writes, "Our analysis of multiple inquiries teaches us lessons from history that need to be heeded…Those who do not learn the lessons are compelled to repeat them, at great cost to patients."[55] For good reason, Ian Kennedy entitled his Report of the Public Inquiry into children's heart surgery at the Bristol Royal Infirmary, *Learning from Bristol*.[56]

Of course, if the lessons are to be worth heeding, inquiries must be rigorous, and their recommendations should be sound, evidence-based, and (if they are to be applied elsewhere) able to be generalised across the sector. The epidemiology of inquiries is doubtless worthy of study; so, too, is the evidence that implementation of inquiry recommendations do lead to quality improvement.

If clinicians and organisations are to learn from inquiries, the reports need to be well publicised and circulated, and there needs to be time for quality. We also need effective mechanisms to ensure follow-up of recommendations. This is not a problem for HDC. We can and do monitor the implementation of our recommendations, and we report to Parliament on the results. But it can be problematic for a government-appointed inquiry, whose existence ceases after tabling its report.

One possibility is for the inquiry to charge an official agency such as a Ministry of Health with the task of monitoring and reporting publicly, at specified intervals (for example, every 6 months) on progress in implementing recommendations. But from a public perspective it has its drawbacks, as the Ministry may not be seen as independent enough.

After the Gisborne Cervical Screening Inquiry both health officials and an independent, overseas pathologist were charged with making regular reports on progress on the recommendations. But after a couple of reports, the overseas pathologist was unavailable to continue the job. The public were left to rely on regular updates from the very Ministry that had been found wanting in the inquiry report.

In this instance the media played an important role in following up progress—alerting the public to time slippages, and holding public officials to account. Another approach could be to provide for an independent statutory agency, like the National Audit

Office in the United Kingdom, to follow up and report on the implementation of inquiry recommendations.

Reassurance for communities that improvements have been made is also important, so long as it is justified. We care about our hospitals, especially in our provincial centres like Gisborne, Invercargill, and Wanganui, and we want to know that problems are being fixed. With its unusual mix of inquiry and public watchdog roles, HDC can help provide some independent assurance, once an inquiry has established the facts and determined accountability.

Conclusion

We have a duty to inquire. The issues considered through inquiries form the visible tip of an iceberg of serious, preventable adverse events. And, like all icebergs, the most serious threat lies unseen below the waterline. Major failures are difficult to expose and investigate, and chance plays a large part. Often, problems will be well recognised by key individuals within the organisation, though even high levels of tacit knowledge may not lead to action, particularly within a dysfunctional organisation.

Would-be whistle-blowers may be deterred by the lack of appropriate protection and professional support. The result may be immense harm to patients, health professionals, and health care organisations.

We cannot simply rely on patients, journalists, and whistle-blowers to alert us to major failures in health care. We cannot turn a blind eye to the harm we see around us. We need a culture of inquiry that encourages health professionals to discuss their concerns, mechanisms that enable them to share, learn and implement changes, and processes that support more informed scrutiny of performance and quality by the public and media. If we fail to detect, investigate, and learn from major failures in health care, important opportunities for improvement are likely to be missed, and the chances are surely higher that similar failures will happen again.[57]

As Commissioner, I will continue to encourage the health professions to undertake their own inquiries, for I am convinced that the best lessons are learnt at home. But there will always be a place for HDC to undertake inquiries where external scrutiny is necessary. We will continue to take seriously our responsibility to find and share the learning from inquiries. We owe this to the complainants who seek our help, to the providers who invest much time and worry in our inquiries, and to the broader community, which places its faith in the Commissioner as a public watchdog.

We will ensure that our processes are fair, and will hold fast to our belief that retribution is futile if our aim is to improve health care.

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Acanthamoeba keratitis associated with cosmetic contact lens wear

Nathan M Kerr, Sue Ormonde

Cosmetic, or novelty, contact lenses are soft hydrogel lenses worn solely to change the colour or appearance of the eye. The popularity of these lenses is increasing worldwide, particularly amongst teenage adolescents.[1] Although possessing no optical power, these lenses pose the same physiological impact on the eye and carry the same risks as vision-correcting contact lenses.

Reported complications from cosmetic contact lenses include contact lens overwear syndrome, tight lens syndrome, corneal abrasions, *Pseudomonas aeruginosa* keratitis causing vision loss requiring corneal grafting, and presumed herpes simplex keratitis resulting in corneal scarring and legal blindness.[2]

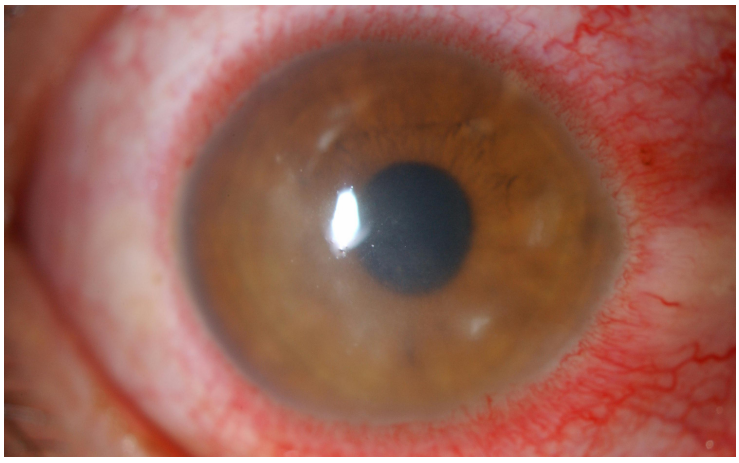
We present the first reported case in New Zealand of *Acanthamoeba* keratitis, a rare and potentially blinding infection, resulting from the use of cosmetic contact lenses.

Case report

A 19-year-old Māori woman was referred with a red and painful right eye after wearing coloured cosmetic contact lenses that she had purchased from a flea market. She did not receive any information at the time of purchase—and being unaware of proper lens hygiene, regularly cleaned and stored the lenses in tap water.

On examination her unaided visual acuity was 6/18 in the right eye and 6/6 in the left eye. Slit-lamp biomicroscopy of the right eye showed conjunctival injection, corneal epithelial irregularity, microcystic corneal oedema, and patchy anterior stromal infiltrates (Figure 1).

Figure 1. Colour photograph of the right eye of a patient with *Acanthamoeba* keratitis resulting from cosmetic contact lens wear



Corneal scrapings revealed *Acanthamoeba trophozoites* and treatment was commenced with topical chlorhexidine 0.02% and propamidine isethionate 0.1%.

The patient's symptoms and keratitis responded well to treatment and at follow-up her unaided visual acuity was 6/6 in both eyes and slit-lamp biomicroscopy demonstrated faint subepithelial scars only.

Discussion

This is the first reported case of *Acanthamoeba* keratitis resulting from the use of cosmetic contact lenses in New Zealand. *Acanthamoeba* is a rare cause of infection that if not diagnosed early can lead to profound ocular inflammation and visual loss. Due to the resistance of *Acanthamoeba* cysts to the majority of biocidal agents it is one of the most difficult ocular infections to treat.[3] Up to 93% of cases occur in soft contact lens wearers.

Poor hygiene practices such as rinsing or storing contact lenses in tap water are well recognised to increase the rate of infection.[4] The use of tap water allows deposits of lime scale containing pathogenic *Acanthamoeba* species to accumulate and adhere to the lens.[5] Corneal infection occurs through a contact-lens induced abrasion and is facilitated by the production of proteases.[6]

Only four cases of *Acanthamoeba* keratitis resulting from cosmetic contact lens wear have been reported in the literature (Table 1). In three of these cases the lenses were obtained from non-eye care professionals.[7–9] Two patients required corneal grafting and in both cases the final visual outcome was poor.[7,9]

Table 1. Case reports of *Acanthamoeba* keratitis associated with cosmetic contact lens wear

Case	Age	Sex	Source of lens	Wearing schedule	Specific breaches in care	Visual acuity at presentation	Corneal graft	Final visual acuity
1[8]	17	F	Internet	Intermittent	Cleaning in tap water	6/60	No	6/6
2[9]	19	F	Friend	Intermittent	Suboptimal cleaning of lenses and case	6/120	No	6/6
3[7]	26	M	Flea market	Intermittent	Unknown	6/30	Yes	6/60
4[9]	55	F	Unknown	First use	Unknown	HM	Yes	PL

F-female; M-male; HM-hand movements; PL-perception of light.

In New Zealand, cosmetic contact lenses are available from a wide variety of outlets including flea markets, clothing shops, novelty stores, and through the Internet. People who purchase lenses from these outlets are less likely to receive an eye examination, lens fitting, education regarding proper lens use and care, or ongoing follow-up compared to those who see an eye care professional.[1] This may result in

unsafe practices such as wearing lenses overnight, sharing of lenses, and poor lens hygiene.

The sale of cosmetic contact lenses is not restricted in New Zealand as these lenses have no optical power and are therefore not classified as medical devices under the Medicines Regulations Act 1984. However, in recognition that all contact lenses carry risks there have been regulatory changes in the United States, United Kingdom, Canada, and Australia classifying cosmetic contact lenses as medical devices and thus subjecting them to the same regulation as vision-correcting contact lenses.

This case highlights the potential for ocular injury resulting from the use of cosmetic contact lenses sold without fitting, appropriate instruction, or follow-up. The inappropriate use of these lenses may result in permanent visual impairment and even blindness.[2]

The cost to the health system of treating cosmetic contact lens related complications is considerable. We calculate the cost of treating a relatively uncomplicated case of *Acanthamoeba* keratitis to be over $8000—based on several days initial inpatient admission and then outpatient follow-up for around 6 months. However, this figure rises to over $50,000 if a corneal graft is required, when the cost of initial grafting, further surgery and possible re-grafts, and lifelong follow-up is taken into account. Furthermore, corneal grafting requires the use of scarce donor corneal tissue which could otherwise be used for patients with non-contact lens related corneal disease.

We describe a potentially sight-threatening infection acquired from a cosmetic contact lens sold by a non-eye care professional that could have been prevented by adequate patient education. The risks of cosmetic contact lens wear need to be communicated to the public and we strongly advocate for regulatory change restricting the sale of these lenses.

Any cosmetic contact lens wearer presenting with a red or painful eye should be referred urgently to an ophthalmologist for evaluation.

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Catastrophic antiphospholipid syndrome in a 77-year-old man

George Godfrey, Kate Grimwade, Tim Sole

The antiphospholipid syndrome is a clinical condition characterised by the presence of at least one type of serum antiphospholipid antibody, and the occurrence of at least one clinical feature from a diverse list of disease manifestations. The most common of these are arterial and venous thromboses.

In rare patients, thromboses can occur in several organs at once, resulting in multiorgan dysfunction and frequently death. This is known as catastrophic antiphospholipid syndrome and has a reported mortality approaching 50%.[1]

We report the case of catastrophic antiphospholipid syndrome in a 77-year-old man in New Zealand.

Case report

A 77-year-old man presented to the emergency department with a 3-week history of headaches and general malaise. He had a past history of chronic obstructive airways disease, hypertension, high cholesterol, and ischaemic stroke. His physical examination was unremarkable, including full neurological examination. Blood results of note were that of a mild hyponatraemia of 132, a low sugar of 2.2 and a high ESR of 82. He had a raised APTT of 57 with normal INR.

CT head and lumbar puncture were performed showing no abnormalities. Further discussion with the man's family revealed that he had lost weight over the previous few months, and had been complaining of intermittent symptoms of dyspepsia and abdominal pain. There was a family history of pancreatic cancer so he proceeded to abdominal CT to investigate a possible malignancy. This demonstrated appearances suggestive of a left adrenal infarction.

The next morning his condition had significantly deteriorated. He was tachycardic, with a new dysarthria, dysphasia, and a right-sided neglect. An ECG was performed showing new ST elevation in the inferior leads with developing Q waves in the same leads. An urgent CT head was obtained which demonstrated a new area of low attenuation in the right internal capsule, but no bleed. With the presence of Q waves, and given the new cerebral event, the decision was made to treat only with aspirin.

The rapid development of a myocardial infarct, CVA, and adrenal infarct in the setting of a high ESR, was suggestive of a thrombophilic state. The abnormal APTT had raised the possibility of a lupus anticoagulant and a full thrombophilia screen was completed. Anticardiolipin antibodies were negative but a positive lupus anticoagulant and the appropriate clinical setting fulfilled the criteria[2] for probable catastrophic antiphospholipid syndrome.

He was warfarinised to the target INR of 2–3, and made a good clinical recovery. He was discharged 7 days later and to date has had no recurrent thromboembolic events.

Discussion

Long-term anticoagulation with warfarin is the standard of care in patients with antiphospholipid syndrome,[3–4] with untreated patients having a reported thromboembolic recurrence of between 19% and 29%.[5–6]

Anticoagulation following catastrophic antiphospholipid syndrome is also recommended, however data is limited due to the rarity of the condition. One retrospective study[7] in 2003 suggested that two-thirds of anticoagulated patients who survived the initial catastrophic insult had no recurrent thromboembolic events. Of these patients 81% were on warfarin.

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*Preliminary criteria for the classification of the catastrophic antiphospholipid antibody syndrome (APS)

Criteria
1. Evidence of involvement of three or more organs, systems and/or tissues
2. Development of manifestations simultaneously or in less than a week
3. Confirmation by histopathology of small vessel occlusion in at least one organ or tissue
4. Laboratory confirmation of the presence of antiphospholipid antibodies (lupus anticoagulant and/or anticardiolipin antibodies)
Classification:
Definite catastrophic APS
Requires all four criteria
Probable catastrophic APS
All four criteria, except for only two organs, systems, and/or sites of tissue involvement **or**
All four criteria, except for the laboratory confirmation at least six weeks apart due to the early death of a patient never tested for APL before the catastrophic APS **or**
Criteria 1, 2, and 4 above **or**
1, 3, and 4 and the development of a third event in more than a week but less than a month, despite anticoagulation

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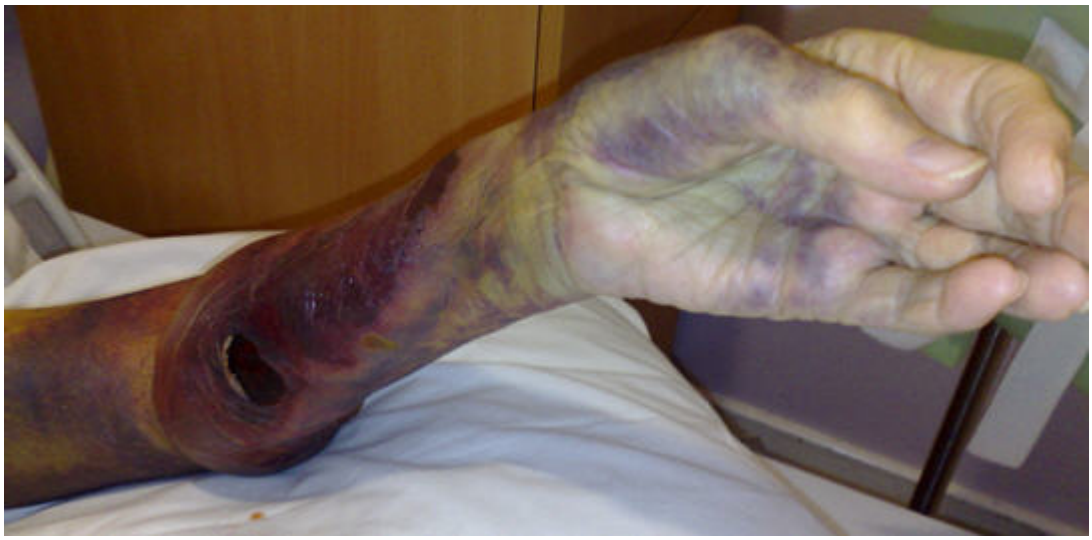
Left forearm ecchymosis

Nitin Kumar, Yiu-Chung Cheung, Andrew C Willis, Jonathan J Benn

Clinical

We report a 74-year-old lady who was seen as an emergency with shortness of breath after being admitted for suspected pulmonary embolism. She was on treatment with steroids for temporal arteritis. A few hours later, whilst she was on the medical ward, the patient was noted to have extensive bruising of her left upper limb with a large haematoma and skin necrosis on the left forearm (Figure 1). There was no history of a fall.

Figure 1. Extensive bruising, skin necrosis, and haematoma formation of the left upper limb



What is the likely cause?

Answer

The location of bleeding corresponded with the initial arterial puncture site for blood gas analysis from the radial artery. The haemoglobin level decreased from 14 g/dl at admission to 9 g/dl subsequent to the bleed. The patient was not anticoagulated, nor on antiplatelet agents.

This case demonstrates the importance of applying sufficient pressure until haemostasis is achieved at sites of arterial puncture.

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Australasian Medical Congress 1908: the mental factor in medical practice and lunacy in Australia

Published in N Z Med J. 1908;7(28):25–31.

Dr. G. E. Rennie's address in Medicine was most interesting one. Its title was, "The mental factor in medical practice" He referred to the great increase in what were termed functional disorders of the nervous system, owing to the strain imposed by the economic and social conditions of modern times; these were met with in all classes of society and under all conditions.

Leaving aside all theories of the psychologist as to "what is mind?" there were undoubted clinical facts which indicated the interaction of body and mind. Not only was the mental state influenced by the bodily state, but the converse also was true. He gave a striking illustration of the influence of mind on body in the history of a case of Diabetes in a boy after a severe mental shock.

He advocated, where it can fairly be done, optimistic instead of pessimistic suggestions as to prognosis, and gave many illustrative cases of rapid recovery from serious functional disturbance by reassuring patients, explaining to them the exciting causes of their troubles, etc.

In concluding a most carefully prepared address, he said "Unless practitioners carefully studied, in every case of disease, the influence of the mental factor and treated it effectively, they should often fail to cure their patients, and find them figuring in the records of the cures of the faith-healer, the christian scientist and the quack."

LUNACY IN AUSTRALIA.

In the section of Neurology and Psychiatry, Dr Eric Sinclair, Inspector-General of the Insane in New South Wales, gave his presidential address on the above subject.

In the course of an exhaustive and interesting address, Dr. Sinclair expressed his disapproval of the police court procedure in cases of committing the insane, and of their detention in the country gaols for observation purposes.

He advocated that country hospitals should open their doors and help in this matter. He approved of leave of absence to patients in asylums on trial prior to final discharge He approved of the immigration restrictive laws against the insane, and said they had proved of great value in Australia.

He thought the boarding out system in the case of harmless patients well worth trying, and that it would help to diminish overcrowding of Institutions.

He thought statutory permission for this practice (under suitable regulations) would be very advantageous. He thought the stigma of insanity consisted most in the "certifying," and if, in recoverable cases, this could be avoided every effort ought to be made to do so.

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Eric Anson, anaesthetist

Basil R Hutchinson

Abstract

Dr Eric Anson was New Zealand's first specialist anaesthetist. Following his father's footsteps, his basic and advanced medical training were done in England. He served in the Royal Navy in World War I and in the New Zealand Army Medical Corps in World War II, both in Egypt and on the hospital ship *Oranje*. Between the wars he was a key figure in the New Zealand Branch of the British Medical Association. Dr Anson was Director of Anaesthesia to the Auckland Hospitals from late 1945 until 1957. He played major roles in the development of anaesthesia in New Zealand, being the first President of the New Zealand Society of Anaesthetists (NZSA) and a member of the NZ Committee of the Faculty of Anaesthetists in the Royal Australasian College of Surgeons (now the Australian and New Zealand College of Anaesthetists). He is remembered by the Anson Memorial Foundation in the NZSA.

George Frederick Vernon Anson, known as "Eric", a diminutive of his second name, was born in Wellington on 22 November 1892. His father, George Anson was Second Master at Wanganui Collegiate School before he returned to England to study medicine. While a ship's surgeon, Dr George Anson met Miss Margaret Greenstreet, cousin of the captain of the *Rimutaka*. They married and George Anson practised in Wellington for 40 years.[1] There were three sons and a daughter; Eric being the eldest.

Photo of Eric Anson taken by Basil Hutchinson in 1967

Eric was educated at Wanganui Collegiate School before travelling to Britain to attend his father's Cambridge college, Trinity. After gaining his BA with honours in natural science, he proceeded to St Thomas's Hospital, London, again following in his father's footsteps.

As a medical student he joined the Royal Naval Volunteer Reserve (RNVR) and on graduating in January 1916, gained a temporary commission in the Royal Navy and was appointed Temporary Surgeon, HMS Victory and Haslar Hospital. Lieutenant Anson soon left the medical branch for active naval service and commanded coastal motor boat *HMS Thames* (CMB No 2), later being in charge of a flotilla.

He was wounded in action in May 1917 by a machine gun bullet through the shoulder, but his Certificate for Wounds and Hurts relates that he recovered rapidly and that 'He was sober at the time'. He and his colleagues, Lieutenants Bremner and Hampden, all of the Harwich Force, were actively involved in the development of these forerunners of motor torpedo boats (MTBs) and received awards of £2000 each from the Admiralty, then a considerable sum. For the last weeks of World War I, Eric Anson was surgeon on a destroyer operating in the English Channel.

This affinity for the sea was not surprising as one of his most distinguished ancestors was Lord Anson who made a remarkable voyage around the world in 1740–44, and is regarded as 'Father of the Royal Navy'.[2]

Following World War I, Dr Anson returned briefly to New Zealand, gaining medical registration in May 1919. He revisited Britain to take up a post as resident anaesthetist, Birmingham Hospital, where he remained for 18 months. He then entered private practice and was appointed the first Senior Anaesthetist at the Birmingham Children's Hospital and Assistant Anaesthetist to the General Hospital, Birmingham.

He worked with Dr Henry Featherstone, one of the founders and later President of the Association of Anaesthetists of Great Britain and Ireland. Dr Featherstone invited Eric Anson to join him in practice, but there was pressure from medical colleagues and family for him to return to New Zealand.

He came back to Wellington in 1922, to practice anaesthetics as a specialty—the first New Zealander with a specific training to do so. He was appointed Senior Visiting Anaesthetist to Wellington Hospital, holding this post until 1940 and his private practice was entirely in anaesthesia. Eric Anson was much in demand by his surgical colleagues, even flying from Wellington to Palmerston North for an 8am list. He flew back and began a list in Wellington at 1pm!

He gained one of the first conjoint Diplomas of Anaesthetics (DA, RCS & RCP) in 1935, this being the first British higher qualification in the specialty. He was much involved with the New Zealand Branch of the British Medical Association (BMA), being a member of Council from 1923 to 1930, Honorary Secretary 1930 to 1935, and Chairman of Council from 1936 to 1938.

With the outbreak of World War II in 1939, Eric Anson rejoined the armed forces, this time in the Army Medical Corps, serving in the Middle East as Medical Officer and Anaesthetist from August 1940 to February 1942. He was then promoted to

Senior Medical Officer of Maadi Camp until September 1943. After this he went to sea again, as Officer Commanding British Troops on the Hospital Ship *Oranje*[3] until August 1945. He retired with the rank of Lieutenant Colonel and was awarded the OBE for his services.

Dr Anson was successful in his application for the position of Director of Anaesthetic Services, Auckland Hospital Board, and became the first incumbent of this post in November 1945. At that time, anaesthetics were administered almost entirely by house surgeons and part-time anaesthetists who were also general practitioners. He established a department with full-time and part-time specialists, GP anaesthetists, registrars, and house surgeons, to serve the four major hospitals and some lesser ones.

His work ensured that the Auckland Hospitals were recognised for the DA and later for the English and Australasian Fellowships. The first registrar was Dr Patricia Ford (later Patty McDonald) in 1947, and she was followed by Drs WJ (Jack) Watt and Stanley R Hunt. Dr Alexandra Warnock became Deputy Director in 1949, holding this appointment until her retirement in 1958.

With the formation of the Faculty of Anaesthetists of the Royal College of Surgeons of England, Eric Anson became a Foundation Fellow in 1949; he also became a Foundation Fellow of the Faculty of Anaesthetists of the Royal Australasian College of Surgeons, his alphabetical primacy ensuring that he was Fellow No 1! He became involved in Faculty affairs and was a member of the first New Zealand Committee, 1956–59. A New Zealand Society of Anaesthetists was proposed in 1939, but the advent of World War II delayed its foundation until 1948.

Eric Anson was elected the first President, 1948–53, was Vice President in 1954, and Auckland Provincial representative for some years. Eric Anson's first experience in anaesthesia was gained as a student in Cambridge, where he was demonstrator in Anatomy and Anaesthesia in 1912. As a houseman at St Thomas's Hospital, London, he gave many anaesthetics and became very interested in this branch of medicine, developing an anaesthetic machine which was marketed at that time.

Chloroform, ether, and nitrous oxide were the major agents then in use and his anaesthesia continued at the Naval Hospital, Haslar, where he also gave spinal anaesthetics. After World War I he was giving endotracheal anaesthetics with the Shipway apparatus in Birmingham, and with the Junker's inhaler for thoracic operations. He brought advanced methods of anaesthesia, both general and regional, to Wellington when he returned in 1922.

In a 1932 paper[4] he made the point that the anaesthetist was wholly responsible for the anaesthetic, while the surgeon was responsible for selecting a capable anaesthetist. At that time, he suggested that specialist anaesthetists should have some form of membership of the Australasian College of Surgeons.

He gave many anaesthetics during World War II in the Middle East. Thiopentone, trichloroethylene, and cyclopropane were added to his armamentarium and he performed a large number of spinal blocks. On his arrival in Auckland after the War he battled against the overuse of chloroform, and finally rid the public hospitals of that potent but dangerous agent, but he had difficulty convincing some surgeons of the value of modern techniques, including endotracheal anaesthesia.

A great advance at that time was the introduction of muscle relaxants and Anson's paper 'Curare in anaesthesia'[5] described the initial Auckland experience in 76 patients. Decamethonium and suxamethonium followed, with increasing use of intubation.

Eric Anson played a major part in the development of anaesthesia and patient monitoring for cardiac surgery at Green Lane Hospital.[6] He also introduced processing of anaesthetic records on Hollerith cards, a fore-runner of computerisation, but sadly the system fell into disuse after his retirement. He left a well-established department providing a comprehensive anaesthesia service for four major public hospitals. Having left the public system he took up part-time private anaesthetic practice until his 70th birthday in 1962.

During his career he had five papers published in medical journals,[4,5,7–9] two in the *NZ Dental Journal*,[10,11] plus items in the *New Zealand Society of Anaesthetists Newsletter*, so was a prolific writer for his time. Eric Anson was awarded the RH Orton Medal for 'Meritorious services to anaesthesia in Australasia' by the Faculty of Anaesthetists in the Royal Australasian College of Surgeons in February 1969. He was the first New Zealander to be so honoured.

In spite of a busy career, Eric Anson had a wide variety of interests. He was Chairman of the Wellington Acclimatisation Society in the 1930s, was interested in the liberation of game birds, and was involved in fish hatcheries and the restocking of rivers. He was a keen fisherman, while shooting and the breeding of gun dogs were other activities. He judged both trial and show dogs and was Honorary Vice President of the Wellington Kennel Club. Hydroponics was another interest. Many of these hobbies continued in his retirement and he added cabinet-making, photography, cooking, home-brewing, and growing orchids and roses to his leisure pursuits.

Dr Anson died on 5 June 1969, and his wife, Helen, lived only 2 months more. They were survived by two sons and two daughters. A few months later, the New Zealand Society of Anaesthetists elected its first five Life Members. Had he survived, Eric Anson would certainly have been a sixth in this 21st Anniversary group.

To honour his name and commemorate the role he had played in the development of the specialty in New Zealand, the Society set up the Anson Memorial Foundation in 1971. The aims are to encourage research and education in anaesthesia and to bring overseas speakers to this country.

Eric Anson's attributes were well summed up in the obituary by Dr WJ (Jack) Watt:[12]

> He was a skilled anaesthetist who had seen and been part of the growth of anaesthesia from the days of the routine use of ether and chloroform to the modern methods. He was always interested in new methods and developments in anaesthesia, as was evidenced by his close association with the developing Cardiothoracic Unit at Green Lane Hospital. By his example he created an interest in the specialty and as an able organiser laid firm foundations for the development of anaesthesia in New Zealand. He was an inspiring teacher, a man of high principle and sound judgement as well as a congenial companion.

New Zealand anaesthesia and surgery owe a great debt to Eric Anson, and also to his family and the Wellington colleagues who persuaded him to return to this country in 1922.

Note: This paper is a summary of 'Eric Anson, an Appreciation', a treatise written for the New Zealand Society of Anaesthetists in 1983.

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Acknowledgments: Thanks are expressed for the help given by the Anson family, Dr WJ Watt, and the late Miss Doreen Kennedy who, for many years, was Dr Anson's Secretary in the Anaesthetic Headquarters, Auckland Hospital.

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Systolic or diastolic blood pressure readings?

Historically the emphasis has been on the diastolic and it is widely 'believed' that a systolic BP reading of 100 mmHg plus the subject's age is acceptable. Not so, say the authors of this paper pointing out that as more than 75% of people with high blood pressure are over age 50 years, and the burden of disease is mainly due to systolic pressure.

The use of diastolic pressure for diagnosis and risk stratification in our ageing populations has thus become illogical. They also note that measuring the systolic reading is easy but the diastolic end points are much more difficult to define. I think most of us would go along with that. So in the 50 years plus age group they assert that the systolic pressure alone is important. However, both measurements are significant in younger (<50 years) subjects.

Lancet 2008;371:2219–21.

More over-the-counter (OTC) news from the UK

We have recently reported on the OTC availability of the antibiotic azithromycin for the treatment of chlamydia infection in the UK—a move which we felt was reasonable (NZMJ 17 October 2008). And now the Medicines and Healthcare Products Regulatory Agency (MHRA) is currently considering reclassifying trimethoprim and nitrofurantoin for the treatment of uncomplicated urinary tract infections, such as cystitis. This will probably result in these drugs also becoming OTC medications. This concerns British pharmacologist (Prof J Cooke) who is worried that GPs will inevitably start to use more broad spectrum antibiotics for urinary tract infections. And this might lead to the increased genesis of community associated MRSA (methicillin-resistant *Staphylococcus aureus*) and *Clostridium difficile*. And this would be very bad news.

BMJ 2008;337:535.

Long-acting anticholinergic (tiotropium) in the management of chronic obstructive pulmonary disease (COPD)?

Anticholinergics are useful symptomatically in COPD but does long-term treatment alter the progression of lung damage? Answers to this question were sought in this randomised, double-blind trial which compared 4 years of therapy with either tiotropium or placebo in patients with COPD who were permitted to use all respiratory medications except inhaled anticholinergic drugs.

Well, at 4 years, tiotropium was associated with a reduction in the risk of exacerbations, related hospitalisations, and respiratory failure. However, the rate of decline in the FEV_1 (forced expiratory volume in 1 second) was not significantly reduced. An editorial commentator pointed out that "one could argue that this

outcome was predictable, since previous trials of short-acting anticholinergic drug, a number of inhaled corticosteroids, and an antioxidant have all shown no positive effect on the rate of decline of FEV_1." This was a large trial, approximately 3000 patients in each arm. Interestingly, 1358 discontinued the placebo, including 746 subjects because of adverse events.

N Engl J Med 2008;359:1543–54 & 1616–8.

Assessment of the severity of community acquired pneumonia (CAP)—PSI, CURB-65 or CRB65?

CAP is common and its severity determines how aggressively it should be treated. The pneumonia severity index (PSI) is cumbersome as it involves 20 criteria. On the other hand, the CURB and the CURB-65 score (confusion, urea >7 mmol/L, respiratory rate ≥30 min, low blood pressure, and age ≥65 years) have been popular because of their simplicity.

Only one of these criteria requires assistance from the laboratory. Some have disputed the need for the blood urea component and a Spanish group showed in 2005 that CRB-65 was as useful as CURB-65 (Eur Resp J 2006;27:151–7). And recently a paper from Edinburgh claims to have simplified it further. The classic CURB65 score recommends either systolic blood pressure <90 mmHg or diastolic blood pressure ≤60 mmHg as a determining point in severity, but the Edinburgh workers demonstrate that the lowered systolic pressure alone is discriminatory. Only slightly simpler. Anyway, score 2 or more and you require aggressive treatment in hospital.

Thorax 2008;63:698–702.

Paediatric sleep medicine

Sleep medicine is a burgeoning new specialty in medicine so it is not surprising that it features in paediatrics as well, although I had not noticed it until I found this paper. It starts off with an apt quotation from Ralph Waldo Emerson—"*There was never a child so lovely, but his mother was glad to get him to sleep*"—indeed.

The authors discuss obstructive sleep apnoea, daytime somnolence, and parasomnia in childhood, and compare them with the adult counterparts. We are informed that polysomnography (PSG) remains the gold standard in evaluation of these disorders. They conclude that "the assessment of childhood sleep disorders are complicated by several factors unique to paediatrics: developmental changes in sleep habits and physiological mechanisms, parent-child interactions, and behavioural disorders."

Internal Medicine Journal 2008;38:719–31.

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Fatal allergic reactions to antibiotics

Two cases of fatal allergic reactions to antibiotics, recently reported in the media, have highlighted the crucial importance of reporting allergic reactions to the Centre for Adverse Reactions (CARM). We are concerned that there is a common practice where health professionals may not report some allergic drug reactions because they think they are self-limiting, common, or assessed as minor. There is also concern that the allergic event may not be adequately detailed in a patient's history, with failure to identify a potential risk.

In the Coroner's inquest into the recent sudden death of a man who presented with a local skin infection, it was noted that despite warnings to the emergency medical officer, from both the patient and the GP, about a previous rash when taking penicillin, the patient was given a single parenteral dose of penicillin and suffered a fatal anaphylaxis. The GP had noted a rash with previous penicillin exposure and informed the patient and other members of his family, but did not notify CARM and hence no Medical Warning had been posted.

In a case referred to the HDC, a woman died from complications following a serious allergic multi-system reaction after receiving a cephalosporin. She had a history of a similar severe reaction some months previously, which required hospital admission for several days, but neither the hospital staff, nor the GP had reported that allergic reaction to CARM. There was also a failure to document the initial reaction correctly in the medical record. Critical detail was not obtained from the patient or her relatives because a full drug history was not carried out.

When a serious adverse reaction is reported, CARM staff enter a danger (where re-administration of the medicine is likely to be life threatening) or warning (where re-administration of the medicine is likely to cause a clinically significant reaction) against the patient's name in the National Health Index (NHI) database. All hospitals should access this database when patients seek health care.[1]

Even if there is uncertainty over the potential seriousness of an adverse drug reaction, it is important that an adequately detailed report is submitted to CARM. The medical assessors are experienced in recognising not only typical cases of anaphylaxis (urticaria, bronchospasm, hypotension), but also cases that are not obviously anaphylaxis, but have the potential to become more serious on repeat exposure. They then apply a NHI-linked medical warning or danger, which will be flagged when the patient enters a public or private hospital or other DHB facility. The effectiveness of this system is very much dependent on appropriate clinical detail in the initial report.

Had the hospital doctor in the first case above been faced with a CARM medical warning, it is less likely that the patient's history of a previous allergic event would have been ignored. Instead, with just reports of a previous rash to go on, the doctor may have assumed that this was a benign reaction and failed to appreciate it as an early warning of potential anaphylaxis.

In the second case, a CARM warning would have reinforced the necessary attention to detail and reduced the likelihood of the repeat exposure and fatal reaction.

We contend that the threshold for reporting allergic reactions in association with drug treatment should be low, especially where there is uncertainty as to causality—it will save lives.

Chris Cameron
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Timothy Maling
Clinical Pharmacologist

Wellington Hospital
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Reference:

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THE NEW ZEALAND MEDICAL JOURNAL
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Most New Zealand smokers support having fire-safe cigarettes: National survey data

A recent New Zealand study on cigarette fires and burns among New Zealand smokers,[1] has highlighted again yet another adverse consequence of nicotine addiction. The obvious long-term solution to this problem is to lower smoking prevalence by advancing comprehensive tobacco control measures (as previously advocated by injury researchers in New Zealand[2]). However, a more direct and supplementary option is for governments to mandate for fire-safe (or "reduced ignition propensity") cigarettes as per Canada and various US states (including New York and California).[3,4]

The potential techniques include preventing the use of fire accelerants in cigarette paper, and requiring 'speed bumps' or other means to stop cigarettes burning when not being used. There is evidence that such products can have consumer acceptability[5] and do not increase the intensity of how cigarettes are smoked by users.[6] There is also no evidence for tobacco industry assertions that fire-safe cigarettes might *increase* smoker carelessness,[7] having any validity.

ESR scientists (for the Ministry of Health) and other New Zealand researchers have previously studied and made recommendations on this issue.[8,9] Also, a member of parliament (and former fire-fighter) has promoted fire-safe cigarettes as a private members bill.[10] Nevertheless, the issue seems to have lost momentum and we know of no recent developments within government agencies to advance this issue.

Between March 2007 and February 2008 we surveyed a national sample of 1376 New Zealand adult (18+ years) smokers. We asked if they knew whether the cigarettes they smoked were designed to reduce the risk of fires. Another question asked about attitudes towards such cigarettes: "Research has shown that fire-safe cigarettes are less likely to cause house fires than other cigarettes. Would you support a law for all factory-made cigarettes to be fire-safe?" Further detail on the survey methods is available elsewhere.[11]

The results, weighted to reflect the national population of smokers in New Zealand, showed that a quarter of smokers (25.2%) thought they already smoked fire-safe cigarettes (with 54.8% saying "no" to this question and 19.4% indicating "can't say"). A large majority of all the smokers surveyed (78.2%; 95% confidence interval=75.3% to 81.0%) support having a law for factory-made cigarettes to be fire-safe (with 18.4% saying "no"). These results are higher than for a previous New Zealand survey in 2003 that found that 67% of smokers and 68% of non-smokers support requirements for tailor-made cigarettes "to go out quickly when they are not being puffed".[9]

Adoption of such a law is likely to reduce cigarette-related burns and deaths, as well as prevent fires that damage property and forests. It may also pave the way for other tobacco product regulation (e.g. for the removal of tobacco additives such as honey, and even the reduction of nicotine levels as part of a phase-out strategy). These are all

options that the New Zealand Government and the governments of other nations need to consider more seriously if they are to better protect their citizens from tobacco-related harm. Another private member's bill might be a good place for New Zealand to reactivate this issue.

Alternatively, the new Minister of Health could use powers under the Smoke-free Environments Act (s.31) to require fire accelerants be removed from cigarette paper.

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Competing interests: The first three authors have previously undertaken work for health sector agencies involved in tobacco control.

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A second opinion

It is government policy to make public hospitals offer a First Surgical Assessment (FSA) within 6 months to anyone referred by a GP. Just how badly things can go wrong with the timing of the FSA is clear from a study of the Hutt Hospital Surgical Outpatients' Department, when the findings from a recent inquest conducted by the coroner, Mr Garry Evans, shed light on a particular event and also on what was going on generally at that time.

In January 2005, a GP in Lower Hutt referred a woman aged 46 to that department for investigation of rectal bleeding. Such a case carries a possibility of a malignant tumour. The referral letter was triaged by a surgical consultant as triage 2, or semi-urgent. The letter was then mislaid. The GP wrote again on 29 November 2005, including the comment, "I understand that she has an appointment with you next year following my referral earlier this year."

The patient eventually got seen in February 2006. She died not much later of complications of surgery carried out for a metastasising cancer of the rectum.

It was "expected" that this patient, classified as semi-urgent, would be seen within 4 months. However, the Hutt Valley District Health Board (HVDHB) confirmed that at that time (January 2005) 95% of all referrals to general surgical outpatients were categorised as semi-urgent. Evidence from the HVDHB showed that it was impossible to get patients assessed "within the recommended period of 2–4 months." In January 2005 there were 687 patients waiting for their first appointment to be seen by a specialist. Of these, 248 had been waiting "greater" than 6 months and 82 had been waiting "greater" than 12 months. The average waiting time for patients triaged as semi-urgent was between 4–7 months.

Here is the current situation in Lower Hutt Hospital, now that it has "a new prioritisation tool, which has more categories, making for better management."

Ms Jill Lane, for the HVDHB, told the coroner that, as at July 2008, all patients remaining on the waiting list are seen within the period of 6 months imposed by government. So how can we be sure of that? It is only November. In 2006, some patients were taken off the FSA list and sent back to their GPs. Ms Lane also told the coroner (whose findings were released on 6 October 2008) that patients referred back to their GPs can then be sent on to the private health sector or their management may be retained by the GP. Patients may re-referred, with more information, to the Board.

This, in my opinion, is ridiculous. The private consultation needs to be the first option, not the last resort. Public hospitals clearly do not possess the resources to make sure that all patients are seen for an FSA promptly or in good time. They cannot be blamed for that, nor should they have to dream up these wretched expedients. General practitioners must offer patients with a surgical condition the opportunity, at the first visit, to buy their way past any hospital outpatient delays in order to get the so-called First Surgical Assessment. They'll be making things easier and safer both for themselves and for everybody else.

We can leave the last word to the grieving husband. He told a reporter from *The Dominion Post*, "We had no inkling it was cancer and if we did we would have got a second opinion."

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THE NEW ZEALAND MEDICAL JOURNAL
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Professional Misconduct: forgery and practising while suspended (Med07/60P and Med07/61P)

Charge

Dr David Spencer Gilgen (the Doctor), medical practitioner of Hamilton, was charged with professional misconduct following two charges laid by a Professional Conduct Committee.

The first charge alleged that:

While the Doctor's practising certificate was suspended, he forged the signature of Dr Deepani Perera (his Colleague) on three standard prescription forms dated 30 March 2006 and 3 April 2006.

The second charge alleged:

In the period from about 27 June 2006 whilst the Doctor's practising certificate was suspended, he ordered the following prescription medication from Unigen Life Science Pte Ltd, 583 Orchard Road, Singapore:-

(a) 10mls Sustanon 250mgs/ml ampoules x 10

(b) 10mls Enanthate ampoules × 10

(c) 10mls Stanazol 10mgs/ml × 4 ampoules

(d) Anadrol tabs 100s × 5

Finding

The Tribunal found Dr David Spencer Gilgen guilty of professional misconduct for both charges.

Background

The Doctor was a general practitioner who had a high profile in the community as a former Waikato District Health Board member, and because of his work with Maori health.

At the time of the events under consideration the Doctor's annual practising certificate was suspended on an interim basis by the Medical Council of New Zealand. The suspension took effect on 20 September 2005. The principal ground for the suspension was the Medical Council had reason to believe the Doctor posed a serious risk of harm to the public by practising below the required standard of competence for a general practitioner, particularly with regard to his prescribing practices.

Reasons for Finding of the First Charge

The Tribunal concluded that it was the Doctor who forged the signatures of his colleague on the three prescriptions, having regard to:

- The fact that the Doctor was suspended, and could not use his own signature to prescribe.

- The fact that he was a regular prescriber of anabolic steroids; presentation of scripts of this kind was common for him, and uncommon for many other practitioners.
- The fact that his Colleague did not sign the prescriptions.
- The fact that the three prescriptions, and signatures, appear to have been prepared at the same time, by the same person.
- The evidence of the use a purple pen, known to have been used by the Doctor, by way of overlay of his Colleague's signature, which suggested the Doctor was considering copying or simulating her signature.
- The fact that he attended Barrett Pharmacy, and left the three scripts for dispensing.
- The fact that he attended Barrett Pharmacy, in the following week, in order to uplift the prescriptions.
- The numerous inconsistencies which were identified from the various explanations he gave in his letters.
- The fact that three scripts were presented, all of them for anabolic steroids, and all involving excessive prescribing.
- The fact there was no evidence implicating any other person.

When all these individual pieces of evidence were considered together, the Tribunal was completely sure to the very high standard involved in an allegation as serious as forgery, that the charge was established and the Doctor was guilty of professional misconduct.

Reasons for Finding if the Second Charge

The key factual issue with regard to the second charge was whether or not the Doctor sent the email of 27 June 2006 ordering the medication. He denied it and said that he had never sent such an email.

The Tribunal found the following facts indicated that it was the Doctor who had sent the email:

- It was signed in his name.
- He was suspended, and could not present prescriptions for such medications to a pharmacy. He was a person who would have a reason for presenting an email in the way that he did, addressing it in the first instance to Unigen in Singapore, to avoid, as it was put in evidence, "compliance issues".
- Products of a particular kind were requested (androgens and anabolic steroids), which were products that the Doctor was known regularly to request.
- Three of the names which appeared in the mail order were those of Patients A, B and C, who were the subject of prescriptions previously written by the Doctor.

- The giving of the Doctor's home address, so that he could receive the medications there.
- There was also evidence that emails had been sent by "David S Gilgen" at two earlier points prior to the placing of the email order.

The Tribunal carefully considered the evidence given by the Doctor that he detested computers. However, the Tribunal considered the following matters:

- His Colleague stated that she had seen him use a computer at the surgery.
- The Doctor was clearly very intelligent, and the sending of an email is a relatively straight forward process, which would be well within his competence.
- He had the opportunity of sending just such an email, since he had a computer at home which he was able to use.

Weighing all the factors indicating that the Doctor did send the email on the one hand, against his bare denial on the other, and having regard to the adverse conclusion which the Tribunal reached as to the reliability of his evidence, the Tribunal was completely sure that he sent the email. The Tribunal was satisfied that the facts of the charge were established and that the Doctor was guilty of professional misconduct.

Penalty

The Tribunal considered that quite apart from serious prescribing issues, the Doctor had demonstrated outright dishonesty in the way in which he continued to try and obtain medications, and then denied he had done so. There appeared to be a behavioural issue in the sense that the Doctor appeared to have very limited insight as to the appropriateness of his totally unprofessional prescribing. It had occurred in 1989, to a significant and serious level; and there was a similar pattern in his offending 18 years later in 2005-2006.

The cumulative effect of these serious matters in the Tribunal's opinion was that the public and the community clearly needed to be protected.

The Tribunal considered the Doctor undoubtedly has significant skills. It appeared that he was highly regarded by his patients, and the Maori community. He had contributed significantly to Maori health and to his local District Health Board. However, the Tribunal was satisfied, on the basis of the patient information before it, that patients would continue to try and seek him out, and have him supply inappropriate medications, which was a pressure that he could not deal with.

The Tribunal was satisfied the only responsible outcome was to order cancellation of his registration.

The Tribunal ordered the Doctor's registration as a medical practitioner be cancelled and he pay costs of $10,000.00. The Tribunal directed that details of the decision be published in the New Zealand Medical Journal and on the Tribunal's website.

The full decisions relating to the case can be found on the Tribunal web site at www.hpdt.org.nz
Reference No: Med07/60 and Med07/61P.

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Professional Misconduct – misuse of drugs (Med07/80P)

Charge

Dr Fergus Bruce Aitcheson, (the Doctor) medical practitioner of Gisborne, was charged with professional misconduct by a Professional Conduct Committee.

The charge alleged the Doctor:

1. prescribed pethidine for clinical procedures and in doses not consistent with standard medical practice, for the purposes of, and with the intention of, using the pethidine himself; and
2. used pethidine prescribed to patients while on duty at Gisborne Hospital by administering pethidine to himself and by administering saline to patients as a substitute for pethidine.

Finding

The Tribunal found the Doctor guilty of professional misconduct.

Background

The parties agreed upon a statement of facts and the Doctor acknowledged that his conduct amounted to professional misconduct.

The Doctor's addiction to opiates began in the mid 1990's when he was working at Taupo Hospital, where he was employed as a Consultant Physician between 1994 and 1996. In August 1996, the Doctor informed his employer and wife, and notified the Medical Council of his addiction and withdrew from practice. He then attended Ashburn Hall for seven weeks as an inpatient in late 1996 for the treatment of his addiction.

In August 1996 the Doctor entered into a voluntary agreement with the Medical Council to participate in a medical monitoring programme. The voluntary agreement entered into in August 1996 remained in place until May 2004.

The Doctor resumed practice in 1997 when he was employed by the Tairawhiti DHB at Gisborne Hospital. Key management and clinical personnel at Tairawhiti DHB were aware that the Doctor was subject to the medical monitoring programme when they employed him.

Around October 2005, nurses at Gisborne Hospital noticed a change in the Doctor's prescribing practices. For an increasing number of procedures (in particular sigmoidoscopies and liver biopsies), he was prescribing intravenous midazolam and pethidine. The concerns were raised with management of Tairawhiti DHB (who were aware that the Doctor was under the supervision of a Medical Council Health Committee.)

An investigation was commenced by management and the Doctor was confronted as to whether he had reverted to using pethidine. The Doctor initially denied he was using pethidine. The Doctor subsequently admitted obtaining and using pethidine by

prescribing it for patients but not administering it to them. This included using pethidine between December 2000 and January 2001, while he was under the medical monitoring programme.

The Doctor admitted he used saline as a substitute for the pethidine he diverted. The Doctor said that many of the patients involved, particularly those undergoing sigmoidoscopy, did not actually receive any pethidine and that there had been a distortion of his practice. The Doctor estimates that his pethidine use began in mid-2005 and that he would have prescribed pethidine unnecessarily about 40-50 times.

The Doctor resigned from Tairawhiti DHB in early 2006.

After his voluntary disclosure to the Health Committee in March 2006, he entered into another voluntary agreement with the Medical Council to participate in a medical monitoring programme, the terms of which involved:

a continued abstinence from all mood altering substances including alcohol;

b regular random urine testing (weekly, involving weekly GP contact);

c attendance at a 12 Step Meeting (weekly);

d work with an Alcohol and Drug therapist (approximately fortnightly);

e work with an addiction psychologist (approximately monthly);

f ongoing psychiatrist oversight (three monthly); and

g non-prescription of controlled drugs and no self or family prescribing of any sort.

This voluntary agreement remains in place.

Reason for Finding

The Tribunal was satisfied that the PCC discharged the burden of proof, although it produced no evidence that the doses of pethidine prescribed were not consistent with standard medical practice (part of particular 1). However, the rest of the particular was proved, that is, that he prescribed pethidine for clinical procedures for the purposes of and with the intention of using pethidine himself.

The Tribunal considered that the facts presented a very serious breach of the Doctor's professional obligations. They showed he also breached the most fundamental of his professional obligations that is, to do no harm to his patients. He prescribed drugs for his patients and then diverted these drugs for his own use. At least one patient had a significant procedure that was unnecessary. Other patients had procedures which may not have been carried out if the Doctor had not been addicted to pethidine. The Doctor was addicted to the drug and using his medical qualifications to access it. The Tribunal considered the breach to be serious and warranted disciplinary sanction. The acts were also acts which brought discredit to the profession. The Tribunal considered the actions of the Doctor were deserving of the strongest condemnation.

Penalty

The Tribunal found it a difficult task to decide what the appropriate penalty should be for the Doctor's misconduct.

The Tribunal acknowledged the hard work that the Doctor put in with his family, medical colleagues and his own therapeutic team, to understand the roots of his addiction and to take steps to prevent it from reoccurring. The attempts that he had made seem genuine, and he had clearly worked hard at them. He also appeared to be a deeply valued member of the general practitioner community in Gisborne.

The Tribunal considered, however, the Doctor is an addict and will always remain an addict. The risk of relapse is real. The Tribunal was satisfied that it would be significantly harmful to the Gisborne community and his patients if he does relapse.

The Tribunal suspended the Doctor for a period of twelve (12) months.

The Tribunal imposed the following conditions for the time of the suspension and 3 years after his return to practice as follows:

- The Doctor is to comply in all respects with the requirements imposed upon his practice by the Medical Council's Health Committee.
- The Doctor is to have his urine monitored every 2 weeks and the urine sample is to be supervised by an authorised independent nurse or general practitioner.
- The Doctor is to provide a hair specimen every 3 months for drug analysis to an authorised independent nurse or general practitioner.
- These tests are to be at the Doctor's expense.
- The Doctor is to have no access to pethidine during his practice as a GP and a duly authorised person from the Kaiti Medical Centre is to certify to the Medical Council's Health Committee that the Doctor's bag contains no opiates or drugs of addiction or abuse (excluding Midazolam and Diazepam).
- The Doctor is to practise at the Kaiti Medical Centre only (or such other employer as is approved by the Medical Council Health Committee).
- The Doctor is not to practise as a specialist physician and is to relinquish his vocational scope of practice (internal medicine) so that he practises solely in the capacity as a general practitioner registered in a general scope of practice.

The Tribunal ordered the Doctor to pay 40% of the costs of the Tribunal's hearing and the investigation. He was ordered to pay a fine of $10,000 and was censured. The Tribunal directed that the Doctor's name and details of this case should be published on the HPDT website and in the New Zealand Medical Journal.

Appeal

The Doctor appealed part of the Tribunal's Penalty Orders to the High Court. The High Court allowed the Doctor's appeal in part:

- he order suspending the Doctor from practise for 12 months was quashed; and
- the order requiring urine testing every two weeks was varied. The Doctor was ordered to have his urine tested as frequently as the Medical Council Health Committee required.

All other orders made by the Tribunal were upheld (*Dr A v Professional Conduct Committee* (High Court, Auckland, CIV-2008-404-2927, 5 September 2008, Keane J))

The full decisions relating to the case can be found on the Tribunal web site at www.hpdt.org.nz Reference No: Med07/80P.

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Professional Misconduct (Med06/46D)

Charge

Dr Goonoori Rama Krishnayya, general practitioner of Napier, was charged with professional misconduct by the Director of Proceedings. The charge alleged that:

1 Prior to performing a Lejour breast reduction on his patient on or about 15 February 2005, he failed to provide adequate information upon which she could consent to the procedure. In particular he failed to tell her:

- (a) Because of the combination of her height-to-weight ratio and her smoking there was a significantly increased chance of major tissue loss postoperatively; and/or
- (b) Because his patient was obese and/or had a sternal notch to nipple distance of 49cm, the Lejour vertical mammoplasty was not a suitable technique for her and that there were other procedures available such as a breast amputation and free nipple graft; and/or
- (c) That following surgery it was possible she would be unable to breast feed.

2. On or about 15 February 2005 he performed on his patient a Lejour vertical mammoplasty which was an inappropriate procedure for her given that she was obese and/or had a sternal notch to nipple distance of 49cm;

3. Between 19 February 2005 and 8 March 2005 he failed to provide his patient with adequate information about her postoperative condition, including:

- (a) The cause of the necrosis and/or infection and/or discharge; and/or
- (b) The likelihood of nipple loss owing to the complications his patient was experiencing; and/or
- (c) The likelihood of a misshapen breast or breasts owing to the complications his patient was experiencing; and/or
- (d) The possibility of the need for hospitalisation in order to treat the infection with antibiotics; and/or
- (e) The possibility that antibiotics might not be effective in treating the infection; and/or
- (f) The possibility that re-operation under general anaesthetic would be required in the event antibiotics were not effective in treating the infection.

Finding

The Tribunal found Dr Goonoori Rama Krishnayya (the doctor) guilty of professional misconduct

Background

On 20 December 2004, the patient attended her general practitioner, stating that she was thinking of a breast reduction. At that time her weight was 105kg, and she had a body mass index of 39.

On 24 January 2005 she attended her first consultation with the doctor. The patient indicated that she was interested in a breast reduction. The doctor examined her breasts. He explained the procedure he would perform, but the patient said she did not need to know the graphic details, and did not want information in that regard particularly as to the surgical cuts that would occur.

On 15 February 2005, the doctor undertook a breast reduction procedure known as the bilateral Lejour vertical breast reduction. The sternum notch to nipple distance was reduced from 49cm to 22cm. The doctor removed approximately 2308 grams of tissue from the left breast, and 2208 grams from the right.

The patient remained in hospital overnight, and was discharged the next day. Regular consultations occurred with the doctor over the succeeding days, and initially the patient felt that her recovery was progressing as expected.

On 22 February 2005, she awoke at 5.00am, and there was a major leak of blood and discharge on her bed. It was from her left breast. Her right breast was also inflamed. A runny brown smelly discharge continued. She saw the doctor that day, pus was removed from the breast and samples sent to the laboratory for testing. By 24 February 2005, both breasts were leaking profusely and the patient saw the doctor that day. A chest x-ray was performed.

On 26 February 2005 the patient again contacted the doctor, who asked her to meet him at the hospital at 5.00pm. He debrided necrotic tissue from her breasts. He recorded that a lot of pus was discharging from both breasts. On 28 February 2005, when she attended the doctor again, further debridement was undertaken. Further appointments occurred in the succeeding days, and further debridement occurred. The patient found the debridement very distressing.

On 16 March 2005, the patient was seen by Dr Duncan, a consultant plastic and reconstruction surgeon. Dr Duncan organised urgent admission to hospital for management.

The patient was admitted to the hospital on 20 March 2005. On 21 March 2005 under general anaesthetic the wounds of both breasts were thoroughly cleaned, necrotic tissue was excised, and the wounds washed out. Further corrective operations were carried out on 18 October 2005, 2 June 2006 and 15 February 2007.

Reasons for Finding

It was the Tribunal's conclusion that the doctor was not well placed at all to determine that the Lejour procedure was appropriate for this patient, because he had limited understanding and knowledge both of the procedure itself, and of other procedures.

The Tribunal found Particular 1 was established. The Tribunal was satisfied the evidence established that issues of obesity and/or height to weight ratio, and smoking, were not discussed with the patient. There was no evidence that the doctor informed

the patient there was a significantly increased chance of major tissue loss postoperatively as he apparently did not believe this to be the case.

The Tribunal was satisfied the doctor did not inform the patient that there were risks involved because of her obesity, and sternal notch to nipple distance. It was also clear that he did not state that the Lejour technique was unsuitable, because he believed that it was. He did not discuss other procedures, because he himself was insufficiently informed about them and was in no position to advise as to the pros and cons of other options.

The Tribunal accepted that the patient asked the doctor if she would be able to breast feed following surgery and that the doctor said she would be able to breast feed. The Tribunal accepted the evidence of the expert who said that given the large amount of breast tissue deep to the nipple removed, and the length of the pedicle, the possibility of breast feeding would have to be regarded as "very small".

The Tribunal was satisfied Particular 2 was established. The Tribunal accepted the expert evidence that, in the circumstances of this particular patient, namely her obesity, and the very long sternal notch to nipple distance of 49 cm, the Lejour procedure as carried out by the doctor was entirely inappropriate.

The Tribunal was satisfied Particular 3(a) was established due to the limited understanding the doctor had of the procedure he had undertaken. He was not sufficiently alert to the possibility that the necrosis and/or infection and/or discharge would be due to the procedure. Therefore, he was not in a position to give the patient "adequate information" about what was occurring.

The Tribunal was satisfied Particular 3(b) was established. The patient stated that the possibility of nipple loss was not discussed with her. The doctor appeared to accept that, as he said there was nothing evident at that time which suggested that either or both nipples might be compromised.

The Tribunal was not satisfied Particular 3(c) was established. The Tribunal accepted that the topic of misshapen breasts was not discussed, but concluded that in the period referred to in the charge (19 February 2005 to 8 March 2005), it was not unreasonable to have not been able to conclude that there would be misshapen breasts.

The Tribunal was not satisfied Particular 3(d) was established. The Tribunal considered that given the patient's condition by the end of the period referred to in the charge, 8 March 2005, there was a distinct possibility of treatment by further surgery, not merely by antibiotics. There was a case for hospitalisation for debridement, or laying the wound open, but that was not the way in which Particular 3(d) was expressed.

The Tribunal was satisfied Particular 3(e) was established. The doctor accepted that he did not tell the patient that antibiotics might not be effective in treating the infections. It was his position that the antibiotics did treat the infection. The Tribunal was satisfied this issue again related to the fundamental misunderstanding he had of the procedure which meant he could not provide adequate information on this point.

The Tribunal was satisfied Particular 3(f) was established. The Tribunal considered that given the deteriorating situation, which should have been considered as arising from the procedure undertaken, it was incumbent on the doctor to provide information

to the patient postoperatively as to the possibility of further surgery. Surgical debridement was needed to control the infection, given the extent of necrotic tissue.

The Tribunal was satisfied that the established conduct amounted to negligence, malpractice and brought discredit to the medical profession, which warranted discipline for the purposes of protecting the public, for the maintenance of professional standards, and for the purposes of punishing the practitioner. Professional misconduct was accordingly established.

Penalty

The Tribunal considered the situation came close to being one where suspension should be ordered. However, the Tribunal concluded it had insufficient information about other areas of the doctor's practice, and that any overall assessment is for the Medical Council of New Zealand (MCNZ).

In summary the Tribunal imposed the following conditions on the doctor's practice:

- For a period of three years, the doctor shall practise under the supervision of a general surgeon, approved by MCNZ.
- For a period of three years, the doctor shall not undertake any techniques or procedures of the kind which he has not previously undertaken.
- The doctor shall not undertake plastic and reconstructive surgery (including cosmetic surgery).
- The doctor may not resume practice with regard to any such surgery or procedure until his practice has been audited (or equivalent) by the MCNZ, and the MCNZ is satisfied as to his competence.
- The doctor is to undertake education on his responsibilities with regard to informed consent.
- The doctor is to undertake training about surgical risk factors.
- The doctor is to undertake training about recognised post operative complications.
- The Tribunal recommended that there be an urgent and full competence review of the doctor's surgical practice undertaken by the MCNZ, and it is a condition of practice that the doctor comply with any such requirement of that competence review.

The Tribunal further ordered the doctor be censured, pay a fine of $5,000.00 and pay costs of $15,000.

The Tribunal directed that details of this decision be published in the New Zealand Medical Journal and on the Tribunal's website.

Appeal

The Practitioner appealed the Tribunal's substantive decision to the High Court. The High Court dismissed the appeal and discharged its order granting interim name suppression. (*A v Director of Proceedings*, CIV 2007-441-631 (High Court, Napier, 4 October 2007, Allan J)).

The full decisions relating to the case can be found on the Tribunal web site at www.hpdt.org.nz
Reference No: Med06/46D.

THE NEW ZEALAND MEDICAL JOURNAL
Journal of the New Zealand Medical Association

Professional Misconduct (Med07/76D)

Charge

The Doctor was charged with professional misconduct by the Director of Proceedings. The charge alleged that:

Between 1 March 2003 and 30 April 2006 while being in a de facto relationship with his partner (NN) the Doctor:

1. diagnosed his partner with depression; and/or
2. failed to keep any records of consultations or treatment of his partner; and/or
3. prescribed for his partner Aropax (an anti depressant) on or about 30 occasions; and/or
4. prescribed for his partner other medications including:
    i. Paradex (an analgesic) on or about 13 occasions; and/or
    ii. Trisequens (hormone replacement) on or about 9 occasions; and or
    iii. Losec (a treatment for peptic ulcers) on or about 2 occasions.

Finding

The Tribunal found the Doctor guilty of professional misconduct.

Background

The main facts relating to the charge were not in contention.

The Doctor is a registered medical practitioner, practising as a general practitioner, one half day per week. Between 1998 and 2006, he was in a relationship with NN and in December 2002, she moved in to live with the Doctor in a de facto relationship. They continued to live together until late May 2006, when they parted somewhat acrimoniously.

In 1999, NN's GP prescribed her an anti depressant, Cipramil 20mg. NN said she did not take that medication. Between January and June 2002, NN attended counselling, at the Doctor's request, for self esteem and historical relationship issues.

Soon after NN started living with the Doctor, he diagnosed her with depression. Up until that point, NN said she had not previously been diagnosed with depression. The Doctor said this diagnosis was a result of many factors, including her history, various conversations, and his observations of her mood fluctuations, her impulsive behaviour and alcohol consumption. The Doctor made no record of his diagnosis. He said that NN wrote him letters from time to time which assisted him to form the view she was suffering from depression.

From 24 April 2003, the Doctor regularly prescribed Aropax 20mg tablets for NN. There were a total of 30 prescriptions dispensed over a period of three years.

During the period he was living with NN, the Doctor also prescribed a number of other medications for NN. These included 13 prescriptions for Paradex (an analgesic), 9 prescriptions for Trisequens (hormone replacement) and 2 prescriptions for Losec (for gastric problems).

In early April 2006 NN presented to an emergency mental health team, who noted she appeared withdrawn and tearful with feelings of hopelessness and low energy and motivation. She was assessed for suicidal thinking with the background of low mood and relationship strain. She was referred to a community mental health team.

An assessment by a psychiatric registrar on 19 April 2006 did not reveal symptoms of major depressive disorder. It was thought she may be suffering from an adjustment disorder with depressed and anxious moods. A programme of reduction of Aropax from 40mg a day to 10mg was planned over the next two weeks, with a view to introducing a mood stabiliser.

On 8 May 2006 at a second community mental health consultation with the psychiatric registrar, it was agreed that the Aropax would cease and NN would try sodium valproate for her mood.

At a further community mental health consultation in early June the psychiatric registrar increased NN's mood stabiliser, and then at a consultation on 24 July 2006 it was reduced with a view to ceasing. The psychiatric registrar confirmed that at the time of the last assessment, it was felt NN did not meet the criteria for any mental disorder. The most appropriate treatment was thought to be individual psychotherapy for the management of psychosocial stressors.

NN reported no diagnosis of mood disorder or depression, and was not on any medication for such.

Reason for Finding

Diagnosis of depression—The Tribunal was satisfied the Doctor undoubtedly diagnosed his de facto partner with depression. The Tribunal considered that had the Doctor been truly objective, he would have realised he could not be involved in his partner's care, given the complexity of the issues she was facing. He would have ensured that independent professional advice was sought. The moment he made a diagnosis, he inevitably and foreseeably became involved in a continuing course of mental health treatment for NN.

The Tribunal was well satisfied that the diagnosis of depression was not one that should have been made by the Doctor in the circumstances, particularly given the absence of any reliable evidence that there was another health professional involved in caring for NN.

The Tribunal considered the established facts amounted to malpractice, and professional misconduct.

Failed to keep records of consultations or treatment—The Doctor, in the agreed summary of facts, accepted that no record of the diagnosis, or treatment, was undertaken. He accepted his record keeping was not "conventional". It merely consisted of letters from NN. There was no record whatsoever of the Doctor's own observations, or his reasons for reaching them.

This situation involved a long term mental health situation. The Tribunal concluded that there was a sufficiently serious departure from accepted standards as to amount to professional misconduct.

Prescription of Aropax on 30 occasions—Aropax is used for the treatment of depression, anxiety disorders, panic disorders and obsessive compulsive disorders. The Tribunal considered in the context of a diagnosis of depression on an ongoing basis, and also on the basis of an untested assumption that there was a GP seeing the patient from time to time, the continuous prescribing of Aropax over a period of years was most unwise. There was a sustained and potentially risky or even dangerous situation in the continued prescribing of the Aropax.

The Tribunal concluded that the facts were established, and that they amounted to malpractice, and the bringing of discredit on the profession, and professional misconduct.

Prescribing of other medications—The fourth particular related to the prescribing of other medications including Paradex (an analgesic), Trisequens (for hormone replacement) and Losec (for peptic ulcers).

The Tribunal was particularly concerned about the prescribing of the first two medications. They were of a different character from Aropax, but nonetheless, they involved potential risk. Paradex is a medication which should not be prescribed for patients who are potentially suicidal, who are on antidepressant medicines, or where there are issues as to the intake of alcohol. Drug dependency can also occur.

The Tribunal also had some concerns over the prescribing of Trisequens. The Doctor prescribed Trisequens for NN for a period of approximately three years. Trisequens is used for hormone replacement therapy. When prescribing hormone replacement therapy it is recommended that practitioners monitor their patients. Investigations, in particular mammography, should be carried out in accordance with currently accepted screening practices. These investigations were not referred to at all by the Doctor in his evidence.

The Tribunal was satisfied that the Doctor's conduct fell well below the accepted standards and amounted to negligence, and professional misconduct whether the 4 particulars were considered separately or cumulatively, professional misconduct was established.

Penalty

The established particulars raised significant concerns about the Doctor's ability to identify ethical dilemmas and professional boundaries. The scale of error which arose here was such that the Tribunal could not be confident that those issues would necessarily be limited to a family situation.

The Tribunal considered that the disclosed facts also revealed potentially wider problems relating to the Doctor's practice in connection with women's health and mental health, as well as record keeping.

The Tribunal ordered that the Doctor be censured, pay a fine of $7,500 and pay costs of $3,000.

The Tribunal further ordered the Doctor to undertake education with regard to professional boundaries within the next six months and confirm to the Medical Council of New Zealand that he has done so.

The Tribunal recommended that the Medical Council of New Zealand undertake a competence review of his practice with regard to women's health, mental health and record keeping, and, dependent on outcome any requirement of that competence review is to be complied with by the Doctor as a condition of practice.

The Tribunal directed that details of this decision were to be published in the New Zealand Medical Journal and on the Tribunal's website.

Appeal

The Doctor appealed the Tribunal's substantive decision to the High Court. The High Court upheld the Tribunal's overall finding of professional misconduct, but quashed the Tribunal finding in relation to the fourth particular. The High Court reduced the fine to $5,000, but upheld the other penalty orders. (*Dr E v The Director of Proceedings and Anor* (High Court, Wellington, CIV-2007-485-2735, Ronald Young J, 11 June 2008).

The full decisions relating to the case can be found on the Tribunal web site at www.hpdt.org.nz
Reference No: Med07/76D

THE NEW ZEALAND MEDICAL JOURNAL
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Surgeon – Professional Misconduct (Med04/01D)

Charge

The charge was divided into 3 sections. Each section related to Dr Samiuela Fuifui Kueli Tonga's management of a separate patient. The names of two of the patients were suppressed.

Patient B—The first part of the charge alleged that between October 2001 and 28 February 2002 Dr Tonga failed to obtain Mrs B's informed consent to a laparoscopic fundoplication procedure. It was alleged he failed to provide the patient with adequate and/or accurate information on which she could base a decision on whether or not to have a procedure performed and in particular he failed to advise that:

(a) there is no substantive evidence that the surgery reduces the risk of complications from reflux disease; and/or

(b) overall, the long term quality of life when comparing surgery and medication is similar; and/or

(c) there is no evidence of long term harm (including a risk of cancer) resulting from ongoing treatment with acid suppressing proton-pump inhibitor therapy; and/or

(d) surgery has a small but real risk of major complications and a very small risk of death (perhaps 1 in 1000 or less); and /or

(e) laparoscopic surgery may result in conversion to open operation with subsequent delayed recovery; and /or

(f) surgery has a number of specific and not uncommon complications, including difficulty swallowing, and bloating of the abdomen; and/or

(g) there are a range of results with approximately 90% of patients having a good or excellent result, approximately 5% having a moderate result and approximately 5% having a poor result either with reflux disease or side effects.

Patient C—This part of the charge alleged that between 10 September 2001 and 21 November 2001 Dr Tonga failed to complete a colonoscopy on 11 September 2001 and he failed to undertake a complete colonoscopy prior to undertaking a reversal of the Hartmann procedure on 4 June.

The charge further alleged that in the course of performing a reversal of the Hartmann procedure on C Dr Tonga failed to exercise reasonable care and skill when firing the EEA stapler when, in light of the nurse's statement that there was difficulty in firing the stapler he failed to reassess the bowel ends before firing the stapler.

Following the surgery the charge alleged Dr Tonga failed to provide adequate follow-up to C of the intra-operative events and/or possible future complications and/or her treatment options. In particular he failed to inform C:

(a) that the operation was difficult; and/or

(b) that there had been a moderate blood loss during the operation, requiring transfusion; and/or

(c) that there was difficulty in achieving anastomosis; and/or

(d) that there had been an injury to the vaginal wall; and/or

(e) that an examination under anesthetic may be required if the discharge persisted.

Patient D—The third part of the charge alleged that on or about 4 March 2003 Dr Tonga failed to undertake a laparoscopic appendectomy on D with reasonable care and skill in that Dr Tonga caused damage to the inferior vena cava and psoas muscle.

Finding

Dr Tonga pleaded guilty. However, his admission was qualified by his position that the charge of professional misconduct was established only on a cumulative basis. Dr Tonga did not admit that each part of the charge in itself constituted professional misconduct.

The Tribunal found Dr Tonga guilty of professional misconduct. The Tribunal concluded that each of the three parts of the charge in themselves constituted professional misconduct.

Penalty

The Tribunal ordered that:

- Dr Tonga be censured; and
- Dr Tonga practise under the condition that he may only practise medicine under the oversight of Professor Q, or any other person approved by the Medical Council for a period of two years from the date of this decision; and
- Dr Tonga pay costs. He was ordered to pay the lesser of $20,000 or 25% of the costs of the Director of Proceedings and the Tribunal.

Appeal

Dr Tonga has appealed the Tribunal's decision to decline permanent name suppression. The High Court denied the appeal (*Dr A v DP* (High Court, Christchurch, CIV 2005-409-002244, 21 February 2006, Panckhurst J)). The High Court dismissed the practitioner's application for Leave to Appeal (*Dr A v Director of Proceedings*, (High Court, Christchurch, CIV-2005-409-002244, 30 July 2007, Panckhurst J)). The practitioner applied to the Court of Appeal to seek leave to appeal, but discontinued the application.

The full decisions relating to the case can be found on the Tribunal web site at www.hpdt.org.nz Reference No: Med04/01D.

THE NEW ZEALAND MEDICAL JOURNAL
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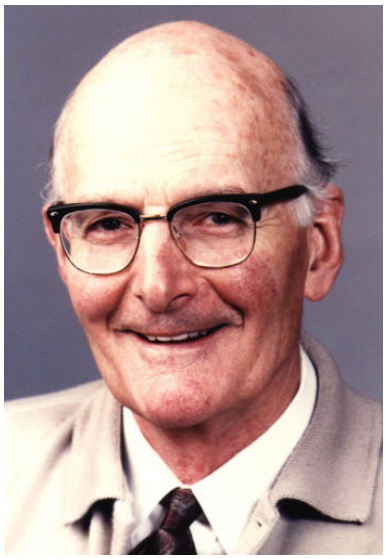
Ashton John Fitchett

Ashton John Fitchett, born in Wellington, died after a short illness, on 11 October 2008, aged 82 years.



He grew up and lived most of his life in the suburb of Brooklyn, where his grandfather, also Ashton Fitchett, had cleared land and established a thriving dairy farm. The current Ashton Fitchett Drive there was named after his grandfather.

After his secondary education at Wellington College, he went on to Victoria University and Otago Medical School, graduating in 1951. He was a resident at Knox College.

As a member of the St Stephens Church Choir in Dunedin he met another chorister, Ruth Meikle, in 1947 and they married in Dunedin in 1950.

His 6th year was spent at Wellington Hospital, followed by a further 2 years as a House Surgeon.

Then came a year in Karamea on the West Coast—with his life-long friend, the late Dr Peter Anyon, being in nearby Granity.

In 1955 he started practising as a solo GP in rented premises back in Brooklyn again, whilst the future large two-storey family home was being built at 151 Owhiro Road with an adjoining purpose built surgery, now the site of the Brooklyn Medical Centre. Ashton worked there until his retirement in 1990.

Throughout those 35 years he always put the welfare of his patients above his own personal needs. Frequent House Calls were considered to be the norm. Ruth, a registered nurse was his only nurse/receptionist over all that time, whilst they brought up their three children. In the early years he was on-call 24 hours a day and worked 7 days a week.

In 1964 began the sharing of weekend duties with nearby doctors and a long-standing and happy relationship developed with the late Graeme Jenkins (another solo Brooklyn GP) and the late Malcolm Nicolson; Tom Farrar; and Eddie Sang from the adjoining suburb of Island Bay. The roster included being part-time port health officers, which involved going out in Wellington Harbour on the police launch the Lady Elizabeth, climbing up rope ladders on the side of ships and carrying out a forearm inspection of the crew for smallpox.

Ashton had an early interest in geriatrics, becoming the visiting doctor for the then Central Park Hospital, owned by the Wellington Hospital Board. Much later, in the 1980s, he was appointed to be in charge of the Geriatric Continuing Care Unit in what is now Ward 17 in Wellington Hospital.

For many years he was involved in teaching medical students on attachments to his surgery. He became an icon for GPs in Wellington, helping many young doctors early on in their careers.

With the establishment in the 1950s of the Royal College of General Practitioners in London, and later on membership becoming available to New Zealanders, Ashton became an early New Zealand member in 1965. 1974 saw the inauguration of the NZ College of General Practitioners (it became Royal in 1979) and he was a foundation member, in fact his membership number was 1.

The RNZCGP owes much to the efforts of Ashton Fitchett. He gave his time to it willingly and unsparingly. He held many positions in the College and was responsible for planning and implementing the shift of the headquarters from Christchurch to Wellington in 1983. He achieved the highest office in the College, becoming President in 1984. Ten years later he was made an Honorary Fellow, a rare distinction. He was a long-standing member of the New Zealand Medical Association which included a term as President of the Wellington Division.

His organisational skills were legendary as was his unique ability for detailed planning. There was always a little notebook, which seemed to have everything in it. He and Graham Woods organised a combined conference in Suva, of the College and the Fiji Medical Association in the 1970s. They were also responsible for the fundraising that led to the establishment of a Chair of General Practice at the Wellington School of Medicine.

In later years he was invited by the Medical Council of New Zealand to become a mentor for GPs who were having problems in their practising lives. After his retirement he worked for the After Hours Medical Centre in Wellington as an audit officer, only giving this up on his 80th birthday. He enjoyed his weekly visits there, saying it was now the only place where, apart from his family, he ever met young people.

Ashton had also been active in the broader community. He was a member of the Brooklyn Progressive Association and chairman of the Brooklyn Scout Group. He was renowned for highly organised fund raising bottle drives. He founded the Brooklyn Community Trust, which provided holidays for children of needy families. He was on the committees of the Wellington East Girls' College and Wellington College Parents' Associations and later became chairman of the Wellington College Board of Governors.

He was awarded an OBE in 1984 for services to Medicine and the Community and was honoured to receive it personally from the Queen at the investiture held during her visit to New Zealand.

In his younger days he was a keen tramper and with Ruth they did the Milford, Hollyford, and Heaphy tracks. He continued to be an avid walker right up to the week before his final illness. For a number of years he belonged to a Scottish Country Dancing Group.

Ruth and Ashton had quite a number of overseas holidays and three trips to World General Practice-WONCA conferences in Melbourne, Switzerland, and London. He

loved his computer and was ahead of most of his generation in this, becoming a tutor at SeniorNet. He introduced Skype to his family!

Ashton had asymptomatic Chronic Lymphatic Leukaemia for about 20 years. In recent years he developed a number of illnesses, but always managed to come out on top of them. He and Ruth moved to the Rita Angus Retirement Village in the suburb of Kilbirnie in 2004, where they had a double apartment.

He was a regular attender at monthly retired GPs' lunches and was all set to go on 2 October, when he suddenly became ill in the early hours of that morning and was admitted to the Intensive Care Unit at Wellington Hospital with severe pneumonia, followed a week later by a stroke from which he did not recover.

The Miramar Uniting Church, where his funeral service took place, was overflowing. Eulogies were delivered by his three children, two of his grandchildren, Tom Farrar, and Ron Burgess (his weekly walking companion of recent years).

He is survived by Ruth, daughters Marion and Margaret, son Ashley, and five grandchildren.

Dr Tom Farrar (Retired GP, Island Bay Medical Centre, Wellington) wrote this obituary.

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Peter Van Praagh

Peter Van Praagh was born in Masterton in 1926, attended Wairarapa College, and went to Otago University and took Medical Intermediate in 1945—but he did not get into medical school then and so switched to a BA.

He met a Christchurch nurse Jean Riddell working in Dunedin. They married and went to Christchurch where he completed his BA in Economics and was employed as a farm adviser.

He was accepted for Medical School in 1950 and graduated in 1955.

He brought his family to New Plymouth and had 2 years there as a house surgeon—his competence and energy were apparent. He was a grand mentor for the junior house surgeons.

Leaving hospital, he settled in Waitara and quickly built up a busy practice—soon to be joined as co-partner by his friend Ron Lockhart.

He was a kind, careful and conscientious doctor who delivered over 3000 Waitara babies.

He became a Fellow of the Royal College of General Practice. He was very community and family minded and his enthusiastic common sense and good humour resulted in his being appointed a Life Member of St John, Lions, and the Hospice Foundation.

He was honorary doctor to the Taranaki Rugby Team with whom he travelled on occasion and also the racing club. He competed in jet boat races for some years until he was appointed their honorary doctor too, and then travelled by helicopter.

He was a founding member of a group of keen golfers, retired professional men, who enjoyed their regular contests and also enjoyed family competition with his boys.

He was a generous host, quick with a laugh and a tonic to be with.

In his indomitable way he was looking into having his aortic valve replaced by that new technique being performed in Hamilton which does not require cardiac bypass, but a final fatal heart attack intervened. He is survived by his wife Jeannie, 5 sons, 11 grand-children, and 3 great-grandchildren.

A happy and adventurous man who had a very full life well lived.

Dr DW Frengley (New Plymouth) wrote this obituary.

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James Roper Robinson

James (Jimmy) Robinson, Emeritus Professor, died recently in Dunedin, New Zealand, at the age of 93.

He was born on 4 June1914 in Ulverston, England. He was awarded a scholarship to Emmanuel College, Cambridge, where he graduated BA in Natural Sciences (1935), and PhD in Colloid Sciences (1938).

He was a subject for Professor Robert McCance's Experimental Study of Rationing, where on a limited diet they rode bicycles to the Lake District and walked the mountains.

He started medical training at the London Hospital during the bombing of 1940, and was house surgeon at the Norfolk and Norwich Hospital, where he assisted McKee with his first stainless steel hip replacement.

He qualified MB BChir in 1943.

He served in the RAMC in France and Belgium, and at the Central Military Pathology Laboratory, Poona, India.

On return to Emmanuel College in 1947, he became assistant director of research at the Department of Experimental Medicine. There he met Marion Harrison and they married in 1951. He was awarded MD (Cambridge) in 1952.

Robinson came to the Physiology Department, University of Otago in 1954 for a sabbatical, and returned in 1957, becoming Head of Department in 1961. Robinson carried out internationally recognised research on the regulation of the distribution of water and mineral salts in health and disease, with special reference to the kidney.

He was elected Fellow of the Royal Society of New Zealand (1963), FRACP (1964), Fellow of the New Zealand Institute of Chemistry (1965), and awarded ScD (Cambridge) in 1965. He wrote several authoritative books including *Fundamentals of Acid Base Regulation,* in 5 editions, 1961–75.

He built a reputation for the clarity of his writing and lectures to generations of medical and health sciences students. He was devoted to teaching medical students; mentoring; and encouraging research students, colleagues, and staff. Professor Robinson served on many University of Otago committees, and the New Zealand Medical Research Council for more than 20 years.

His retirement in 1979 was marked by a special symposium of the New Zealand and international physiologists, and a research wing was named in his honour at the Physiology Department centenary celebrations in 2005.

James Robinson had many fulfilling years in retirement, enjoying overseas travel to conferences and to visit family and friends. He had a lifelong interest in organ and piano music, having been self-taught. He continued to read widely, embrace new ideas and technology, and walked regularly.

He died on 28 September 2007 after a short illness. He is survived by daughters, Dr Bridget Robinson (Christchurch, NZ) and Alison Steiner (Lawrenceville, NJ, USA), and their families.

James' daughters wrote this obituary.

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GRANTS AWARDED OCTOBER 2008

At the October 2008 meeting of the Scientific Advisory Group of the National Heart Foundation, a total of 10 limited budget grants were awarded. The awards included 5 Small Project Grants, 2 Grants-in-Aid, and 3 Travel Grants.

SMALL PROJECT GRANTS

Ms Carey-Anne Eddy

Department of Molecular Medicine & Pathology, University of Auckland

Do large deletions and/or duplications in LQTS genes cause sudden death in young New Zealanders?

$15,000 for 4 months.

Dr Jun Lu

School of Biological Sciences, University of Auckland

Development of MRI 'DENSE' protocol and corresponding analysis software to detect heart failure in rats

$15,000 for 12 months.

Dr Christopher Pemberton

Department of Medicine, University of Otago, Christchurch

A novel marker of acute coronary syndromes

$14,760 for 18 months.

Dr Andrew Kerr

Department of Cardiology, Middlemore Hospital

Pre-hospital delay in acute myocardial infarction

$8,670 for 18 months.

Dr Judith McCool

Dept of Social & Community Health, School of Population Health, University of Auckland

Young people's response to graphic warning labels and plain packaging as a potential smoking prevention tool

$15,000 for 12 months.

GRANTS IN AID

Dr Gerard Devlin

Department of Cardiology, Waikato Clinical School

Partial funding for the purchase of an ultrasound machine equipped with cardiac calculation package suitable for use on rodents

$15,000

Ms Ivone Leong

School of Biological Sciences, Molecular Genetics & Development, University of Auckland

Visit to the Cardiovascular Center and Cardiac Arrhythmia Service at Massachusetts General Hospital, USA

$6,000

TRAVEL GRANTS

Dr Steven Gieseg

School of Biological Sciences, University of Canterbury

28th International Winter Workshop: Clinical, Chemical & Biochemical Aspects of Pteridines. St Christoph/Arlberg, Austria.

Dr Jun Lu

School of Biological Sciences, University of Auckland

The International Society for Magnetic Resonance in Medicine 17th Scientific Meeting & Exhibition, Honolulu, USA.

Dr Marewa Glover

Department of Social & Community Health, School of Population Health, University of Auckland

2009 Joint conference of SRNT and SRNT-Europe. Dublin, Ireland.