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CONTENTS

This Issue in the Journal

A summary of the original articles featured in this issue

Editorials

Future hospital trends in New Zealand

Gary Jackson, Harry Rea

English language difficulties at general practices in Auckland, New Zealand: a major limitation to good practice

Ben Gray

Peer review of NZMJ articles: issues raised after publication of the viewpoint article on Janet Frame

Frank A Frizelle

Original Articles

Trends in hospital bed utilisation in New Zealand 1989 to 2006: more or less beds in the future?

Laurence Malcolm

Frequency and effects of non-English consultations in New Zealand general practice

Andy Wearn, Felicity Goodyear-Smith, Hans Everts, Peter Huggard

The accuracy of ethnicity data in primary care

Dale Bramley, Sandy Latimer

General practice rotations for post graduate year 1 and 2 house officers—how feasible?

Dale Sheehan, John H Thwaites, Irene Byrne

Passing the buck: clinical handovers at a tertiary hospital

Lloyd McCann, Karina McHardy, Stephen Child

A New Zealand outbreak of norovirus gastroenteritis linked to the consumption of imported raw Korean oysters

Greg Simmons, Claire Garbutt, Joanne Hewitt, Gail Greening

Case Reports

An iatrogenic complication of closed tube thoracostomy for penetrating chest trauma

Syed Amer H Andrabi, Syed Imran H Andrabi, Muhammad Mansha, Muhammad Ahmed

Suspected lymphocytic hypophysitis in a man
Elham Reda

Viewpoint

Post stroke fatigue—where is the evidence to guide practice?
Suzanne Barker-Collo, Valery L Feigin, Margaret Dudley

100 Years Ago in the NZMJ

Two cases of perforated gastric ulcer: operation—recovery (case 2)

Medical Images

Intestinal neurofibromatosis
Anastasios Koulaouzidis, Shivaram Bhat, Mohammed Haris, John Moschos, Musa Kaleem, Barry D Linaker

Brucellar spondylitis (Pedro Pons' sign)
Oguz Karabay, Kamil Gurel, Ocal Sirmatel, Fatma Sirmatel

Methuselah

Selected excerpts from Methuselah

Letters

The real cost of smoking: ASH's response to Eric Crampton's editorial
Ben Youdan

Taxes for health: the argument is more about health than economics
Richard Edwards, Nick Wilson, Osman Mansoor

Author responds to criticism of her 'Did Janet Frame have high-functioning autism?' viewpoint article
Sarah Abrahamson

Janet Frame and autism
Hilary Stace

"Diagnosis by mail": a response to the viewpoint article on Janet Frame
Bill Tramposch

Home is where the heart is—most of the time
Michael Baker, Michael Keall, Ee Lyn Au, Philippa Howden-Chapman

The development of guidelines for handling samples and specimens collected for research involving Māori
Elizabeth H Cunningham, Vicky A Cameron, John Evans, Virginia Irvine, Suzanne Pitama, Paul Robertson

Obituaries

Edward (Ted) Litton Telford Harding

Robert (Bob) George Mathieson

Erratum

Ethnic differences in the prevalence of new and known diabetes mellitus, impaired glucose tolerance, and impaired fasting glucose. Diabetes Heart and Health Survey (DHAH) 2002–2003, Auckland New Zealand

Book Review

Today's Students, Tomorrow's Doctors: reflections from the wards (Kathy Feest, Karen Forbes)
Tim Wilkinson



This Issue in the Journal

Trends in hospital bed utilisation in New Zealand 1989 to 2006: more or less beds in the future?

Laurence Malcolm

The New Zealand hospital system has been progressively reducing its bed utilisation over the past two decades. The key factor in this reduction has been the now very much lower average length of stay. New Zealand is well ahead of comparable countries in reducing hospital utilisation. Further reductions could be achieved through the integrated district health board (DHB) system and progressive action by primary care services to keep people out of hospital.

Frequency and effects of non-English consultations in New Zealand general practice

Andy Wearn, Felicity Goodyear-Smith, Hans Everts, Peter Huggard

Study Question: How often do GPs encounter patients with no English or poor English language proficiency, and what practical issues arise from these consultations?

Type of Study: A random sample of Auckland GPs were interviewed by telephone and their responses analysed.

Findings: Non-English language consultations are common and the majority of GPs had experienced problems. Problems were due to no English or poor English, accent, and physical speech issues (e.g. stroke or deafness). GPs sought to overcome some of the problems by drawing on their own language skills, using text and electronic resources, and using interpreters. They talked about interpretation issues in relation to who does it, the quality, and availability. Cultural issues were seen as a complementary problem when dealing with issues of language proficiency.

The accuracy of ethnicity data in primary care

Dale Bramley, Sandy Latimer

We investigated the accuracy of ethnicity data held in Primary Health Organisation (PHO) registers from the Waitemata district by comparing it to the ethnicity data of the same school-aged children on the National Immunisation Register (NIR) collected from parents during the Meningococcal B Immunisation Campaign. Significant differences were found.

Ongoing efforts are therefore required to improve the accuracy of ethnicity data held in PHO registers within Waitemata. The study reinforces the need for a standardised, systematic and appropriate sector-wide approach to ethnicity data collection.

General practice rotations for post graduate year 1 and 2 house officers—how feasible?

Dale Sheehan, John H Thwaites, Irene Byrne

This study sort to identify the needs and support requirements of general practitioners facilitating general practice rotations for Post Graduate Year (PGY)1/PGY2 House Officers at their surgeries. This was a telephone survey of General Practitioners (GPs) from 20 different practices in Canterbury. GPs support HO rotations in general practice, with perceived benefits for both HOs and general practice. More experienced house officers were thought more suitable for GP rotations. Potential barriers to GP rotations include possible financial costs and capacity issues at the practice.

Passing the buck: clinical handovers at a tertiary hospital

Lloyd McCann, Karina McHardy, Stephen Child

Clinical handover is an international issue within the healthcare setting, especially with current trend towards reducing the working hours for doctors. This study, conducted at Auckland City Hospital, showed that nurses have more handovers than house officers. Currently, nursing handovers are perceived to be at a higher subjective standard than the handovers conducted by house officers. Nursing handovers were rated at 7.8 / 10 overall, while house officer handovers were rated at 5.1 / 10 ($p=0.01$). More than 60% of house officers at ACH stated that they had encountered a clinical problem directly related to a poor handover in approximately 1 out of 3 'on-call shifts. Introducing a formal handover proforma and having a set location / time for a clinical handover are viewed as the most important factors that may improve handovers between house officers.

A New Zealand outbreak of norovirus gastroenteritis linked to the consumption of imported raw Korean oysters

Greg Simmons, Claire Garbutt, Joanne Hewitt, Gail Greening

This paper reports the investigation of an outbreak of gastroenteritis that occurred following an international rugby test at Eden Park (Auckland) on 17 June 2006. 387 patrons were interviewed, and clinical specimens were subsequently taken from some of them. Depending on the hospitality area, between 8% to 47% of the patrons who consumed food on the evening of 17 June 2006 subsequently suffered from diarrhoea or vomiting, or; stomach cramps and nausea (especially in Hospitality Area 1; one of four hospitality areas). The outbreak resulted from consumption of raw imported Korean oysters contaminated by norovirus. Labelling on the oysters recommending cooking prior to consumption failed to prevent the outbreak.



Future hospital trends in New Zealand

Gary Jackson, Harry Rea

The acute public hospital is the most visible part of the public health system, and also the most expensive. As Malcolm shows in this issue of the *Journal*,¹ New Zealand has made remarkable strides in improving the efficiency of hospital care. Clear evidence of the gains made in New Zealand over the past 17 years is shown—average length of stay (ALOS) has halved, inpatient admission rates held steady, and bed numbers per 1000 population significantly reduced.

The New Zealand public system now seems more efficient than the Australian and English systems. Whether comparing the ALOS (3.9 days vs 6.1 in Australia, 5.0 in England), discharge rates per 1000 population (157 vs 341 and 200) or hospital beds per 1000 population (2.0 vs 4.0 and 3.4), New Zealand is well ahead.

It is difficult enough making comparisons between DHBs let alone between countries, but the Australian and UK systems bear very close similarities to our own. Malcolm also compares to Kaiser in the USA. This is more problematic—North American systems treat ambulatory care in quite a different way, and the absence of full population coverage make comparisons a little lop-sided.

Whilst there are clear lessons to be drawn from some of the well-managed US and Canadian systems, particularly in reducing acute hospitalisation rates, we would be wary about using the quoted Kaiser figures as any sort of benchmark. Comparisons between countries may be confounded by differences in use of long-stay beds, rest homes, and private hospitals.

So why is New Zealand apparently doing so well? The most significant difference between the countries compared is that in New Zealand DHBs cover all aspects of care under the one budget umbrella. DHBs fund most health care provision, and are in a position to move funding between sectors, to use a variety of providers, and are not limited to providing services directly themselves.

For example, in New Zealand, home-based support and residential care for the elderly are the responsibility of DHBs. In the UK, residential care comes under Local Authority management, so 'bed blocking' in medical and AT&R wards as patients wait for a residential placement are a feature of UK discourse, but are largely not an issue in the New Zealand system. This has direct impacts on ALOS and bed requirements in the acute sector.

We agree with Malcolm that it is unlikely that ALOS can be reduced much further—indeed it is probably not desirable given the increased complexity of patients being seen and treated. We do support his suggestion for further falls in acute hospital bed numbers per head of population. Services are increasingly focusing on health promotion and early detection and intervention strategies with care provided in ambulatory settings.

Specialist services will increasingly deliver care in ambulatory care settings and will work collaboratively with community providers to support community-based (as

opposed to hospital-based) services delivery where this can be provided efficiently and effectively. However our population is growing and ageing and (despite the reducing numbers of beds per 1000 population) an expansion of absolute bed numbers in growing areas will be needed.

The Auckland Regional Services Plan (2006) provided a joint planning forecast from Waitemata, Auckland, and Counties Manukau DHBs. It suggested the need for more than 1500 additional inpatient beds over the next 20 years for the Auckland metropolitan area.² This included measures to reduce the demand for secondary and tertiary healthcare with more patient care being provided in primary and community settings. Of course forecasting is an imperfect science—child and maternity demand was expected to ease in the 2000s, but instead there has been steady growth in the birth rate.

The corollary of this growth in demand for health services in urban areas is a steady or decreasing population in some provincial areas in New Zealand. Workforce shortages will be a driver in rethinking models of care and hospital configuration. We will see a reduced range of specialist services in smaller hospitals as the connection between safety/quality and volume is emphasised, and sub-specialisation and centralisation increases.

To avoid our scarce health dollars being swallowed up in bricks and mortar it behoves us to try to minimise this growth as much as possible. Finding the workforce to staff our labour-intensive hospitals will be increasingly difficult. In our view, reducing the use of large acute hospitals is quite possible and important for the frail elderly and those with long-term conditions. Quite apart from system efficiency and workforce concerns, busy emergency departments (EDs) and their uncomfortable trolleys are no place for our elderly patients.

Much international literature demonstrates how the "chronic care model" (CCM) can improve outcomes (including reduced hospital use) for several chronic illnesses.^{3,4} How to transfer the gains demonstrable in studies to the real world of health care is another issue, however.

New Zealand has contributed to this literature.⁵ For instance, in a randomised trial in Counties Manukau, patients with COPD who were provided with a CCM programme had a significant reduction in hospital bed days.^{6,7} Furthermore, other studies demonstrate reduced hospital use for nearly all the elements of CCM singly or in various combinations—self-management (acute and chronic) telephone advice, support at home in acute episodes or hospital in the home, enhanced discharge with subsequent home support, and case-management.

Which elements are essential and which additional components give added value is uncertain. The DHBNZ/HRC Research Fund has commissioned a review of CCM programmes and a stock-take of NZ activity—results should be available in about a year.⁸

The lack of a fall in inpatient admissions and continuing increase in discharge rates due to day patients is contributed to by an ageing population and increases in those with long-term conditions. For example, in Middlemore Hospital for 2005/06, 25% of all medical-surgical inpatients (i.e. at least overnight stay) aged 55+ had diabetes recorded, with the proportion as high as 40% for people of Pacific and Indian

ethnicities, and 35% for Maori. Current hospital crises—full EDs and full hospitals—are in part due to this and the problem is greatly increased by the variation in this workload due to "winter".

We believe that a fundamental change in management of those with long-term conditions is required—this requirement should be driven by the need to improve quality of care for these patients. For example, currently an elderly patient with an exacerbation of COPD may be held in ED on a trolley in the corridor for 48–72 hours while other higher acuity patients are processed and treated. This is entirely understandable from the ED viewpoint, but hardly constitutes good care for this patient.

Someone with a crisis of his or her long-term condition should be cared for in some other way—not in a busy acute hospital ED.

Possibilities include:

- A designated "holding" ward within the hospital but separate from ED
- At home with a temporary increase in clinical care and support
- In a community or private hospital with care led by nurse specialists supported by the GP and a medical specialist.

This "new setting" would allow for more appropriate care, more continuity, and consideration of issues like "advanced directives". Cost-effectiveness of such new models of care for these patients is less of an issue than the improvement of quality of life given the poor care offered to some of these patients currently.

The challenge ahead as the population grows and ages is to invest in the best health outcomes given limited resources. We would commend to you an excellent series of articles on *The Future Hospital* recently published in the UK.⁹ We need to balance the twin drivers of short-term demands and needs and investing in disease prevention for long-term gains. It should be possible to reduce cost increases as well as improving health outcomes for our communities.

Close working with primary care providers; integration of primary and secondary care through clinical guidelines, joint clinics, information systems; and mutual respect for the strengths and abilities of each party are needed. Valid measures of quality will be one of the levers to drive change.

Investment in good information systems, performance measures, and evaluation of service reconfigurations is necessary. Given the expected changes in hospital size, function, and specialisation over the next 10–15 years of workforce and demographic change, is there a need for a 'hospitals plan' for New Zealand?

Competing interests: Gary Jackson is an employee of, and Harry Rea has a clinical commitment to, Counties Manukau District Health Board. Both are members of the DHBNZ Research Fund Governance Group.

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English language difficulties at general practices in Auckland, New Zealand: a major limitation to good practice

Ben Gray

The paper by Wearn et al (<http://www.nzma.org.nz/journal/120-1264/2771>) in this issue of the *Journal* is an important contribution to the development of practice and policy development in relation to cultural competence. It also raises some important issues in relation to *The Code of Health and Disability Services Consumers' Rights*.

The authors state that significant communication difficulties due to limited English language are a common feature of Auckland general practice, and the qualitative section of their paper highlights how these language difficulties are a major limitation to good practice.

Cultural competence

The initial stimulus for discussion around cultural competence was the disparity of health outcomes between Māori and non-Māori along with recognition of our responsibilities under the Treaty of Waitangi.

With the understanding gained from improving care for Māori, it became clear that we also needed to address the adequacy of care for other ethnic groups. More recently the Medical Council released two statements; on cultural competence¹ and caring for Māori,² and the Royal New Zealand College of General Practitioners (RNZCGP)-released *Cultural Competence* document.³ These documents have a strong focus on improving care for Māori but also address more generic cultural competence issues. There was significant Māori input in the development of these documents.

As noted in Wearn et al's article, the RNZCGP document *Cultural Competence* does not address the issue of language difficulties nor use of interpreters; a curious omission from a document on cultural competence, although consistent with its significant focus on Māori issues and development by Māori contributors.

The Nursing Council have been developing these issues for longer than the Medical Council with a significant debate around "cultural safety" 10 years ago based on the work of Irihapeti Ramsden.⁴ They now separate out Treaty of Waitangi issues from cultural safety "*Nurses will be asked to show they both apply the principles of the Treaty of Waitangi to their practice and nurse in a manner the client determines is culturally safe.*"⁵

By not distinguishing between cultural competence (cultural safety) and Treaty of Waitangi issues, we run the risk of the discussion on "cultural competence" being focussed on Māori to the detriment of those with limited English language—as seems to have happened in the RNZCGP document. In addition, the important issue of the Treaty of Waitangi is mixed up with other cross-cultural issues. Māori are not "just" another cultural group requiring better care.

The Code of Health and Disability Services Consumers' Rights

Communication difficulties described in the qualitative section of Wearn et al's paper seem significant enough to be a breach of the *Code*. By definition, those with limited English will find it more difficult to complain, but data on the English language ability of complainants is not collected.

The Health and Disability Commissioner (HDC) receives some complaints from ethnic minorities (30% of complaints in Auckland/North Auckland in 2006).⁶

The jurisdiction of the HDC does not extend to resource issues. This is reflected in the section under provider compliance:

A provider is not in breach of this *Code* if the provider has taken reasonable actions in the circumstances to give effect to the rights, and comply with the duties, in this *Code*.

The onus is on the provider to prove it took reasonable actions.

For the purposes of this clause, "the circumstances" means all the relevant circumstances, including the consumer's clinical circumstances and the provider's resource constraints.

Right 5 covers the issues raised in Wearn et al's article.

Right 5 states:

Right to Effective Communication

1) Every consumer has the right to effective communication in a form, language, and manner that enables the consumer to understand the information provided. Where necessary and reasonably practicable, this includes the right to a competent interpreter.

This is the only one of the 10 rights where the qualification "where reasonably practicable" is included. As noted above, that qualification "reasonable" applies to all the rights but this comes at the end of the *Code* under "provider compliance". This implies that it is more excusable to deprive a patient of the "right to effective communication" on the grounds of it not being reasonably practical, than it is for any of the other rights.

This is iniquitous because without "effective communication" a patient is inevitably deprived of rights to services of an appropriate standard, being fully informed, having informed consent, or being informed of the right to complain.

There is virtually no funding provided to primary health organisations (PHOs) to pay for interpreting services, and few of the patients with limited English can afford the cost of a professional interpreter. Thus it can be a lottery for doctors caring for patients (in the circumstances described in Wearn's article) whether something goes wrong and whether the patient complains. If a complaint is made, then it is clear that the communication is not adequate and many rights are not met.

I believe that this is an important source of the distrust with which the HDC is held by some GPs. We need to find a way of providing a hierarchy of rights. By providing a statement on "cultural competence" and another statement on "best practices when providing care to Māori..." the Medical Council seems to be moving in this direction, although it is confusing for the registration body to provide a statement on "best practice", with accompanying performance standards.

If a practitioner does not meet those performance standards, does it mean that they risk their registration, or merely have not achieved "best practice"?

Perhaps we should have obligatory rights which either do not cost (for example treating people with respect) or for which adequate funding is available, and ideals for which we aim but will not always achieve.

Competing interests: None.

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(Dr Gray has been a GP at Newtown Union Health Service [NUHS] for the last 15 years; previously he worked in Waitara, Taranaki. NUHS serves a diverse multiethnic population. He convenes the “Professional Skills Attitudes and Ethics” course for Wellington Medical Students.)

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Peer review of NZMJ articles: issues raised after publication of the viewpoint article on Janet Frame

Frank A Frizelle

As editor of the *New Zealand Medical Journal (NZMJ)* I try to publish articles of interest to its medical readers. I try not to comment personally on what we publish, unless it is relevant to my specific area of clinical practice. I do, however, sometimes comment when the publication process of a particular article is criticised or reported unfairly or inaccurately.

This is one of those rare times when I want to comment on what we have published: Sarah Abrahamson's viewpoint article *Did Janet Frame have high-functioning autism?* (12 October 2007 issue).²

Iain Sharp, in a *Sunday Star Times* article dated 21 October 2007, reports Pamela Gordon (Janet Frame's niece and literary executor) as saying, in a serious but also humorous tone, that the published article was:

“...a ridiculous piece of amateurish pseudo-science no better than an undergraduate essay. I'm amazed it wasn't submitted to peer review before publication—and quickly rejected. The editor of the medical journal who's a bowel specialist and perhaps accustomed to crap, defends it on grounds that it was an opinion piece...”¹

Pamela Gordon contacted me twice within a few days following publication of the Janet Frame article with questions about its publication.² Amongst the questions she asked was whether the article had been peer reviewed. I assured her on two separate occasions that it had been peer reviewed, so I have no doubt she knew it had, and can only assume that she has been misreported by the *Sunday Star Times*.

Peer review is essential to the creditability of what we publish; it is seen as a significant “added value” of the publication process. Few manuscripts get by without some modification (and hopefully some improvement) as a result of peer review process. Generally it is considered that peer review improves the quality and reliability of what is published.

Peer review, however, is not without its problems: it is slow; it is only a crude means of discovering the acceptability—not the validity;³ and is subject to reviewer biases. (Author names are not disclosed to reviewers nor are reviewer names disclosed to authors which may reduce some bias however.)

Most articles published in the *NZMJ* are externally peer reviewed. All original articles, reviews, special articles, and viewpoints are independently and externally peer reviewed.

Letters to the editor, obituaries, and editorials are not generally peer reviewed, but are reviewed in house. Occasionally, however, we do send these out for external peer review (especially editorials).

Letters which contain information that we have inadequate knowledge about are also sent out for peer review.

Most of the letters we publish are from doctors and medical researchers—we try hard to publish as many of these as possible, however some attack the person and not the arguments in the published manuscript and so are deemed unsuitable for publication. We do try and help authors of letters when we see they have a point they are trying and get across.

With regards to the aforementioned article, we received a number of emails from Pamela Gordon; and we asked whether we could publish one of these emails/letters to give her perspective. However, while initially seeming delighted with this suggestion, she subsequently decided that she didn't want her comments published.

The peer review process is time-consuming and complex. We thank our reviewers for their unpaid time and effort. I apologise to the regular reviewers who I pick on, however you are very good at your job.

To give an idea of how much work is involved, the example below is the editorial tracking of the recent article on Janet Frame,² which some claimed was not peer reviewed.

1. Article submitted to *NZMJ*.
2. In-house editorial review by myself. (Some manuscripts are rejected at this point if of poor quality, unsuitable, or never likely to make the grade.)
3. External peer review with two independent reviewers (in this case one in New Zealand and one overseas).
4. In-house editorial review of reviewers' comments along with the manuscript.
5. Manuscript sent back to author asking for changes and resubmission.
6. Upon receiving the author's revised manuscript, in-house editorial review of changes.
7. Manuscript sent back to overseas reviewer for further peer review (to see whether the revised manuscript now merits publication).
8. In-house editorial review of reviewer's comments along with the revised manuscript.
9. Back to author for further changes and further resubmission.
10. In-house editorial review of resubmitted manuscript.
11. A second editor independently reviewed the manuscript and all reviewer comments.
12. One specific issue discussed by editor with one reviewer.
13. Article accepted following editorial board meeting.
14. Published.
15. *Claim that the article was not peer reviewed.*

There is nothing practically unusual about the review process of this particular article. Most of what we publish in the *NZMJ* and other journals that I am involved with have been through the same or similar process and it's the rare manuscript (only a few this

year) that doesn't require some change—hence the reason why it often takes some time (often months) to accept an article but often only days or weeks to reject one.

Criticism of what we publish is very healthy and we encourage it. We do ask, however, that the criticism addresses the issues in the article, and are not just unsubstantiated attacks against authors.

Much has been previously said and written about criticism; a few of these comments are listed below:

Any fool can criticize, condemn, and complain—and most fools do
Dale Carnegie (1888–1955)

How much easier it is to be critical than to be correct
Benjamin Disraeli (1804–1881), speech, 24 January 1860

If you are not criticized, you may not be doing much
Donald H Rumsfeld (1932–), USA Secretary of Defense

Competing interests: None.

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Trends in hospital bed utilisation in New Zealand 1989 to 2006: more or less beds in the future?

Laurence Malcolm

Abstract

Aims Reduction in hospital bed utilisation has been a key factor in controlling costs in recent decades in many health systems, including New Zealand's. This paper has the following aims: to analyse trends in hospital bed utilisation from 1988 to 2006; to examine variation between district health boards (DHBs); to consider factors which may explain the trends observed; to compare the results with international trends; and to discuss future need for beds and factors affecting this need, including the integrated DHB system.

Methods Ministry of Health Hospital Throughput reports for 1988/89 to 2005/06 were accessed and present standardised, filtered, and truncated data on discharges, average length of stay (ALOS), bed days, and DHB comparisons. Data on beds were also obtained from the Private Surgical Hospitals Association. Rates of utilisation were calculated using Statistics New Zealand and the Ministry of Health population data. Australian, UK, and US comparisons were obtained.

Results The New Zealand data showed a continuing rise in discharge rates, especially case weighted. This was almost entirely due to the increase in day patients. There was a marked downward trend in bed day rates due to a more than 50% decline in the ALOS and a corresponding decline in bed availability. There was a marked variation between DHBs in standardised discharge ratios in 2005/06, with low rates indicating potential benchmarks to which higher utilisation DHBs might aspire. New Zealand was well ahead of both Australia and the UK National Health System (NHS) in reducing bed utilisation but comparisons with Kaiser Permanente indicated that DHBs could potentially, even dramatically, reduce bed utilisation through reducing admissions.

Conclusions The findings point to important progress in New Zealand in containing costs associated with hospital bed utilisation. Future strategies need to focus strongly on reducing hospital admissions through PHO action to provide community alternatives and chronic disease management.

Hospital beds are an important and costly resource for all health systems. Attempts to contain health expenditure for the past 2–3 decades have focused strongly upon reducing both bed numbers and utilisation through reducing length of stay, admission gate-keeping processes, and the provision of alternative community-based services¹. As a consequence, there has been a progressive reduction in bed rate availability and utilisation in almost all health systems.

District health boards (DHBs), with their integrated hospital/secondary and primary care/community-based services, provide an opportunity open to few other health systems to develop alternatives to expensive hospital-based care. With increasing

pressures upon DHB resources and the emergence of an organized primary health care system, several initiatives have been established through DHBs in conjunction with independent practice associations (IPAs) and more recently primary health organisations (PHOs) to develop more substantial community-based alternatives to hospital care.

In New Zealand, downward trends in bed availability and bed days have been apparent for at least two decades in hospital boards and more recently in DHBs. This has been promoted by population-based funding.² Although the Ministry of Health for nearly two decades has published data on hospital utilisation/throughput, there has been very little analysis of the trends from these data.³

This paper therefore has the following aims: to analyse trends in hospital bed utilisation for bed availability, bed days, discharge rates, and trends in day patients from 1988 to 2006; to examine variation between DHBs in utilisation; to consider factors which may explain the trends observed; to compare the results with international trends in bed utilisation (particularly Australia, England, and the US), and to discuss future need for beds and factors affecting this need, including the integrated DHB system.

Methods

The following sources of data and information were used to prepare this paper.

Ministry of Health Hospital Throughput reports were obtained from 1988/89 to 2005/06.³ Full details of how the data are prepared for comparison are presented in the Appendices to these reports. For the most part, these reports are on the Ministry of Health website but for the 3 years ending June 2006 were obtained directly from Ministry staff. These reports present data on hospital utilisation in detail and trend data. The data were used to analyse trends in discharges/1000 population, day patients, bed days, and average length of stay (ALOS) and bed availability. Allowance for bed days and numbers was made for day patients by allocating one bed day per day patient.

Ministry of Health data were sought for numbers of licensed beds, both public and private. However the latest available figures are only for 2001. Hence current bed availability was calculated assuming 85% occupancy. New Zealand Private Surgical Hospitals Association provided private hospital data from reports from its membership for the 2006/07. Data for some previous years was derived from reports and surveys of the Private Hospitals Association.

New Zealand Hospital Throughput data have been case weighted, 'filtered', and 'truncated' to ensure as far as possible comparability between DHBs and their predecessors and trends over time. Filtering removes certain DRG categories such as well babies, short-stay observations, endoscopies, some mental health events, and other categories totalling about 26. Truncation removes bed days above the 97th percentile for each DRG. The overall effect is to reduce discharge numbers by about 3% and bed days by 6%.

Comparison between years and a DHBs were based upon standardised data.³ Two methods were used by the MOH. For comparison by DHB regions, *age/socioeconomic deprivation/ethnic standardised nation* was employed. For national comparisons over time, and comparisons between socioeconomic deprivation groups, *age/gender standardisation* was used.³

Casemix adjustment takes into account changes in the types of treatment that patients receive which vary in complexity and cost. Comparisons between DHBs and over time were based upon national hospital reference prices.³ This takes into account the change in ICD coding from July 2000 and other changes, e.g. in data quality.

International sources included data from the Australian Institute of Health and Welfare⁴ and a comparison of hospital utilisation in the UK NHS and the Californian-based HMO Kaiser Permanente by Feachem et al.⁵

Results

Trends in bed availability and utilisation in New Zealand

Table 1 presents calculated results of rates of bed availability and utilisation annually for the period 1988/89 to 2005/06. Trends in these indicators are also presented in Figures 1–4. The following findings should be noted from Table 1 and the Figures.

Discharge rates—Total discharge rates, and especially standardised discharge rates, have steadily increased until 2000/01 but since then the rate has flattened off. However this increase is almost entirely due to the rate of increase in day patients with no increase over this period in inpatient rates. The larger increase in standardised rates indicates an increase in acuity of patients receiving hospital care.

Average length of stay (ALOS)—Figure 2 shows a continuing steady decline over the period in both inpatient and total ALOS. In 1988/89, the inpatient ALOS was 6.67 and the total 6.13 days. In 2005/2006 these figures had declined to 3.90 and 2.81 days respectively i.e. a more than 50% drop in the total figure.

Rate of bed days utilisation—Figure 3 shows an associated decline in inpatient bed days. As described above these are truncated for the purposes of comparison between years. Table 1 also shows an increasing number of the day patients in which one-bed day was allocated for each day patient.

Rate of bed availability—Figure 4 shows the calculated availability of beds in both public and private sectors. As indicated above data are not available from the Ministry of Health for public bed availability since 2000. In any case the figures provided in the past by the MOH have been based upon licensed beds and have not excluded beds used for longer stay patients, including mental patients. Hence they cannot be appropriately compared for trends with the truncated and filtered Hospital Throughput data. The trends of Table 1 and Figure 4 show a decline in public bed availability to a current 1.56/1000 with some increase in the private sector to 0.4 giving a total of nearly 2.0/1000 population.

Variation between DHBs—Figure 5 shows the variation between DHBs in discharge ratios standardised for age, gender, and casemix for the 2005/2006 year. There is obviously a wide variation between DHBs from a low of 0.84 in Capital and Coast DHB to a high of 1.20 in Tairāwhiti and Wairarapa DHBs—i.e. a ratio of 43%. In other words even after allowing for need factors some DHBs have very much lower and higher discharge rates than others.

Ministry of Health calculations indicate that variations of more than about 4% from the mean of 1.00 are statistically highly significant at 99% confidence limits. Examination of the equivalent data for 2001/2002 shows that this variation has markedly increased.

International comparisons

Table 2 compares the most recent New Zealand data Australian sources for 2005 (Australian Institute of Health and Welfare)⁴ and data from a comparative study of the UK NHS with the California-based HMO Kaiser Permanente for the year 2000.^{5,6} Although not specifically stated it appears that this comparison includes only inpatients and excludes day patients.

Table 1 Discharge, Length of Stay, Day Case and Bed availability data 1988/89 to 2005/06

Year	1988/89	1989/90	1991/92	1993/94	1995/96	1997/98	1999/00	2001/02	2003/04	2005/06
Population estimated mean year ending June	3321300	3343600	3515100	3620100	3705400	3800800	3848600	3911100	4034831	4110872
Percent Day Cases	N/A	N/A	17.42	20.11	20.53	23.82	25.82	25.80	26.62	27.90
1 Inpatient ALOS (Truncated) Note excludes day patients	6.67	6.30	5.66	5.18	4.81	4.41	4.23	4.28	3.93	3.90
Total ALOS (Truncated) includes day patients	6.13	5.52	4.68	4.14	3.83	3.36	3.14	3.18	2.89	2.81
Rates/1000										
Total Discharges	124.0	126.8	126.6	135.6	140.6	145.6	153.8	158.7	156.9	156.7
Daypatients	9.9	15.8	22.1	27.3	28.9	34.7	39.7	40.9	41.8	43.7
Inpatients	114.1	111.0	104.6	108.3	111.7	110.9	114.1	117.7	115.1	113.0
Inpatient Bed Days (Truncated)	760.4	699.9	592.2	560.7	537.8	489.5	482.5	503.9	452.8	440.8
2 Calculated bed availability/1000	2.48	2.31	1.98	1.89	1.83	1.69	1.68	1.76	1.59	1.56
Private beds	0.5				0.4					0.4
Total beds public and private	3.0				2.2					2.0
Standardised Discharges by Age & Gender	123.6	125.7	125.5	135.4	140.1	145.6	153.8	159.0	157.6	157.6
Standardised Casewighted Discharges by Age & Gender	109.5	110.2	110.5	119.3	128.7	139.7	148.9	151.7	151.0	152.0

Notes:

Data source: NMDS public hospital data maintained by NZHIS (NZ Health Information Service).

Data are filtered to exclude certain cases (e.g. well babies, transfers). See Appendix 2 of Hospital Throughput 2000/01 for the full list of cases.

Time period covered - 12 months ending 30 June of each year.

1 ALOS = Average length of stay. Note: Inpatient excludes all day cases. Truncated ALOS truncates ALOS to the 97th percentile for each DRG.

2 Based on bed days and allowing for 85% occupancy

N/A = Day cases were not accurately recorded prior to 1 July 1991.

Populations for 04-06 from MOH for DHBs for 89-03 from Statistics NZ estimated population mean year ending June

Table 2. Comparison of rates/1000 population for bed utilisation in New Zealand (2005/06), Australia (2005), NHS (2000), and US Kaiser Permanente (2000)

Variables	New Zealand	Australia	NHS (UK)	Kaiser (US)
Average length of stay (days)	3.9	6.1	5.0	3.9
Discharges/1000	157	341	200	69
Acute bed days/1000	441	1108	1000	270
Bed availability/1000	2.0	4.0	3.4	0.9

Given the different years of comparison and trends over previous years it is likely that both the NHS and Kaiser figures for ALOS and acute bed days and probably bed availability are likely to be even less than those presented.

Although there are uncertainties in these comparisons, with doubts about what is included and excluded, they clearly indicate that New Zealand has a much lower rate of hospital utilisation than Australia and the NHS but a much higher rate than Kaiser Permanente. The latter figures clearly indicate that the much lower rate of bed utilization, less than 50%, of the figures for New Zealand is due to much lower discharge rates than the ALOS.

Figure 1. Trends in rates of throughput (discharges) per 1000 population of public and total daypatients and inpatients, inclusive of daypatients from 1998/89 to 2005/06

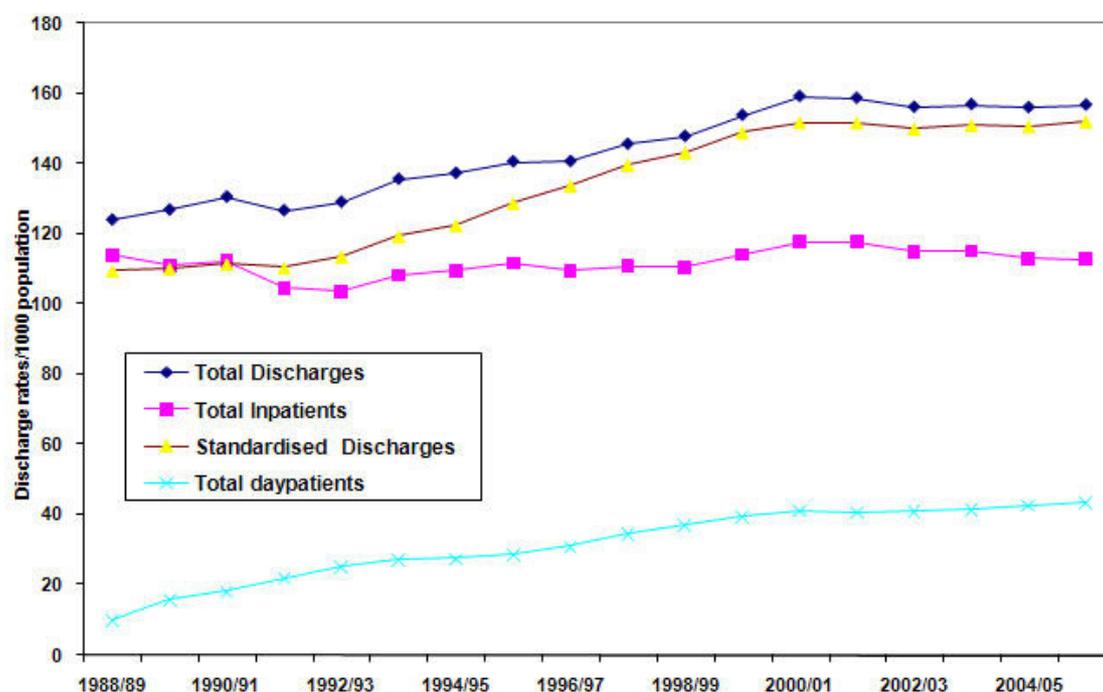


Figure 2. Trends in average length of stay of inpatients (truncated) and total patients including day patients from 1998/89 to 2005/06

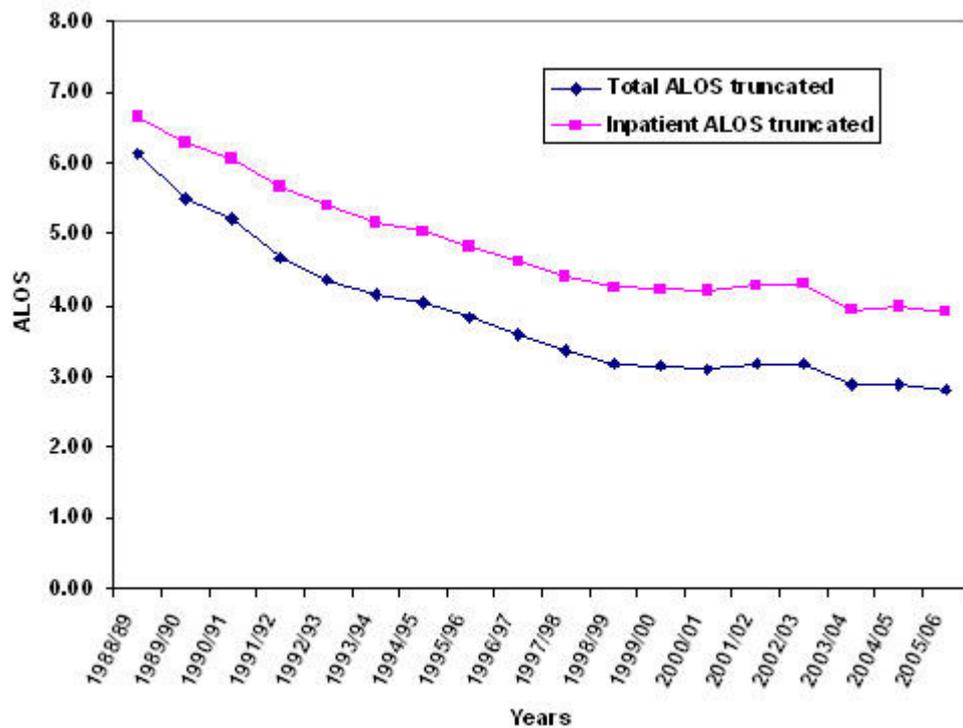


Figure 3. Trends in rates for New Zealand per 1000 population of public bed days, inpatient, and day patient, from 1998/89 to 2005/06

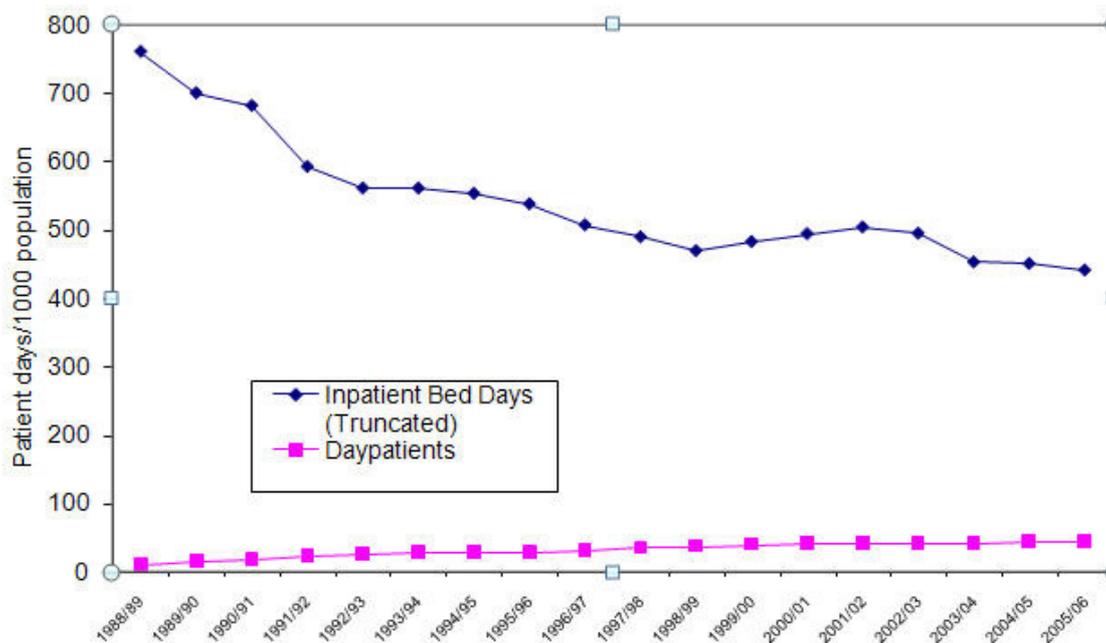


Figure 4. Trends in rates of availability per 1000 population of public and private beds from 1998/89 to 2005/06

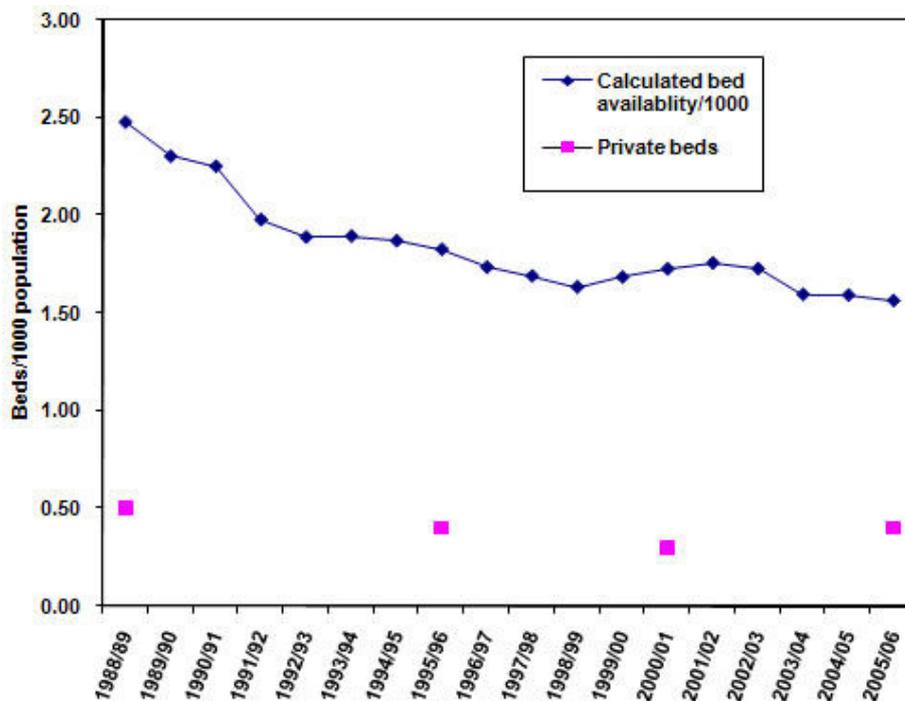
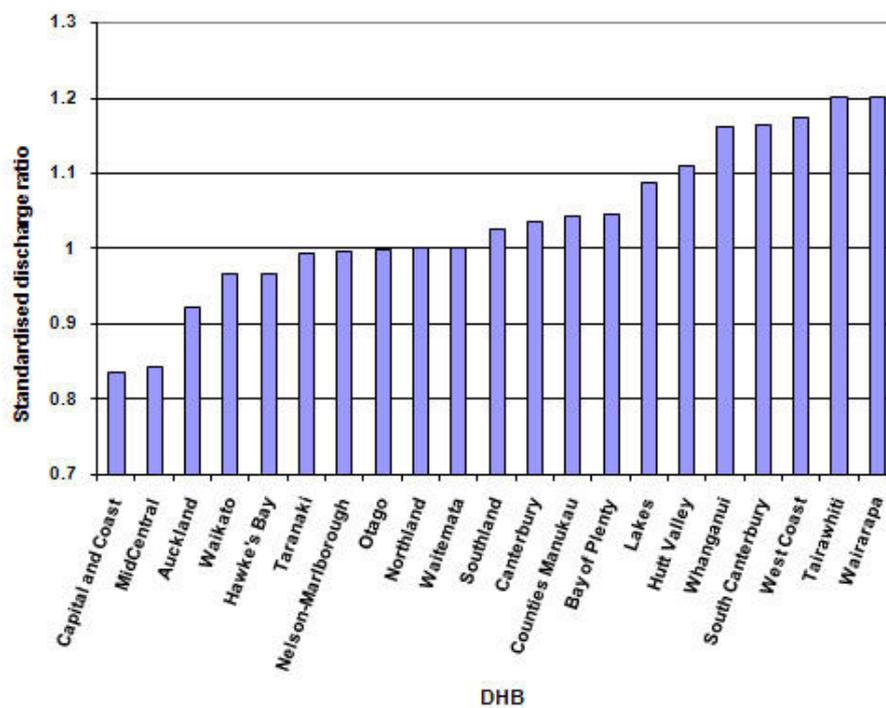


Figure 5. Variation between DHBs in discharge ratios standardised for age, gender, and casemix 2005/06



Discussion

Limitations of the data—The New Zealand data series provides reasonably reliable comparisons over the period given the filtering, truncation, and standardisation process to which the data is subjected. This ensures that, as far as possible, there is appropriate comparison between years and between DHBs. The principal uncertainties relate to bed availability given the lack of recent data and the inclusion in previous data of beds used for a variety of purposes additional to acute short-term stays. There are also serious uncertainties about private-sector data. None is currently available regarding utilisation. The data, both public and private, is relatively limited compared with other countries, e.g. Australia.

There are also uncertainties about the international comparisons including comparability for population needs, inclusion or exclusion of certain categories of patients excluded from the New Zealand data, e.g. admissions for endoscopies. Despite this the differences are sufficiently marked to indicate that progress in reducing bed utilisation in New Zealand is well ahead of Australia but falls well short of some situations in the US such as Kaiser Permanente.⁵ This organisation is widely regarded as a benchmark for international studies but its utilisation figures are reasonably typical of those of US-managed care markets.⁵

Changes in bed utilisation in New Zealand—The New Zealand data clearly points to consistent progress in reducing bed utilisation. Although there has been a continuing increase in discharge rates, almost entirely related to the increase in day patients, there has been a marked fall in the rate of bed days explained almost entirely by the dramatic fall in the ALOS. This is related to a range of factors including an increasing percentage of day surgery, better management of the inpatient episode, new technologies (e.g. endoscopic surgery), and increasing provision of alternative community-based services to enable earlier discharge.

This decrease is in the face of increasing demand for hospital-based procedures including new technologies and drugs and an aging population. The findings clearly indicate that there has been an increase in cost weighted discharges related to increasing complexity of patients admitted for hospital care. It is almost certain that, despite factors leading to a reducing ALOS, a limit may soon be reached in achieving further reductions in bed utilisation.

Previous studies—The findings of this study are reasonably consistent with previous work in this area. For example, Pool et al reported on a detailed study (age and gender standardised) of hospital bed days over the period 1985–87 to 1999–01.⁷ Overall rates/1000 reduced from 890 to 520 for males and 720 to 350 for females. Allowing for truncation of the MOH data these rates and trends are similar to this study. However their study did not include trends in rates of discharges and ALOS.⁷

Katzenellenbogen et al undertook a detailed study of hospital discharge data over a similar period. They concluded that trends in hospital days, appropriately filtered, provided a more reliable picture of utilisation related to health needs than hospital discharges.⁹ However their work was largely focused on the concept of health expectancy rather than an analysis of trends as such.⁹

A study of public hospital bed numbers was undertaken by Jackson in 2006.¹⁰ He reported a total of 1.66 beds/1000 population, a very similar figure to the calculated 1.56 beds/1000 days in this study.

A study of variation in hospital board utilisation by Barnett reported in 1984 showed that a key factor in hospital utilisation in the past and variation between population areas was highly correlated with bed availability as expressed by Roemer's Law.¹¹ Malcolm found in 1983 that this relationship was especially marked in mental health services.¹²

Mansoor studied variation in bed availability and utilisation in the early days of area health boards in 1990.¹³ He again found wide variation between boards in both rates of admission and bed days. The overwhelming factor explaining this variation, especially in bed days, was bed availability. Need, as measured by the Health and Equity Score used at that time, was not an explanatory factor.

Pool et al also found a wide variation in rates of bed day utilisation between the regional councils used for population comparisons in their study to 2001.⁷ This variation had markedly decreased over the 15 years of the study period and was very much less than reported in the Barnett and Mansoor studies.^{11,13} It is almost certain that this is related to a reduction in number of beds in previously overbedded districts and hence the variation in bed availability—a key factor in utilisation variation in the past.

International comparisons—The most obvious explanation for the differences between the four countries/settings presented in Table 2 is the level of integration in health systems especially between primary and secondary care. The DHB system in New Zealand is probably the most integrated of any comparable country perhaps even more than Kaiser in the range of services included. The data from Kaiser Permanente, where the ALOS is similar to that of New Zealand, indicates that much better prospects for further reductions in New Zealand can be achieved by reducing admissions to hospital.

Variation between DHBs—The findings above indicate that even after standardisation for age, gender, and casemix there is still a marked variation between DHBs in discharge ratios in 2006. The highest DHBs have a 36% higher ratio than the lowest. However this variation is very much less than in the past, especially in the days of hospital and area health boards as presented above.

However other factors not included in standardization may be significant. These include deprivation, ethnicity, and rurality as possible explanations for the much higher ratios in Tairāwhiti and the West Coast DHBs. However a correlation analysis shows that there are only a small and non-significant relationships between DHB-standardised discharge ratios and mean deprivation score (0.29), % Māori (0.28), and rural status (0.32).

The 16% lower than the mean standardised discharge ratios for Capital and Coast and Mid Central DHBs suggest possible benchmarks for other DHBs to achieve in reducing their discharge rates. It would seem that further research to examine these differences—especially by DHBs with above-average ratios and struggling to keep within their population-based funding, e.g. Canterbury—would be well worth undertaking.

Will we need more or less beds in the future?—It would appear that the main target for reducing bed utilisation and bed numbers in the future is to firmly focus upon reducing hospital admissions. There is no doubt that further gains can be made in increasing the proportion of day patients and reducing ALOS. However the Kaiser data point to the prospects of lower if not very much lower rates of discharges.

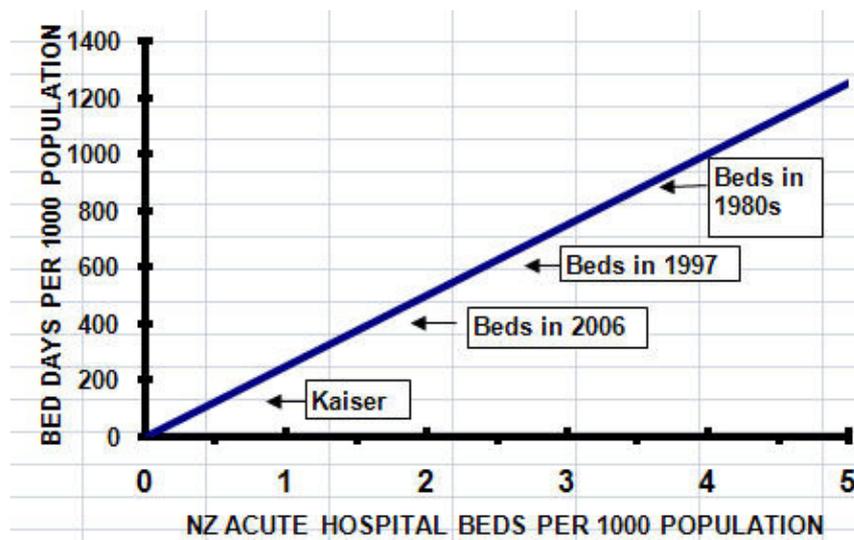
Several initiatives have been developed in recent years by IPAs/PHOs to provide alternative community services for potentially admissible patients.¹⁴ In general these have been reasonably successful although limited. However there have been few published analyses or even descriptions of these initiatives. A much more comprehensive approach is needed. For example Canterbury DHB is implementing a comprehensive acute demand programme which could have a major impact upon reducing the future need for beds, containing costs, and freeing up resources including for elective surgical services.

Other developing initiatives include PHOs targeting identified patients with chronic diseases such as cardiovascular disease and diabetes.¹⁵ A Christchurch study examining the relationship between primary and secondary in 1996/97, on patients registered with the Christchurch South Health Centre showed that patients with chronic diseases and having high use health cards (HUHCs), constituted 8.6% of the population but generated 42.4% of hospital bed days.¹⁶

Furthermore, the Christchurch study demonstrated the importance of primary care factors in the utilisation of secondary care especially acute hospitalisation in older patients and the potential for targeting patients in primary care settings to contain hospital admissions.

Given past trends in hospital utilisation and potential for further reductions, Figure 6 shows a possible future for bed availability and utilisation with fuller integration of primary and secondary care. There are questions about the organisational arrangements within DHBs to support this integration.

Figure 6 Possible future trends in bed availability and utilisation in New Zealand with full integration of primary and secondary care



A key problem is the continuing focus upon the hospital as an organisation. The downside of this is that some of those working within this organisation have a strong hospital focused culture that may be threatened by primary and community care alternatives. Despite this, the DHB system has both the potential as well as incentives to realign hospital and community cultures into a more integrated patient focused approach to care.

Competing interests: Elected member of Canterbury District Health Board.

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Frequency and effects of non-English consultations in New Zealand general practice

Andy Wearn, Felicity Goodyear-Smith, Hans Everts, Peter Huggard

Abstract

Aims To identify the frequency of non-English languages used in general practice consultations and to explore the effects on practice for general practitioners (GPs).

Methods Randomly selected Auckland GPs were telephone-interviewed using standardised questions. Interview data were entered electronically in real time and audiotaped. Data were reviewed upon collection and analysed using constant comparison thematic content analysis. Quantitative data were analysed using SPSS (v12) software.

Results Eighty GPs were interviewed. Forty-two spoke one or more languages apart from English. Thirty-one different languages were spoken, 83% of which were used in patient consultation. Most GPs (73/80) experienced language difficulties in practice. Three broad issues arose: English language proficiency *per se*, accented English, and physical problems affecting speech. Four themes reflected the influence of language difficulties on the encounter: information sharing, process effects, cultural issues, and use of interpreters.

Conclusions Non-English language consultations occur commonly within current Auckland general practice with associated issues of misunderstanding and interpretation difficulties. GPs are often called upon to use their own language skills, especially Asian and Pacific Island tongues. Non-English speaking encounters frequently require additional time. Patients with some English language proficiency may cause more anxiety than those with none. Non-professional interpreters may colour or alter patients' meaning and accurate translation is required rather than 'interpretation'.

New Zealand (NZ) has seen steady migration from different regions throughout its history, from early settlement by Māori to more recent migration from east Asia and southern Africa.

The 2006 NZ census describes a diverse cultural population with a wide range of languages being spoken in addition to English and Te Reo Māori.¹ Greater Auckland represents a third of NZ's population and reflects this diverse ethnic makeup and a wide spread of socioeconomic status. Language can present healthcare communication challenges for migrant patients and doctors.

For healthcare professionals, encounters with patients for whom English is not their primary language is increasingly common in what would be described as English-speaking countries.²⁻⁴ In addition to language issues, patients may also hold different beliefs and cultural norms that influence their health experience and management.⁵

In the United States (US), census data shows that the proportion of English spoken as a first language has fallen over the last 20 years.² In California, 20% of the population

are classed as limited English speakers.⁶ Spanish is the commonest first language in poor English speakers.

Studies have shown that poor English language ability in patients and carers has an impact on care received.^{2,4,6-16} Limited or no English language proficiency contributes to quality of management,^{7,8,12,14-16} consultation length,⁹ accuracy of information gained,^{4,6} population health outcomes,^{2,13} inequalities of access,¹⁰ and patients' understanding and self management.^{11,15}

The value of neutral, accurate, professional interpretation is understood.^{17,18} However, professional interpreters are not always readily available. Several studies have looked at availability and use of professional and non-professional interpreters.^{3,19,20} In particular, issues of cultural interpretation, accuracy, interaction dynamics, local constraints, and expectations exist for trained interpreters.^{4,6,17,18,21}

The risks of non-professional interpreters are also well described: Problems relate to 'interpretation' rather than translation, and are influenced by family, cultural, and situational dynamics.^{4,6,8} However, there are some advantages in terms of understanding the patient's context and advocacy.¹⁹ Even with interpretation, retention of information is an issue for both English and non-English speakers.^{22,23}

Jackson and Skinner report use of a portable digital recording device (PDR) allowing GPs to record summaries and key information in a consultation with non-English speakers.²⁴ The PDR was then loaned to the patient allowing them to replay and discuss issues with English speaking family or community members.

Yawman's study in the US asked 241 medical students and residents to rate their Spanish language ability and how they managed consultations with Spanish-speaking patients.²⁰ Only 5% reported proficiency in Spanish and half of those who had no or 'rudimentary' Spanish did not use an interpreter.

In addition to face-to-face language problems, Murray,²⁵ Shpilko,²⁶ and Garcia-Castillo²⁷ all point to the need for good written resources and online material. Language proficiency of health professionals is not often mentioned in the literature.

These are very real issues for contemporary medical practice that need to be addressed in terms of local need and healthcare organisation. NZ has a bicultural constitution, mandating equality of rights for Māori and non-Māori. Although there continues to be significant inequality in health experience,²⁸ there is a strong commitment to addressing issues and improving services.^{29,30} However, the increasingly multicultural nature of NZ presents additional challenges to the delivery of health care.

The aims of our study were to identify the frequency of non-English language consultations in Auckland general practice, to describe the proficiency and use of Non-English language by those GPs, and to explore the responses and attitudes of GPs towards this aspect of their practice.

Methods

This study formed part of a larger project surveying GPs on the scope and nature of their communication training requirements.³¹ As part of the parent study, data about language use in consultations, GPs' language proficiencies, and their responses to patients for whom English was not their first language were collected.

A 10% sample was selected from all GPs working in the greater Auckland area, using a computer-generated random number list from a current pre-existing database. Doctors were excluded if they were not presently practising as a GP in the Auckland area or were unable to be contacted after three attempts. The research assistant recruited participants by telephone following an initial contact by paper mail or fax. GPs were told that the interview would last approximately 20 minutes and would be conducted at a time suitable to them. They were also offered an honorarium.

Development of interview questions was informed from existing literature and from key informant interviews with stakeholders such as professional bodies, patient organisations, and educational institutions. The questions were designed for delivery by telephone interview with the interviewer following a standard set of questions plus optional prompts.

Basic demographic data were collected from each participant (gender, age, country of birth, ethnicity, educational history, and college affiliations). Interviews were conducted with real-time data entry into an electronic spreadsheet and audiotape recorded with the permission of the participant. This allowed for subsequent reconciliation and data checking. Interviews were not transcribed verbatim.

Amongst the questions asked of GPs, were: Question 7, “*Do you speak any language other than English?*” and Question 8: “*Do you ever struggle with communication due to language difficulties: If yes, how often?*”

Quantitative data were analysed using SPSS-12. Descriptive statistics were produced and comparisons made using non-parametric tests of significance. Open qualitative data were analysed by a general inductive approach. Using thematic content analysis, individual text responses were coded according to emergent themes. The data were collated to produce a series of major themes and sub-themes through ongoing discussions and re-reading of the data until consensus was reached among the researchers.

The data were independently coded by researchers as a consistency check with discrepancies resolved by adjudication. Themes were determined and combined through discussions among the researchers until consensus was reached.

Ethics approval was obtained from the University of Auckland Human Participants Ethics Committee.

Results

The languages

From an initial random sample of 178 GPs, 80 participants were recruited chronologically. Recruitment ceased once data saturation had been reached with no new themes emerging. Just over half of the GPs were female (53%) and between 40–49 years old (49%); just over half were born in NZ (58%) and gained their medical degree here (68%). The large majority (90%) were either Members or Fellows of a general practice College: New Zealand, Australian or United Kingdom (UK).

For GPs not born in NZ (43%), the majority came from the UK or Europe (19%). Ten percent were born in Indo-Asia or Asia and 6% came from Africa, including one black African. Five percent were born in the Pacific Islands and there was one Australian and one Canadian GP. Self-reported ethnicity largely related to country of birth. Four participants gave mixed NZ European/Māori as their ethnicity, one Māori and two GPs described themselves as NZ Chinese.

In response to “*Do you speak any language other than English?*”, more than half of the doctors (42/80, 53%) responded that they spoke one or more additional languages. Thirty-one different languages were mentioned (Table 1), with the majority being used often or occasionally in their patient consultations (26/31, 83%).

Table 1. Languages spoken and frequency of use for those doctors with one or more second languages (n=42)

Language spoken		Number of doctors who have used the language in consultations:		
		Often	Rarely	Never
<i>European</i>	French	–	6	8
	German	3	1	3
	Italian	–	1	2
	Spanish	–	–	2
	Norwegian	–	–	1
	Polish	–	2	–
	Russian	–	2	–
	Croatian	1	1	–
<i>Pasifika</i>	Māori	–	1	1
	Tongan	2	3	1
	Samoan	1	3	2
	Tuvalu	–	1	–
	Niuean	–	1	–
	Fijian	–	–	1
<i>Central Asia</i>	Gujarati	1	1	–
	Tamil	–	1	–
	Bengali	1	1	–
	Urdu	1	1	–
	Punjabi	1	1	–
	Hindi	2	2	1
	Farsi	–	1	–
	‘Indian dialect’	1	–	–
<i>Eastern Asia</i>	Japanese	–	–	1
	Cantonese	3	2	1
	Mandarin	2	–	–
	Taiwanese	1	–	–
	Malay	–	1	–
	Korean	1	–	–
<i>Africa</i>	Afrikaans	–	2	2
	‘African dialect’	–	–	3
Total		21	35	29

Almost all of the doctors (73/80, 91%) said that they struggled with communication due to language issues in the consultation. Most of these doctors experienced problems on a weekly basis (43%) and some dealt with language problems daily (15%). Seventeen of the doctors were seeing these issues at most, monthly; the remaining participants did not comment on frequency. Of the seven doctors who felt

they did not have a problem, five still identified that they were dealing with patients for whom English was a second language.

Qualitative analysis of the data identified three communication issues focussed around expressive or receptive language issues plus five distinct themes that related to the quality of the encounter. The three language issues were; English language proficiency *per se*, accented English and physical problems affecting speech. All quotations are from direct entered data, not verbatim transcriptions.

English language proficiency

Asian patients, whose primary language was not English, were the group that GPs were most likely to mention; Māori, Pasifika, and mainland Europeans were also identified. Problems encountered related to the pronunciation, construction of sentences, or vocabulary.

Several GPs' comments did not define the specific language group, but talked in general terms about their struggles to communicate with patients:

'No English at all, about once a month. Very poor—so hard to be understood—is about once a week' J11

'Probably more families from Central Europe or Afghanistan in our practice have a language problem' J43

'Especially with Asian groups who come in on their own and speak very little English' J47

Accented English

Some GPs also noted that their own accents and speech style or that of their patients influenced the consultation. When GPs struggled with patients' accents they were often embarrassed and found it hard to ask patients to repeat themselves.

'I have trouble at accented speech. I'm embarrassingly bad at it' J39

'Interestingly the only time I have problems are with slightly hard of hearing older people who have trouble with my accent' J20

Physical problems affecting speech

GPs had difficulty communicating with patients who had hearing difficulty, learning difficulties, and neurological or mental health conditions that affected the patient's speech.

'A couple of deaf patients, and one of them is intellectually handicapped, would be useful to know some sign language' J25

'For example I have a deaf patient and she lip-reads me, but often have to write down what I want to tell her so that I'm sure she has got all the information and I'm not always sure that I get all that she wants to tell me' J42

'Sometimes the deaf patients will organise an interpreter to come with them if they want to get a better understanding of the problem' J57

Effects on the quality of consultation coded into four themes

Information sharing—GPs identified information sharing as a key element of the doctor-patient interaction and saw that this was impeded by language problems in a number of ways. Explaining complex concepts or management options becomes difficult when vocabulary is limited. Doctors found it hard to be sure that they both understood the patient's needs and were able to convey their knowledge and a shared

plan of action. They felt that discussion defaulted to a bare minimum simplistic approach and the dynamic was very doctor-centred. The possibility of misunderstandings was a common concern along with fear that misunderstandings might go unnoticed. This gave rise to worries about safety, compliance, and reliability of the diagnosis, including concerns that patients did not comprehend important advice.

‘When young children—3 or 4— are being used as interpreters e.g. menstruation. Can use simple terms that you know they understand e.g. piss. Miming things if they don't understand. When describing bowel motion draw a picture. May know what a runny tummy is but not diarrhoea. Terms such as 'white period' for discharge. Get to know what they mean, e.g. “no baby” for contraception. Complicated concepts difficult to discuss’ J2

‘Not getting right diagnosis because haven't got right history’ J10

‘Describing something that may have side effects, hard to convey that advantages outweigh the disadvantages’ J21

‘If straightforward thing then is OK, but difficult where treatment options or screening etc’ J46

‘He was talking about his usual medications and mentioned something, I picked up on that and asked what he meant, and he said “this pain”— had the most terrible shingles rash and it was just dumb luck that I examined him’ J71

Process effects—Migrants often had a variant of English that was simplistic and led to confusion, for example using local idioms out of context or terms inappropriately. GPs sometimes resorted to drawing pictures or used dictionaries and word lists which slowed down the consultation process. The issue of time came up often in responses, noting that non-English consultations often lasted longer and frequently required repeat visits.

There was a strong feeling that patients received a poorer service when language was a barrier to communication. Non-verbal cues were missed because attention was focussed on the act of communication, the interpreter rather than the patient or were inappropriately interpreted. Quality of the consultation was a particular issue when assessing mental health problems.

‘Have to be very careful when there's language difficulties and consultation takes much longer’ J6

‘Another example is that I have a Thai family who have little English, although its getting better, but I'm sure I miss nuances of communication—they don't get as good a service, they get more veterinarian medicine, although I try hard and do my best; I try very hard actually’ J42

‘You find yourself shouting and your communication skills go really out of the window then’ J44

‘Takes twice as long with these patients’ J56

‘I use a handbook with Chinese-English medical terms in it and that is quite helpful’ J67

‘For some of them their English isn't very good and it can be a struggle—thumbing through a dictionary’ J35

‘Most people have enough English to get by if you're patient and quiet and gentle, just takes a bit of energy’ J67

Cultural issues—The effect of different cultural norms were seen as additional to issues produced by language alone: dress, customs, religious and cultural beliefs, interpretation of non-verbal communication, power, and touch were all mentioned.

In general, GPs felt well resourced with regards to Māori custom and beliefs, but felt at a loss with many of the migrant cultures.

For many of the GPs, humour, interpretation of mood, and the subtleties of thought and emotion were seen as hostages to a poor understanding of non-mainstream cultural norms as well as language problems.

‘Need to be aware of things culture based, e.g. body language, being careful about touching heads— cultural sensitivity; new things to learn with new cultures e.g. Somalis. I deal with not knowing by asking patients to tell me if I’m doing things that aren’t OK’ J3

‘Some cultures don’t want to know about side effects and want to be told what to do. Differences in role of GP with regard to decision-making. Three years ago, gave a lady options on an induction, and used interpreter, and eventually patient said tell me what to do’ J6

‘Mostly speak good English, usually cultural or attitude issue’ J24

‘Yes, I think that people who speak a different language and come from another country are greatly disadvantaged— try as hard as I might I find it very hard to get inside people’s heads’ J41

‘To be honest, it is more the cultural idea than the language. To be completely frank, if they were French and didn’t speak English, I’d probably have a better rapport with them, than if they were Chinese, just because they have such a different idea of what you should be doing. It’s their personal health beliefs rather than the actual language’ J48

‘It’s the cultural issues I know nothing about. I’ve done a Treaty of Waitangi day for health professionals, so don’t think I make any major slip-ups with Māori, but I may well be doing and I don’t know about it. They look happy so I carry on’ J56

‘People with emotional problems are particularly difficult to communicate across a language barrier. Some cultures tend to present their symptoms in more obvious ways than others’ J69

‘It’s also not so much words or meanings as such but some concepts carry a different weight in different cultures, so in some cultures there isn’t actually an equivalent’ J70

Use of interpreters—Several of the GPs were aware that they had become known as proficient in a non-English language and therefore attracted patients who spoke that language. These were not necessarily patients of the same cultural group, so misunderstandings still arose. Other GPs found that their ethnicity led patients to make assumptions about their non-English language proficiency.

More commonly, GPs talked about third-person interpreters, who could include nursing and reception practice staff. Many GPs were aware of how to access professional interpreters and did make use of them. The benefits of any form of interpretation were acknowledged, but pitfalls and problems were frequently cited.

Specific issues raised were about who interprets (including relationship to patient, gender, and age), the quality of translation, confidentiality, the influence of the subject matter and the amount of time needed (setting it up and conducting the consultation). This was most often raised in relation to males, often young males, interpreting for female relatives with gynaecological problems.

GPs had also noted the changes that occurred as migrants became integrated and learnt English. Initially they would see patients with an interpreter, but gradually they would build their own English proficiency and consult on their own.

‘Struggle both in Mandarin and Cantonese because I grew up in the language but do not know the medical terms in these languages’ J13

‘People will ask if [I] speak Chinese because I look Chinese but don’t speak any’ J18

‘Usually someone in family that can speak reasonable English, person may not be very appropriate, e.g. 30-year-old man interpreting for his mother when she needs a smear done...but can be difficult asking quite personal questions through an interpreter’ J9

'Yes, have to use child or other family member for Pacific patients, translation issues, can never be 100% sure that information gets through.' J19

'We have quite a lot of Korean patients, also a Russian woman, also an Iranian women—her 18 year old son brings her in—she asks [a] question, I give a three-sentence explanation and he tells her three words, that is a slight exaggeration, but he's not telling her anything, not half of what I want him to tell her but there's no-one else to translate' J25

'Mostly people bring in their own family to translate which is not always ideal' J28

'Not really, have some Chinese patients, and luckily my receptionist is Chinese so call her if there is a difficulty' J30

'I have Mandarin-speaking ones...Often daughters come in and it makes it all a bit awkward, depends on what is discussed...You don't get above a certain level of discussion with daughters interpreting' J38

'Have access to professional interpreters, don't use very often but very helpful with one particular patient' J52

'Yes, do struggle—quite often because lots of Tongan patients— will generally come with someone who can translate. Certain amount of confidentiality is lost with translator' J55

'Quite a lot of Korean patients and they bring their children. The problem is when there is a gynae[cological] problem and they bring in a son. We have an Asian pharmacist next door, so can interpret for us if we need it' J68

'Privacy and don't quite know what is being relayed to you and you don't know if stuff if not being said because they don't want that person to know about it' J72

'But the women learn English eventually and gradually start coming in by themselves' J39

Discussion

Our study indicates that non-English language consultations are a common experience within current Auckland general practice. Many of the issues are similar to those raised in other settings: misunderstandings, quality, and use of interpretation.^{2,4,6-16} However, NZ GPs are also called upon to use their own language skills and this probably reflects the make-up of the doctor population, around 40% being overseas trained.³²

A strength of our study is the number and the nature of our GP sample, which is closely representative of NZ GPs as a whole, reflecting patterns seen in the most recent demographic details of members of the RNZCGP.³² Compared with NZ census data, a higher proportion of the GPs were born overseas than is typical of the population as a whole (43% of the sample versus 27% of the total NZ population).¹

A further strength is the rich dataset provided from the interviews. A limitation is that the data were entered directly by the interviewer into an electronic spreadsheet rather than transcribed verbatim. However audio-taping did allow for reconciliation and data checking.

Looking at the language proficiencies of the GPs, there is a clear division in terms of practical application. Asian and Pacific Island languages were spoken most frequently. European languages were a common second language proficiency for doctors but they were rarely used in consultation.

The non-English languages used were probably those learnt as part of an individual's cultural upbringing rather than academic study and have a reasonable match with the cultural milieu of NZ, in contrast to the situation quoted by Chen⁶ (where she spoke several languages, but not the one spoken by the patient). However there were some

examples of such a mismatch in our data. So, service needs to follow, or anticipate, patterns in the population served.

In the UK, recent trends in immigration from eastern Europe (e.g. Polish) has led to a demand for interpreters that are not within the current repertoire.³

Patients who have some English language proficiency may cause more anxiety than those with none at all. The need for good interpretation is obvious and necessary in the second case, but may be overlooked in the first. Our GPs noted frequent misunderstandings and a concern about simplistic or 'veterinary' medical practice model where a patient's vocabulary is limited. These resonate with the tortuous examples quoted by Roberts et al in their study of 232 videotaped consultations in UK general practice.⁴

It was interesting to find GPs talking about the influence of physical aspects on language and communication. Consulting with patients who had a hearing disability was a commonly offered problem. In considering language problems in the consultation it is easy to overlook expressive and receptive issues. For hearing problems, the proper use of a hearing aid and signing interpreters provide some solutions, but for patients who have a neurological cause for their expressive difficulty, the solution is less apparent.

The additional time required for non-English speaking encounters arose frequently in the comments. Lengthy appointments impacted on the GP's levels of stress and on waiting times for other patients. Patients often need several visits to sort a problem that might have been dealt with quicker in an English speaking patient. This concurs with Neal's findings in UK general practice, where non-English speaking Asian patients had longer consultation times than white or Asian patients proficient in English.⁹

One of the fundamental problems with interpreters is conveyed in the term itself: What we need from patients is accurate translation of personal information, not interpretation. Our GPs were well aware of the way that patient's meaning might be altered and coloured by interpreters. Good interpreter training and ready availability of professional interpreters is highly desirable for non-English speaking, or poor proficiency, patients.^{17,18}

Some of the concerns raised by the GPs around cultural competence and safety should be addressed over time by teaching and learning initiatives at undergraduate and a postgraduate level.

The Royal New Zealand College of General Practitioners has recently released a paper on cultural competence for GPs.³³ This document offers a number of sensible recommendations on how GPs can create and maintain a culturally competent general practice, with which we concur. However it does not address the issue of language difficulties nor use of interpreters.

Definitive solutions to the problems encountered in non-English consultations are hard to address. As a way forward, we offer the following recommendations which could be explored within the *Primary Health Care Strategy*:

- Development of training around non-English language consultations, to include cultural competence and awareness of local resources.
- Consideration to be given regarding availability, cost and scope of professional interpretation.
- Consideration of the cost implications of non-English language consultations (at present the extra cost lies with the patient or the GP).
- The needs of non-English speaking patients must include those with physical disability (e.g. hearing impairment and neurological disease).
- Coordination of initiatives, to include identification of best practice and evaluation.

Conclusion

Communication between doctor and patient is very important in the general practice setting. The situation where either the patient or the GP is an immigrant whose mother tongue is not English brings additional challenges to the consultation with respect to the conveying of information and establishing meaningful interaction.

Coordinated local and national activity is needed to ensure that GPs are supported in their non-English consultations through training, ready availability of resources, and sharing of good practice initiatives.

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The accuracy of ethnicity data in primary care

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Abstract

Aim To investigate the accuracy of ethnicity data held in Primary Health Organisation (PHO) registers within the Waitemata district of Auckland, New Zealand.

Method Ethnicity data of school-aged children on the National Immunisation Register (NIR) were compared to ethnicity data for those children on the PHO register. NIR data were collected from parents via a protocol-based informed consent process in the Meningococcal B Immunisation Campaign.

Results For children classified as Maori on the NIR, 62.9% were recorded as Maori on the PHO register, 23.3% were misclassified as European, and a further 9.6% were misclassified as Unknown. For children classified as Pacific on the NIR, 77.2% were recorded as Pacific on the PHO register, 9.4% were misclassified as European, and 6.2% were misclassified as Unknown. For children classified as Asian on the NIR, 81.4% were recorded as Asian on the PHO register, 9.9% were misclassified as Unknown, and 6.0% misclassified as European. For children classified as European on the NIR, 83.2% were recorded as European on the PHO register and 14.4% were misclassified as Unknown.

Conclusions This study reveals that ongoing efforts to improve the accuracy of ethnicity data held in PHO registers within the Waitemata district are required. The study reinforces the need for a standardised, systematic and appropriate sector-wide approach to ethnicity data collection.

Major health inequalities exist in New Zealand as reported by ethnic group, with accumulating evidence of a differential association between ethnicity and health care access and health outcomes. Māori and Pacific peoples in particular tend to have the poorest health status,^{1,2} despite the fact that reducing health inequalities has been a national health priority for some time.^{3,4}

Implementation of the national Primary Health Care Strategy has been central to government aims of improving population health and reducing health inequalities.⁵ In order to be able to measure inequalities in primary care, monitor trends over time, and review the impacts of health policy on reducing inequalities, it is critical that high quality primary care ethnicity data exist. Accordingly the collection and accuracy of ethnicity data held in primary care is of increasing importance.

This study aims to investigate the accuracy of PHO register ethnicity data held within the Waitemata district. Waitemata District Health Board (DHB) has the highest resident population of any DHB in the country; it provides health services to over 492,000 people.

This study has been enabled by the National Meningococcal B Vaccination Campaign which, as part of its enrolment requirements included an informed consent form that contained a self-identified standardised ethnicity question (as per census ethnicity

question), thus enabling a dataset to be collected within the national immunisation register (NIR) that could then be compared to primary health organisation (PHO) register ethnicity data.

Methods

Each PHO in New Zealand is required to submit its patient register to HealthPAC on a quarterly basis as part of the national PHO payment system. PHO registers include ethnicity data for each member taken from general practice patient management (PMS) systems. Ethnicity information in PMS systems may have been retrieved from the National Health Index (NHI), or may have been self-identified or obtained through some other process. Ethnicity information obtained directly from the patient may or may not have been acquired via the use of the census ethnicity question which is the protocol for collecting ethnicity data in the New Zealand Health Sector.⁶

The tool used to extract demographic information from PMS systems to compile the PHO register is dependant on the brand of PMS system. There were 6 PHOs in the Waitemata district at the end of the Meningococcal B Campaign and around 100 primary care practices. HealthPAC provides the NIR with a copy of the PHO register each quarter.

During the National Meningococcal B Vaccination Campaign, children in compulsory education were vaccinated through a school-based programme. Entry to the programme was via a consent form completed by the parent or guardian. This consent form included the census ethnicity question. In the Waitemata district, the school-based campaign ran from March 2005 to September 2005 and approximately 67,000 children received at least one dose of the vaccine in this campaign

The return rates for the consent form were: overall 92%, Māori 95%, Pacific 93%, Asian 93%, and European 91%. Information from all returned consent forms, including for those who declined, were entered into the School-Based Vaccination System and uploaded to the NIR.

Children under 5 years were vaccinated in primary care, and the consent form process was not required or used for these children. For children under 5 years, vaccination data were sent directly to the NIR from the practice PMS system including the child's ethnicity data as recorded on the practice PMS.

Ethnicity data in both the NIR and PMS collections are recorded at Level 2 of the Statistics New Zealand Ethnicity Classification, which is the standard for health sector data collections.

Although the NIR and the PHO register can hold up to three ethnicity responses, for reporting purposes if more than one response is given, a prioritised ethnicity is used, whereby each case is allocated to a single ethnicity. The order of prioritisation is Māori, Pacific, Asian, other groups, and then New Zealand European. For example, a record with two ethnicities recorded, Māori and Tongan, would have a prioritised ethnicity of Māori, and a record with Chinese and New Zealand European ethnicities would have a prioritised ethnicity of Chinese.

Data held in NIR for children living in the Waitemata district aged 0–15 years at the time they had their first dose of Meningococcal B vaccine were matched by NHI with that child's entry in the PHO register during the same quarter, and prioritised ethnicity in these two datasets were compared. This work was performed by New Zealand Health Information Service. Only the resulting aggregate statistics were supplied to the DHB. The extract was run on 15 September 2006.

For the purposes of this study, data analysis was restricted to children who appeared on both the NIR and the PHO register. In addition, because only children in compulsory education were enrolled in the meningococcal B programme via a consent form with the census ethnicity question, the study was restricted to data for children aged 5–15 years at the time of their first dose. A small number of school children were vaccinated in primary care; and they have also been included in this study.

The Level 2 ethnicity codes were aggregated for analysis into ethnic groups as described in Table 1.

Table 1. Composition of ethnic groups

Ethnic Group	Statistics New Zealand Level 2 Codes
European	European NFD* (10), New Zealand European (11), Other European (12)
Māori	Māori (21)
Pacific	Pacific Island NFD (30), Samoan (31), Cook Island Māori (32), Tongan (33), Niuean (34), Tokelaun (35), Fijian (36), Other Pacific Island (37)
Asian	Asian NFD (30), South East Asian (41), Chinese (42), Indian (43), Other Asian (44)
MELAA**	Middle Eastern (51), Latin American/Hispanic (52), African (53)
Unknown	Other (54), Response outside scope (98), Not stated (99)

*NFD: Not Further Defined; ** MELAA: Middle Eastern/Latin American/African.

The code 'Other (54)' of the ethnicity classification system includes Central American Indian, Inuit/Eskimo, Mauritian, North American Indian, Seychelles Islander, South American Indian or a response not elsewhere classified. These ethnicities occur very rarely in the Waitemata DHB population.

Other (54) is often misused as a miscellaneous category when an individual's ethnicity is not known or the correct classification is not clear to the person inputting the data. For this reason, Other (54) has been included in Unknown in this analysis.

The percentage of Other (54) and Not Stated (99) ethnicities in a data collection is an indicator of the quality of the ethnicity data. For example, the Ministry of Health has set a target of 1% non-specific ethnicity records in the national minimum dataset.

When comparing ethnicity between the two sources, the prioritised ethnic group from the NIR was assumed to be correct because for children it was collected through a self-identified standardised ethnicity question similar to the census. The prioritised ethnic group in the PHO register was considered 'misclassified' when it differed from that of the NIR.

Table 2 summarises the collection process used to create the two datasets used in the study.

Table 2. Collection processes for NIR and PHO register datasets

Variables	Meningococcal B School Campaign	PHO Registers
Ethnicity question	Census question (standardised)	NHI/Other/Ask patient/Staff-assigned (non-standardised)
Number of responses accepted	May tick more than one	Variable
Number of imputation fields	3	PMS dependant
Type of output	Prioritised	Prioritised

Results

There were 57,612 records that met the criteria for analysis; that is, children aged 5–15 years at the time they received their first dose of the Meningococcal B vaccine and who were registered on both the NIR and the PHO register. The ethnic group of the children as recorded in NIR can be seen in Table 3. Only 1106 children (1.9%) were not assigned to an ethnic group in NIR.

The ethnic group of the children as recorded in the PHO register can be seen in Table 3. On the PHO register 7279 children (12.6%) were of an Unknown ethnicity.

Table 3 also compares the ethnic groups of children on the NIR with those on the PHO register. For the larger ethnic groups (European, Māori, Pacific, and Asian), the

degree of ethnicity misclassification was greatest for Māori, followed by Pacific. Of the 8024 children recorded as Māori on NIR only 5050 (62.9%) were recorded as Māori on the PHO register. There were 1868 (23.3%) misclassified as European and a further 770 (9.6%) classified as Unknown.

Of the 5456 children recorded as Pacific on the NIR, 4213 (77.2%) were recorded as Pacific on the PHO register, while 515 (9.4%) were recorded as European, 339 (6.2%) were Unknown and 268 (4.9%) as Māori.

Of the 6885 children recorded as Asian on the NIR, 5602 (81.4%) were recorded as Asian on the PHO register, while 679 (9.9%) were recorded as Unknown and 413 (6.0%) as European.

The large number of children in the Unknown ethnic group on the PHO register (12.6%) resulted in fewer children in all ethnic groups except MELAA in the PHO register when compared to the NIR.

Table 3. Comparison of NIR and PHO register ethnic groups

	Total on NIR		On PHO Register											
			European		Maori		Pacific		Asian		MELAA*		Unknown**	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
European	35,245	61.2%	29,327	83.2%	329	0.9%	111	0.3%	172	0.5%	221	0.6%	5,085	14.4%
Maori	8,024	13.9%	1,868	23.3%	5,050	62.9%	300	3.7%	32	0.4%	4	0.0%	770	9.6%
Pacific	5,456	9.5%	515	9.4%	268	4.9%	4,213	77.2%	115	2.1%	6	0.1%	339	6.2%
Asian	6,885	12.0%	413	6.0%	4	0.1%	102	1.5%	5,602	81.4%	85	1.2%	679	9.9%
MELAA*	896	1.6%	166	18.5%	3	0.3%	2	0.2%	33	3.7%	549	61.3%	143	16.0%
Unknown**	1,106	1.9%	464	42.0%	63	5.7%	84	7.6%	163	14.7%	69	6.2%	263	23.8%
Total	57,612	100.0%	32,753	56.9%	5,717	9.9%	4812	8.4%	6,117	10.6%	934	1.6%	7,279	12.6%

* Middle East, Latin America (Hispanic), African ** Other (54), Response outside scope (98), Not Stated (99)

Bold text highlights the number of records where ethnicities are within the same ethnic group in both datasets.

There were 13,686 children aged 5–15 years on the NIR who did not have a corresponding record in the PHO register. The ethnicity of these children are shown in Table 4.

Table 4. Children on NIR not on the PHO register

Ethnic Group	Number	%
European	4810	35.1
Māori	1730	12.7
Pacific	2163	15.8
Asian	4162	30.4
MELAA	341	2.5
Unknown	480	3.5
Total	13,686	100.0

*Middle East, Latin America (Hispanic), African; **Other (54), Response outside scope (98), Not Stated (99).

Discussion

The major finding of this study is that there is significant ethnic misclassification of children in PHO registers. The degree of misclassification bias is highest for Māori followed by Pacific children. The greatest source of misclassification in PHO registers is by either classifying Māori as either European (23.3%) or Unknown (9.6%), and classifying Pacific children as European (9.4%) or Unknown (6.2%).

The collection and classification of ethnicity data is a complex process. How the ethnicity question is asked, whether the process is verbal or written, what wording is used, and how many responses are recorded will all have an effect on the resulting ethnic group.

The ‘gold standard’ for use to assign ethnicity is the New Zealand census question. In order to ensure comparability of numerators and denominators within the health sector to this standard it is important that the way in which ethnicity data are collected, classified, and reported is the same as the census.

The number of ethnicities being collected and recorded is critical to this process. For example, if a child is recorded as European and Māori in one system and as European in another, the child’s prioritised ethnicity will be Māori in the first instance and European in the second. Work done by the Ministry of Health has shown that only 1% of records held on PHO registers had more than one ethnicity recorded. This compares to around 10% of records from the 2001 census with more than one ethnicity recorded.⁷

Given that prioritised ethnicity data can be used to calculate ethnic specific health statistics, it is important that a standardised approach occurs whereby if a patient identifies more than one ethnic field then these are all recorded and entered appropriately.

This study demonstrates that a systematic collection process which follows the New Zealand health sector protocol for ethnicity data collection can result in a high quality dataset with few people identified as having an Unknown ethnicity. High numbers of people identified as Unknown is an indicator of poor quality data. In this study, data

from the NIR revealed that only 1.9% of ethnicity records were classified as Unknown. This is a good result in the health sector, as the National Minimum Data Set and Mental Health Data Warehouse have 4% and 8% Unknown ethnicities respectively.

Implications of the study findings—This study reveals that the accuracy of ethnicity data in PHO registers in the Waitemata district is not as good as it could be. Aggregate data on the proportion of ethnic groups enrolled in PHOs are also likely to be inaccurate. For some time now Waitemata DHB had believed that enrolment in PHOs by Māori and Pacific children was substantially lower than other ethnic groups. This data reveals that Māori and Pacific enrolment is in fact higher than previously believed due to the misclassification that is occurring, though it is still likely to be lower overall than other ethnic groups.

Funding is available to PHOs for services to reduce health inequalities (Services to Improve Access funding). The amount of funding received is based on the number of people on the register who are recorded as Māori or Pacific or people who live in a high deprivation area. The ethnic misclassification bias that is occurring is likely to mean that PHOs are receiving less funding than they are entitled to and therefore the ability to provide services targeted at reducing inequalities is likely to be reduced.

Measurement of health status and health service utilisation by ethnicity is also likely to be less accurate where derived from primary care data. This includes, for example, the PHO Performance Management Programme high needs indicators and the Get Checked Aotearoa diabetes indicators.

A major positive implication of this study is that ethnicity misclassification error rates can now be calculated for those aged 5–15 years of age in the district and these rates can be used to correct ethnicity reporting findings. Similarly, coverage rates by ethnic group in the Meningococcal B Campaign for children under 5 in the Waitemata district could be more accurately estimated using the study results.

The identification of Unknown ethnicities in the PHO register as belonging to identified ethnic groups on the NIR reinforces the advice from Statistics New Zealand that Unknown ethnicities should not be included in totals used to derive rates.⁸ It is a common practice in the health sector to include Unknown ethnicities with European in a category labelled Other. This study demonstrates that people classified as Unknown will belong to a variety of ethnic groups and including them in Other is not appropriate.

Although these results are specific to Waitemata DHB and cannot be generalised to other DHBs, it is likely that other DHBs will also have significant ethnic misclassification errors in their PHO registers. The existence of these datasets enables other DHBs to undertake similar studies.

Conclusion—Poor quality ethnicity data is an ongoing issue in the New Zealand health sector. A number of studies have shown that the accuracy of ethnicity data held in secondary care is poor.^{9–13} This study is one of the first to demonstrate that the quality of ethnicity data held in primary care is also poor. However, it is important to note that a systematic approach to ethnicity data collection using health sector protocols can result in high quality data with few people being identified as Unknown.

The study further reinforces the need for a standardised, systematic and appropriate sector-wide approach to ethnicity data collection.

Competing interests: None.

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General practice rotations for post graduate year 1 and 2 house officers—how feasible?

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Abstract

Aims To study the needs and support requirements of general practitioners facilitating general practice rotations for post graduate year (PGY)1/PGY2 house officers at their surgeries.

Method This was a telephone survey of general practitioners (GPs) from different practices in Canterbury Province, New Zealand. A semi-structured interview format was used as this allowed questions and responses to be clarified and provided the opportunity for respondents to make additional comments.

Results Twenty GPs from 20 different practices were interviewed in the study. There was a 100% positive response to the concept of a house officer (HO) rotation in general practice. Perceived benefits included the opportunity for house officers to improve their understanding of primary healthcare and general practice, gain clinical skills less available in the hospital setting, as a way to promote general practice and to enhance communication at the primary—secondary interface. Fifteen (75%) thought that this rotation would be better suited to PGY2 or more experienced PGY1 graduates. Eighteen (90%) of GPs reported that costs to their practice must be covered for HO rotations. Seventeen (85%) of GPs reported that their practices did not currently have adequate consulting space to accommodate a HO.

Conclusions GPs support HO rotations in general practice with perceived benefits for both HOs and general practice. PGY2 house officers were thought more suitable for GP rotations. Potential barriers to GP rotations include possible financial costs and capacity issues at the practice.

In New Zealand, there have been relatively few opportunities for house officers (HOs) in hospitals to gain experience in general practice to date. Internationally, however, there is considerable support for post registration house officers rotating in general practice. Benefits include insight into the primary-secondary care interface and improved relationships between primary and secondary care;¹⁻⁴ assistance with career choice; and increased likelihood that post registration house officers who spend time in general practice are more likely to consider it for a career.^{1,5}

Evidence shows that junior doctors receive a different clinical experience and are exposed to a wider variety of learning situations than in hospital attachments.¹ Rural general practice provides different opportunities in ambulatory and continuity of care,⁶ and exposure to a greater variety of conditions and a different demographic of patients.^{2,7} Williams et al⁵ report greater intraprofessional understanding, wider clinical experience, and better communication skills in their findings.

In their review of 19 studies of general practice rotations for house officers in the United Kingdom, Illing et al¹ found the studies unanimous about the educational benefits of such placements.

The Medical Council of New Zealand (MCNZ) is currently considering the introduction of compulsory general practice runs for house officers as it is thought that they would benefit from this professionally at several levels.⁸

The MCNZ recently consulted widely seeking feedback on possible rotations for junior doctors in general practice, whether there would be any difficulties in implementing them, and how such difficulties could be overcome.

The Medical Education Training Unit (METU) at the Canterbury District Health Board supports this initiative, but recognises that for such a rotation to be successful, the needs and support requirements of GPs would need to be known and addressed. This study therefore investigated the implications of providing such a rotation from a GP's perspective.

This paper outlines the key themes identified from structured telephone interviews of GPs in the Christchurch region of Canterbury Province, New Zealand.

Methods

This was a telephone survey that interviewed general practitioners in the Christchurch metropolitan area. Questions were developed following a literature review of similar rotations in Australia and the United Kingdom to identify key themes and issues and following consultation with staff of the Department of General Practice, Christchurch School of Medicine and Health Sciences, University of Otago, Christchurch.

Survey questions included demographics of the practices and general practitioners, overall perceptions of general practice rotations for house officers, perceived optimal timing and length of rotation, barriers to implementing a general practice rotation, and the possible impact on general practice registrar and undergraduate placement. Questions regarding what preparation, training and support would be required for general practitioners involved in such rotations were included.

The survey used a semi-structured telephone interview, as this allowed questions and responses to be clarified and provided the opportunity for respondents to make additional comments.

Participants were purposefully selected to ensure representation of a range of different sized practices, and to include GPs that were involved with GP registrar/medical student training and those GPs who were not.

One interviewer only was used. Two telephone interviews were held. The initial contact interview explained the study and oral permission was obtained. The questionnaire was emailed or faxed to the respondents and a time for the second telephone interview arranged. The interactive format questionnaire was completed during the interview. Interviewees were invited to review a copy of the completed questionnaire to check the accuracy of the data recorded.

The qualitative data obtained was analysed to identify the key themes using inductive analysis, principles of grounded theory and the constant comparative method. Two researchers independently identified themes.

Results

Demographics—Twenty general practitioners from a variety of different practices were interviewed (10 females and 10 males). Nineteen GPs (95%) were 40 years or older. Sixteen GPs (80%) were in urban practices with 4 (20%) rural. The mean number of GPs in each practice was 3.5 (range 2–8) with a mean of 3 practice nurses per practice. Fourteen (70%) of GPs interviewed were already involved with

supervision and training of undergraduates of which two also supervised GP registrars.

Perceived benefits of a GP rotation—All GPs interviewed supported the concept of a house officer (HO) rotation in general practice. Benefits identified are listed in Table 1, with a sample of comments to illustrate these themes.

Table 1. Benefits identified

Benefits identified	Sample of comments
The opportunity for HOs to fully appreciate the role of the GP (which many felt was poorly understood by hospital staff). It was thought this would enhance primary-secondary care relationships	<p><i>Would be very valuable as would learn about GP as a specialty, which would be useful even for those who stay in hospitals. i.e. learn the different sort of medicine practiced by GPs.</i></p> <p><i>Gives good idea of how 'the other side' works, more understanding of primary- tertiary care interface, experience in working in primary care.</i></p> <p><i>All hospital doctors need/ would benefit from exposure to general practice, as it gives them a much greater appreciation of the challenges faced in primary care. This may help long-term relationships between tertiary and primary sectors</i></p>
Experience in general practice could promote general practice as a career	<p><i>May consider GP as a career possibility</i></p> <p><i>Gives experience in the positives of general practice such as long-term continuity of care.</i></p> <p><i>May consider GP as career option</i></p>
The opportunity for HOs to gain specific skills less available in a hospital setting, e.g. the continuity of care in the community, chronic disease management, dermatological conditions, minor surgery.	<p><i>In hospital medicine, don't learn some simple things, and spending time in GP will help to 'round out' skills, e.g. being able to diagnose simple dermatological problems, etc.</i></p> <p><i>Allows appreciation for the importance of continuity of care</i></p> <p><i>Clinically, general practice would offer a greater understanding of the actual frequency of conditions presenting to general practice, as hospital medicine often gives a skewed perspective of this.</i></p>
Exposure to a wider spectrum of illness seen in general practice compared with hospital-based practice.	<p><i>Greater appreciation of the spectrum of illness that GPs see. Gain experience in making some unsupervised decisions</i></p> <p><i>Opportunity to see conditions that are not seen in hospital medicine as they are already filtered by general practice.</i></p>
Develop communication skills with patient and families	<p><i>Will also gain experience in situations such as consultations for the whole family, rather than just one patient</i></p> <p><i>Will gain better communication skills, and more understanding of a holistic approach to health, not just of the person but also of the family as a whole as well</i></p>

Eighteen GPs (90%) felt that house officers should also be exposed to on-call after hours practice as it was thought that this differed from routine general practice being much more acute and that HOs would benefit from this experience.

Impact on patients—Most GPs interviewed could see both positive and negative outcomes for patients (refer Table 2) with one respondent noting that many of the potential problems for patients also occur in other situations with registrars and locums but could be managed if the rotation was well run.

Only four GPs considered that there were no positive implications for patients and five believed that there were no negative implications, three of these respondents noted that the patients had a choice and that this reduced potential negative impact.

Table 2. Impact on patients

Positive themes	Negative themes
HO may have more time to spend with the patient	Patients may prefer to see their regular GP
The advantage of a second opinion a “fresh set of eyes”	Time of consultation to increase initially due to supervision requirements
Patients enjoy helping young doctors	Potential for lack of continuity of care
Patients may be able to see an HO at shorter notice	Patients not wanting to see someone with less experience or feeling like a “guinea pig”.
Help keep the practice up to date	Patient likely to be shy, and not so forthcoming to HO
Long-term benefits to patients in all settings if the role of general practice is better understood.	

Timing and length of rotation—Fifteen (75%) of respondents thought this rotation would be better suited to PGY2 house officers or to more experienced PGY1 house officers (25%). It was felt that a more experienced house officer would benefit from a GP rotation and their supervisory requirements would be less. Furthermore having a PGY2 house officer registered for a general scope of practice would by-pass many of the issues for pre registration house officers practising in the community including prescribing and medicolegal requirements.

Thirteen (65%) of the respondents supported a 3-month and seven (35%) a 6-week placement.

Reasons supporting 3-month placements varied but generally clustered around the theme of allowing the house officer enough time to be fully involved in the practice environment:

If shorter, may not gain enough skills to be confident by the time they finish the attachment. Longer run may offer incentive for practices, as a second-year

house officer would need much less supervision by the end of the attachment and may be able to act in some capacity as a locum...

Comments supporting 6-week placements reflected concerns about the demands a rotation would put on the placement.

Will allow an adequate glimpse of general practice, without being too much of a stress on the practice

Fourteen (70%) of GPs stated that they would be able to accept a HO on placement for only part of the year (e.g. four 6-week placements or two 12-week placements) to minimise disruption to the practice or to fit around undergraduate placements.

Barriers to implementing a GP rotation—Two major factors emerged as potential barriers for general practice rotations.

Consultation space (with resources including computer access) was seen as a major limiting factor. Of the 20 practices where GPs were interviewed 17 (85%) did not have adequate consulting space for a HO although a few practices identified they may be able to rearrange part of their practices to accommodate a HO, e.g. using a treatment room.

Additional financial cost to the practice was overwhelmingly seen as a barrier to having house officer rotations. Estimates of costs for participating practices varied widely. Eighteen GPs (90 %) stated that any extra costs to the practice in terms of overheads or potential loss of revenue must be covered as a minimum requirement. Dollar values ranged up to \$500 per HO per week.

Impact on GP registrar and undergraduate placements—Fifteen (75%) respondents thought that there were a finite number of educational placements available in each practice. Most felt GP registrar training would not be affected, but 18 (90%) thought availability (or timing) of undergraduate placements may suffer.

Preparation/training/support required for HO and GP—With regard to support for HOs, six (30%) respondents thought that many of the skills HOs would need in general practice were best learnt “on the job”. Some areas mentioned in which prior exposure may be helpful included paediatrics, administration, communication, and computer literacy skills.

The support requirements for GPs involved knowledge of the expectations, roles, and responsibilities of all parties, as well as clear learning outcomes, assessment protocol, and medicolegal/registration issues.

All GPs stated they would be comfortable providing clinical assessment for HOs provided clear guidelines where provided.

Discussion

In this study, all general practitioners interviewed supported the concept of general practice rotations for house officers. GP rotations were seen as a positive learning experience for HOs providing an opportunity to gain clinical skills less available in the hospital setting and to gain experience in after hours primary care. GP rotations were also thought beneficial as a way to promote general practice and to enhance communication at the primary-secondary interface. These findings are consistent with

other studies reviewing general practice rotations.¹⁻¹² The impact on patients however is less clear. It was noted that patients have choice as to whether to see the HO.

Timing of GP rotations is important with the results of this study favouring rotations for the more experienced PGY2 house officers who were thought more suitable due to less supervision being required and fewer problems with respect to prescribing and medico-legal requirements.

Prescribing restrictions and the inability of HOs to sign prescriptions and order tests in a general practice environment were found to cause significant disruption in several studies.^{1,2,6} Illing et al¹ found that offering GP rotations to more senior house officers who were able to prescribe and required less supervision would be beneficial. Less supervision for more senior HOs was also seen as beneficial in a further UK study.³

Williams et al¹² looked specifically at the timing of the GP placement and recommended that GP rotations should not be first as pre registration house officers reported feeling unready to assess patients alone and anxiety about assessing the health of patients on the telephone. They believed that the undergraduate training hadn't prepared them for work in general practice, and that trainees preferred that the GP rotation was not their last rotation as they were then worried about starting as a senior house officer after 4 months out of hospital.¹²

From a District Health Board perspective, balancing the timing of rotations to accommodate the more senior house officers could be difficult given hospital service commitments, release time and the supervision needs of these doctors.

Financial cost to the practice was overwhelmingly seen as a barrier to having house officer rotations. Financial issues that arise from supervision, reduced patient load, and lack of clarity around funding arrangements emerge as a significant barrier in several studies.^{2,5,6,10} Illing et al¹ report a 10% increase in the GP working week to supervise HOs in the UK and cites difficulties that have arisen expanding projects due to problems with the financial support not reflecting the degree of supervision required. The supervision time funding issue appears to also occur in Australia.^{6,11}

These funding issues would clearly need to be addressed at a national level through the clinical training agency of the Ministry of Health which currently funds PGY1/2 training and rural general practice placements before GP rotations could be introduced across the country.

Consultation space (with resources including computer access) was also seen as a major limiting factor although several thought they may be able to rearrange part of their practices to accommodate a HO, e.g. using a treatment room. Capacity needs to be further investigated, as it is likely this may be the factor that limits implementation of such rotations. In this study, only 15% of practices currently had sufficient space. Careful consultation must therefore be undertaken to ensure that the capacity of general practice is equal to the task.

While having shorter (6-week) rotations may mean practices are willing to host more placements, some GPs voiced concerns that this would not give HOs sufficient experience in areas such as chronic disease management, which are a major part of the learning objectives. Additionally, it may be difficult to fit a 6-week rotation into the hospital timetable of 3-month rotations. Internationally, 4 to 6 month rotations appear to be the norm, with 4 months favoured.^{1,3,4,9} A community teaching placement

with one session/week over 4–6 months is an option described by Smith⁴ and split week in GP and hospital rotations is described by Illing.¹

Taylor and van Zwanenberg T⁵ found that although split week rotations did not seem to cause problems for patients it was sometimes difficult for house officers, as they missed out on some aspects of the practice, e.g. diabetes, asthma clinics.

Although this study is limited by the small geographic area covered, the results and themes identified appeared consistent across the study, and are consistent with the international literature. The results may not necessarily reflect the opinions of GPs in other areas in New Zealand or the availability of placements. The sample size is small (20), however this is thought to be less of a concern as sampling and interviewing was continued until a clear and consistent pattern of responses emerged.

In summary, this study has identified clear support from general practitioners for HO rotations in general practice. Perceived benefits include providing an opportunity for HOs to gain clinical skills less available in the hospital setting, as a way to promote general practice and to enhance communication at the primary-secondary interface.

PGY2 HOs were thought more suitable due to less supervision being required and fewer problems with respect to prescribing and medicolegal requirements in the community.

Potential barriers to GP rotations include possible financial costs and capacity issues at the practice. These barriers should be considered carefully before the MCNZ or the proposed Medical Training Board makes a decision as to whether general practice rotations should be compulsory for all HOs.

Competing interests: None.

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Passing the buck: clinical handovers at a New Zealand tertiary hospital

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Abstract

Aims To survey house officers and nurses regarding timing, structure and content of clinical handover and compare these results. Secondary aims included the development of an 'on-call' sheet and the development of guidelines for handovers from the results collated.

Methods 60 house officers (post graduate years 1–3) and 60 nurses working at Auckland City Hospital were asked to complete a survey covering various aspects of clinical handover in their current department.

Results This study showed that nurses have more handovers than house officers in a 24-hour period. Nurses had an average of 3.2 handovers compared with the 1.2 handovers reported by house officers. Nurses rated their handovers as 'good', with a mean score of 7.8 / 10, while house officers rated the standard of their handovers as only 'average', with a mean score of 5.1 / 10. This was noted to be a statistically significant difference with a p-value of 0.01. Our study found that 60.9% of house officers reported that they had encountered a problem at least seven times in their most recent clinical rotation that they could directly attribute to a poor handover. However, nurses reported a much lower incidence of problems relating to poor handover standards, with 37.5% of this group indicating that they had experienced a clinical problem with a patient related to a nursing handover.

Conclusions In this study, we identified that health professionals perceive that clinical problems can be attributed to poor clinical handover. The majority of respondents in the study felt that an effective handover system should include a set location for handover, a standardised 'on-call' sheet and training related to handovers.

Clinical handover can be defined as the transfer of responsibility for care of patients between health care professionals.^{1–3} With the ever-changing face of working hours for doctors, the domain of handovers has come under scrutiny in recent years.

Within the New Zealand setting, little research has been conducted in this area and worldwide there is sparse literature about junior doctor handovers. An investigation of handover practice in New Zealand and a desire to improve this area will benefit both patients and junior doctors.

As junior doctor work hours decrease, the number of handovers conducted should logically increase.¹ In addition, the benefit of the patient being treated by a less fatigued doctor may be offset by the risk of information breakdown due to poor handover practices and systems.⁴

A recent study at Auckland City Hospital (ACH) showed that medical patients would see on average 1.3 new doctors in a day and surgical patients would see 1.5 new

doctors in a day.⁵ In an entire hospital admission, medical patients would see an average of 6 doctors and surgical patients would see an average of 10 doctors.⁵

Safe Handover: Safe Patients' Guides were released in August 2004 in the UK and January 2007 in Australia.^{2,3} These guides highlight best practice for clinical handovers and also highlight common mistakes and pitfalls in clinical handover.^{2,3}

This study looked at the views of house officers and nurses on the standards of their clinical handovers. Nurses currently do conduct formal handovers at their shift change and the perception prior to the study was that these handovers were effective.

Methods

Auckland City Hospital has 780 bed-spaces and serves a patient population of approximately 420,000.⁶ There are 122 house officer positions at ACH.^{7,8} On average across all specialties, an on-call (out of hours) house officer will be responsible for approximately 50 patients^{6,7}.

Most of the adult specialties have house officers working Monday to Friday, between 0730–1600 for surgical specialties and 0800–1600 for medical specialties. Many of the on-call rosters are combined such that one house officer covers between one to six specialties from 1600–2200 and from 2200–0800⁷. A long day is classified as working from 0730 or 0800 to 2200.

At 1600 therefore, one house officer becomes responsible for duties of multiple house officers, so there is potential for a large transfer of information at this point. Night duties are classified as the shift from 2200 until 0730 or 0800.

Ideally there is potential for at least three handovers to occur for every service in a 24-hour day. At the time of this study there were no formal guidelines or protocols in place for clinical handover at ACH, although the General Medicine Department did conduct a consultant-led handover each morning at 0800 and a registrar-led handover at 2200 daily.

A survey of 60 house officers and 60 nurses was conducted in mid-March 2006.

Surveys were distributed to all adult medical and surgical specialties at ACH. This equated to eight on-call rosters being investigated: General Medicine, Psychiatry, OPH, General and Vascular Surgery, Orthopaedics and Urology, ENT and Neurosurgery, Cardiology/CTSU, and Medical Subspecialties. (See the survey questions in Appendix 1.)

Using the on-call rosters at ACH, the authors calculated the average number of times a house officer would be on-call for each roster as well as the overall average across all services in a 3-month rotation. On-call periods were defined as long days (i.e. 1600–2200 shifts), nights (2200–0800) and weekend call days as well. We calculated that in a 3-month rotation house officers would be 'on-call' an average of 22.6 times.

The survey used numeric scales (range 0–10) with a word description related to a range of scores.

Data was collected and entered into a Microsoft Excel spreadsheet. For each survey question, the results were entered into an Excel table and bar and pie graphs were used to illustrate the results. A mean score was calculated using Microsoft Excel for the 'standard of clinical handover' question to assess the significance of the difference between the sample populations.

Simple comparison tables and graphs were used for the remainder of the survey questions to ascertain any differences between the sample populations.

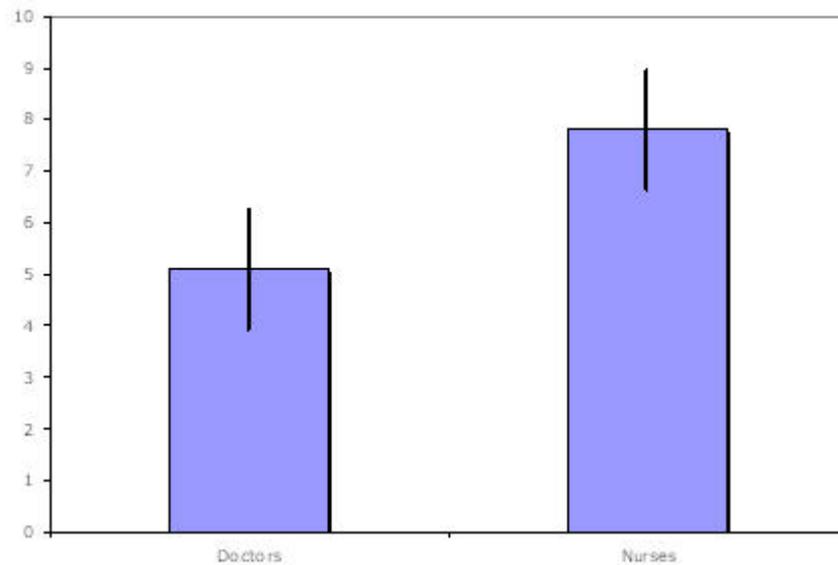
Results

We received 41 house officer (56.2%) survey responses, and 32 (43.8%) responses from the nurses.

The average number of handovers attended in a 24-hour period for house officers was 1.2 (range 0–3) compared to 3.2 (range 1–4) in the nurses study population.

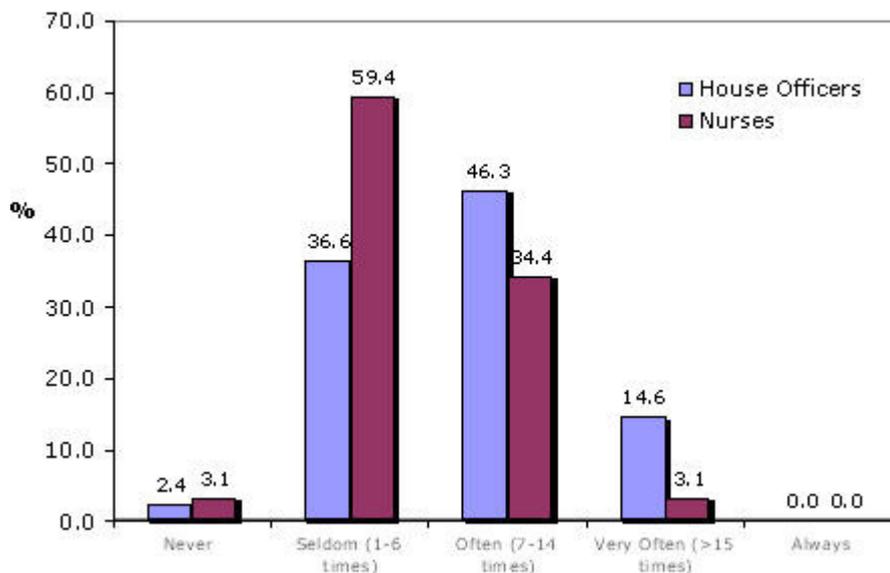
The mean score for 'standard of handover' in the house officer population was 5.1 (a rating of 'average' on our scale) with the mean score in the nursing population being 7.8 (a rating of 'good' on our scale) ($p=0.01$). See Figure 1.

Figure 1. Mean score comparison for standard of handover



A significant number of house officers (46.3% = 19 respondents) felt that they had experienced a clinical problem at a frequency of 7–14 times in the previous 3-month rotation. All but one of the respondents in both populations indicated that they had experienced a clinical problem directly related to a poor handover at least once in 3-month rotation. (See Figure 2.)

Figure 2. Frequency of clinical problems encountered related to a poor handover in a 3-month rotation period



56.1% of house officers indicated that they felt an effective handover could be conducted in 10 minutes compared to the nursing population where 50% felt that more than 20 minutes is required.

A majority of house officers (54%) indicated that they were seldom paged during a clinical handover.

43% of house officers felt that the introduction of a set location for handovers would be the most effective intervention to improve handovers and 31% felt that the introduction of an 'on-call'/handover sheet would be the most effective. All house officer respondents indicated that these two interventions would improve handovers however. (See Table 1.)

Table 1. Frequency and ranking of interventions for improving handover by house officers

Intervention	Total number of times 'ticked'*	Ranked 1*	Ranked 2*	Ranked 3*	Ranked 4*	Ranked 5*
Set location	100%	43%	21%	5%	9.5%	0%
RMO Sheet / On-call Sheet	100%	31%	13	14%	5%	0%
Q card / Guidelines	48%	7%	2%	17%	5%	14%
Electronic handover	45%	2%	7%	9.5%	9.5%	12%
Training seminar	69%	14%	26%	12%	5%	5%

*In some instances respondents neither ranked nor ticked interventions.

Discussion

In this study we analysed the opinions of house officers and nurses about current clinical handovers. In a large study conducted in The Netherlands, it was shown that faults from medical handover affect 6.1% of patients admitted to various teaching hospitals.⁹

This study confirmed that clinical error in patient care can be partially attributed to poor clinical handover and as such, that clinical handover is an area with potential for quality improvement.

Our study approached the area of clinical handover from a slightly different perspective, asking what junior doctors and nurses felt about their handovers. This approach was taken to ascertain the views of junior doctors and nurses and also to gain a perspective into the areas they felt needed improvement. Ultimately it would also serve as a method of gaining 'buy-in' from some of the stakeholders should changes need to be made to clinical handover practices.

Our results indicated that the majority of house officers felt that clinical handover did not occur often enough and that the standard at which it did occur was 'average', with the mean score being 5.1/10. In our opinion, this can be attributed to a number of factors that include poor or little training with regard to conducting clinical handover,

inadequate systems/guidelines, poor leadership in regard to clinical handover, and the lack of a set location and time for handovers to occur between junior doctors.

The authors acknowledge that there was a relatively low response rate from both the house officer and nursing groups in this study (68.3% and 53.3% respectively). However, in these study populations, this is a common occurrence and we additionally feel that the results and conclusions drawn are still relevant in the New Zealand health setting.

Furthermore, the authors also recognise that the scale used to measure the standard of clinical handover in this study was arbitrary and lacked definition in regard to the categories used. The results do, however, indicate that the handovers between house officers are perceived to be at a lower level than that of nurses (house officers' mean score 5.1 and nursing mean score 7.8, $p=0.01$).

The results also support the hypothesis that clinical problems arise due to this 'average' standard of clinical handover—with our study showing that the majority of house officers encountered a clinical problem due to poor handover at a frequency of 7–14 times in their previous 3-month rotation.

Our study results should be viewed within a worldwide context where there is a trend towards a reduction in junior doctors' working hours and a subsequent increase in the number of shifts and therefore the number of handovers conducted.^{1,4} Lack of information when a patient requires urgent care is clearly a clinical risk. Various studies have shown that medical error is also more likely to occur immediately after a shift change.⁴

During 2005, a survey across 17 hospitals in Wales produced similar results to those of our study: There it was found that there was no allocated place for handover and none of the hospitals had a pager-free handover period.⁴ Personal lists were used in most hospitals to record outstanding jobs etc and handover proformas were only developed by two hospitals⁴. Indeed, many recent studies have shown that the benefit of being treated by less tired doctors who work less hours in shifts can be offset by information breakdown due to poor handover practice.^{1,4,10}

Our study demonstrated that the perception of nursing handover is considered to be at a higher level than that of house officers. Nursing handovers at Auckland City Hospital follow a similar model to those used internationally. Handovers occur at a specific time and location and these times are protected—i.e. they are included in the roster and there is an overlap between incoming and outgoing shifts for the nurses.¹¹

These practices are well established and known to all nurses. During undergraduate training, nursing students are also often expected to attend and take part in these handovers.¹¹

With the current trend to reduce junior doctor working hours and the move to more frequent handovers, the *Safe Handover: Safe Patients* guidelines were introduced to outline best practice for medical clinical handover. These were developed by the BMA initially in the UK and later by the AMA (Australia).

The guidelines state that as a minimum an effective handover should include the following:^{2,3}

- A set location and set time.
- Be designated pager-free except for emergencies.
- Have access to IT systems to access patient information.
- Have clear leadership and supervision.

Based on our study results, it would appear that the house officers and nurses surveyed agree with these basic principles to improve handover. All house officers surveyed felt that a set location and a standardised 'on-call/handover' sheet (proforma) would improve clinical handover.

In relation to 'what' should be handed over, the authors developed the 'JUMP' mnemonic based on the literature and discussion with both junior and senior doctors.

The JUMP mnemonic is broken down as follows:

- J** Jobs outstanding
- U** 'Unseen' patients (i.e. patients waiting to be seen in ED)
- M** Medical contacts (i.e. the pager/mobile phone numbers of registrars/consultants with whom the previous house officer has discussed patients)
- P** Patients to be aware of...

The final category in the JUMP system refers to those patients that may not necessarily need to be seen, but who may present a clinical emergency at some point. This also provides the opportunity for junior doctors to be pro-active and possibly check on this category of patients when they are not very busy.

Literature around information technology (IT) support of handover is beginning to emerge in Australia¹. Although, this was not looked at in this study, this is an area that will need further investigation in the future. The authors believe, however, that one of the key principles to effective handover is simplicity and therefore any IT support system must be practical and easy to operate.

In summary, the significant findings of this study were that nurses have more handovers than house officers. Currently, nursing handovers are perceived to be at a higher subjective standard than the handovers conducted by house officers.

A notably larger percentage of house officers reported problems directly attributable to a poor handover as compared with nurses, with over 60% of house officers stating that they had encountered at least 7 problems in a 3-month period.

At Auckland City Hospital, handover practices will continue to be monitored as this is an area that, if improved, will benefit both patients and junior doctors by improving job satisfaction through a reduction in stress during 'on-call' working periods.

Further investigation about clinical handover should occur in New Zealand to ensure that patient safety is maintained.

Competing interests: None.

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APPENDIX 1

Post-grad level: Previous rotation:

HOUSE OFFICERS' HANDOVER SURVEY - ACH

This survey relates to handovers between junior doctors at change of shift / end of duty. Please circle or tick the response you feel most appropriate. Please fill in the information at the top of the form. There are 2 pages!

1.) How many handover periods would you attend in your previous run over a 24 hour period? (Circle One)

Zero One Two Three >Three

2.) How would you rate the standard of handovers between house officers at ACH on your last run? (Circle a number – Responses relate to the descriptions as marked.)

Very Poor Poor Average Good Excellent
0 1 2 3 4 5 6 7 8 9 10

3.) How regularly were you paged whilst receiving or giving a handover?

(Circle one – Responses relate to the scale below. Based on ~23 on-call shifts per rotation.)

Never Seldom Often Very often Always
0 1-6 times 7-14 times >15 times

4.) How regularly did you encounter a clinical or work related problem during your duty that you can relate to a poor handover or a lack of information received during handover? (Circle one – Responses relate to the scale below. Based on ~23 on call shifts per rotation.)

Never Seldom Often Very Often Always
0 1-6 times 7-14 times >15 times

5.) How much time do you feel is required for an effective handover?

<10min 10min 15min 20min >20min

6.) Tick the 'interventions' you feel will improve the effectiveness and efficiency of house officer handovers.

Tick Rank

Set location for handover to occur for each service

Sheet for RMOs to carry to list jobs / patient details

Cue-card with checklist for conducting handovers issued to each RMO

Electronic handover system

Training seminar on handovers

7.) List any other interventions you feel would improve the effectiveness and efficiency of junior doctors' handovers.

8.) Tick the information / details you feel is relevant or important to always include in a handover between junior doctors.

Tick Rank

Patients to be aware of / possible calls

Outstanding Jobs (incl. pt's to clerk)

Results to chase

Items to handover to next on-call

Important numbers (incl mobile + pager for Regs)

Patient locations

Very sick pt's / expected deaths

List any other information you feel should be included in handovers...

9.) Please make any further comments or suggestions in regard to handover between junior doctors.

Please hand to Pat Starkey at CETU if you cannot return the form at the end of the teaching session.

Thank you for your time.



A New Zealand outbreak of norovirus gastroenteritis linked to the consumption of imported raw Korean oysters

Greg Simmons, Claire Garbutt, Joanne Hewitt, Gail Greening

Abstract

Aim To investigate an outbreak of gastroenteritis that occurred following an international rugby test at Eden Park (Auckland, New Zealand) on 17 June 2006.

Method 387 patrons were interviewed. Cases were defined as those from one of four hospitality areas who consumed food or beverage at Eden Park on the evening of 17 June 2006 and subsequently suffered from diarrhoea or vomiting; or, stomach cramps and nausea. A case-control study was conducted and food and beverage items associated with illness were identified. Clinical specimens were requested from patrons and food handlers, and leftover foods were analysed for pathogens. A food safety assessment was conducted at the implicated catering premises.

Results A total of 115 cases were identified. Attack rates varied between the four hospitality areas from 8% to 47%. Predominant symptoms among cases included nausea, vomiting, diarrhoea, stomach cramps, fever, and chills. The consumption of several foods was associated with an increased risk of illness but the strongest was for raw oysters consumed in Hospitality Area 1 (Risk Ratio 11.9; 95%CI 3.9–36.1; $p < 0.00001$), attack rate 65%. Norovirus (genogroups I and II) was detected in samples provided by four of the cases and three unopened packets of implicated batches of imported Korean Pacific oysters (*Crassostrea gigas*) linked to the outbreak.

Conclusion This outbreak resulted from consumption of raw imported Korean oysters contaminated by norovirus. Labelling recommending cooking prior to consumption failed to prevent the outbreak.

Noroviruses are non-enveloped, single-stranded RNA viruses belonging to the human *Caliciviridae* family.¹ They have, until recently, been considered non-culturable and identification is based on nucleic acid assays using RT-PCR methods and DNA sequencing.²

Noroviruses are highly infectious with the infectious dose thought to be of the order of 10–100 viral particles.³ The stools of cases typically contain $>10^6$ viral particles per ml during the diarrhoeal phase of illness.⁴ Humans are the only known reservoir for norovirus.

Faecal-oral spread is the primary mode of transmission although both foodborne (by hand contamination) and airborne spread through aerosolised vomit are common.⁵ Noroviruses are reported to be environmentally hardy, withstanding heating to 60°C, freezing, and chlorine concentrations of up to 10 parts per million.⁴

On 20 June 2006, Auckland Regional Public Health Service (ARPHS) was notified by Auckland City Council of a suspected outbreak of gastrointestinal illness amongst a group of people who attended a corporate hospitality event held at Eden Park for the New Zealand All Blacks versus Ireland rugby test match on the evening of 17 June

2006. Following preliminary investigation it was established that patrons dining in other hospitality areas had also experienced symptoms of gastroenteritis. This report describes the outbreak investigation.

Method

Case finding—The names and contact details of those who attended each corporate event were obtained from the venue's management. A questionnaire was formulated for each of four hospitality areas based on a menu procured from the caterer. Patrons were contacted by telephone and interviewed. Questions were asked pertaining to illness, its time of onset and consumption of all foods and beverages at the event.

Retrospective cohort study—A retrospective cohort study to determine which foods or beverages were associated with illness was undertaken. A case was defined as any person who consumed food or beverage at the Eden Park hospitality events on 17 June 2006 and subsequently experienced diarrhoea or vomiting, or stomach cramps and nausea. Data were analysed using EpiInfo Version 2002 statistical software.⁶ Associations between illness and food and beverage consumption were estimated as risk ratios (RR) with corresponding 95% confidence intervals (95%CI) and p values subject to Fisher's correction.

Food and clinical microbiology—Frozen leftover food samples were provided by the caterer and analysed for a range of foodborne pathogens causing gastroenteritis. Enquiries were made of staff in relation to illness experienced in the week prior to the event.

Faecal samples were requested from 55 food handlers who prepared meals for the evening of 17 June 2006. Faecal specimen collection kits were provided to four symptomatic patrons.

All specimens were forwarded to the Institute of Environmental Science and Research Laboratory (ESR) for analysis for a range of pathogens causing gastroenteritis, including *Bacillus cereus*, *Clostridium perfringens*, *Salmonella* spp, *Shigella* spp, *Campylobacter* spp, *Vibrio parahaemolyticus*, and norovirus.

Norovirus analysis included detection by real-time RT-PCR methods and strain identification by DNA sequencing.²

Food safety assessment—A risk assessment was conducted on the methods of food preparation used by the caterer based on the principles of hazard analysis critical control point (HACCP).⁷

Results

An estimated 1580 patrons attended the four hospitality areas on the evening of 17 June 2006. Of these individuals, 387 (24%) were interviewed and 115 satisfied the case definition, thus giving an overall attack rate of 30%. The attack rate in Hospitality Area 1 (46.6%) was significantly higher than the other three areas.

Illness characterisation

The symptoms experienced by cases are shown in Table 1.

The onset of illness over time among cases is represented by the epidemic curve (Figure 1). Cases had a mean incubation period ranging from 19 to 53.5 hours for the 4 hospitality areas. The mean duration of the illness was not determined as many of the cases were still experiencing symptoms at the time of interview.

Hospitality Area 1

The food whose consumption was most strongly associated with illness was oysters (RR 11.9; 95%CI 3.9–36.1; $p < 0.00001$); attack rate 65%.

Salmon consumption was also associated with illness (RR 2.3; 95%CI 1.2–4.0; $p = 0.001$); attack rate 52.9%. However as the oysters were served on top of the

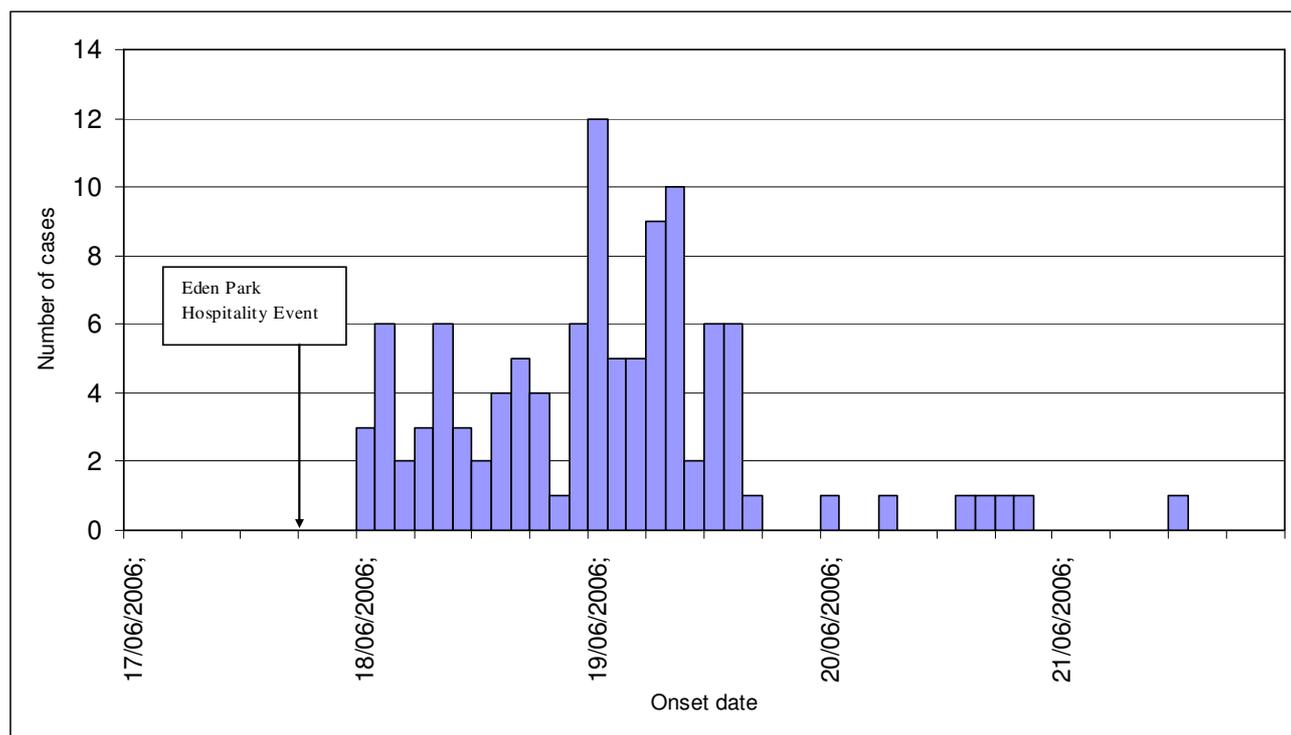
salmon, either concomitant consumption or cross-contamination are likely to account for the salmon's association with illness.

The consumption of tuatuas (*Paphies subtriangulata*; a New Zealand clam) was also associated with illness (RR 3.0; 95%CI; 1.7–5.6, $p < 0.00001$). However, of those who consumed steamed tuatuas, 98.6% also ate oysters.

Table 1. Frequency of symptoms among 115 cases

Symptom	Hospitality Area 1		Hospitality Area 2		Hospitality Area 3		Hospitality Area 4	
	No. of cases (n=82)	Proportion of cases (%)	No. of cases (n=27)	Proportion of cases (%)	No. of cases (n=4)	Proportion of cases (%)	No. of cases (n=2)	Proportion of cases (%)
Diarrhoea	74	89.2	25	92.6	3	75.0	2	100.0
Vomiting	45	54.2	13	48.1	4	100.0	2	100.0
Fever	54	65.9	14	60.9	2	50.0	1	50.0
Stomach cramps	71	85.5	20	76.9	4	100.0	2	100.0
Nausea	69	83.1	16	61.5	3	75.0	2	100.0
Chills	57	69.5	11	44.0	1	25.0	1	50.0

Figure 1. Epidemic curve of the Eden Park gastroenteritis outbreak



Epidemiological analysis of risk of illness by food and beverage consumption

Hospitality Area 2—The most prominent food associated with illness was the salmon (RR 2.8; 95%CI 0.9–8.7; $p = 0.04$); attack rate 22.6%. Again, the oysters were

served on top of the salmon. Consumption of the seafood chowder was also associated with illness (RR 2.5; 95%CI 1.0-6.3; p= 0.03); attack rate 23.8%. While no oysters were added to the seafood chowder, of the 27 cases interviewed in this hospitality area, 24 of the cases also ate the salmon, which was likely to have been contaminated by norovirus from the oysters.

Other hospitality areas—In Hospitality Area 3, elevated risk ratios were found for the chicken kebabs, scallops, tuna, and water—however none of the values were statistically significant.

In Hospitality Area 4, elevated risk ratios were found for the blue cheese, but were again not statistically significant.

Food safety assessment—A premise visit to the Eden Park caterer was conducted on 5 July 2006 by an ARPHS food safety coordinator and an outbreak investigator. On the day of 17 June 2006, catering staff realised that there was a shortfall of approximately 2700 in the number of oysters for the evening's meal. Two brands of frozen, shucked raw Korean oysters were provided by a local distributor as 30 × 1 kg bags. A further 128 dozen frozen, raw locally grown oysters from two producers were also consumed.

The packaging of the Korean oysters was labelled with an advisory to cook the product before consumption. These instructions were not followed by the caterer.

Microbiological analysis—No bacterial pathogens were detected in either faecal or oyster samples. No foodborne pathogens were isolated in any samples of leftover foods from the event. Faecal specimens were obtained from four cases between 4 and 8 days after the onset of symptoms. Genogroup I (GI) and II (GII) norovirus were detected in all four cases. Stool specimens were submitted by 20 of the 55 food handlers.

One food handler was positive for GII norovirus. This food handler, who had consumed the implicated oysters, reported symptoms of diarrhoea and vomiting commencing on 19 June 2006, 48 hours following the event.

Four different brands of oysters had been served on the evening of the event, two locally grown brands and two brands of frozen, shucked imported Korean oysters. The same batches of all four brands of oysters consumed on 17 June were tested for norovirus. The local products tested negative.

GI and GII noroviruses were detected in four of six unopened packets of Korean oysters of the same batches as those consumed at the Eden Park event. DNA sequencing was carried out on all faecal specimens and oyster samples that were positive for norovirus by real-time RT-PCR. The faecal specimens contained GII/3 strains, GII/6 and GII/12, whereas the oysters contained multiple strains of norovirus including genotypes GI/3, GII/3 strains, GII/6, GII/8, and GII/12.

Although some strains (GII/6 and GII/12) were found in both faecal specimens and oysters, they were distinct. However, indistinguishable norovirus strains (GII/3) were identified in faecal specimens from Korean oyster-related outbreaks in Auckland, Otago, and Tauranga.

Discussion

The illness suffered by patrons attending the rugby test at Eden Park on 17 June 2006 is the largest foodborne outbreak of norovirus gastroenteritis documented in New Zealand. Thirty percent of interviewed patrons attending the four hospitality areas reported illness.

The mean incubation period of approximately 32 hours between dining and illness; the characteristics of the illness (nausea, vomiting, diarrhoea); its mean duration of about 2 days; and the finding of norovirus GI and GII in the stools of cases all point to norovirus as the cause of illness.

The identification of norovirus GI and GII in shucked, raw imported Korean oysters of two different brands, carrying the same batch details as those served at Eden Park, coupled with the strongest statistical association between cases with the consumption of oysters (RR 11.9; 95%CI 3.9–36.1; $p < 0.00001$ for Hospitality Area 1) is compelling evidence for the Korean oysters being the cause of illness.

An estimated 65% of those patrons who consumed oysters in Hospitality Area 1 were subsequently norovirus cases. Moreover, based on the attack rates (proportion of patrons interviewed who reported illness) for the four hospitality areas investigated, we estimate that 352 people would have developed illness over the ensuing 3 days.

Given a secondary attack rate of the order of 25%,⁸ or in other terms for every 4 cases, one further case would have occurred among their close (often household) contacts, thus the total number of cases that occurred following the event of 17 June 2006 may have been as high as 441.

A somewhat dated local estimate of the cost of a case of norovirus gastroenteritis of NZ\$204⁹ suggests that the cost to New Zealand of the outbreak following the Eden Park event was of the order of \$71,800 and, if secondary cases were to be included, as high as \$90,000.

Only 1 of the 20 food handlers tested positive for norovirus. This food handler reported consuming three oysters on the night of the event and developed gastrointestinal illness 48 hours later. All food handlers were questioned as to whether they had suffered symptoms prior to the event—none had. It is therefore unlikely that infected food handlers would have contributed to the outbreak.

In 2004, as the result of an outbreak investigation and the identification of norovirus in corresponding batches of imported shucked raw Korean oysters consumed by cases, the New Zealand Food Safety Authority (NZFSA) required the packaging on imported Korean oysters to display a label advising that the product must be cooked prior to consumption.

In 2006, three gastroenteritis outbreaks implicating raw or lightly cooked Korean oysters predated the Eden Park outbreak. These had occurred in Otago (20 February), Hawke's Bay (21 March), and Tauranga (16 May). These outbreaks involved food premises who either ignored the labelling and served the product raw or only lightly cooked the oysters.

New Zealand consumers generally prefer raw Pacific oysters to the cooked product. These outbreaks suggest that, on its own, labelling to advise cooking imported Korean oysters prior to consumption was inadequate to protect consumers.

Oysters, as filter-feeding shellfish, accumulate and concentrate viruses present in their growing waters. The identification of norovirus in both cases and epidemiologically linked Korean oysters is consistent with human sewage contamination of growing waters rather than contamination during processing or food handling.¹⁰

Although sequencing of the norovirus strains from faecal and oyster was attempted for all outbreaks, the results showed that multiple genotypes were present in both oysters and human faecal specimens. The occurrence of multiple strains of norovirus has been reported previously in oyster-related outbreaks,^{10,11,12} including 23 shellfish-related outbreaks in Japan.¹¹

The identification of indistinguishable norovirus strains in faecal samples from cases in the Auckland, Otago, and Tauranga Korean oyster-related outbreaks also may suggest a common source of infection.

In response to the Eden Park outbreak, the New Zealand Food Safety Authority advised a trade level withdrawal of Korean oysters and suspended imports pending further assurances from the Korean oyster industry about the product's safety. However, in 2006, a further four outbreaks were subsequently notified in Wellington (30 June and 5 July), Otago (12 July), and Taranaki (2 August) as well as a single case in the Waikato (5 September) (Personal Communication Liza Lopez, Institute of Environmental Science and Research Ltd. Porirua, 17 May 2007).

Noroviruses were identified in Korean oysters associated with all but one of the outbreaks occurring in 2006 (Gail Greening, unpublished data). The outbreaks occurring after the Eden Park function involved the use of product purchased by caterers and restaurants prior to the trade level withdrawal. A consumer level recall of product following the Eden Park outbreak may have prevented these outbreaks.

Competing interests: None.

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An iatrogenic complication of closed tube thoracostomy for penetrating chest trauma

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Abstract

Penetrating thoracic trauma poses a management challenge to the on-call surgeon. A casual and unwary approach can lead to unforeseen complications in the initial height of management of such patients. We present a case of penetrating thoracic trauma where initial management with closed tube thoracostomy resulted in intubation of the stomach that had herniated into the chest through a diaphragmatic rent. Patients with penetrating injuries to the zone between the abdomen and chest should be managed with a high index of suspicion.

Tube thoracostomy remains the forefront procedure of choice to manage majority of chest trauma sequelae. We present a case where stab injury to the lower chest required a closed tube thoracostomy for a diagnosed haemothorax and it resulted in intubation of the stomach which had herniated into the chest through a rent in the diaphragm.

We advocate a careful approach to penetrating injuries to the thoracoabdominal zone, as the abdominal organs can be displaced in the chest and can also be injured during the course of resuscitative management.

Case report

A 20-year old healthy man was stabbed with a knife and sustained a penetrating injury to his left posterolateral chest at the level of 9th rib. He presented in the emergency department with severe epigastric pain and haematemesis. He was haemodynamically unstable with tenderness in the left upper abdomen and decreased air entry at the left lung base.

Figure 1. Left-sided haemothorax



A plain chest X-ray (Figure 1) revealed a left-sided haemothorax. A No 32-French chest drain was inserted in the emergency department without difficulty, though the pleura felt unusually thickened and only 100 ml of dark blood was drained. The patient remained unstable and a decision was made to conduct an exploratory laparotomy.

Per-operatively, the fundus of the stomach was found to be herniating through a defect in the left hemi-diaphragm and was strangulated. The chest tube was found sitting in the stomach. A partial gastrectomy was performed and the patient made an uneventful recovery from the procedure.

Discussion

Closed-tube thoracostomy with an underwater seal is a common therapy for a number of emergency and elective thoracic conditions. The procedure carries its own morbidity.¹

The common complications of tube thoracostomy placement (with references) are:

- Diaphragmatic perforation¹
- Chest wall placement¹
- Perforation of lung¹
- Perforation of spleen¹
- Perforation of liver¹
- Cardiogenic shock¹
- Horner's syndrome¹
- Subdiaphragmatic placement²
- Intraabdominal placement²
- Subcutaneous placement²
- Perforation of oesophagus³

During inspiration, the intrathoracic pressure is negative and a diaphragmatic defect can therefore result in abdominal viscera being drawn into the chest. With protection from the liver on the right, it is the left side of the diaphragm which is exposed and is more vulnerable to these pressure effects.⁴

In our patient, the stomach had herniated through the diaphragm and was iatrogenically injured while introducing the thoracostomy tube. The case we present supports a more vigilant approach to penetrating injuries occurring in the zone between the nipples and the umbilicus.

Conclusion

Patients not responding to initial resuscitation and management should be continuously reassessed, as unexpected complications can occur in a trauma patient. Chest intubation should always be done with care and with a high index of suspicion for possible complications.

This report highlights another possible complication of a common emergency bedside procedure.

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Suspected lymphocytic hypophysitis in a man

Elham Reda

Lymphocytic hypophysitis is a rare but increasingly recognised inflammatory disease, considered to be autoimmune. It can involve the anterior and/or posterior lobe of the pituitary gland with corresponding hormone deficiencies.

Most cases occur in women, mainly during late pregnancy or the early postpartum period. The diagnosis can be challenging in many cases, because distinction from pituitary adenomas and other sellar masses is not obvious. The therapeutic approach is controversial and, although transphenoidal surgery is often performed, a conservative medical management is justified in many cases, given the self-limited nature of the inflammatory process.

We describe a 36-year-old man who was acutely admitted to our hospital because of acute confusion. Cerebrospinal fluid (CSF) analysis showed lymphocytic pleocytosis and negative viral serology. Magnetic resonance imaging (MRI) demonstrated an enlarged pituitary gland with homogeneous enhancement, post contrast. The endocrinologic data indicated impaired secretion of ACTH and gonadotropin, associated with thyroiditis.

Together, the findings strongly suggested a diagnosis of lymphocytic hypophysitis. He was managed nonoperatively, with glucocorticoid replacement, and his symptoms dramatically reduced.

The present case highlights the fact that surgical intervention is not always necessary in suspected cases of lymphocytic hypophysitis. Careful and considered clinical judgment is required in the management of these patients.

Case report

A 36-year-old white man was admitted to hospital with a history of general fatigue, weakness, nausea, vomiting, and dizzy spells of 1 month duration. He also complained of lack of appetite and weight loss of 20 kg. He described mild morning frontal headaches, often relieved with paracetamol. He denied having visual disturbances, abdominal pain, decreased potency, or polyuria. Slowing of intellectual functions and loss of concentration were also noted.

The patient had no significant prior medical history and no family history of diabetes, thyroid, or autoimmune problems.

Physical examination revealed a well-developed man, though apathetic and slow to answer. He was afebrile with no meningism or skin rash. There was no postural hypotension and the thyroid gland was normal to palpation. Neurological examination was normal with normal visual fields and optic discs. The remaining examination was otherwise unremarkable.

Cerebrospinal fluid (CSF) pressure was increased and analysis showed lymphocytic pleocytosis (leucocytes 288×10^6 /L, 98% lymphocytes), elevated protein

concentration (1.11g/L), and negative cultures. Meningococcal DNA and herpes simplex virus RNA were not detected by nucleic acid amplification.

According to a basic laboratory evaluation, full blood count, serum creatinine and electrolyte levels, plasma glucose, and liver function indices were all normal. C-reactive protein was mildly elevated. Blood cultures showed no growth.

Initial endocrinological evaluation revealed secondary hypocortisolism and hypogonadism; thyroiditis; but no other evidence of pituitary hormone hypersecretion.

Plasma adrenocorticotrophic hormone (ACTH) was <1 pmol/L (normal range [NR] 2.0–11.0). Basal serum cortisol was <10 nmol/L with increase to 92 at 30 minutes and 150 nmol/L at 60 minutes after administration of 0.25 mg synthetic ACTH. Dehydroepiandrosterone sulphate (DHEA-S) was <0.4 umol/L (NR 3.2–14.1).

Gonadotropic function was also depressed, with a serum follicle stimulating hormone (FSH) level of 0.5 U/L (NR 1.0–14.0), serum luteinizing hormone (LH) level of <0.2 U/L (NR 1.0–10.0), and a serum testosterone level of <0.4 nmol/L (NR 9.0–30.0). Serum prolactin was <50 mIU/L (NR 0.0–360), and GH (growth hormone) 1.4 ug/L (NR 0.0–4.1).

Serum thyroid stimulating hormone (TSH) 0.01 mU/L (NR 0.3–4.0), serum free thyroxin (FT4) 43 pmol/L (NR 10–20), serum free triiodothyronin (FT3) 22 pmol/L (NR 3.8–6.2). Technetium thyroid scan showed markedly suppressed uptake function throughout both lobes consistent with thyroiditis.

No defects were detected on formal visual field testing. Chest radiography and serum angiotensin converting enzyme (ACE) concentration were normal. Serological investigations for HIV and syphilis were negative.

Antinuclear antibodies were weakly positive (1:40, diffuse pattern). Thyroid microsomal, thyroglobulin, adrenal, parietal cell, smooth muscle, mitochondrial antibodies, and thyroid stimulating immunoglobulins were all negative.

Head computed tomography (CT) scanning was normal; however, the pituitary was not specifically examined.

Magnetic resonance imaging (MRI) [Figures 1,2] showed enlarged pituitary gland (15mm × 12 mm × 12 mm) with a convex upper border extending up to the under-surface of the optic chiasm displacing the hypothalamus and the neurohypophysis. The enhancement was homogeneous with no specific evidence of a dynamic sequence to suggest a microadenoma. There was loss of the normal high signal within the posterior pituitary. The pituitary stalk was noted to be thickened and strongly enhancing. The brain was otherwise normal with no specific evidence of encephalitis or other infectious process.

With strong suspicion for lymphocytic hypophysitis he was managed nonoperatively and commenced on cortisol replacement therapy with marked symptomatic improvement. He was discharged on a maintenance dose of steroids and is currently on regular endocrine follow-up.

Figure 1

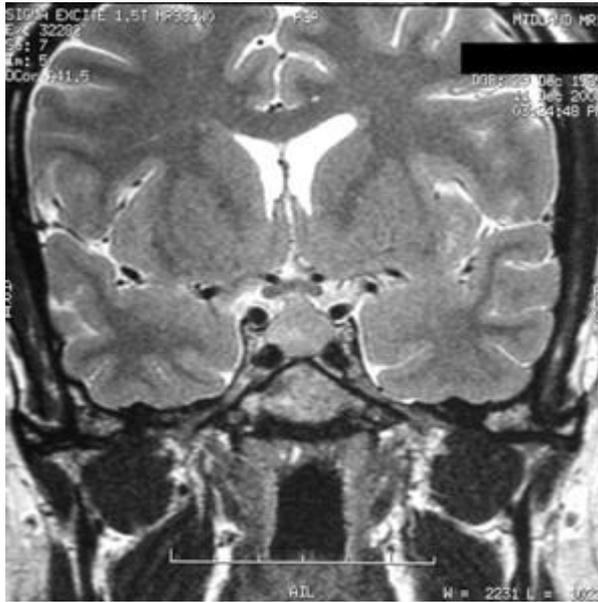


Figure 2



At 3 months follow-up, the patient remained well, though still requiring hydrocortisone. On endocrine testing, he became hypothyroid (TSH <0.1 mU/L, FT4 4 pmol/L, FT3 1.9 pmol/L) and remained hypogonadal, requiring thyroid and testosterone replacement therapy.

Reimaging of the pituitary at that time (Figure 3) showed reduced size though it remained somewhat enlarged. There was still slight prominence of the upper part of the pituitary stalk, but less marked than on the initial scan.

Figure 3



Discussion

Lymphocytic hypophysitis is a rare inflammatory condition characterised by marked lymphocytic infiltration, fibrosis, and ultimate destruction of the anterior pituitary gland. Depending on the stage of the disease, the pituitary gland may be either enlarged by inflammation or shrunken by atrophy and fibrosis.¹

Knowledge of this condition is largely anecdotal; the cause, incidence, and natural history are unknown. Cases are usually discovered at biopsy and at surgical intervention for a presumptive pituitary neoplasm.

The disease has a strong female predilection of approximately 8.5:1; it commonly affects young women during late pregnancy or in the postpartum period.²

Nearly 379 cases have been reported since the first description of the entity in 1962 from an autopsy conducted on a 22-year-old woman who was 14 months postpartum. She developed shock and died from adrenocortical insufficiency 8 hours following an appendectomy.^{3,4}

Due to greater awareness, better diagnostic neuroimaging, and surgical techniques (such as microsurgical transphenoidal exploration of the sella), lymphocytic hypophysitis is now diagnosed with increasing frequency, and there is an apparent change in its presentation. The disease is now known to occur in both sexes and at all ages. About 15% of reported cases occurred in men.^{2,5,6}

Most patients manifest varying degrees of hypopituitarism, hyperprolactinaemia, or both. Although the principal site of involvement was considered to be the adenohypophysis, a small number of patients had clinical evidence of diabetes insipidus.^{6,7}

Lymphocytic hypophysitis may present with several clinical forms such as adenohypophysitis (LAH), more commonly affecting young women; infundibuloneurohypophysitis (LINH), affecting both sexes equally; or both (panhypophysitis, LPH), slightly more common in women.⁸

The cause of lymphocytic hypophysitis remains poorly characterised. However, the greater incidence of the disease in females; its occurrence in close temporal proximity to pregnancy in most of the cases reported; the presence of associated autoimmune endocrinopathies; and the presence of lymphocytic infiltration have led to the speculation that lymphocytic hypophysitis is an autoimmune disease.² As many as 30% of patients with lymphocytic hypophysitis may also have associated autoimmune diseases including thyroiditis, adrenalitis, pernicious anaemia, and parathyroiditis.^{1,3}

Specific serum markers are not currently available and are subject of research at leading centres around the World. Pituitary autoantibodies have been detected in up to 70% of biopsy-proven cases.⁹ Further studies may ascertain the importance of secretogranin II autoantibodies as markers for lymphocytic hypophysitis.¹⁰

Lymphocytic hypophysitis should be considered in the differential diagnosis of pituitary masses (or sellar lesions) in females during pregnancy or in the postpartum period. In addition, those patients (both men and women) in whom pituitary hormone deficiency is noted in association with a coexisting autoimmune disorder are also affected.

Early diagnosis is important because the concomitant pituitary insufficiency is often rapidly progressive and prompt hormonal replacement, especially for hypoadrenalism, is essential.

Hypofunction of the anterior pituitary is more severe and seems to develop earlier in lymphocytic hypophysitis than in pituitary adenomas. It more often concerns corticotrophic and thyrotrophic functions (56% and 40%) than in pituitary adenoma, in which the somatotrophic and gonadotrophic functions are usually the first to be impaired.¹¹

The association with other autoimmune conditions, usually a thyroiditis, may be a diagnostic hint for lymphocytic hypophysitis. The CSF findings of lymphomonocytic pleocytosis with the negative viral cultures and the absence of clinical meningitis, is likely to be an aseptic meningeal reaction to pituitary inflammation.

MRI findings suggestive of an inflammatory pituitary process include:

- Symmetric enlargement of the pituitary gland.
- Triangular shaped pituitary gland and/or affecting the diaphragma sellae, with homogeneous enhancement.
- Suprasellar extension, especially “tongue-like” extension.
- Diffuse thickening of the pituitary stalk with or without enhancement after gadolinium and loss of the normal posterior ‘bright spot’ on T1-weighted images, where neurohypophysis is involved.⁹

Although no single feature above is pathognomonic of lymphocytic hypophysitis, their simultaneous presence will confer a higher amount of diagnostic reliability. However, the diagnosis can only be clearly established by histologic examination.

Management of lymphocytic hypophysitis is controversial as the natural history is not known. Progressive and permanent hypopituitarism^{1,2} or spontaneous recovery have been reported.^{12,13}

If the diagnosis is strongly suspected, medical treatment alone has been advocated because of the transient endocrine and compressive features of this condition in many instances^{2,12,13}

Whereas surgery for mass effect in lymphocytic hypophysitis invariably led to rapid relief of neurological symptoms, endocrinological improvement was seldom reported.¹⁴ In some patients, however, surgery led to further deterioration in pituitary gland functions or was followed by recurrence of symptoms.^{2,14}

If symptoms do not improve with conservative management, transphenoidal surgery for diagnosis confirmation and decompression is advised.

To avoid extensive unnecessary surgery, a preoperative frozen section cytology should be performed to confirm the diagnosis. A pituitary experienced neurosurgeon would remove abnormal tissue and preserve normal-looking tissue to minimise the risk of hypopituitarism.

Immediate surgery is indicated when there are signs of optic nerve compression or increased intracranial pressure.

Several authors have suggested a therapeutic trial with supraphysiological doses of glucocorticoids, to decrease the pituitary size and possibly to alter the autoimmune response. Results of these trials have been promising.^{11,12} In other reports, the effect of corticosteroid therapy has been poor or transient and symptoms often returned after cessation of therapy.¹⁵

More recently, other immunosuppressive drugs such as azathioprine and methotrexate have been used in specific cases with poor response to corticosteroids.⁸

Stereotactic radiotherapy has been used with success at controlling mass effect symptoms in two patients with lymphocytic hypophysitis and severely affected pituitary function, but more experience with this therapeutic modality is necessary.⁹

Although rare, lymphocytic hypophysitis has very important diagnostic and therapeutic implications, considering that it is usually mistaken for tumours that may often require surgical management.

In conclusion, the clinical presentation, occurrence of other autoimmune conditions, CSF examination, endocrine profile, and MRI features can (in many cases) justify an expectant approach without surgical intervention—with or without glucocorticoid therapy and/or other immunosuppressant therapies.

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Post-stroke fatigue—where is the evidence to guide practice?

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Abstract

A significant proportion of stroke survivors suffer from persistent and significant fatigue which is linked to reduced independence and case fatality. Despite its high prevalence and detrimental effects, studies of post-stroke fatigue (PSF) interventions are scarce. Only one randomised controlled trial of post-stroke fatigue treatment (i.e. fluoxetine) was identified, and though improving post-stroke emotional incontinence and depression in patients with fatigue this did not improve PSF itself. Despite there being no literature on its efficacy, patient and family education/counselling has been identified as an important rehabilitation intervention for the management of stroke-related fatigue, which has been found effective in other patient groups (i.e. cancer, multiple sclerosis, and those with traumatic brain injury). Factors contributing to the lack of evidence for PSF management are identified and it is concluded that there is a need to better differentiate those most likely to suffer PSF, to validate existing assessments of fatigue, and to evaluate the efficacy of fatigue management and treatment strategies in stroke survivors.

Post-stroke fatigue and its impact

Stroke is the second most common cause of death worldwide and the leading cause of disability in adults, having an enormous physical, psychological, and financial impact.^{1,2} A significant proportion of stroke survivors (39–72%) suffer from persistent and significant fatigue affecting their daily lives, with significant differences in prevalence likely related to varying definitions and methods of assessing fatigue, as well as sampling of different populations.^{3–8}

Defining post-stroke fatigue (PSF) is a challenge as it represents a complex interaction of biological, psychosocial, and behavioral phenomena.⁹ Subjective fatigue is commonly defined as a feeling of early exhaustion or tiredness developing during either mental or physical activity, or both, with weariness, lack of energy, and aversion to effort.^{5,10} One recent systematic review of self-reported instruments for fatigue assessment defines fatigue as “An unpleasant physical, cognitive, and emotional symptom described as a tiredness not relieved by common strategies that restore energy.”¹¹

By its very definition, fatigue involves behavioural and work performance decrement, and is characterised by distress and decreased functional status related to reduced energy.¹² Post-stroke fatigue, either cognitive and/or physical, often poses a barrier to return to work and other daily activities, quality of life, and rehabilitation, especially during the first year after stroke onset.^{4,5,13–16} Indeed, it has been shown that fatigue is associated with profound deterioration of several aspects of everyday life.^{3,7}

In a 2-year stroke follow-up population-based Swedish study,³ fatigue independently predicted decreased functional independence, institutionalisation, and case-fatality.

Similarly, a case-control study in the Netherlands¹⁷ found that PSF correlates significantly with functional disability and neuropsychological deficits. Furthermore, PSF may impede full participation in a rehabilitation program.¹⁴

Interestingly, stroke survivors with less severe physical or cognitive disability tend to rate fatigue as a more severe symptom,^{4,9,18} which, according to de Groot et al,¹⁹ may be related to the relative lack of other post-stroke sequelae and greater expectation for full recovery and differing demands of daily life in these patients.

Prevalence and natural history

Of 4023 2-year stroke survivors in Sweden,²⁰ 366 (10%) reported always feeling tired and 1070 (29.2%) additional survivors were often tired. Two years post stroke approximately 40% of patients report that they are “always” or “often” fatigued.^{3,4,17}

The frequency of self-reported fatigue is roughly twice as high in patients post stroke as it is in matched controls, and 27% of stroke survivors experience fatigue every day.⁴ Although fatigue is known to persist for months and even years post-stroke,^{4,17} the time which has elapsed since the stroke occurred can not explain levels of fatigue.^{4,17}

In a Canadian case-control study, fatigue was also not related to stroke severity, or lesion location.⁴ In that study, 40% of the stroke group reported that fatigue was either their worst or one of their worst symptoms. Although most of these studies evaluated fatigue in elderly stroke survivors, there is some evidence suggesting that post-stroke fatigue is more prevalent in younger than in older patients.³

In regards to the time course of PSF, a recent study of 167 survivors of first-ever stroke,⁷ assessed fatigue at admission, 6-months post-stroke, and 1-year post stroke and found it to be present in 51.5%, 64.1%, and 69.5%, respectively. Fatigue was present at all three assessments in 37.7% of patients, and absent on all three assessments in 17.4% of patients.

Although fatigue is often seen as a result of sleep apnoea, post-stroke depression, and disability,^{6,21,22} a concept of 'primary' post-stroke fatigue has been proposed.⁵ According to this concept, fatigue may develop in the absence of depression or significant cognitive sequelae, and may be linked to attentional deficits resulting from specific damage to the reticular formation and related structures involved in the subcortical attentional network.

Fatigue is one of the symptoms of depression, but does not include the accompanying inappropriate feelings of anhedonia, worthlessness, hopelessness, or suicidal ideation.²³ There is evidence that the presence of post-stroke fatigue is independent of depression.³ In a 2-year follow-up of post-stroke fatigue, of 3667 patients who were not depressed, 10% (n =366) always felt tired, while an additional 29.2% (n=1070) often felt tired.³ When depression and fatigue do co-occur, the impact of fatigue on functional abilities is strongly influenced by depression.⁴

In addition to depression, PSF must also be differentiated from symptoms of executive disturbances such as apathy. Executive dysfunction is typified by an inability to engage in goal-directed behaviours, of which difficulty initiating behaviour may be a symptom.²⁴ Thus, a patient with executive dysfunction may express an intention to engage in a particular behaviour but not actually be able to

initiate that behaviour without assistance, which may be viewed by others as patient apathy. This is very different from the individual with fatigue who would typically state that they cannot engage in an activity due to their fatigue, and who is able to initiate behaviour if she/he desires to do so, but may not be able to complete the behaviour due to fatigue.

Anxiety may also present as fatigue, though anxiety may be differentiated using techniques such as SWIKIR (Somatic Symptoms, Worries, Irritability, Keyed-up or on edge, Initial insomnia, and Relaxation Difficulties), whereby anxiety disorder is present if 3 or more symptoms are reported.²⁵

Measuring post-stroke fatigue

Many unidimensional and multidimensional scales have been developed attempting to measure the nature, severity, and impact of fatigue in a range of clinical populations.^{10,11,26} Different scales purport to measure different aspects of fatigue and it has been suggested that measures developed to measure fatigue in one clinical condition may not be justified for other clinical conditions.¹⁰ However, it has also been suggested that “since fatigue is an unspecific symptom there should not be need for adopting disease specific fatigue scales for each individual disease.”²⁶ In this situation the choice of the most appropriate fatigue measurement scale to be used for research or clinical practice should be determined by aspects of fatigue that need to be measured.¹⁰

While there is no consensus on which fatigue scales are most appropriate for use in the assessment of fatigue in stroke survivors, the most commonly used in stroke populations¹⁰ include the Visual Analogue Scale (used in three studies);^{15,27,28} Fatigue Severity Scale (used in five studies);^{4,7,15,27,29} Checklist Individual Strength (used in one study);¹⁷ and quality of life fatigue subscales, including SF-36 (used in three studies)³⁰⁻³² and Newcastle Stroke specific Quality of Life measure (used in one study).³³

Of these, two objective assessment tools (Fatigue Severity Scale and Checklist Individual Strength) have been recently recommended by de Groot et al¹⁹ to quantify fatigue characteristics for initial diagnosis and to monitor the outcome of fatigue treatment in stroke survivors, although it was mentioned that “scales or measures used in the study of fatigue in other patient populations may also prove useful for application to post-stroke fatigue.”

Electromyography has also been used to evaluate neuromuscular fatigue post-stroke,³⁴ but this measurement has limited value in the overall evaluation of post-stroke fatigue in which multiple dimensions of fatigue are usually involved.

Right hemispheric strokes have been implicated in fatigue because of disconnection between the right insula and frontal lobe or anterior cingulate cortex.³⁵ Fatigue has also been associated with damage to the brainstem and thalamic regions—affecting the reticular activating formation that regulates wakefulness.^{5,36} However, these physical associations with fatigue are inconsistent,⁴ and do not explain the widespread incidence of fatigue post stroke.

Other identified predictors of post-stroke fatigue include living alone or in an institution, impairment in activities of daily living (ADL), and recurrent stroke.³ Although older female stroke survivors were more likely to report fatigue in one

study,³ no association between fatigue and demographic variables was found in other studies.^{4,17} Given these multiple potential causes of post-stroke fatigue, any assessment of fatigue must be multidimensional, and treatment approaches are likely to be differentially beneficial in different etiologically defined subgroups.

Fatigue management— what is available?

Despite the high prevalence of post-stroke fatigue and its detrimental effects, studies for post-stroke fatigue interventions are scarce. Indeed, a search of the United Kingdom's National Clinical Guidelines for Stroke (2nd edition)³⁷ and its tables of evidence reveals no evidence on treatments for fatigue, nor is there any mention of fatigue as a condition requiring treatment.

Fatigue is not mentioned in the New Zealand guidelines for stroke management,³⁸ yet it has been emphasised that intervention studies are urgently needed for this potentially treatable sequelae of stroke.^{3-7,15,39}

Because the causes of fatigue are multidimensional and interrelated, a considerable range of fatigue management options are available, including cause-specific treatments, pharmacological intervention, and non-pharmacological interventions, including educational programs. For example, stroke patients who have been inactive and/or ill for periods of time may have nutritional or metabolic deficits resulting in fatigue.

Treating anaemia and supporting nutrition, or correcting electrolyte and fluid imbalances may make positive differences for these patients. In addition, comorbidities common to older adults such as arthritis, thyroid function changes, respiratory disease, altered glucose metabolism, or cardiovascular disease may contribute to fatigue and their treatment may lessen fatigue symptoms.⁴⁰

Use of psychostimulants and antidepressants (where fatigue is intermingled with depression) may offer some relief from the symptoms of fatigue related to HIV and multiple sclerosis.^{41,42} When stroke causes low initiation and psychomotor retardation, which may be interpreted as motor fatigue or executive dysfunction, tricyclic antidepressants such as methylphenidate have been successfully used to improve functional independence and mood.^{4,43}

Several non-pharmacological interventions have also been linked to reduced fatigue including therapeutic recreation and social activities, and complementary activities such as biofeedback,⁴⁴ relaxation and meditation,⁴⁵ music,^{46,47} and pet therapy,⁴⁸ which are thought to offer benefits through distraction and stress reduction which may ameliorate the impact of fatigue. Their specific benefits in alleviation of post-stroke fatigue in randomised controlled trials have yet to be established.

We have been able to identify only one randomised controlled trial of fatigue management in stroke survivors.²⁷ In that small (n=83) double-blind placebo-controlled trial, consecutive outpatient stroke survivors (average 14 months post stroke) were randomly assigned to either fluoxetine (antidepressant of the selective serotonin reuptake inhibitor class) 20 mg/day (n=40) or placebo (n=43) given over 3 months. Follow-up evaluations at 3 and 6 months after the beginning of the treatment, included the Visual Analogue Scale (mean score 5.4±2 at baseline) and Fatigue Severity Scale (mean score 4.4±1.2 at baseline).

Percent change in the fatigue scales and the proportion of patients with fatigue did not differ between the treatment groups at either follow-up assessments. However, fluoxetine significantly improved post-stroke emotional incontinence and depression in patients with fatigue. The authors concluded that post-stroke fatigue may be associated with diverse aetiologies (but not closely related to serotonergic dysfunction), and that further studies are required to elucidate the causative factors to find an appropriate treatment for post-stroke fatigue.

Psychoeducation for fatigue management

It has been suggested that studies are needed to evaluate whether rehabilitation strategies that include not only fitness and mobility interventions, but also social/behavioural and self-efficacy components, are associated with reduced fatigue and increased ambulation.¹⁵

Despite there being no literature on its efficacy, patient and family education and counselling has been identified as the most important rehabilitation nursing intervention for the management of stroke-related fatigue.¹⁴ Indeed, it has been suggested that patient education regarding post-stroke fatigue should be made available for patients, their caregivers, and families.^{14,19} This general approach to fatigue management is of particular relevance in the absence of a clear causal mechanism.

Such programmes typically provide anticipatory guidance about the likely experience of fatigue with the goal of diminishing distress and misunderstanding if fatigue occurs; helping to maintain a sense of control. Identification of fatigue-provoking activities, problem-solving and identification of fatigue management strategies are also provided, including energy conservation strategies (e.g., prioritizing, sleep hygiene, pacing, delegating, scheduling rest) and establishing appropriate balance between rest and activity.

Individually tailored increased physical activity may be beneficial in overcoming the self-perpetuating cycle of inactivity, deconditioning, and fatigue commonly observed in stroke survivors.¹⁹ As stated by Clarke and Lacasse⁴⁹ the goal of fatigue management is to equip patients with multiple self-help strategies to successfully alleviate or lessen fatigue throughout the disease process.

Unfortunately, there is no literature on the impact of educational programmes for fatigue post-stroke. There is, however, a literature available from other populations, including patients with cancer, multiple sclerosis, and those with traumatic brain injury. For instance, in cancer survivors, Fawzy⁵⁰ found that those who received a 6-hour intervention involving education on health promotion, stress management, and coping skills resulted in significantly greater decrease in fatigue compared with controls. In addition, Keyes⁵¹ found that participation in a single 60-minute psycho-educational fatigue management session produced significantly lower levels of behavioural, sensory, cognitive, and total fatigue compared to a control condition.

There is evidence of the effectiveness of educational fatigue management in multiple sclerosis.⁵²⁻⁵⁴ In a recent evaluation of a 16-hour fatigue management education programme, participants rated the programme highly or very highly, and there was a trend towards significant improvement in quality of life measures which may have resulted from small sample size (N=10 with 2 drop-outs).⁵⁵

In a recent traumatic brain injury study,⁵⁶ seven participants with acquired brain injury participated in an 8-session educational programme for post-injury fatigue. Quality of life as measured by the SF-36 improved significantly; there was a small non-significant drop in scores on the Brain Injury Fatigue Scale that was not linked to changes in mood.

Comprehensiveness (targeting multiple causes of fatigue), involvement of caregivers and family members, individual tailoring, relative simplicity, and non-pharmacological content are some of the clear advantages of these educational programmes.

Factors contributing to the problem

Several factors are likely to contribute to the lack of evidence for post-stroke fatigue management. First and foremost, as noted earlier, there is no accepted definition of fatigue, and “no single measure of fatigue adequately captures the complexity of the phenomenon.”⁹ Furthermore, while there are a number of measures specific to fatigue that can be used, none of these have been validated in stroke populations. Indeed, only one stroke-specific quality of life measure has been developed to include a subscale for fatigue consisting of three items.³³

In addition to this difficulty in quantifying fatigue, the causes of post-stroke fatigue differ from person to person and may include physical causes such as pain, disease, anaemia, inactivity, or other health problems.⁵⁷ It has been proposed that post-stroke fatigue may result from the combined effects of organic brain lesions and psychosocial stress related to changes in life situation.^{58,59}

Given these multiple potential causes of post-stroke fatigue, any assessment of fatigue must be multidimensional, and treatment approaches are likely to be differentially beneficial in different etiologically defined subgroups.

Finally, as previously noted, stroke survivors with less severe physical or cognitive disability tend to rate fatigue as a more severe symptom. Related to this is the possibility that difficulties with fatigue are less likely to become apparent while an inpatient, becoming evident only when one attempts to take-up his/her previous activities. This is reflected in increased reports of fatigue over the first year post-stroke.⁷

Where to from here?

The above literature identifies fatigue as a prevalent debilitating and distinct sequelae of stroke that has detrimental effects not only on the quality of life and other functional outcomes in these patients but also impedes their effective rehabilitation.

While a number of challenges remain in the assessment and treatment of post-stroke fatigue, the existing literature from other population groups could act as a springboard to much needed research in this area. In particular, there is a need to better differentiate those most likely to suffer post-stroke fatigue, to validate existing assessments of fatigue, and to evaluate the efficacy of fatigue management and treatment strategies in stroke survivors.

Competing interests: None.

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Two cases of perforated gastric ulcer: operation—recovery (case 2)

*Case report written by P Clennell Fenwick—M. B. London, F.R. C.S. Bd. (Late)
Surgeon to Christchurch Hospital, N. Z.—and published in N Z Med J 1908;6(25):9–
13*

CASE II—A female, aged 31 years, was admitted into Christchurch Hospital in a state of extreme collapse.

Her past history, ascertained later, was—Three years ago she had a severe attack of abdominal pain, but she can give no details of this attack. For the last 14 days patient had been feeling ill with slight pain in the gastric area.

On July 13th. she was working till the afternoon and then went for a walk. While walking she was seized with acute pain in the left side. She reached home and the pain increased in severity; but she did not vomit.

Next day, July 14th., she was sent into hospital.

On admission, patient is a thin woman with drawn face and sunken eyes. The nose is cold. The abdomen is greatly distended and tender all over. The percussion note is tympanitic all over. The liver dullness is obliterated. A diagnosis of ruptured gastric ulcer was made.

At 5 p.m. the abdomen was opened in the middle line, and a quantity of gas escaped. A good deal of fluid, non-offensive, was sponged out. On drawing down the stomach a perforation the size of a sixpenny piece was seen. This was situated to the left of the middle line just below the lesser curvature. The walls of the opening were very thick and more ragged than in the previous case.

The opening was rapidly closed with fine silk sutures. Drainage tubes were put into the right loin and suprapubic region.

Saline was administered per rectum every two hours, and patient rallied well.

On July 15th. temperature was 100.4°; pulse 118; 53 ounces of urine had been passed during the last 24 hours, and there was no pain.

The temperature rose each evening, and respirations became rather thick. On July 31st. the respirations were 56, the temperature was 100.4°, pulse 148, and the patient looked very ill.

After consultation the left pleura was aspirated and pus found. The patient was too ill for anaesthetic so I incised on the left side and put in a drainage tube releasing a very large quantity of foul smelling pus. The ethyl chloride spray was used. At least five pints of pus were measured and some escaped.

On August 1st. the temperature was normal, and patient had greatly improved. Some days later I excised a rib and provided free drainage.

At present date, November 2nd [1907], the patient is up in a chair, and improving steadily. There is still discharge from the empyema, but she is gaining weight and looking well.

After operation I kept her in a raised position for about 10 days, she then asked to be allowed to lie down, and from this I date the beginning of the chest trouble. I believe if I had kept her in the upright position I might have avoided the possibility of any infection of the pleural cavity.

December 23rd [1907]. Patient left for Dunedin in fair health but rather weak.



Intestinal neurofibromatosis

Anastasios Koulaouzidis, Shivaram Bhat, Mohammed Haris, John Moschos, Musa Kaleem, Barry D Linaker

A 48-year-old man with Von Recklinghausen's disease presented to the gastroenterology service with persistent dyspepsia. He had a pyloroplasty with truncal vagotomy for a peptic ulcer in the late 1980s and a subsequent gastro-enterostomy for delayed gastric emptying one year later. A gastroscopy showed a prominent gastric fold (Figure 1A) and a nodular lesion in the duodenum (Figure 1B).

Figure 1A. Prominent mucosal fold on scope retroversion



Figure 1B. Nodular polypoid lesion of duodenum



A computed tomography scan showed polypoid projections in the small bowel lumen. (Figures 2A, 2B) Neurofibromatosis type 1 (Von Recklinghausen's disease) is one of the most common genetic (defect localised in chromosome 17) disorders, with a frequency of nearly 1 in 2500 live births in the United Kingdom.¹

Only 10–15% of patients with neurofibromatosis type 1 (von Recklinghausen's syndrome) present with involvement of the digestive tract, mostly the upper gastrointestinal tract (i.e. stomach and duodenum). This can take the form of solitary or multiple neurofibromas, plexiform neurofibromas, or carcinoid (peri-ampullary) tumours of the duodenum.²

Those tumours are generally submucosal but they can also extend to the serosa. Patients are usually asymptomatic but they may complain of epigastric pain, dyspeptic symptoms and haematemesis or develop intussusception, intestinal perforation and occult bleeding.

Figure 2A. Reconstructed CT image of upper abdomen with polypoids lesions of stomach and duodenum (arrows).

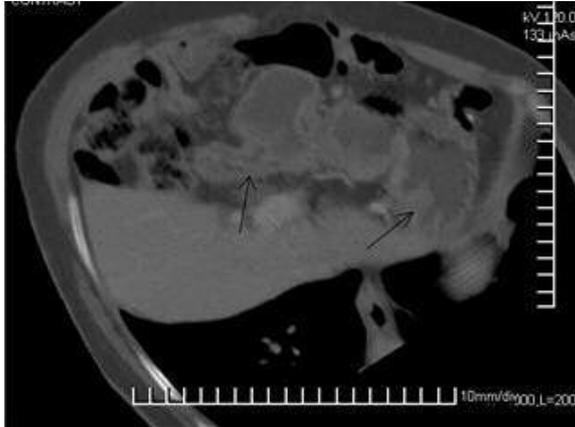
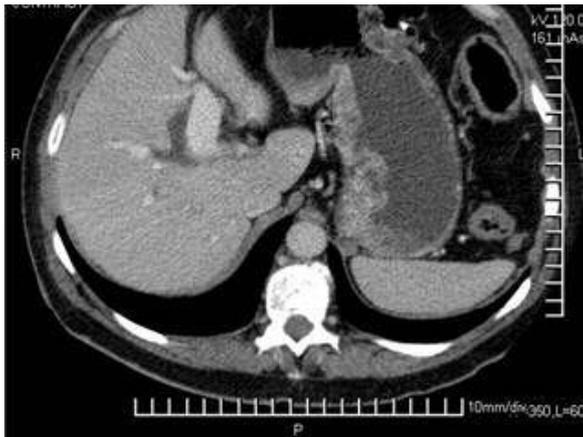


Figure 2B. Axial contrast enhanced multislice CT scan of the upper abdomen demonstrates polypoidal thickening of the gastric rugal folds, particularly marked along its posterior wall. These folds also show increased enhancement.



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Brucellar spondylitis (Pedro Pons' sign)

Oguz Karabay, Kamil Gurel, Ocal Sirmatel, Fatma Sirmatel

A 39-year-old man presented to our hospital complaining of fever with chills, night sweats, and headaches of 3 months' duration. The patient was suffering from severe lumbago, exacerbated by movement. Although he had physical therapy for his back pain, there was no improvement.

On examination, his pulse was 80/min, blood pressure 110/70 mmHg, and temperature 37.8°C. Liver palpable 2 cm below the right costal margin was firm and non-tender. Other system examinations were unremarkable.

Investigations revealed haemoglobin of 13.9 gm, ESR 60 mm/h, AST 45 U/L, and ALT 56 U/L (normal 0–40 U/L). Remaining blood biochemical parameters were within normal limits.

Brucella serology in blood, done by the standard tube agglutination (STA) method, was positive with a titre of 1:320. Blood cultures were positive for *Brucella* spp by the BACTEC system.

A plain lateral radiography revealed blunting of the anterosuperior corner of the L4 vertebrae (Figure 1). This finding arose the suspicion of erosion which was confirmed with a subsequent lumbar spine CT examination (Figure 2).

Figure 1. Blunting of the anterior superior corner of L4 vertebrae associated with osteosclerosis and osteophyte formation



Discussion

Brucellosis is a systemic infection caused by facultative intracellular bacteria of the genus *Brucella* that manifests most commonly as fever of unknown origin. Humans become infected by contacting or consuming animals or animal products (especially

unpasteurised milk products) that are contaminated with these bacteria. Brucellosis remains a major zoonosis worldwide and it is endemic in certain parts of Turkey.¹⁻²

The clinical manifestations of brucellosis are protean and include rheumatic complaints in 20–85% of patients. Musculoskeletal complications are important owing to their high prevalence and also the associated functional sequelae.

The most typical localisation of brucellosis is at the vertebral column.³ An initial invasive osteolytic phase in brucellosis is followed by an osteogenic reaction phase.⁴

CT of the lumbar spine revealed erosion at the typical location, for brucellosis, of lumbar vertebrae (Figure 2). Erosion at the anterior superior angle of lumbar vertebra was termed Pedro Pons' sign after Pedro Pons and Farreras who first described it in 1944.⁵

Figure 2. Destructive appearance (Pedro Pons' sign) at antero-superior corner (see centre of image) of L4 vertebrae (accompanied by prominent osteosclerosis) shown in a sagittal reformatted CT image



Currently, the most commonly used antibiotics in the treatment of brucellosis are tetracycline, trimethoprim-sulfamethoxazole, aminoglycosides, rifampicin, quinolones, and chloramphenicol. However, due to frequent relapses observed with monotherapy, combination therapies are currently recommended by the World Health Organization for the treatment of brucellosis²—doxycycline plus rifampicin or doxycycline plus streptomycin.

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Prices of selected generic drugs in Australia and New Zealand

The Australian Pharmaceutical Benefits Scheme (PBS) is currently under review. In particular, the reference price paid for generic drugs is of concern. It is of interest to compare the reference price (in Aus \$) of four commonly used medications.

In Australia, 30 tablets of enalapril 10mg cost \$19.21 (NZ\$6.20). The cost of 28 capsules of fluoxetine 20mg in Australia is \$23.50 (NZ\$6.81). Simvastatin 20mg—in Australia 30 tablets are expensive at \$47.90 and cost \$16.30 in NZ. One hundred tablets of metformin 500mg are \$14.20 over the Tasman and \$7.93 in NZ. And the NZ prescription co-payment of NZ\$15 seems trivial beside the Australian co-payment of Aus \$30.70.

PHARMAC take a bow.

Med J Aust 2007;187:236–9.

Probiotic *Lactobacillus* preparation to prevent diarrhoea associated with antibiotics?

Diarrhoea is a common side effect of antibiotics; it may prolong hospital stay, increase the risk of other infections, develop into more serious forms of disease (colitis, toxic megacolon), and lead to premature discontinuation of the needed antibiotic.

Clostridium difficile is responsible for around 15–25% of such problems, taking advantage of the damaged bowel and producing significant toxæmia after colonisation. Probiotics are living, beneficial bacteria or yeasts that are taken orally to help restore the microbial balance in the intestinal tract.

Would routine use of probiotics prevent or ameliorate antibiotic related diarrhoea? In this report the answer is yes as their randomised trial shows an absolute risk reduction of 17% and, in particular, appears to have eliminated *C. difficile* in the probiotic arm.

An editorial commentary supports the use of probiotics in such patients. However your reviewer notes that subjects taking high risk antibiotics (clindamycin, cephalosporins, aminopenicillins) were excluded, which rather diminishes the results.

BMJ 2007;335:54–5 & 80–3.

Stroke prevention in elderly patients with atrial fibrillation

It is known that warfarin is highly effective in the prevention of stroke in atrial fibrillation, with a 64% risk reduction compared with 22% for aspirin. This randomised trial compares these treatments in approximately 1000 patients who were 75 years of age or older.

Warfarin was superior to aspirin in the prevention of stroke (1.8% vs 3.8% per year) and was no more hazardous than aspirin in terms of major haemorrhage (1.9% vs 2.0% per year).

However, the absolute annual risk reduction was disappointingly low at 2%. The authors conclude that anticoagulation with warfarin is safe unless there are contraindications. One notes that the cohort of patients randomised (973) was matched by 979 patients excluded on grounds of unsuitability.

Prescription of warfarin remains a very serious matter.

Lancet 2007;460-1 & 493-503

Bleeding complications of warfarin use in the USA

This paper from the US Food and Drug Administration (FDA) comes up with some chilling statistics. It starts off by pointing out that in the US the number of dispensed outpatient prescriptions for warfarin increased 45%, from 21 million in 1998 to nearly 31 million in 2004.

Warfarin is among the top 10 drugs with largest serious adverse event reports submitted during 1990 and 2000 decades. And furthermore, from US death certificates, anticoagulants ranked first in 2003 and 2004 in the number of total mentions of death causing “adverse effects in therapeutic use”.

The authors point out that a “black box” warning about warfarin’s bleeding risk was added to the US product labelling in 2006, but feel that clinicians need to be more proactive with information for their patients. No argument with that.

Arch Intern Med 2007;167(13):1414-9.

Nephrogenic systemic fibrosis—a new iatrogenic disease?

A debilitating disease of uncertain cause that develops in patients with advanced chronic kidney disease and end-stage renal disease.

Ninety percent of these patients are dialysis-dependent, although non-dialysis-dependent patients with advanced chronic kidney disease and patients with acute kidney injury have been described.

It is characterised by fibrosis, predominantly of the skin, but involvement of the liver, heart, lungs, diaphragm, and skeletal muscle also has been reported with fatal consequences. In about one-third of the cases, exposure to gadolinium from magnetic resonance imaging in patients with chronic kidney disease has been linked to the phenomenon, so gadolinium imaging should be avoided.

So, a nasty sting in the tail of a nephrological success story.

The American Journal of Medicine. 2007;120:561-2.



The real cost of smoking: ASH's response to Eric Crampton's editorial

It must be wonderful to live in Eric Crampton's alternate reality where chronic respiratory illness, lung cancer, heart disease, morbid obesity, and sexually transmitted diseases (STDs) count as 'fun' (Crampton E. *Economics can be good for health, but it needn't be so dismal*; <http://www.nzma.org.nz/journal/120-1263/2756>). Where thousands of people every year seek out the excitement of living with cancer, or the adrenalin-fuelled sensation of dying painfully in middle age.

Crampton has the notion that indulgences such as smoking will help people enjoy a 'shorter life rather than eek out a miserable existence'. I'm sure that those who suffer shortened yet painful lives struck by cancer, heart disease, and respiratory illness as a result of an addiction to smoking would be the first to agree how enjoyable it is.

Aside from missing the point of preventative health, Crampton also fails to do himself justice as an economist. He argues that smokers pay more in cigarette taxes than they cost the public purse—dying of cheaper diseases and collecting less superannuation.

What are these mysterious 'cheap' diseases? Is it the 1100 lung cancer cases per year in New Zealand?¹ Lung cancer is one of the most expensive forms of cancer to treat.² Include the other conditions caused by tobacco, and the estimated cost of treating all the smoking-related disease in New Zealand tops \$200 million dollars.³ He argues that dead smokers claim less superannuation, but if they are dead, they are not contributing to it either. Neither are they contributing to the economy.

Lost production due to morbidity and mortality caused by smoking is somewhere in the region of \$280m per year. Let's not forget the costs of smoking breaks, enforcement of legislation, costs of extra health professionals to treat smokers, and the many others costs and we are soon racking up a hit to the economy of over \$1.5 billion per year!!!³ Tobacco tax generates approximately \$1 billion per year. Even a 'real economist' like Crampton can see that this is half a billion short of what smoking is costing the economy.

Where Crampton suggest that us 'puritans' should steer clear of economics, perhaps he should steer clear of libertarianism. The argument that people choose their behaviour—so leave them alone, cannot be applied to smoking.

Nearly three-quarters of smokers under 19 say that if they had their life over again they would not smoke, and two-thirds of all smokers want to quit.⁴ People may choose to start, but very quickly become addicted, creating a dependence that totally undermines their freedom to choose.⁵ The very addictive and deadly nature of smoking is a violation of rights in itself.

We need to treat tobacco relative to the harm it causes. Cigarettes are killing 4500 New Zealanders every year, and this is a tragic reality, not a trivial vice. Raising tax on smoked tobacco is one of many things we must do to reduce these deaths.⁶

We need to get really serious about the health (and economic) impact of the tobacco epidemic in New Zealand. ASH New Zealand is setting a 10-year deadline to end the sale of cigarettes and stop this deadly drug being seen as just another bit of ‘fun’.⁷

Competing interests: ASH is a tobacco control NGO with funding from the Ministry of Health. We would like to be more puritan than we are, but we all have our vices—we’re only human.

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Taxes for health: the argument is more about health than economics

We appreciated the *Journal* balancing our opinion on the use of tax as an instrument for health¹ with a wry editorial written by a ‘real economist’ trying aiming to counter the notion that economics is the ‘dismal science’². However, we think he may have scored an ‘own-goal’.

Assumptions are often the economist’s building blocks. But it is hard to understand why the editorial assumed we were making an economic argument in support of economic instruments such as taxes, duties, and subsidies. We were not. Nor did we argue only for economic instruments in the form of large increases in taxes on any product or behaviour that might be unhealthy as the editorial implied.

Rather we argued that carefully targeted and evidence-based economic instruments are an underused instrument to improve and protect public health. We should perhaps not be surprised that an economist, who does not understand that climate change is a health issue, misunderstood these points.

Tobacco taxes have long been used in this way internationally³ and are described as a key intervention in the government’s current Tobacco Control plan.⁴ However, there has been no real increase in these taxes since 2000. For alcohol we argued that the impact of differential taxes by level of hazardous consumption should be explored to see if it could impact on the huge toll of preventable death, illness, and social dislocation caused by excessive drinking.

This was exactly the approach taken with the changes in excise duty aimed at ‘alcopops’ introduced in 2003, a category of drink apparently formulated and marketed by the alcohol industries to the youth market. For food, we suggested the focus should include exploring the potential for selective subsidies on healthier foods, not just additional taxes on unhealthy foods.

Our arguments are not based, as one might infer from the editorial, on the narrow view that health-promoting taxes are potentially justifiable only to balance up revenue generation with ‘externalities’ such as health care and other societal costs, nor based on Pigou’s notion of addressing market failures.

We are public health professionals arguing for better use of economic measures, where they are shown to be effective, as a rational policy instrument to achieve public health goals. We do so because many public health goals are worth achieving *in themselves*. We believe that society values highly measures that prevent human suffering and early death, regardless of their economic ‘efficiency’. Indeed, it is the exclusive and uncritical focus on ‘efficiency’ is which, is why economics is often portrayed as the dismal science.

It is also because we value personal choice and autonomy, including the right to make unhealthy choices, that we advocate taxes and subsidies as a key component of rational health policy. Taxes and subsidies provide signals to the consumer to reduce unhealthy consumption, and start to counter the often all pervasive signals from

vested interests through blanket advertising of unhealthy products, whilst continuing to allow individuals to exercise their free choice.

Dr Crampton makes much of the superficially seductive argument that economic instruments are used by paternalistic public health control-freaks aiming to curtail autonomy and take away the 'interest', 'flavour', and 'fun' in life.

Such arguments ignore the degree to which the tobacco, alcohol, and food industries manipulate child and adult consumers through clever, aspirational marketing. It also ignores the evidence of addiction and regret among many consumers. Thus if smoking adds so much spice and interest to life, why is it that smokers almost universally regret starting,⁵ and most state they wish to quit and have tried to do so?⁶

Surely measures, including increases in tobacco taxes, which prevent initiation and subsequent addiction to tobacco enhance freedom⁷ by protecting young people from a life of nicotine addiction and the associated health hazards? These arguments we believe would cut little ice with the thousands and thousands of victims of these unhealthy products.

Perhaps Dr Crampton would like to discuss his views with some of the thousands of smokers (and their families) diagnosed with cancer and heart disease each year, or some of the victims of domestic violence from drunken partners. We wonder how much 'fun' they attach to smoking and drinking, or how much 'interest' it has added to their lives?

Finally, the editorial dismisses the notion of independent policy-making agencies because there is no consensus about health goals and the use of economic instruments to achieve them. This is a standard argument of those whose interest is profit not health. We believe there is a strong consensus about the importance of achieving public health goals, and whilst there is not complete consensus (when is there in politics?), that there is strong support for selective taxes and subsidies to promote the public health, particularly where the purpose has been properly explained, or as we advocate some of the revenue is dedicated to health purposes.

The problem with the 'hurly-burly' of normal politics, which Dr Crampton advocates to deliver appropriate policies, is that it is often dominated by overt and covert influences of powerful corporations whose over-riding aim is to maximise profits, even if it is clearly to the detriment of the health of the population.

We believe there is good evidence that most of the public want protection from nicotine-addiction, protection from alcohol-related harm, protection for their children from the obesity epidemic etc. Furthermore, we think that most people would agree that public policy-making should not be dominated by the preferences of vested commercial interests.

Therefore we suggest the adoption of the model provided by the Reserve Bank and PHARMAC, where a democratically-elected government establishes agencies that are at arms-length from immediate political and corporate interference. Such agencies should have appropriate governance arrangements to ensure transparency and accountability to an independent board. The agencies should consider information from appropriate experts (e.g. health professionals, public health researchers and practitioners, economists and health economists, ethicists, and political scientists) and from the public, and can establish and implement policies, including economic ones where appropriate, to fulfil public health goals.

Competing interests: Two authors (NW and RE) have previously worked for NGOs and the Ministry of Health on tobacco control issues, and one author (NW) for nutrition issues. All of the authors have been employed as medical practitioners in tax-payer subsidised health systems and have even prescribed tax-payer subsidised pharmaceuticals, including contraceptives. To the likely surprise of some² they have even prescribed subsidised condoms— given the public health benefits of preventing unwanted pregnancies and sexually transmitted infection.

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Author responds to criticism of her 'Did Janet Frame have high-functioning autism?' viewpoint article

Since the publication of my viewpoint article in the *NZMJ*¹ there have been some interesting responses to my article in the media, and in communications by email to me. These have included some strong statements regarding my professional and personal integrity.

A number of ideas regarding autism spectrum disorders (ASDs) have also been raised, which I would like to clarify. Many of the statements have been of an absolute nature, and have included opinions that people with autism:

- Cannot make friends or get along with workmates
- Always have impaired empathy
- Cannot feel love or grief as much as other people
- Cannot pretend or put on an act
- Always have impaired imagination
- Could never write as clear and insightful an account as Janet Frame's, and that
- Special interests in autism are obsessive and not useful

None of the above statements are correct, as seen in the extensive academic and autobiographical literature examining autism. For evidence that people with autism can write works of a high quality and high level of insight, I especially recommend the autobiographical works of Donna Williams² and Liane Holliday Willey,³ women with high-functioning autism spectrum disorders who have written extensively about their own lives and ASDs in general.

If any of the above statements were correct, it is easy to see why the idea of a possible diagnosis of autism might then be considered a "slur on her character", as described by one correspondent, when describing a renowned author.

People with autism, however, especially those with very high IQs, are not required to have any of these problems at any one point in their lives to qualify for a diagnosis. They are often able to do all of these things, especially after the childhood and young adult years, when they develop skills in their areas of impairment, and go on to achieve highly in life.

I would also like to clarify that there is no one way to become knowledgeable about autism. There is no specific qualification in autism for medical practitioners, and even if there was such a qualification, this would not be needed to form a reasoned opinion.

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Janet Frame and autism

The suggestion by Dr Sarah Abrahamson [12 October 2007; N Z Med J. 2007;120(1263) <http://www.nzma.org.nz/journal/120-1263/2747>] that Janet Frame may have been on the autistic spectrum has received much media attention.

This probably reflects the esteem in which Janet Frame is held and the current fascination with autism in New Zealand with estimates that 1 in a 100 people may be on the spectrum with the majority at the higher functioning end.¹

But diagnostically it is a growing spectrum and although no two people will present exactly the same there will be some similarities such as issues with social communication and interpreting non-verbal language; a preference for the logical, literal, and predictable with a dislike of change; and a tendency to anxiety or depression from having to fit in with a world that is confusing and does not understand them. An intense special interest or ability is likely as is extreme sensory sensitivity.

It does not mean people with autism are not sociable or do not have empathy but it may be self-taught for example, people with Asperger's Syndrome (AS)—probably the most common diagnosis in New Zealand—talk of having to learn the rules of the 'neurotypical' (i.e. the non AS) world.

The idea that Janet Frame was on the autistic spectrum is not a new one. Some of my 'Aspie' friends (those proudly identifying as having AS) have longed claimed her as one of them. As a parent of a child with autism, a fan of Janet Frame's writing, and a researcher in the field, I wrote an essay in 2000 (unfortunately since lost) on whether she might have had Asperger's Syndrome.

As sources, I used her writings, the recently published Michael King biography, and some video and audio records. I discussed the possibility with [the late] Michael King who indicated agreement, mentioned she had shown interest in autism since the diagnosis of her great niece, but suggested it was best not to publicise my research as it might upset members of her family.

When I mentioned my theory to international expert Tony Attwood he said that an incorrect diagnosis of schizophrenia was common in people with autism, particularly in the past when understanding of autism was limited.

Understanding of the autism spectrum is rapidly evolving but the diagnostic language is negative with words such as disorder, suffering, obsession, and abnormality possibly causing many to fear it. The DSM IV reflects the medical model of disability as something deficient that is located in the individual requiring treatment or intervention.

New Zealand public policy is instead underpinned by the New Zealand Disability Strategy whereby disability is created by disabling attitudes and environments. My current research is on how the lived experience of autism can inform and improve public policy.

Dr Abrahamson raised the link between Janet Frame and autism to raise awareness among health professions of the autism spectrum so patients will receive appropriate diagnosis and support to participate in the community, not be set apart from it.

Janet Frame suffered from being an eccentric genius in a 1940s New Zealand which had a limited view of normality and which saw institutionalisation, lobotomies, and unanaesthetised electroconvulsive therapy (ECT) as acceptable interventions for those who did not fit in.

Janet Frame's story illustrates professional capacity to get it wrong...or right.

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Footnote:

1. Estimated prevalence used by Autism NZ www.autismnz.org.nz; for more information about autism, see www.humans.org.nz



"Diagnosis by mail": a response to the viewpoint article on Janet Frame

Dr Abrahamson seems to have taken presumption to a new level with her long-distance, posthumous diagnosis of Janet Frame as being autistic (<http://www.nzma.org.nz/journal/120-1263/2747>).

Selfishly, I would like to ask the following question of her: My wife and I knew Janet during the time we were restoring her childhood home in Oamaru. We live in Nantucket, Massachusetts now, however, and I wonder if Dr Abrahamson would do us the same favour of diagnosing us through the mails. If so, I would be happy to send her a list of symptoms that characterise our behaviours (and a picture of us, if it will help).

As with Janet Frame, I would assume that she would not need to be any more acquainted with us, unless of course she wanted us to write some stories.

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Home is where the heart is—most of the time

One reason for the considerable public health interest in the home environment, particularly the indoor home environment, is because we spend so much of our lives in this setting. Risk assessment and management principles imply that even relatively low-risk exposures will become important if humans are exposed to them frequently and for prolonged periods and if such exposures are common across the population. Consequently, many countries have carried out time-microenvironment-activity studies to support improved environmental health policy development.^{1,2}

New Zealand has not specifically measured the amount of time that we spend in the indoor home environment. However, it is possible to produce estimates by combining data from several sources.

This brief report provides estimates of the amount of time that New Zealander's spend in the indoor home 'microenvironment' using the most complete available New Zealand data.

Method—We used two data sources that have measured the amount of time that New Zealander's spend in various locations. These sources are the *1998–99 NZ Time Use Survey* and the *1997–98 NZ Travel Survey*.

- The *NZ Time Use Survey* was conducted by Statistics NZ in 1998–99 and included a sample of 8500 people aged 12 years and over.³ This survey used a 48-hour diary system in which participants recorded activities and locations.
- The *1997–98 NZ Travel Survey* (NZTrS) was conducted by the Land Transport Safety Authority (LTSA).⁴ It included 14,250 people of all ages. This survey also used a 48-hour diary in which people recorded all journeys from the house. Although it was not primarily established to measure time use, it can be analysed to provide similar information about time spent in various locations.

Neither of these surveys recorded whether the participants were indoors or outdoors. However, specific studies have been carried out overseas that collected such information.

A telephone survey of time and activity patterns has been conducted in the United States. This was the *National Human Activity Pattern Survey* (NHAPS) based on 9386 participants interviewed over the 1992–94 period.⁵

A similar survey in Canada, the *Canadian Human Activity Pattern Survey* (CHAPS) was carried out from 1996–97 and included 2381 participants.⁶

Findings from these surveys are very similar.⁷ They show:

- While at home, people spend about 96.6% of time indoors;
- At work, school, and other places about 83.9% of time is indoors; and
- While travelling, about 97.3% of time is indoors.

Results—Findings about place of activity from the NZTUS and NZTrS are shown in Table 1. A key observation is that we spend most of our lives at home (72–73%), followed by our work and study environment (12–13%), and transport environment (5–6%).

Combined with overseas estimates, these data suggest we spend about 70% of our lives in the indoor home environment, and a total of about 94% of out time indoors in buildings or vehicles.

Table 1. Estimated time spent in main ‘microenvironments’, based on New Zealand survey data and overseas estimates of the split of indoor and outdoor time

Microenvironment	NZTUS ¹	NZTrS ²	Average of NZ surveys	Indoors ³	Outdoors ³
Home total	71.8%	72.5%	72.1%	69.7%	2.4%
Other places					
Other peoples home	3.9%				
Work & study	12.6%	12.2%			
Recreation	5.1%	8.1%			
Other	0.9%	2.4%			
Other places total	22.4%	22.8%	22.6%	19.0%	3.6%
Transport	5.8%	4.7%	5.3%	5.1%	0.1%
TOTAL	100.0%	100.0%	100.0%	93.8%	6.2%

Sources:

¹ *NZ Time Use Survey* (NZTUS), Statistics NZ, 1998-99 (8,500 people)

² *NZ Travel Survey* (NZTrS), Land Transport Safety Authority, 1997–98 (14,250 people)

³ Indoor and outdoor distribution of NZ time estimates based on applying indoor:outdoor split obtained from a weighted average of US and Canadian surveys⁷ (Home 96.6% of time indoors, Other places, 83.9% of time indoors, Travel 97.3% of time indoors)

Discussion—Findings from these surveys confirm that the home environment, particularly the indoor home environment, is the one where New Zealanders spend most of their lives. This result is consistent with the findings of time use surveys carried out in other developed countries. One difference is that New Zealanders appear to spend slightly more time at home than in other developed countries.

Estimates of time indoors at home are slightly lower for the US (65% of time indoors at home),⁷ Canada (66%),⁷ Germany (65%),⁸ and United Kingdom (67-68%).⁹ If the time spent at ‘other peoples houses’ was taken into account, then the time spent in New Zealand homes would be even greater than these estimates suggest.

The relatively large amount of time spent in the indoor home environment has notable public health implications. Hazards in the domestic environment become particularly important because of the long duration of exposure. For example, domestic exposures in New Zealand homes to dust mites,¹⁰ endotoxins,¹¹ and mould¹² are associated with asthma.

Moreover, the home is an important setting for transmission of some infectious diseases, such as meningococcal disease, where the risk for children is greatly

increased by household crowding.¹³ Because the indoor home environment is unregulated, it remains an important setting for passive smoke exposure.^{14 15}

Cold damp housing is associated with poor health outcomes, and conversely, improving such conditions with home insulation results in significant health improvements.¹⁶

The most vulnerable groups of the population also spend more of their time in the home environment. These groups include infants and children, the elderly, and those with disabilities and chronic illnesses such as COPD.¹⁷ Such vulnerability, coupled with long periods of exposure to the domestic environment, is reflected in the high rates of home injuries seen in children.¹⁸

The time-use findings presented here have several limitations. Probably the most important is our reliance on overseas estimates of the split of indoor and outdoor time. The estimates used here were based on large surveys conducted in the United States and Canada. Despite different methods, the findings for these countries were very similar.⁷ It seems reasonable to conclude that the indoor-outdoor mix is not markedly different in New Zealand, though that assumption needs to be investigated further.

Statistics New Zealand has developed a proposal for a repeat time-use survey to be carried out in 2008/09. They have consulted widely regarding the content and method for this survey and are considering several important extensions, including broadening it to all age groups, and recording of indoor-outdoor location.

Results from this survey will be useful in providing more precise estimates of the relative importance of environmental exposures for New Zealanders. Ultimately, New Zealand may also need to consider a range of other more specialised approaches to provide time-microenvironment-activity data for specific purposes.¹⁹

Competing interests: Two of the authors (MB, MK) have carried out work for Statistics New Zealand on the potential scope of the next *NZ Time Use Survey*.

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The development of guidelines for handling samples and specimens collected for research involving Māori

This commentary paper describes the process through which guidelines¹ were developed for the disposal or retention of samples and specimens from research involving Māori. These were developed by the University of Otago, Christchurch Māori Research Development Komiti to ensure consistency with cultural practices and beliefs and enhance the cultural safety of Māori participating in research.

The University of Otago, Christchurch (UOC) is a division of Health Sciences within the University of Otago, which has a commitment to partnership with Māori consistent with the Treaty of Waitangi and the University's stated objectives.

The University of Otago Policy for Research Consultation with Māori provides the framework for mandated consultation processes with Māori for research. The policy operates under the korowai (cloak) of a Memorandum of Understanding between Ngāi Tahu and the University of Otago.

The UOC Māori Research Development Komiti (MRDK) was formed in 2002 to develop strategies to respond to the needs and aspirations of Māori within research undertaken at UOC. The MRDK was made up of both Māori and non-Māori staff of the UOC who had demonstrated interest and commitment to developing Māori responsive research within the School.

At the time of its formation, discussion was undertaken with the local Runaka health committee (Mana Whenua ki Waitaha) to gain its support and ensure representation of its interests as Mana Whenua.

The MRDK key tasks included:

- Assisting in the scoping and development of the position and in appointing the Research Manager-Māori.
- Supporting and offering guidance to the Research Manager-Māori.
- Providing a forum to discuss general issues pertaining to responsiveness to Māori in research.
- Supporting the development of culturally competent research within UOC, including via establishment of specific protocols and processes.
- Being a forum to support emerging research.
- Supporting dissemination of research results in the Māori community.

In July 2003, the first Research Manager-Māori for UOC was appointed. A key task of this position was to contribute to the development of policies and practices which would enable UOC researchers to develop their capacity for designing and implementing research responsive to the needs and aspirations of Māori.

It was proposed that guidelines be developed to ensure consistency with Māori cultural practices and to encourage Māori, to participate in research conducted by researchers of the UOC.

The guidelines needed to be clear, uncomplicated, and easily applied within research contexts in order to encourage participation by a wide range of researchers. The collective experience of the MRDK enabled development of practical guidelines that met both cultural and researchers' needs.

The original proposal of May 2003 was to develop policies and procedures for the return of all body tissue to Māori research participants.

When the newly appointed Research Manager-Māori consulted local Māori organisations on what the requirements should be for the guidelines, it was decided that researchers should offer to return whole body parts (limbs or whole organs e.g. tonsils, placenta) to each research participant or whanau.

The Ministry of Health, however, required that samples of blood and other bodily fluids should not be returned for public health reasons and that these samples must be destroyed. Therefore, a process was developed within the UOC to enable research participants to choose to have any remaining samples disposed of using standard methods or with appropriate karakia (blessing), at the end of the study.

Samples requiring such disposal are identified using a distinctive label. Any remaining samples are stored in a locked freezer, after all analyses have been completed, to await the next disposal ceremony with karakia. It is noted that disposal with karakia is available to all participants, not just Māori, and it is hoped that a small study might be undertaken in the future to investigate the uptake of this option by non-Māori.

Bishop John Gray wrote a karakia for the disposal process, which was first performed by the Māori Chaplains in the Christchurch Hospital Chapel on the 6 September 2005. Those invited included Chaplains from the Canterbury District Health Board (CDHB), and the General Manager of the CDHB, members of the Manawhenua Ki Waitaha, Māori members of the Ethics Committee, members of the Māori Indigenous Health Institute, members of the MRDK, Māori medical students, and other staff members of the UOC.

Since their introduction, these guidelines have been embraced by both researchers and the general community who participate in research, as evidenced, for example, by the requests of donors to the Christchurch Tissue Bank for cancer research.¹

Additionally these guidelines raised substantial interest when they were presented by the UOC Research Manager-Maori at a National Health Research Hui (meeting).² In fact, other institutions have requested to use the guidelines for research within their own rohe (region).

Both the MRDK and UOC are very pleased with this interest and, if there is appropriate communication with the UOC Research Manager-Maori, will permit the guidelines to be used widely with acknowledgement.

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References:

1. Rangahau e pa ana ki te Māori, Nga ahuatanga mo te whakakahore me te pupuri i nga tauira me nga kowaewae. Research Involving Māori, Guidelines for Disposal or Retention of Samples and Specimens. <http://www.chmeds.ac.nz/research/samples3.pdf>
2. Morrin H, Gunningham S, Currie M, et al. The Christchurch Tissue Bank to support cancer research. N Z Med J. 2005;118(1225). <http://www.nzma.org.nz/journal/118-1225/1735>
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Edward (Ted) Litton Telford Harding

(7 November 1931 – 8 August 2007; M.B., Ch.B. (University of Otago) 1957. MRCP 1964)

Ted Harding was born in Petone and received his early schooling at Chilton St James in Lower Hutt, at Wellesley College, and subsequently at Wellington College.



After graduating from Otago Medical School in 1957 he worked as a house surgeon and registrar in Wellington and Hutt Hospitals where he met Clemency Mirams, a nurse.

They married in 1961. In 1962, they travelled to London, where Ted worked in the Royal Masonic Hospital.

On returning to Wellington in 1964, Ted joined the late Paddy Delany in Johnsonville and Ngaio. Ted was a member of the Royal New Zealand College of General Practitioners, was Treasurer for 15 years, and was admitted as a Fellow of the College in 1988.

He was in active practice, mainly in Ngaio, for 42 years until retirement in 2006. He was a popular family doctor who enjoyed his contacts and relationships with his patients. Roger Ridley-Smith recalls him as a courteous and astute colleague, with whom he enjoyed a long and amicable association.

Chief among his interests were fishing, sailing, and music. Friends and family will miss his impromptu jazz piano performances.

In 1995, Ted was diagnosed with prostate cancer. After a relapse earlier this year, he died at Mary Potter Hospice, Wellington. A large congregation of friends, family, colleagues, and patients gathered at Old St Pauls in Wellington to pay their final tributes.

This notice would not be complete without a brief historical note about Ted Harding's predecessors and their links with the practice of medicine in New Zealand.

Ted was the fourth link in a family chain to practice medicine in the capital. His great-grandfather, Robert Harding, was born in Belfast, and graduated in Dublin. He arrived by the HMS *Miranda* in 1861, and—having practised in Auckland, took part in the siege of Gate Pa in 1864 (after which he was decorated), and treated miners' maladies in the early settlement of Waikouaiti—he went to Wellington, where he set up a “comfortable” practice.

Amongst many stories about the egregious Robert Harding, (who always wore a black top hat when galloping away on horseback to a house call), we read of the popular doctor's visit to a house, where, upon arrival, he complained that he could smell a mouse. “The patient replied that there were no mice in her house, and the doctor must have brought it himself. A search revealed the mouse in the doctor's heavy top-coat.”

The 15 July 1881 edition of *The New Zealand Times* contains an interesting account of Robert Harding's funeral procession down Willis St exemplifying the respect shown towards doctors of the day.

Robert Harding's son, Harold WL Harding, was dux of Wellington College in 1884. He qualified in England, and established a practice in Petone, where he worked for 40 years, attending maternity cases on a bicycle, for, as he said, "speed." His Petone practice was taken over by his son, Dr Jack T Harding, a paediatrician whom older doctors will remember.

Ted is survived by his wife; three children, Jeremy, Rachel, and Elizabeth; and nine grandchildren.

Roger Ridley-Smith, Mrs Clemency Harding and Jeremy Harding supplied this obituary notice.



Robert (Bob) George Mathieson

(3 October 1920 – 27 September 2007)

Dr Bob Mathieson was born in Wairoa, Hawke's Bay. His schooling was in Dunedin and he graduated from the Medical School there.



He had a long and varied medical career, practising first for a year in Kaitangata, South Otago in 1946 and in Invercargill the following year; then in Christchurch before settling in Birkdale on Auckland's North Shore.

On the North Shore he had a large general practice with a big obstetrical component.

In 1980, he became Medical Officer of Health for the North Shore and Rodney areas before doing a 2-year stint in a hospital in Hong Kong.

Dr Mathieson set up practice in Warkworth in 1984. He retired from general practice in 1990, but stayed on in Warkworth as assistant manager of the Rodney North Harbour Health Trust full-time until 1996.

In his retirement, he moved throughout the North and South Islands. While he was on a fishing trip (Labour Weekend 2003) he suffered a massive stroke which left him aphasic and hemiplegic. He spent the last 4 years of his life in Warkworth Hospital.

Dr Mathieson was well known in gardening and art circles.

He is survived by 5 children

Bill Brabazon wrote this obituary from material supplied by Wendy Hawkings, Rodney North Harbour Health Trust.



Erratum

Sundborn G, Metcalf P, Scragg R, Schaaf D, Dyall L, Gentles D, Black P, Jackson R. *Ethnic differences in the prevalence of new and known diabetes mellitus, impaired glucose tolerance, and impaired fasting glucose. Diabetes Heart and Health Survey (DHAH) 2002–2003, Auckland New Zealand. N Z Med J. 2007(29 June);120(1257).* <http://www.nzma.org.nz/journal/120-1257/2607>

After being alerted by a reader, the authors advise some minor corrections:

1. Corrected the prevalences on page 2, lines 2 and 5 (changed to **Maori males 9.5%, females 6.7%; and for European/Other males 3.4%, females 2.4%**)
2. Deleted reference 2 from the reference list and renumbered references in the text accordingly.

Please refer to the above URL to see the corrected copy.



Today's Students. Tomorrow's Doctors: reflections from the wards

Kathy Feest, Karen Forbes. Published by [Radcliffe Publishing](#), 2006. ISBN 9781846190780. Contains 144 pages. Price £19.95

This book is a good example of how a simple idea can have important consequences.

It is a collection of stories written by newly graduated UK doctors on their experiences on moving into their junior doctor years. That's the simple bit, and the stories are good reads.

The important consequences bit is how these stories might have wide relevance to doctors at all levels of training. For a supervisor, the stories can remind us of the problems that face junior doctors and therefore how they might best be helped. For junior doctors the stories can provide empathy and a feeling of camaraderie. For senior medical students, they can illustrate the job ahead and help focus learning. For junior medical students, they can show the nature of some aspects medical practice and therefore help frame learning.

Moreover, for the people involved in planning the learning of medical students and junior doctors, they can help remind us of some of the "real life" experiences of new graduates.

Overall, the stories are happy, sad, funny, amusing, and inspirational (and brief).

Tim Wilkinson
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