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This Issue in the Journal

S Gibb, A Beautrais

Non-fatal suicide attempts incur substantial costs in terms of injury, family burden, and service utilisation. Those who make suicide attempts are at high risk of making further attempts. While suicide rates have declined slightly in New Zealand in the last decade, examination of hospitalisation admission data for Canterbury for the decade 1993–2002 found that rates of suicide attempt have increased, particularly among women and adults. These increases highlight the need for suicide prevention strategies to be targeted at males and females of all ages.

Mortality, morbidity, and asbestosis in New Zealand: the hidden legacy of asbestosis exposure
P Smartt

This study examines the recorded health events of New Zealand men diagnosed with asbestosis between 1974–2001. It highlights the public health importance of the disease, the widespread occupational exposure in New Zealand, the under-reporting of asbestosis in official mortality statistics, and the hugely magnified risk of lung cancer in men with asbestosis.

Tutorial dynamics and participation in small groups: a student perspective in a multicultural setting
E Gill, A Tuck, D Lee, L Beckert (for a multicultural task group)

The language and cultural backgrounds of medical students were studied, and students’ perspectives on participation in small-group teaching were explored. Although only half of the sample identified as New Zealand European or Maori, 64% of students identified English as their first language. Therefore lack of participation should not be assumed to be due to language difficulties. Two-thirds of students (66%) students felt there was a lack of full participation in small-group teaching. Personality, cultural, and language differences were perceived as contributing factors and these perceptions differed between students of different backgrounds.

A descriptive epidemiology of giardiasis in New Zealand and gaps in surveillance data
E Hoque, V Hope, R Scragg, M Baker, R Shrestha

New Zealand has a high rate of giardiasis compared with other developed countries. Giardiasis is an intestinal infection or stomach bug caused by *Giardia*, a protozoan micro-organism. Children less than 5 years and adults aged 25–44 years are most
vulnerable. Pakeha/Europeans were predominant, although ethnicity information was missing for many. Rates of giardiasis varied by health district. Differences in environmental and social factors may account for these variations. Improved record-keeping and a need for better surveillance of diseases is advocated.

**Lifestyle screening: development of an acceptable multi-item general practice tool**
F Goodyear-Smith, B Arroll, S Sullivan, R Elley, B Docherty, R Janes

A short screening tool for lifestyle and mental-health risk factors (smoking, alcohol and drug misuse, problem gambling, depression, anxiety, abuse, anger, sedentary lifestyle, and eating issues) has been developed for use in primary care. This tool can either be administered by general practitioners (GPs) or practice nurse (PNs), or self-administered by adult patients. Its acceptability and feasibility of use was assessed with 50 consecutive adult patients per practice from 20 randomly-selected urban GPs, 20 PNs and 11 rural GPs (n=2543). Patients came from diverse ethnic, geographical and socioeconomic backgrounds. The sample prevalence of positive responses identified ranged from 2.8% (gambling) to 42.7% (depression), with the number of patients requesting immediate assistance (0.5 to 13.5%) not overwhelming clinicians. The tool was well accepted by patients, with few objections to specific questions (0.1-0.8%). Most practitioners will use the screening tool once available.

**Salmonella Brandenburg: changing patterns of disease in Southland Province, New Zealand**
R Clarke, P Tomlinson

A marked increase in infection due to *Salmonella* Brandenburg has been noted in New Zealand in recent years. There has also been a change in the demographic characteristics of infection, and infection is no longer confined to the gastrointestinal tract. This study was designed to research the incidence and pattern of *Salmonella* Brandenburg infection in New Zealand, and specifically the characteristics of human isolates seen at Southland Hospital, Invercargill, New Zealand. Results show a change in the geographic and seasonal distribution of the disease, and the animal host, and suggest that the incidence of infection and the invasive potential of *Salmonella* Brandenburg may be increasing.

**The Auckland Hospital Ethics Committee: The first 7 years**
R Pinnock, J Crosthwaite

In 1995, a clinical ethics committee was established at Auckland Hospital to assist health professionals in managing ethical dilemmas arising in clinical practice. In common with similar committees in other counties, it provides opinions, but the responsibility for making clinical decisions still resides with clinicians. Although 82% of doctors and 98% of nurses see a role for the committee, few have actually consulted it. Most of those who have consulted the committee valued the opinions they were given. We believe all healthcare workers should have access to ethical expertise.
Effects of nursing industrial action on relatives of Intensive Care Unit patients: a 16-month follow-up
P Dzendrowskyj, G Shaw, L Johnston

This study describes the effect that industrial action (at Christchurch Hospital in 2001) had on relatives of Intensive Care Unit (ICU) patients. Using a written questionnaire, we investigated emotional and psychological distress on relatives, and compared those patients transferred out of Christchurch, those patients who remaining during the strike, and a control group. Results show that industrial action caused measurable distress and anxiety among those relatives involved in the strike, regardless of whether patients were transferred. Effects were more marked in those relatives involved in air transfers. In addition, the study group had a persistent negative perception of the healthcare system.

The health of alternative education students compared to secondary school students: a New Zealand study
S Denny, T Clark, P Watson

This study compares the health and wellbeing of alternative education (AE) students with secondary school students from New Zealand. The study finds that AE students are more likely to come from disadvantaged backgrounds and more likely to be vulnerable to behaviours that endanger their health (such as drug and alcohol use, risky sexual behaviours and risky motor vehicle use) than secondary school students. Findings from this study support the need for specific health services for alternative secondary school students.
The Orewa Speech

Allan Pelkowitz, Sue Crengle

As with education, policy decisions on positive funding initiatives in healthcare have always been based on providing support for those people with the greatest capacity to benefit. In New Zealand over the past decade or so, sentinel data (such as mortality rate\(^1\) and access to surgery) have shown that Maori do not enjoy the same benefits as the rest of the population.

The reasons for this disparity are multifactorial and the subject of much research. Last year, Don Brash referred to this difference in his famous ‘Orewa Speech’.\(^2\) The essence of his approach to healthcare was that health in Maori is poor because of socioeconomic factors alone. These comments have found much support in parts of the New Zealand populace.

In this issue of the Journal, Towns et al\(^3\) provide a comprehensive rebuttal of the opinions of Don Brash. Their article highlights the constitutional and legal support of Maori in the Treaty of Waitangi, although a review of research findings is the main focus of their article. The evidence contained in their viewpoint article clearly identifies that, when all other variables are factored out, ethnicity remains a significant health determinant—and they state that, ethically, we should prioritise scarce funding resource to those persons in greatest need and with greatest capacity to benefit. Therefore, the principles underlying the Ministry of Health’s decisions to fund Maori health initiatives (or, as Dr Brash puts it, ‘race-based’ funding) seem to have good support, as Maori ethnicity is shown to be an independent marker of increased need.

In New Zealand, a review produced for the National Health Committee states that the ‘root causes’ of disparities are significant determinants of poor health among Maori. While they cite socioeconomic deprivation as an important factor, they, like Towns, identify that there are poorer outcomes for Maori compared to other ethnicities in the same socioeconomic group (horizontal inequity). Indeed, looking at mortality figures, one sees that Pakeha (white European) people in the lowest socioeconomic quintile still do better than Maori in the highest quintile (vertical inequity).

In this context, one should note that ethnicity-based disparity is not unique to this country and that racism has impacted on health outcomes all over the world. For example, Karlsen and Nazroo\(^5\) identified that the various manifestations of racism (in England and Wales) all have independent detrimental effects on several health indicators.

The exact mechanism for these causes is uncertain, and is the subject of research. Socioeconomic factors, while contributing to the overall poor state of Maori health, are insufficient in themselves to explain these outcomes. New Zealand’s National Health Committee reviewers state that one has to look beyond this to wider factors. Like Karlsen and Nazroo, they identify racism as an important factor.
Although many ethnic groups suffer from racism (whether this be institutional discrimination, interpersonal violence, or socioeconomic disadvantage), Maori have also been affected by the impact of colonisation. Specifically, dispossession of lands, forestry, and even language result in systematic exclusion from the economy of the country.

Access to high quality care is more critical for those persons with a high disease burden. This statement, while seeming obvious and trite, means that health services are more important for Maori health gain than for Pakeha health gain—as Maori carry the greater burden of chronic disease and acquired health problems such as smoking. The reality, as Towns et al point out, is that not only do Maori have poorer access for those in greater need but also suffer poorer access for those with equivalent need.

Structural policies in tax, labour, and education all act to oppose health equity. The cumulative effect is that Towns et al are able to point out the widening health data between Maori and the rest of the population, as have others before them.

For Dr Brash to suggest, therefore, that these health data are no more than a result of socioeconomic factors, is disingenuous at best and, at worst, risks the future balance of appropriate prioritisation of health funding for those with greatest need and capacity to benefit.

While the level of additional funding for ethnicity can continue to be vigorously debated, the principle that ethnicity is a valid independent factor for health must be accepted, and must generate positive discriminatory policy until disparity is shown to have been corrected. This issue is vital not only for Maori but also for the physical, social, and economic health of the whole of this country.

In fact, after reading the evidence, one could conclude that the demonstrated ‘excess need and ability to benefit’ in the Maori population might demand policy that supports even more targeted funding for Maori health!

Author information: Allan Pelkowitz, Clinical Leader (Planning and Funding), Auckland District Health Board—and Senior Lecturer, Quality in Healthcare, School of Population Health, University of Auckland; Sue Crengle, Head of Discipline, Maori Division of Maori and Pacific Health, School of Medicine and Health Sciences, University of Auckland, Auckland

Correspondence: Dr Allan Pelkowitz, Auckland District Health Board, Private Bag 92-189, Auckland. Fax (09) 630 9799; email: AllanP@adhb.govt.nz

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4. Robson B. Economic determinants of Maori health and disparities: A review for Te Ropu Tohutohu i te Hauora Tumatanui (Public Health Advisory Committee of the National Health

Participation in small-group learning

Tim Wilkinson, Joy Rudland

Most medical students (over 90%) prefer small-group learning and value participation, but two-thirds state that not all students fully participate in tutorials, according to findings from a student-driven paper from Christchurch looking at tutorial dynamics, published in this issue of the *Journal* (Gill E, Tuck A, Lee DWG, Beckert L. Tutorial dynamics and participation in small groups: a student perspective in a multicultural setting. N Z Med J. 2004;117(1205). URL: http://www.nzma.org.nz/journal/117-1205/1142)

Active participation within tutorials is important. It allows students to express their understanding, promotes group dialogue, and makes staff aware of any misunderstanding they may have. Active participation is dependent on both the student and the teacher.

For the student, there are several factors that influence active participation. Factors identified from the Christchurch study included personality, culture, and preparation. We all have different personalities—some people are extroverted and some are not. Likewise, we have different cultures. This contributes greatly to diversity within student groups. The authors emphasise that this is considerably more important than language. Differences in personality and culture should be acknowledged, rather than changed.

Students gave their ‘lack of preparation’ as the most common reason for their lack of participation in tutorials. Students can only begin to solve problems in small groups if they have the required prior learning. If a tutor detects a lack of preparation, then the best-laid plans fall to pieces, and the focus may change to one of knowledge transfer or postponement of the session. The students who did do some pre-reading feel let down by their peers and feel less inclined to prepare for the next tutorial. Tutors complain that ‘it’s no use giving pre-reading as students never do it’—and so a negative cycle can begin.

The authors ask if our teaching has adapted to increasing diversity within small groups and even to small-group teaching itself. This is where the role of the teacher should be examined. Teachers in small groups must actively facilitate cognitive development. This means an emphasis on probing and questioning student understanding, and then helping students move from the acquisition of knowledge and comprehension to analysis, synthesis, and ultimately evaluation of information. This is especially important for those students who may be good at rote learning but ‘can’t put it together’ in a clinical context.

While correction of misunderstanding is vital, humiliation for wrong answers can be a powerful negative reinforcer. It may take a while for a student to recover from past humiliation. Often asking opinions from other students can elicit a useful response (without embarrassing an individual), and empowers all students to take responsibility for their learning. It also allows the teachers to determine whether a misunderstanding is an isolated occurrence or shared by the whole group. A quoted suggestion from a
student was to encourage the tutor to direct questions to particular students—known as the scattergun approach. This can be a sure way to create anxiety—it’s like having a *viva* at every tutorial. A student’s natural response could be to ensure he or she sits near the back of the room next time and never catches the tutor’s eye in case he or she is asked something again!

Another negative reinforcer to student participation can occur if students believe their knowledge will be assessed summatively during tutorials. If this occurs, then students will wish to hide their knowledge gaps and keep quiet. What we want is for students to show their gaps so that these can be helped. This requires a safe environment. Summative tests of knowledge, where students can show their strengths, are better placed at times of formal assessments.

How can teaching methods accommodate differences in personality and culture, and promote prior preparation? Good ground rules are a crucial first step, but small-group contracts, a teacher who facilitates learning rather than just gives information, and the explicit provision of pre-reading that is relevant to the small group session, are methods that others find useful.

Just as in our own practice, reading is more effective if we have a task in mind, so overtly stating how the pre-reading will be used can help. There’s little point in suggesting reading three review articles on the aetiology of ‘condition x’ and then asking the students to solve problems that require knowledge of the treatment of ‘condition x’. Providing some kind of problem to solve or scenario to base one’s reading on can provide a framework to help all aspects fit together. Then, during the tutorial, providing time and space for the students to share their reading with each other and to try to apply that to some new scenarios, is useful. The quiet students who don’t like to challenge an authority figure are less likely to be quiet if asked to participate with 4 or 5 peers in solving a problem together. Then creating time for reporting back where the tutor provides feedback and helpful suggestions, places an emphasis on knowledge application.

All complex questions have simple answers—and they’re often wrong. The complex question of how to help a diverse range of students participate actively in ‘putting it all together’ doesn’t have a simple answer but part of the answer lies in ground rules, clarifying expectations, good facilitation, and in creating coherence between the problems to be solved and relevant preparation.

**Author information:** Tim J Wilkinson, Associate Dean (Medical Education), Department of Medicine, Christchurch School of Medicine and Health Sciences, University of Otago, Christchurch; Joy R Rudland, Director of Educational Development and Support, Faculty of Medicine, University of Otago, Dunedin

**Correspondence:** Associate Professor Tim Wilkinson, Princess Margaret Hospital, PO Box 800, Christchurch. Fax (03) 337 7975; email: tim.wilkinson@chmeds.ac.nz

Sheree Gibb, Annette Beautrais

Abstract

Aims Non-fatal suicide attempts incur substantial costs in morbidity, subsequent mortality, and service utilisation. This study reviews trends in admissions to Christchurch Hospital for attempted suicide during the 10-year period 1993–2002, inclusive. The influences of age, gender, and method of suicide attempt on time trends were examined.

Methods Participants were a consecutive series of 3711 individuals admitted to Christchurch Hospital for attempted suicide from 1993 to 2002. The following measures were available: age, gender, method of suicide attempt, and admission date. Logistic regression analysis was used to test trends over time.

Results The number of admissions for attempted suicide increased from 1993 to 2002. Admissions increased for females (but not for males) and for those persons aged over 25. There was an increase in the number of admissions for female youth, but not for male youth or youth overall. Admissions for cutting/stabbing increased, while admissions for overdose/poisoning decreased.

Conclusions Trends observed at Christchurch Hospital for admissions for attempted suicide contrast with New Zealand’s death by suicide rate, which has declined slightly over the last decade. Increases in attempted suicide admissions in adults, older adults, and females highlight the need for intervention strategies to be targeted at both males and females of all ages.

Recently there has been increasing interest in the epidemiology of suicide in New Zealand and overseas, with much of this concern focussing on youth suicide.1–4 Most of the research in this area has focussed on suicide; less research has focussed on non-fatal suicide attempts. Nevertheless, non-fatal suicide attempts incur a substantial cost in terms of morbidity, subsequent mortality, and service utilisation.5–9

For example, in a 5-year follow-up of 302 individuals making medically serious suicide attempts in Canterbury, Beautrais5 found that rates of death by suicide were 48 times higher than expected, and rates of death in motor vehicle accidents were 11.5 times higher than expected. In a 12-month follow-up of individuals hospitalised for self-injury, Conner and colleagues9 found that the relative risk of readmission for self-injury in New Zealand was 175.6 times higher than in the general population.

Against this background, this paper reports findings from a demographic study of the epidemiology of suicide attempts resulting in admission to Christchurch Hospital during the 10-year period from 1993 to 2002, inclusive.
The specific aims of this study were to:

• Describe time trends in overall rates of admission for attempted suicide during the last decade (1993–2002);

• Examine age and gender differences in time trends in suicide attempt admissions; and

• Explore time trends in the methods used for attempted suicide.

More generally, the aim of this study was to provide an overview of time trends in suicide attempts resulting in admission to Christchurch Hospital during the last decade (1993–2002).

Methods

Participants—Participants were a consecutive series of 3711 individuals admitted to Christchurch Hospital for attempted suicide during the 10-year period from 1993 to 2002. A total of 5708 admissions was recorded. Christchurch city has a population of approximately 330,000 and the Canterbury region (including Christchurch City) has a population of approximately 450,000. Christchurch Hospital is the sole entry point for individuals who have attempted suicide in the Canterbury region.

Data sources—Data on hospital admissions for attempted suicide were obtained from the Canterbury District Health Board, which routinely collects these data for the New Zealand National Minimum Data Set. National Health Index (NHI) numbers were reported with each admission, and allowed multiple admissions to be linked to a single individual.

Measures—From the database of the study, the following measures were available for each admission for attempted suicide: date of birth; gender; method of suicide attempt; and date of admission. Method of suicide attempt was classified according to ICD-9 and ICD-10 causes of injury codes for intentional self-harm.10,11

Results

Time trends in overall suicide attempt admissions and rates—Figure 1 shows the total number of admissions to Christchurch Hospital for attempted suicide during the 10-year period 1993–2002. Aside from annual fluctuations, the total number of admissions increased steadily during the last decade (1993–2002), with the number of admissions in 2002 being 1.6 times higher than in 1993.

To test this trend, a regression model was fitted to the total number of admissions data in Figure 1. This showed a significant linear trend (p<0.001) (t[1]=5.52) for the number of admissions for attempted suicide to increase over time. The model showed that the number of admissions for attempted suicide increased on average by 32.5 each year (95% Confidence Interval [CI] 20.9, 44.0).

Figure 2 shows the rate of admission to Christchurch Hospital for attempted suicide per 100,000 people during the 10-year period 1993–2002. The rate of admission for attempted suicide increased during the last decade, with the rate in 2002 being 1.4 times higher than in 1993.

To test this trend, a regression model was fitted to the data in Figure 2. This showed a significant linear trend (p<0.005) (t[1]=4.46) for the rate of admission to increase over time. The model showed that the rate of admission for attempted suicide per 100,000 people increased on average by 6.1 each year (95% CI 3.4, 8.8).
Figure 1. Number of admissions to Christchurch Hospital for attempted suicide 1993-2002 by gender.

![Number of admissions to Christchurch Hospital for attempted suicide 1993-2002 by gender](image)

Figure 2. Rate of admissions to Christchurch Hospital for attempted suicide per 100,000 people

![Rate of admissions to Christchurch Hospital for attempted suicide per 100,000 people](image)

Gender differences in time trends for suicide attempt admissions—Figure 1 also shows the number of admissions per year for attempted suicide for males and females. In every year from 1993 to 2002, the number of female admissions was higher than the number of male admissions. The number of female admissions increased during
the decade, with 1.8 times more female admissions in 2002 than in 1993. However, the number of male admissions remained relatively static.

To test these trends, a regression model was fitted to the gender data in Figure 1. This showed a significant linear trend (p<0.001) (t[1]=6.75) for the number of female admissions to increase over time. The model showed that the number of female admissions increased, on average, by 27.8 each year (95% CI: 19.7,35.9). The model showed no significant trend in the number of male admissions over time.

**Age differences in time trends for suicide attempt admissions**—Figure 3 shows the number of admissions to Christchurch Hospital for attempted suicide for three age groups: youth (<25 years); adults (25–54 years); and older adults (≥55 years). The number of adult admissions for attempted suicide increased during the last decade (1993–2002), with 1.7 times more adult admissions in 2002 than in 1993.

The number of older adult admissions also increased, with 2.3 times more admissions in 2002 than in 1993. To test these trends, a regression model was fitted to the data in Figure 3. This showed significant linear trends for the number of adult (p<0.0005) (t[1]=5.80) and older adult (p<0.0005) (t[1]=5.94) admissions for attempted suicide to increase over time. The model showed that the number of adult admissions for attempted suicide increased on average by 23.3 (95% CI: 15.5,31.2) per year and the number of older adult admissions by 3.1 (95% CI: 2.1,4.1) per year.

The model showed no significant trend in the total number of youth admissions over time. However, the model did show a significant linear trend (p<0.05) (t[1]=3.13) for the number of female youth admissions to increase over time. There was no significant trend for the number of male youth admissions over time.

**Figure 3. Number of admissions to Christchurch Hospital for attempted suicide by age group, 1993–2002**
Time trends in suicide attempt methods—Table 1 shows the proportion of admissions per year for attempted suicide for a range of methods including: overdose/self-poisoning; carbon monoxide poisoning; cutting/stabbing; and other less common methods (including hanging, gunshot, self-immolation, motor vehicle crashes and jumping from a height).

Approximately 90% of non-fatal suicide attempts admitted to Christchurch Hospital over the last decade involved overdose or self-poisoning. Furthermore, the proportion of admissions involving overdose/self-poisoning decreased over the last decade (1993–2002), from 90.9% of admissions in 1993 to 87.1% of admissions in 2002. The proportion of admissions involving cutting/stabbing increased, from 2.0% in 1993 to 5.1% in 2002.

To test these trends, a regression model was fitted to the data in Table 1. This showed a significant linear trend (p<0.05) (t[1]=2.83) for the proportion of admissions involving overdose to decrease over the last decade (1993–2002). The model also showed a significant linear trend (p<0.005) (t[1]=4.05) for the proportion of admissions involving cutting/stabbing to increase over time, and for the proportion involving other, less common, methods to increase over time (p<0.001) (t[1]=3.59). There was no significant trend in the proportion of carbon monoxide poisonings over time.

Table 1. Proportion of total admissions to Christchurch Hospital for attempted suicide accounted for by various methods (1993–2002)

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CO=carbon monoxide.

Summary of results—Trends in suicide attempt admissions for the decade 1993–2002 may be summarised as follows:

- The number of admissions to Christchurch Hospital for attempted suicide increased linearly during the last decade (1993–2002) by an average of 32.5 admissions per year. The rate of admissions (per 100,000 people) for attempted suicide also increased significantly.

- The overall increase in admissions over the last decade (1993–2002) can be accounted for by an increase in the number of female admissions, with no significant increase in the number of male admissions. The number of female admissions for attempted suicide increased by an average of 27.8 per year.

- The number of adult (25–54 years) admissions increased by an average of 23.3 per year, and the number of older adult (≥55 years) admissions increased by 3.1 per year. The number of female youth (<25 years) admissions increased over the last
decade. However there was no significant trend in the number of male youth admissions or in the overall number of youth admissions.

- The proportion of admissions involving overdose decreased during the last decade. The proportion of admissions involving cutting/stabbing and other less common methods increased, but the proportion of admissions involving carbon monoxide poisoning remained relatively static.

**Discussion**

This paper has examined time trends in admissions to Christchurch Hospital for attempted suicide during the 10-year period 1993–2002. The main conclusions and findings from this study are discussed below.

The number of admissions to Christchurch Hospital for attempted suicide increased significantly during the last decade (1993–2002). This is consistent with an increase in admissions for attempted suicide seen in other countries including the United Kingdom and Australia.\(^{12-14}\) In contrast, the number of deaths by suicide in New Zealand has remained relatively static over the last decade, with a decline from 1998 to 2000.\(^{15}\)

Time trends in the number of admissions to Christchurch Hospital for attempted suicide varied with:

- **Gender:** The number of female admissions was consistently higher than the number of male admissions. This female excess in attempted suicide admissions is observed in most Western countries.\(^{16}\) While the number of female admissions to Christchurch Hospital increased during the last decade (1993–2002), the number of male admissions remained relatively static. A similar trend has been observed in Oxford (United Kingdom), where rates of suicide attempt requiring hospital admission over the period 1990–2000 increased significantly in females but not in males.\(^{13}\)

- **Age:** The number of adult (25–54 years) and older adult (≥55 years) admissions increased during the last decade. Although there was no trend in overall numbers of youth (<25 years) admissions over the last decade (1993–2002), there was a significant increase in the number of female youth admissions. A similar trend has been observed in rates of death by suicide in New Zealand over the last decade, which have increased in female youths and decreased in male youths.\(^{15}\) The increase in admissions for attempted suicide in female youths, adults, and older adults highlights the need for suicide prevention strategies to be developed for people of all ages.

- **Method of suicide attempt:** Over the last decade (1993–2002), 85–90% of admissions to Christchurch Hospital for attempted suicide each year involved overdose/self-poisoning. The proportion of all admissions accounted for by overdose/self poisoning decreased during the decade, while the proportions accounted for by cutting/stabbing and other less common methods increased. There was no significant change in the proportion of admissions accounted for by carbon monoxide poisoning over time.

The increases in the proportion of admissions for attempted suicide involving cutting/stabbing and other less common methods (including hanging, gunshot,
drowning, may indicate a trend towards the use of more violent methods of suicide, particularly in females.

In New Zealand, the proportion of female suicide deaths involving violent methods such as hanging and carbon monoxide poisoning has increased dramatically, while the proportion involving less violent methods such as overdose has decreased.\textsuperscript{17}

The clinical implications of this study relate to the need to prevent suicide attempt behaviour, and to reduce the number of admissions for suicide attempts. Several areas show promise for developing programmes to prevent suicide attempts. Approaches range from those that address distal risk factors (for example, prevention of the development of mental disorders) to those approaches that address factors which are more proximal to the attempt (for example, educational programmes for professionals, including general practitioners, to enhance their ability to identify, treat and manage depressed and suicidal individuals).

Restricting access to means of suicide is one proximal approach to suicide attempt prevention. We found that the clear majority of attempted suicide admissions to Christchurch Hospital were accounted for by overdose. This finding suggests that it may be useful to consider ways of restricting access to agents used for overdose. A strategy that has been successful in the United Kingdom, for example, involved reducing the pack sizes of paracetamol. This action led to a significant reduction in the number of suicide attempts involving paracetamol overdose that required admission to hospital.\textsuperscript{18}

This strategy may be especially relevant in New Zealand, given the increase in female youth suicide attempt admissions, the knowledge within ‘youth culture’ of paracetamol as a readily available agent for suicide attempts, and the finding that the proportion of non-fatal overdoses involving paracetamol is increasing.\textsuperscript{19}

Another proximal approach involves intervening with those individuals who have made suicide attempts.

Promising examples include:

- Giving an ‘emergency access card’ permitting enhanced access to telephone assistance to those who have made suicide attempts,\textsuperscript{20} and

- Programmes using postcards or letters sent to suicide attempters to remind them of their opportunity to access healthcare services and to reduce their feelings of isolation.\textsuperscript{21,22}

  For example, in a 5-year randomised control trial of brief letters sent to suicide attempters who had previously declined follow-up treatment, Motto\textsuperscript{21,23} found a significant decrease in the number of suicide deaths in the first 2 years following a suicide attempt amongst those who were sent letters. While promising, such relatively inexpensive interventions now require randomised controlled trials to evaluate the extent to which they result in significant reductions in further suicide attempts and mortality amongst suicide attempters.\textsuperscript{24}

A limitation of the present study is that it reports data for only those attempted suicide cases admitted to Christchurch Hospital. Not all attempted suicides result in hospital admission—a significant number of individuals who attempt suicide may be treated by general practitioners or may not come to the attention of health professionals at all.
Therefore, the rates reported in this study underestimate true rates of attempted suicide. It is also possible that the increase in suicide attempt admission rates may reflect, in part, increased publicity about suicide that has occurred during the last decade (1993–2002).

Increased public discussion of suicide may have led to increased rates of admission for suicide attempts in two ways. Firstly, publicity may have led to suicidal behaviour becoming ‘normalised’,25 (ie, accepted as a common response to difficult circumstances) with a consequent increase in the number of attempts. Secondly, publication about suicide may have led health professionals to become more aware of suicidal behaviour in their patients.

These limitations notwithstanding, our finding of an increased number of admissions to Christchurch Hospital for attempted suicide over the last decade (1993–2002) is concerning. Non-fatal suicide attempts incur a substantial financial cost in terms of service utilisation, impose an emotional burden on family and caregivers, and those who make suicide attempts have increased risks of further suicide attempt and mortality.5,8,9 Strategies that aim to reduce the number of non-fatal suicide attempts should be considered an important component of a broad suicide prevention strategy.

Author information: Sheree J Gibb, Summer Research Student; Annette L Beautrais, Principal Investigator, Canterbury Suicide Project, Christchurch School of Medicine and Health Sciences, University of Otago, Christchurch

Acknowledgements: We acknowledge the funding provided by a Health Research Council of New Zealand Summer Research Studentship to Sheree Gibb for this study. We thank Kevin Huang (Canterbury District Health Board), Chris Lewis (NZHIS), and Jeffrey Chuter (Department of Courts) for their assistance with data collection, and Professor David Fergusson for statistical advice.

Correspondence: Dr AL Beautrais; Canterbury Suicide Project; Christchurch School of Medicine and Health Sciences, P O Box 4345, Christchurch. Fax: (03) 372 0405; email: suicide@chmeds.ac.nz

References:


Mortality, morbidity, and asbestosis in New Zealand: the hidden legacy of asbestos exposure

Pamela Smartt

<table>
<thead>
<tr>
<th>Aims</th>
<th>To examine the morbidity and mortality patterns of patients with asbestosis in New Zealand to determine (more fully) the overall health impact of past exposure to asbestos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methods</td>
<td>Individual mortality, cancer and hospital records for all New Zealand men diagnosed with asbestosis between 1974-2001 were examined. Mortality data were analysed for time trends, cause of death, and occupation. Trends for patients diagnosed with asbestosis were compared with those diagnosed with lung cancer. Hospital discharge data for men with asbestosis were examined to determine reasons for hospitalisation, resource utility, and recent hospitalisation trends.</td>
</tr>
<tr>
<td>Results</td>
<td>Death rates for New Zealand males dying with asbestosis increased between 1974–1999. Only 17% of deaths of males dying with asbestosis were directly attributed to this cause; the remainder were attributed to other non-malignant and malignant respiratory disease. Deaths from asbestos-related lung disease were grossly underestimated. Death certificates of men dying with asbestosis were found in all major occupational groups. Trends in hospital discharges may provide additional information for the overall modelling of the current epidemic of asbestos related disease.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>The number of men dying with asbestosis in NZ has increased in line with mesothelioma. There is some indication that asbestosis prevalence may have peaked for the most serious cases of asbestosis. Some level of asbestos exposure, as indicated by asbestosis, may be present in all major occupational groups.</td>
</tr>
</tbody>
</table>

Asbestosis is a diffuse fibrotic lung disease resulting from the inhalation of asbestos fibres. High fibre doses (25–100 fibre/ml/yr) are generally required to produce clinically significant asbestosis within an individuals’ lifetime with milder fibrosis at lower dose levels. Asbestosis is thus a marker of high asbestos exposure in individuals and its prevalence a potential indicator of high exposure in populations.

Asbestosis was the first disease to be attributed to asbestos exposure in the workplace, 80 years later it is still a serious public health issue in industrialised countries. Not only is asbestosis a grossly debilitating, irreversible, and progressive disease, individuals who are afflicted have a greatly increased risk of an number of diseases including lung cancer, cancers of the digestive system, and non-malignant respiratory disease.

National mortality and morbidity statistics underestimate the public health impact of asbestosis as they report the primary cause of death (COD) or primary diagnosis, which may not indicate or identify the underlying disability. This is particularly concerning as the National Asbestos Registers suggest that asbestosis is more widespread than malignant asbestos disease in New Zealand. Predictions of the scale of the asbestos disease epidemic have been modelled on mesothelioma data; the
contribution of non-malignant disease such as asbestosis has been largely ignored. With a latency period inversely proportional to exposure level,\textsuperscript{2} but generally reported as 15–30 years\textsuperscript{19,20} the health burden of asbestosis should peak earlier than mesothelioma thus potentially providing useful additional information about the size and extent of the current epidemic of asbestos diseases.

In this study, the recorded health events of individuals diagnosed with asbestosis in New Zealand between 1974–2001 are examined. The purpose of the study is to highlight the public health importance of asbestosis and assess the overall health impact of this disease in New Zealand.

Mortality, cancer, and hospital records of New Zealand men diagnosed with asbestosis are examined to determine:

- Underlying and contributing COD,
- Occupation group,
- Cancer incidence, and
- Hospital discharge trends and resource utility.

The potential contribution of morbidity data to existing models of the asbestos epidemic is also discussed.

**Methods**

**National mortality records**—All individual death, cancer, and hospital-discharge records that were available at the time of study were obtained on CD-ROM from New Zealand Health Information Service (NZHIS). These data comprised 690,198 death records covering a period from 1974–1999; 266,121 cancer records covering a period from 1980–1998; and 327,940 public and private hospital-discharge records covering a period from 1994–2001.

All records were supplied without identifying information as annual records in discrete Microsoft Excel or Borland dBASE IV. Individual death records with asbestosis (ICD-9 code 501) or lung cancer (ICD-9 code 162) anywhere in the death record were extracted from the mortality files.

All hospital discharge records for patients with a diagnosis of asbestosis in any of five diagnosis fields were extracted from the public and private hospital files. Two new databases were constructed from these files using an INFORMIX database; one comprising all relevant mortality records (n=24,590), and another comprising all relevant hospital discharges for male patients with asbestosis (n=706).

**Database linkage**—Individual death and hospital discharge records in each of the two main databases were linked separately via the unique encrypted healthcare user (ENC_HCU) number to the cancer registration database. All matching ENC_HCU records were crosschecked against sex and date of birth to minimise the chances of case mismatch.

**Time series**—All data were not available for all periods. Limitations were imposed by the availability of verified database records, ENC_HCU number for cross-referencing and relevant occupation codes. Three times series had the required characteristics:

- Mortality data from 1974–1999,
- Occupational data from 1988–1997 (ex 1991 records which was known to have occupation coding problems), and

Where required, the mortality and hospital discharge datasets were linked via their unique ENC_HCU number to each other and to New Zealand Cancer Registry records for 1980–1998. These series determined the overall structure of the study.

**Mortality rates**—Age standardised mortality rates were calculated using estimated population data obtained from NZHIS publications for the relevant years. For comparative purposes, all rates were standardised to the Segi World population.
Asbestos registers—The National Asbestos Registers were set up in 1991 upon the recommendation of the Asbestos Advisory Committee\textsuperscript{[21]} to register people who had had ‘significant exposure’ to asbestos. The National Asbestos Medical Panel reviewed cases referred via a notifiable occupational disease (NODs) card or a doctor’s letter. The number of cases registered between March 1992–July 1998 was obtained from the 1997–1998 report\textsuperscript{[15]} supplemented by figures for individual years obtained directly from OSH. The ACC Scheme Reporting and Forecasting Unit supplied figures for the number of claims for all ‘inhalation diseases’ by sex and year between 1992–1998.

Results

Mortality trends (1974–1999)—316 New Zealand males died with asbestosis between 1974–1999. During the same period, 24,590 male deaths were associated with lung cancer; 90 (0.4\%) of these record asbestos exposure or asbestosis in the death record. While male lung cancer declined from 1983, asbestos-related deaths generally increased over the period, rising from 2 deaths in 1977 to 40 deaths in 1999. For lung cancer deaths associated with asbestosis, annual numbers were small and fluctuating but there was a discernible trend in numbers with averages of 0.5, 2.1 and 6.6 cases per year in the 1970s, 80s, and 90s respectively.

The number of males dying with asbestosis increased steeply in the 1990s. This increase was still apparent when pleural cancer (used as a surrogate for mesothelioma) deaths were removed. Age-standardised mortality rates revealed similar trends with a more pronounced downward trend for lung cancer (Figure 1).

Cause of death (COD)—In the period 1988–1999, 264 asbestos associated male deaths were recorded. The majority (86\%) were European; the median age for the whole group was 71 years (35–92 years). The contribution of asbestosis to the COD is shown in Table 1.

Table 1. The contribution of asbestosis to the deaths of 264 New Zealand males registered between 1988–1999.

<table>
<thead>
<tr>
<th>Contribution of asbestosis</th>
<th>Death registration field*</th>
<th>Number of deaths</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underlying COD‡</td>
<td>ICDA</td>
<td>44</td>
<td>17</td>
</tr>
<tr>
<td>First contributory COD</td>
<td>ICDB1</td>
<td>218</td>
<td>83</td>
</tr>
<tr>
<td>Second contributory COD</td>
<td>ICDB2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other contributory COD</td>
<td>ICDC</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Free text Comments</td>
<td>EVENTDES/ICDADES</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>264</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

*As coded in the national mortality data sets; ‡Cause of death (COD) indicated by the death certificate.

Only 44 (17\%) of deaths were attributed directly to asbestosis—ie, asbestos was recorded as the ‘underlying’ COD. In the remaining cases (n=220, 83\%), asbestos was recorded as a ‘contributing’ COD. The primary COD for these 220 decedents is shown in Table 2.
Table 2. The primary cause of death for 220 New Zealand males dying with asbestosis recorded as a contributing cause of death between 1988–1999

<table>
<thead>
<tr>
<th>Primary cause of death</th>
<th>ICD-9 Code</th>
<th>Number</th>
<th>%</th>
<th>Median age (yrs)</th>
<th>Age range (yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung or pleural cancer</td>
<td>162-163</td>
<td>139</td>
<td>63</td>
<td>69</td>
<td>35–89</td>
</tr>
<tr>
<td>Other cancers</td>
<td>140-161,164-239</td>
<td>21</td>
<td>10</td>
<td>69</td>
<td>53–88</td>
</tr>
<tr>
<td>Circulatory disease</td>
<td>390-459</td>
<td>27</td>
<td>12</td>
<td>72</td>
<td>48–88</td>
</tr>
<tr>
<td>Other respiratory disease</td>
<td>460-519 (ex 501)</td>
<td>25</td>
<td>11</td>
<td>72</td>
<td>47–92</td>
</tr>
<tr>
<td>Other COD</td>
<td>250,332,335,532,571,710,812,885</td>
<td>8</td>
<td>4</td>
<td>74</td>
<td>67–79</td>
</tr>
<tr>
<td>All causes</td>
<td>220</td>
<td>100</td>
<td>70</td>
<td>70</td>
<td>35–92</td>
</tr>
</tbody>
</table>

Seventy-three percent of deaths were attributed to cancer with a further 11% attributed to ‘other disease of the respiratory system’ including cases which may have been undiagnosed asbestosis. Circulatory disease accounted for only 12% of all deaths. The primary organ systems involved with malignant and non-malignant disease are shown in Table 3.

Table 3. Primary disease sites for New Zealand males dying with asbestosis 1988–1999

<table>
<thead>
<tr>
<th>Organ system</th>
<th>Non-malignant</th>
<th></th>
<th>Malignant</th>
<th></th>
<th>All deaths</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory system</td>
<td>25</td>
<td>11.36</td>
<td>140*</td>
<td>63.64</td>
<td>165</td>
<td>75.00</td>
</tr>
<tr>
<td>Circulatory system</td>
<td>27</td>
<td>12.27</td>
<td>4</td>
<td>1.82</td>
<td>31</td>
<td>14.09</td>
</tr>
<tr>
<td>Digestive system</td>
<td>2</td>
<td>0.91</td>
<td>7</td>
<td>3.18</td>
<td>9</td>
<td>4.09</td>
</tr>
<tr>
<td>Ill-defined sites</td>
<td>0</td>
<td>0.00</td>
<td>5</td>
<td>2.27</td>
<td>5</td>
<td>2.27</td>
</tr>
<tr>
<td>Accident</td>
<td>2</td>
<td>0.91</td>
<td>0</td>
<td>0.00</td>
<td>2</td>
<td>0.91</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>1.82</td>
<td>4</td>
<td>1.82</td>
<td>8</td>
<td>3.64</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>27.27</td>
<td>160</td>
<td>72.73</td>
<td>220</td>
<td>100.00</td>
</tr>
</tbody>
</table>

*Includes one cancer of other and ill-defined sites with asbestosis and mesothelioma.

Most (75%) patients died of malignant (64%) or non-malignant (11%) respiratory disease including:

- Cancer of the lung (n=61) and pleura (n=78).
- Pneumoniosis and other lung disease due to external agents (n=9).
- Chronic obstructive pulmonary disease and allied conditions (n=15).

In addition, 14 patients of the males died from circulatory diseases including ischaemic heart disease (63%), cerebrovascular disease (19%), diseases of the arteries (11%), and endocardium disease (7%). Nine patients died from digestive disease: seven (3%) were digestive cancers including neoplasms of the oesophagus (n=1), stomach (n=1), colon (n=2), peritoneum (n=2), and ill-defined site (n=1).

Overall, cancer was the primary cause of death in men dying with asbestosis between 1988-1999. The median age of death for those with cancer was lower than those...
without (69 and 74 years). Finally, out of a total of 264 deaths 209 (79%) were attributed directly to diseases of the airways with a further five deaths attributed to cancers of ill or undefined sites likely to have been cancers of the respiratory system.

**Occupation**—The decedent’s last occupation, as recorded on the death certificate, was available for deaths between 1988–1997. Three years were not available due either to known errors in the coding (1991) or coding discontinuity (1998,1999). 189 men dying with asbestosis during the study period were classified to 23 sub-major occupation classes (NZSCO90). One death was not classified.

In each occupational class, the number of deaths that could be attributed primarily to asbestosis, pulmonary fibrosis, pleural, lung or peritoneal cancer was determined (Figure 2). Trades workers (building, metal, and machinery) accounted for 76 (40%) of the deaths; professional and associated occupations accounted for a further 26 (14%) of the deaths.

Plant and machine operators also accounted for 26 (14%) deaths while labourers accounted for 15 (8%), workers with unclassifiable occupations 15 (8%), and corporate managers (including quarry and construction managers) 11 (6%) of all deaths, respectively.

The remaining 19 (10%) deaths were distributed between seven occupational groups spanning clerks, technicians, service and sales workers, agricultural and fishery workers, and armed forces. Interestingly, 86% of deaths in physical science and engineering associate professionals were attributed primarily to pleural cancer while 70% of deaths amongst industrial plant operators were attributed to asbestosis, peritoneal or lung cancer—all indicators of high asbestos exposure.

Building trade workers had the highest number of deaths attributed primarily to pleural cancer (17/47), lung cancer (15/47), and asbestosis (5/47).

**Morbidity**—Credible hospital discharge records were only available from 1994 (NZHIS personal communication). During this period, there were 706 hospital discharges involving 539 patients. Most individuals were only hospitalised once during the period, however a significant number (n=123) of patients averaged three (range 2–11) hospitalisations during the period (1994–2001).

The majority of hospitalisations (n=450, 64%) were coded as acute admissions, 120 (17%) were arranged admissions, 113 (16%) waiting list, and 13 (2%) ACC-related. Over the whole period, not counting 97-day cases, patients were in hospital for an average of 7 days (total 4,319 days, median 5 days). The main reasons for hospitalisation, as indicated by the primary diagnosis, are shown in Table 4.
Asbestosis and Lung Cancer Mortality
NZ Males 1974-1999

Fig 1  New Zealand male age standardised (Segi World Population) mortality rates between 1974-1998 for all lung cancers, asbestosis with and without pleural cancer deaths and lung cancers with asbestos mentioned in the death record.
Fig 2. Occupation of 189 New Zealand males with asbestosis recorded in their death registration in the period 1988-1997 (excluding 1991 records). Occupational groups are further subdivided according to their primary cause of death. One death was not assigned to an occupational group.

<table>
<thead>
<tr>
<th>Description</th>
<th>No of discharges</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infections and parasites</td>
<td>7</td>
<td>0.99%</td>
</tr>
<tr>
<td>Neoplasms</td>
<td>77</td>
<td>10.91%</td>
</tr>
<tr>
<td>Endocrine</td>
<td>1</td>
<td>0.14%</td>
</tr>
<tr>
<td>Blood and blood forming</td>
<td>6</td>
<td>0.85%</td>
</tr>
<tr>
<td>Mental</td>
<td>11</td>
<td>1.56%</td>
</tr>
<tr>
<td>Nervous and sensory</td>
<td>3</td>
<td>0.42%</td>
</tr>
<tr>
<td>Circulatory</td>
<td>138</td>
<td>19.55%</td>
</tr>
<tr>
<td>Respiratory</td>
<td>292</td>
<td>41.36%</td>
</tr>
<tr>
<td>Digestive</td>
<td>38</td>
<td>5.38%</td>
</tr>
<tr>
<td>Genito-urinary</td>
<td>12</td>
<td>1.70%</td>
</tr>
<tr>
<td>Skin and sub-cut</td>
<td>5</td>
<td>0.71%</td>
</tr>
<tr>
<td>Musculoskeletal</td>
<td>24</td>
<td>3.40%</td>
</tr>
<tr>
<td>Congenital</td>
<td>1</td>
<td>0.14%</td>
</tr>
<tr>
<td>Symptoms and signs</td>
<td>42</td>
<td>5.95%</td>
</tr>
<tr>
<td>Fractures</td>
<td>10</td>
<td>1.42%</td>
</tr>
<tr>
<td>Other accidents</td>
<td>16</td>
<td>2.27%</td>
</tr>
<tr>
<td>Other care</td>
<td>23</td>
<td>3.26%</td>
</tr>
<tr>
<td><strong>Total for males with asbestosis</strong></td>
<td><strong>706</strong></td>
<td><strong>100.00%</strong></td>
</tr>
</tbody>
</table>

In most cases (n=507; 72%), patients were admitted to hospital for treatment of respiratory disease (41%), circulatory disease (19%), or neoplasms (11%).

Basic hospital costs (excluding drugs) for ninety discharges recorded in 2001 are shown in Table 5.

Table 5. Hospital costs for 69 male New Zealand patients with asbestosis in 2001

<table>
<thead>
<tr>
<th>DRG*Code</th>
<th>Diseases and Disorders</th>
<th>DRGs</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>003</td>
<td>Tracheostomy</td>
<td>1</td>
<td>$43,890</td>
</tr>
<tr>
<td>056</td>
<td>Nervous system</td>
<td>1</td>
<td>$5,541</td>
</tr>
<tr>
<td>133</td>
<td>Ear nose mouth and throat</td>
<td>1</td>
<td>$2,042</td>
</tr>
<tr>
<td>170-200</td>
<td>Respiratory system</td>
<td>47</td>
<td>$128,835</td>
</tr>
<tr>
<td>230-297</td>
<td>Circulatory system</td>
<td>24</td>
<td>$105,396</td>
</tr>
<tr>
<td>320-348</td>
<td>Digestive system</td>
<td>3</td>
<td>$7,089</td>
</tr>
<tr>
<td>405-436</td>
<td>Musculoskeletal system and connective tissue</td>
<td>2</td>
<td>$16,752</td>
</tr>
<tr>
<td>553-585</td>
<td>Kidney and urinary tract</td>
<td>2</td>
<td>$12,097</td>
</tr>
<tr>
<td>616</td>
<td>Male reproductive system</td>
<td>1</td>
<td>$3,357</td>
</tr>
<tr>
<td>759</td>
<td>Blood and immunological disorders</td>
<td>1</td>
<td>$1,678</td>
</tr>
<tr>
<td>780-791</td>
<td>Neoplastic disorders</td>
<td>5</td>
<td>$7,987</td>
</tr>
<tr>
<td>888</td>
<td>Alcohol/drugs</td>
<td>1</td>
<td>$1,799</td>
</tr>
<tr>
<td>950</td>
<td>Falling across DRGs</td>
<td>1</td>
<td>$5,735</td>
</tr>
</tbody>
</table>

**TOTAL NZ$342,198**

* Diagnostic Related Groups
Figure 3 Hospital discharges between 1994-2001 with "asbestosis" (ICD-9 501) in the diagnosis field. The overall number of discharges for each year have been partitioned into cases i.e. the number of patients and the number of repeat events.
Half of the estimated cost of hospital discharges can be attributed directly to respiratory disease ($172,725)—with a tracheostomy, interstitial lung disease, chronic obstructive disease, and respiratory infections and inflammation accounting for 89% of this cost.

The temporal pattern of these discharges is shown in Figure 3 for 706 discharges involving 539 patients. Discharges rose steeply from 1994, peaked in 1999 and decreased successively in 2000 and 2001.

The National Asbestos Registers and Accident Compensation Corporation (ACC) claims—Between March 1992–July 1998, 136 males (mean age of approximately 66 years) were registered with asbestosis, the majority (80%) were, or had been, smokers. Approximately 25% were likely to have had high exposure to asbestos (ie, asbestos processors, asbestos sprayers, and watersiders handling raw asbestos).

Most of the reminder were employed in secondary industries and included plumbers, fitters, laggers, carpenters, and builders. The mean latency period was reported as 39 years (range 15–71 years). In contrast to all other sources, the National Asbestos Register recorded numbers falling sharply from 1992–1998. Registered ACC claims for the period could only be retrieved for all ‘inhalation diseases – Asbestos/Lead’ (personal communication).

Overall, during the period 1992–1998, 1705 claims were made by New Zealand males. The ACC Workwise Asbestos Claim Database recorded 78 claims in 1997, 42 (54%) claims were successful including 6 (14%) for asbestosis, 33 (79%) for mesothelioma, and 2 (5%) for lung cancer.

**Discussion**

It has been estimated that 20%–40% of all adult men are likely to have exposed them to asbestos in the workplace. In New Zealand, over 8,000 men were directly employed in the asbestos industry (Report of the Asbestos Advisory Committee 1991) with at least a further 1500 men estimated to have been exposed in ‘downstream’ (ie, secondary) industries.

Before 1940, virtually all asbestos products were imported into New Zealand. Thereafter, raw asbestos was also imported and manufactured into asbestos-containing products (mainly cladding and pipes). Imports of raw asbestos peaked at around 12,500 tonnes in 1974.

The import of raw amphibole (blue and brown) asbestos into New Zealand was banned in 1984; chrysotile (white) asbestos was banned in 2002. Workforce regulations to protect employees were not drafted until 1978—in 1983, employers were obliged to inform workers of the particular dangers of smoking in asbestos workers. In New Zealand, asbestos exposure in the working population was probably highest between the 1940s–1980s. The legacy of this exposure is an ageing population of men with asbestos-related disease, which includes some of the most debilitating malignant and non-malignant diseases of the lung.

The unfolding New Zealand mesothelioma epidemic was described by Kjellstrom and Smartt, however the full health impact of occupational asbestos exposure is likely to...
be much greater. In this study, an increasing trend in non-malignant disease similar to that reported elsewhere\textsuperscript{13} is documented.

Official mortality statistics compiled from the primary COD are known to underestimate the health impact of asbestosis.\textsuperscript{10,11,13,14} This is supported in the present study, with only 17% of asbestosis-related deaths being reported in the published mortality tables (Table 2).\textsuperscript{25}

Of the remaining 220 (83%) deaths, cancer (particularly cancer of the respiratory tract) was sited as the primary COD. Indeed, the increased risk of cancer in individuals with asbestosis has been widely reported, with lung/pleural and gastrointestinal cancers predominating.\textsuperscript{9–12} In the present study, the primary cause of death for a high proportion (29%) of 264 patients dying with asbestosis was pleural cancer (with a further 23% attributed to lung cancer).

It has been estimated that between 6\%–23\% of lung cancer deaths could be attributable to asbestos exposure in the workplace.\textsuperscript{26–28} In this study, only a very small proportion (0.4\%) of individuals dying with lung cancer had any mention of asbestos exposure or asbestosis in the death record. While this proportion peaked at 0.7\% (n=12) in 1997, it is still far short of the minimum expected 6\% (n=56) cases predicted by some studies,\textsuperscript{26,27} or the minimum of 74 cases suggested by Kellstrom and Smartt.\textsuperscript{18}

ACC claims and the National Asbestos Register similarly under-represent lung cancer cases in New Zealand as elsewhere.\textsuperscript{14,26} Since increases in the number of asbestos-related lung-cancer deaths are predicted to occur at a time when male lung cancer deaths overall are decreasing (Figure 1), the proportion of asbestosis-related lung-cancer deaths may be greater than predicted. Thus, more active attempts to diagnose asbestosis and determine likelihood of asbestos exposure in the current male population, particularly those who have been smokers or who have lung cancer, is warranted.

Under-reporting of asbestos-related lung cancer mortality has been attributed to possible lack of awareness of exposure and the possibility that workers may not remember casual exposure 20–40 years earlier. However, the most likely reason that asbestos-related lung cancer deaths are under-reported is the very high prevalence of smoking (80\%–85\%) in the occupations most likely to be exposed to asbestos in the workplace and an assumption that lung cancer in smokers is most likely to be causally related to tobacco.\textsuperscript{29}

This finding is particularly disturbing, as it has been shown that the likelihood of lung cancer in asbestos-exposed workers who also smoke is 5 times greater than the likelihood of lung cancer in smokers not occupationally exposed to asbestos, and 10 times greater than for non-smoking asbestos workers (seminal work of Selikoff reported in Frank 1979).\textsuperscript{30}

Eighty percent of men registered with asbestosis on the national register were smokers or ex-smokers. Smoking and asbestosis has been less studied than smoking and asbestos-induced lung cancer. However, it is known that smoking inhibits airways clearance of fibres, contributes to the severity of asbestosis, and (in patients with progressing asbestosis) is a significant predictor of lung cancer.\textsuperscript{31–34} The main point
here is that, in smokers, asbestos exposure cannot be ignored because of the hugely magnified risk of lung cancer.

Indeed, in many current and ex-smokers, a clinical diagnosis of asbestosis may be the first indication of this increased risk. Immediate cessation of smoking, prompt treatment for respiratory infections, and regular screening for lung cancer and related malignancies is considered essential in all cases of asbestosis.\textsuperscript{35}

The effect of past exposure to asbestos on workers in the secondary (or ‘downstream’) asbestos industries such as construction, shipbuilding, automobile, and railway repair workers has been widely reported and summarised for chrysotile asbestos by the World Health Organization.\textsuperscript{36} It has been argued that such exposures have often been overlooked\textsuperscript{37} particularly if employment was of short duration. However, in terms of health effects, there is no threshold for asbestos exposure, and a strong dose dependency has been demonstrated;\textsuperscript{36,38} both long-term low-exposure and short-term high-exposure may result in serious lung disease such as asbestosis.\textsuperscript{2,39,40}

In this study, 23 different occupational groups were recorded in the death certificates of men dying with asbestosis in New Zealand (Figure 2). The prevalence of asbestos-related disease (indicated by the last known occupation) was highest in New Zealand trades workers, plant and machine operators, labourers, and casual workers—a picture confirmed in the National Asbestos Registers Reports and studies in Europe and America.\textsuperscript{14–16,35,41,42} However the data reported here also suggest that some parts of the workforce in all major occupational groups may have had some level of past exposure to asbestos.

Most work highlighting the health impact of asbestos has arisen from the reporting of mortality data; however, morbidity and quality-of-life issues are also an important part of the impact of asbestos on population health. In this study, the burden of hospital care of patients with asbestosis is examined to highlight this issue. Asbestosis sufferers have a large number of acute hospital admissions resulting, for many, in substantial (5–7 days) episodes of care. Most are hospitalised with respiratory problems (Table 4) often requiring costly interventions for conditions such as interstitial and chronic obstructive lung disease, respiratory infections, and inflammation.

Interestingly, during a period when lung cancer in males overall has been declining, hospitalisation for patients who have asbestosis has steadily and substantially increased. In these patients, hospitalisations peaked in 1999, then declining progressively through 2000 and 2001 (Figure 3). This decline may be short-lived; however, if it continues, it may contribute significantly to the accumulating information on the scale and timing of the asbestos disease epidemic. Indeed, hospitalisation rates may be used to estimate the prevalence of asbestosis; information that is difficult to obtain from other sources.

Predictions of the scale of the asbestos epidemic have been modelled using mesothelioma data; however since the average latency period for the development of asbestosis is reported to be approximately 10 years shorter than for mesothelioma, trends in health events relating to asbestosis may be expected to provide the first evidence that the asbestos epidemic is peaking.
There are a number of well-known limitations in a study of this type. Inaccuracies are known to occur in the information obtained from death certificates. Causes of death can be misclassified because of confounding factors (such as smoking), other occupational exposures, and comorbidities contributing to the under-recognition of asbestos-related mortality. This is often exacerbated further by uncertainty relating to diagnostic criteria for asbestosis and differential diagnoses of idiopathic pulmonary fibrosis or congestive heart failure.

Occupation recorded in the death record only relates to the last full-time occupation, and may not be an accurate or fair indication of asbestos exposure. However, the occupations highlighted in this study are the same as those highlighted in cohort studies suggesting that the overall picture obtained from these records may have some general validity. Finally, improvements in the diagnosis of asbestosis, raised awareness, and improvements in data collection have undoubtedly contributed to increase trends reported in this study; however, with the exception of asbestos-related lung cancers, the changes observed are too great to be explained in terms of these factors alone.

The bulk of the reported worldwide evidence suggests that occupational diseases (including asbestosis) are under-diagnosed and under-reported and that reported cases are ‘just the tip of the asbestos diseases iceberg’.

**Author information:** Pamela Smartt, Senior Research Fellow, New Zealand Health Technology Assessment (NZHTA), Department of Public Health and General Practice, Christchurch School of Medicine, Christchurch

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**Correspondence:** Dr Pam Smartt, Senior Research Fellow, New Zealand Health Technology Assessment (NZHTA), Department of Public Health & General Practice, Christchurch School of Medicine, PO Box 4345, Christchurch. Fax: (03) 364 1152; email: pamela.smartt@chmeds.ac.nz

**References:**


Tutorial dynamics and participation in small groups: a student perspective in a multicultural setting

Emily Gill, Ailsa Tuck, Don Wai Gin Lee, Lutz Beckert (for a multicultural task group)

Abstract

Aim This study investigated the language and cultural backgrounds of medical students, and explored their perspectives of the influences on student participation in small-group tutorial settings.

Method A task group of students and staff from a variety of cultural backgrounds designed a cross-sectional survey using an anonymous questionnaire. The survey was conducted at the Christchurch School of Medicine and Health Sciences (a campus of the University of Otago). Students attending a 4th-year and a 5th-year lecture were invited to participate.

Results Seventy-five percent of students enrolled in the medical course responded to the survey. Half of the sample self-identified as New Zealand European or Maori. Sixty-four percent of students identified English as their first language. Ninety-one percent of students stated a preference for small-group tutorials rather than lectures. Most students reported that there was a ‘lack of prior preparation’ by students in these tutorials (no statistically significant difference between students with English as first or second language). Two thirds of students (66%) students felt there was a lack of full participation in small-group teaching. Personality, cultural, and language differences were perceived as contributing factors to the lack of participation.

Conclusions Lack of participation should not be assumed to be due to language difficulties. Barriers to participation are perceived differently by students from a variety of language and cultural backgrounds. Moreover, interactions between students who dominate and under-participate may influence student participation. Further research is needed to determine whether language and cultural backgrounds affect students’ participation in small group teaching.

New Zealand medical schools embrace a vibrant mix of cultures reflecting the cultural and ethnic diversity in New Zealand’s society currently. At the Christchurch School of Medicine and Health Sciences (a campus of the University of Otago), the proportion of students born overseas has increased from 18% to 50% between 1992 and 2002 according to a database held by the University of Otago. A similar cultural mix was found in other medical schools.¹ This diversity brings new challenges for the curriculum and academic staff of medical schools, and raises the question of whether medical teaching has adapted to the wide range of cultural perspectives and language skills found in students today.² ³ A group of concerned medical students formed a ‘task group’ supported by academic staff to explore the language and cultural backgrounds of students and their perceptions of participation in small-group clinical medicine sessions.
Students at the Christchurch School of Medicine and Health Sciences are taught primarily in a small-group variant of ‘Problem Based Learning’, which relies on group participation. Expertise in group facilitation and development of staff skills have been identified as essential for problem-based learning curricula.

A recent report for New Zealand’s Minister of Education noted:

> ‘When research is available, it is based almost exclusively in universities and is focused more frequently on international students than their domestic peers. What is clearly needed is more research on local students, multicultural classrooms and institutions and even the broader community. (…) Only with research directed in these ways can we make confident conclusions about the impact of international students on their domestic peers, their host institutions and their surrounding communities’.

Studies have observed variation between medical students of different cultural backgrounds. One study related a student’s language background to their examination performance. Another noted that Asian-American and white American medical students performed differently depending on the assessment modalities used. A third study correlated ethnic background with specialty choice.

Elam et al describe how medical students value the diversity among themselves. A recent study found no evidence of discrimination against ethnic minorities, although their performance was significantly lower in an objective structured clinical examination. Yet how these cultural and language differences may influence small group dynamics has not been systematically studied.

This study aims to document the language and cultural backgrounds of Christchurch medical students and to explore their perspectives of influences on student participation in the small-group tutorial setting.

**Methods**

A survey of medical students was conducted during their clinical training at the Christchurch School of Medicine and Health Sciences of the University of Otago, New Zealand in 2002. A task group of students and staff from a variety of ethnic backgrounds created a questionnaire. Ethnicity information was collected in a similar way to the New Zealand (NZ) national census. Questions addressed knowledge of the English language, preferences in teaching methods, and perceptions of participation in small-group tutorials (Figure 1).

The aim of the study was explained to students attending a 4th-year or 5th-year lecture. They were invited to complete the questionnaire anonymously.

A database was created using Microsoft Access software and the results were analysed using Microsoft Excel and Epi-Info2000 software. Percentages were calculated to describe the responses, and statistical analysis was performed using the Chi-squared test or Fisher’s exact test, as appropriate. Two members of the task group read open-ended comments independently to identify major themes. Differences in themes were resolved through discussion with the whole group. Comments were re-read and categorised according to the agreed themes.
Figure 1. Questions from the survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Please circle the ethnic group(s) you most identify with:</td>
<td>1) NZ European  2) NZ Maori  3) Pacific Island (specify) 4) Chinese (specify) 5) Continental European (specify) 6) Indian 7) Sri Lankan 8) Other (specify)</td>
</tr>
<tr>
<td>2. Do you consider English to be your: (circle appropriate answer)</td>
<td>1) First language  2) Second language</td>
</tr>
<tr>
<td>3. What is your preferred method of being taught? (circle appropriate answer)</td>
<td>1) Lecture  2) Tutorial/Small group discussion</td>
</tr>
<tr>
<td>4. Are there barriers to your active participation in tutorials? (circle all relevant answers)</td>
<td>1) Language  2) Confidence  3) Not doing preparation for it  4) Peers “dominate” the tutorial  5) Unwilling to interrupt tutor/peers  6) Other (specify)</td>
</tr>
<tr>
<td>5. What can be done to improve your learning experience and participation in tutorial sessions? (e.g. by tutors, yourself, other med students)</td>
<td></td>
</tr>
<tr>
<td>6. Do tutors in general encourage equal participation in tutorials? (circle appropriate answer)</td>
<td>Yes  No</td>
</tr>
<tr>
<td>7. What would you do if you had a problem with your studies? (circle all relevant answers)</td>
<td>1) Approach staff mentor  2) Approach TI mentor  3) Study harder  4) Speak to Professional Development tutor  5) Speak to Undergraduate Administrator  6) Speak to Associate Dean of Undergrad Affairs  7) Other (specify)</td>
</tr>
<tr>
<td>8. Are Professional Development tutors fulfilling the role of support persons/people you can approach?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>9. Did you benefit from having a TI as a mentor whilst in 4th year?</td>
<td>Yes  No</td>
</tr>
<tr>
<td>10. If there were problems with your studies, who would you prefer as a mentor?</td>
<td>1) Consultant  2) Registrar  3) House Surgeon  4) TI</td>
</tr>
<tr>
<td>11. Do you believe that there is a lack of participation in tutorials, especially for some groups in particular?</td>
<td>Yes  No</td>
</tr>
</tbody>
</table>
Please discuss/specify: __________________________

If yes, why do you think this is so? __________________________

12. Are there adequate supports for “special needs” groups? (For e.g. introverted students who don’t participate in tutorials, English as a second language students, foreign full-fee paying students)

Yes  No

13. If no, what do you think can be done about it (e.g. suggestions)? If yes, what types of support are you aware of that are available? __________________________

14. Do you have any further comments about any of the above questions or related issues/topics?

________________________________________

Thank you for your time!

Results

The Christchurch School of Medicine and Health Sciences had 126 students enrolled in the 4th- and 5th-year medical course during 2002 of whom 90 (75%) returned the questionnaire. Some questionnaires were not complete so the number of responses obtained for each data variable is indicated by (n=?) and percentages are proportions of that denominator. Therefore, results indicate the percentage of respondents rather than of the sample population.

The term ‘students’ refers to the group of students who responded. Questions 7–10 of the questionnaire (see Figure 1) asked specifically about the curriculum and the staff at the medical school and this was felt not to be applicable to other education settings. Data from questions 5, 6, 12, and 13 are not presented in this paper as responses were not relevant to describing cultural backgrounds or exploring perceptions about participation.

Most medical students surveyed identified with a single ethnicity, but 11 (11/89, 12%) students identified with more than one ethnicity. The cultural diversity of this sample is illustrated in Figure 2 where half of the respondents identified as either NZ European or Maori (49%). (Figure 2)

Figure 3 illustrates whether participants indicated English as their first or second language. Two-thirds of the participants (64%) identified English as their first language. This data was then used to analyse the subsequent questions by dividing responses into two groups: Speakers of English as 1st language (F) and Speakers of English as 2nd language (S) (Figure 3).
Figure 2. Percentages of self-identified ethnicities (non-responder; n=1)

To see data supporting Figure 2, refer to the table following Figure 3 below.

Figure 3. Percentages of English as either first or second language (n=90)
Data supporting Figure 2 and Figure 3

<table>
<thead>
<tr>
<th>Ethnicity (Figure 2)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Zealand non-Maori (43%, n=39 )</td>
<td>43.0%</td>
</tr>
<tr>
<td>New Zealand Maori (6%, n=5 )</td>
<td>6.0%</td>
</tr>
<tr>
<td>Chinese (19%, n=17)</td>
<td>19.0%</td>
</tr>
<tr>
<td>Sri Lankan (8%, n=7)</td>
<td>8.0%</td>
</tr>
<tr>
<td>Indian (2%, n=2)</td>
<td>2.0%</td>
</tr>
<tr>
<td>Other (21%, n=19)</td>
<td>21.0%</td>
</tr>
<tr>
<td>Non-response (1%, n=1)</td>
<td>1.0%</td>
</tr>
<tr>
<td>Total respondents: n=90</td>
<td>100%</td>
</tr>
</tbody>
</table>

Language (Figure 3)

<table>
<thead>
<tr>
<th>Language (Figure 3)</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>English 1st language (n=58)</td>
<td>64.4%</td>
</tr>
<tr>
<td>English 2nd language (n=32)</td>
<td>35.6%</td>
</tr>
<tr>
<td>Total responses: n=90</td>
<td>100%</td>
</tr>
</tbody>
</table>

The teaching method preferred by 91% (80/88) of students was small-group tutorials rather than lectures (F group: 89%; S group: 94%; p=0.499). Students who responded to question 4 identified the main barrier to participating in tutorials as a ‘lack of prior preparation’ by students (73%) (Table 1).

Students with English as their 2nd language (S) were three times more likely to feel that their ‘peers dominate the tutorial’ (45% vs. 15%; p= 0.005) and twice as likely to feel ‘unwilling to interrupt tutor/peers’ (38% vs. 17%; p=0.046); 17% of S students and 2% of F students felt language to be a barrier (p=0.029) (Table 1).

**Table 1. Question 4:** Are there barriers to your active participation in tutorials?

<table>
<thead>
<tr>
<th>Responses (Pre-coded and multiply responses allowed)</th>
<th>F*</th>
<th>S*</th>
<th>Total</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-responders n=12</td>
<td>n=46 (%)</td>
<td>n=29 (%)</td>
<td>n=75 (%)</td>
<td></td>
</tr>
<tr>
<td>Lack of preparation</td>
<td>36 (78)</td>
<td>19 (66)</td>
<td>55 (73)</td>
<td>0.22</td>
</tr>
<tr>
<td>Peers &quot;dominate&quot; the tutorial</td>
<td>7 (15)</td>
<td>13 (45)</td>
<td>20 (27)</td>
<td>0.005†</td>
</tr>
<tr>
<td>Unwilling to interrupt tutor/peers</td>
<td>8 (17)</td>
<td>11 (38)</td>
<td>19 (25)</td>
<td>0.046†</td>
</tr>
<tr>
<td>Confidence</td>
<td>13 (28)</td>
<td>8 (28)</td>
<td>21 (28)</td>
<td>0.95</td>
</tr>
<tr>
<td>Language</td>
<td>1 (2)</td>
<td>5 (17)</td>
<td>6 (8)</td>
<td>0.029†</td>
</tr>
</tbody>
</table>

*F (Speakers of English as 1st language); S (Speakers of English as 2nd language); †Significant difference between F and S responses (p<0.05).

Two-thirds (66%) of students who responded (n=86) to question 11 felt there was a lack of participation in tutorials, and this feeling tended to be more prevalent among the F group (74% vs 55%; p=0.136) (Table 2). The most common themes from responses about perceived causes for lack of participation were ‘personality differences’ (48%), ‘cultural differences’ (22%), and ‘language difficulties’ (15%).
Table 2. Question 11: Lack of participation in tutorials gauged by an open-ended question: Do you believe there is a lack of participation in tutorials, especially for some groups in particular: Y/N Please Discuss:

<table>
<thead>
<tr>
<th>Lack of participation</th>
<th>F*</th>
<th>S*</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=4</td>
<td>n=0</td>
<td>n=4</td>
</tr>
<tr>
<td>Responders</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YES</td>
<td>40 (74%)†</td>
<td>17 (53%)†</td>
<td>57 (66%)</td>
</tr>
<tr>
<td>NO</td>
<td>14 (26%)</td>
<td>15 (47%)</td>
<td>29 (34%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Themes identified‡</th>
<th>F°</th>
<th>S°</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=60 responses (% of responses)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lack of participation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personality differences</td>
<td>24</td>
<td>5</td>
<td>29 (48%)</td>
</tr>
<tr>
<td>Language difficulties</td>
<td>6</td>
<td>3</td>
<td>9 (15%)</td>
</tr>
<tr>
<td>Cultural differences</td>
<td>8</td>
<td>5</td>
<td>13 (22%)</td>
</tr>
<tr>
<td>Group dynamics</td>
<td>4</td>
<td>4</td>
<td>8 (13%)</td>
</tr>
<tr>
<td>Tutor</td>
<td>3</td>
<td>1</td>
<td>4 (7%)</td>
</tr>
</tbody>
</table>

*F (Speakers of English as 1st language); S (Speakers of English as 2nd language); †Non-significant difference between F and S response (p=0.136); ‡Open-ended responses.

Representative examples of ‘cultural differences’ were:

‘Don’t want to interrupt out of respect’ (F student),

‘We only answer when directly addressed as it’s rude and arrogant to flaunt your knowledge’ (S student), and

‘In general, non-Europeans tend to participate less’ (F student).

An example of ‘group dynamics’ was:

‘It’s not [about] a lack of participation but over-participation by some’ (S student).

One-third of students (35/90) made additional comments at the end of the survey (Table 3). Group dynamics were primarily discussed (37%) and further suggestions were offered for improving tutorials (29%). Suggestions for tutorials included "tutors should alternate questions asking something of each student" and "tutors should be more aware of motivating and getting everyone involved". One student commented that "equal participation slows up the tutorial" (Table 3).

Table 3. Question 14: Additional open-ended comments (non-responders; n=55)

<table>
<thead>
<tr>
<th>Themes from open-ended responses</th>
<th>F° n=25</th>
<th>S° n=10</th>
<th>Total n=35 (% of replies)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Dynamics (eg, identified peers in groups as &quot;loud&quot;, &quot;dominant&quot;, &quot;quiet&quot;, &quot;introverted&quot;, etc)</td>
<td>9</td>
<td>4</td>
<td>13 (37%)</td>
</tr>
<tr>
<td>personality, not ethnicity (eg, don’t generalise, individual’s problem)</td>
<td>5</td>
<td>1</td>
<td>6 (17%)</td>
</tr>
<tr>
<td>suggestions for tutorials (eg tutor take control, encourage quiet people, improve team-work)</td>
<td>8</td>
<td>2</td>
<td>10 (29%)</td>
</tr>
<tr>
<td>contribution/participation is/should be mandatory</td>
<td>5</td>
<td>0</td>
<td>5 (14%)</td>
</tr>
<tr>
<td>non-participation is OK—personal choice to participate</td>
<td>3</td>
<td>3</td>
<td>6 (17%)</td>
</tr>
</tbody>
</table>

*F group (Speakers of English as 1st language); S group (Speakers of English as 2nd language)
Discussion

This study surveyed medical students in clinical training at the Christchurch School of Medicine and Health Sciences using an exploratory questionnaire with an aim to generate hypotheses. The study is a limited, small, cross-sectional survey of medical students that describes their cultural backgrounds and perceptions about student participation in small group teaching. A group of students from different ethnic backgrounds initiated and developed the survey, and 75% of the enrolled students participated.

The questionnaire was administered anonymously with opportunity for respondents to reply in an unrestrained, open-ended way so that multiple issues could be identified. This approach enabled the proposal of hypotheses for research into the complexities of group learning participation, although no causal associations can be made, as it is a descriptive study.

Only students attending the appointed lecture could participate which potentially introduces a selection bias against those who do not like and do not attend lectures. However, 91% of respondents preferred tutorials to lectures, which suggests that a preference for tutorials is not keeping students from lectures; therefore the sample may be representative in this regard. The selection bias of non-response was accounted for by percentages reflecting the number of respondents rather than the sample population. However, this reduces how representative results are of the sample population, and characteristics of non-responders should be explored.

Figure 2 and Figure 3 show that only half of the survey sample self-identified as NZ European or Maori, whereas two-thirds of students stated English as their first language. This illustrates that students from a different cultural background may speak English as a first language—so tutors should not assume they lack competence in English. A pertinent comment was ‘tutors seem to make assumptions that non-European students have difficulty with English and therefore don’t usually put them on the spot’. In fact, only 17% of students with English as their second language identified ‘language difficulties’ as a barrier to participating in tutorials (Table 2).

Despite 91% of students preferring tutorials over lectures, two-thirds (66%) of them believed there was a lack of full participation in small groups. Most students identified lack of preparation (73%) and confidence (28%) as barriers to their participation. Students with English as their second language were more likely (p<0.05) to identify ‘their peers dominating the tutorial’ and ‘a feeling of unwillingness to interrupt tutors’ as barriers to their participation in tutorials. These findings were from question 4 which may introduce information bias by suggesting six barriers could exist. Several of these barriers were anticipated to be more relevant to students with English as their second language and yet in question 11 a smaller proportion of these students agreed that there was a lack of participation, although this was not significant (53% vs 74%; p=0.136).

Open-ended comments focused on personality, language, and cultural differences. (Table 2). A conflict between students who dominate discussions and students who under-participate was frequently mentioned. Relevant comments include ‘less
confident and introverted people participate less’ and ‘there are usually dominant individuals who answer the questions and the rest just lay low until being asked’.

Most people perceived personality to be a reason for lack of participation. Personality diversity is expected in any group activity but, interestingly, about a quarter of students described how they perceived cultural differences to affect participation. Comments included ‘we only answer when directly addressed as it is rude and arrogant to flaunt ones knowledge’ and ‘in general, non-Europeans tend to participate less’.

These comments illustrate diversity in students’ expectations of the group process. Differences were also noted between students with English as their first or second language (F and S groups). Significantly, the S group more frequently identified their ‘dominating peers’ and ‘a feeling of unwillingness to interrupt’ as barriers to participation (p<0.05). Interestingly, a higher proportion of students in the F group (than the S group) believed that a lack of participation existed (53% vs 74%, respectively), although this was not significant.

This contrast between students with English as their first or second language suggests an underlying difference that may affect participation. Language is an obvious distinction between these groups, but cultural background may be more important. The majority of students with English as their second language did not identify language difficulty as a barrier to participation. Perhaps such cultural differences contribute to the recent finding that ethnic minorities performed significantly lower in a clinical examination since there was no evidence of discrimination against this group. However, further research is needed to explore how language and cultural background might affect a student’s participation in small-group learning.

Perceived lack of participation in our tutorials may be related to group dynamics and social interactions rather than due to language difficulties. Tutors play a pivotal role in ensuring successful group learning and comments from our study suggest that this is particularly so when working with students from a range of backgrounds. Relevant comments include ‘when the students are relaxed and encouraged to talk there is no difficulty with participation’, ‘much is dependent on the facilitatory ability of tutors’, and ‘some tutors are able to create an environment with positive participation, others cannot’. Further research could investigate how a tutor’s teaching style affects student performance.

The roles and responsibilities of a tutor have been recently reviewed by Maudsley who emphasises the need to manage the group process. Furthermore, tutors need to consider skills specific to facilitating learning in a multicultural environment. Suggestions include: establish group ground rules, explain the role of the tutor as a guide rather than an expert, and clarify reasons for participation.

One-third of students in our study suggested ways tutors could improve tutorials such as directing questions to each student, encouraging involvement, and organising group activities at the start of the year to encourage understanding between peers. Evaluating levels of participation before and after implementation of these suggestions could help establish their effectiveness.

Medical students in our survey were a heterogeneous group of individuals from a variety of cultural and language backgrounds. Our data contributes to the limited
literature on Problem Based Learning\textsuperscript{7,20} by illustrating the challenges of multiculturalism in this learning environment and the need for innovative teaching. Universities need to support tutors in developing appropriate skills, especially as health professionals will work increasingly in ethnically diverse societies. Skills and attitudes promoted in the context of valuing diversity are generic and will enhance doctor-patient interactions regardless of the setting.\textsuperscript{21,22}

Our challenge is to equip our modern-day doctors with the skills to enable them to communicate effectively in a multicultural society. This survey illustrates an area of medical education that warrants further discussion and research.

**Summary Box**

**What is already known about this subject:**
- Students rate teaching in small groups highly.
- Mentors need training to facilitate Problem Based Learning.
- Medical school reflects our multicultural society.
- Skills and attitudes that value diversity will enhance doctor-patient interactions.

**What is new in this article?**
- Only half of respondents self-identified with a New Zealand background.
- Tutors should not assume that students from non-New Zealand backgrounds have difficulty with English.
- 91\% of all students prefer small groups to lectures, but two third of students believed there was a lack of full participation in small group sessions.
- One third of students felt small group teaching sessions could be improved.
- Diverse group dynamics were more commonly identified as barriers to participation in small group learning rather than language difficulties.

**Author information:** Emily A. Gill, Medical Student; Ailsa Tuck, Medical Student; Don Wai Gin Lee, Medical Student; Lutz Beckert*, Senior Lecturer, Christchurch School of Medicine and Health Sciences, Otago University, Christchurch

(*For a multicultural task group; members of the multicultural task group are: Ranil Appuhamy, Paul Corwin, Frank Frizelle, Jan McKenzie, Quoa Lee, Allen Liang, Nisha Nair, and Andre Schultz.)

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**Correspondence:** Dr Lutz Beckert, Department of Respiratory Medicine, Christchurch Hospital, Christchurch 8001. Fax (03) 364 0914; email: lutz.beckert@cdhb.govt.nz

**References:**


A descriptive epidemiology of giardiasis in New Zealand and gaps in surveillance data

Ekramul Hoque, Virginia Hope, Robert Scragg, Michael Baker, Rupendra Shrestha

Abstract

Introduction *Giardia* is the most commonly notified waterborne disease in New Zealand, which has high incidence rates compared with other developed countries. Four years of giardiasis notification data were analysed to describe the epidemiological patterns of infection in New Zealand and compared with local and international data.

Methods Anonymised information was collected nationally for 7818 notified cases of giardiasis between July 1996 and June 2000. International data were collected from the data sources of respective countries. Infection rates adjusted for confounding factors were calculated and presented by age, gender, ethnicity, and area using statistical and spatial methods.

Results Most cases occurred in the 1–4 year age group followed by the 25–44 year age group, and were of Pakeha/European ethnicity. Ethnicity was unknown for 18% of cases, thus affecting demographic calculations. Rates were elevated for several Health Districts in New Zealand (West Coast, Wellington, Waikato, Auckland, Hawke’s Bay, Hutt, Rotorua, and Tauranga).

Conclusions The higher rates of giardiasis observed in New Zealand, in comparison with other developed countries, may be related to environmental or social factors. Time-trend analysis suggests a seasonal pattern. This study identified vulnerable groups and major data-gaps. Recommendations for improvements in disease surveillance and data quality are discussed. Geographical information system (GIS) applications are useful for disease monitoring.

Public health interest in *Giardia* is increasing because of the growing recognition of its role as a cause of disease outbreaks in a range of settings.1–3 *Giardia duodenalis* is now the most widespread human intestinal parasite in the world. Approximately 200 million people are infected with the parasite globally, with 500,000 new cases reported annually.4 Giardiasis occurs throughout tropical and temperate regions. In developed countries, *Giardia* has the distinction of being the most commonly reported human parasite.5 The prevalence of the disease varies from 2%–5% to 20%–30% in developed and developing countries respectively.6,7 A prevalence of 2%–7% has been reported for most developed countries, including North America, Australia, and New Zealand.8 Most infected persons will remain asymptomatic, thus acting as a source of infection for other persons in the community.9

Giardiasis has been a notifiable disease in New Zealand since 1 July 1996. Before then, surveillance data were collected on an ad hoc basis.10 Giardiasis is the third-most commonly notified communicable disease in New Zealand, after
campylobacteriosis and salmonellosis. Between 1500 and 2200 cases of *Giardia* infection are notified each year. The incidence rate in New Zealand in 2002 was 41.4 per 100,000 population\(^1\) and is thought to be one of the highest among developed countries.\(^{10}\)

This paper aims to describe the epidemiology of giardiasis in New Zealand based on the first 4 years of notification data. It also applies a number of analytical approaches to evaluate the quality of surveillance data and to detect spatial and temporal trends.

**Methods**

Giardiasis notifications for New Zealand for the 4-year period July 1996 to June 2000 were collected from the national notifiable disease database, EpiSurv, operated by Environmental Science and Research (ESR) Ltd. Population data were accessed from Supermap, which was based on the 1996 New Zealand census.

The New Zealand surveillance data were checked for consistency and validity, and logical values were introduced as necessary. The surveillance data were grouped by age, gender, ethnicity, Local Authority (as area of residence) and reporting month and year. Ethnicity was categorised into four groups: Pakeha/European, Maori, Pacific people, and Asian/others. Crude annual infection rates for these groups were calculated and adjusted for age, gender, ethnicity, and area of residences (as appropriate) using a direct standardised method.

*Giardia* infection rates, both crude and adjusted, were calculated and plotted geographically using ArcView 3.0 GIS,\(^{12}\) to compare the distribution of cases by Local Authority (LA) and Health District (HD). A spatial map of New Zealand was initially divided by LA boundaries. Blocks of LAs were merged together to define Health District boundaries. Notification rates were converted separately into ArcView shape files for LAs and HDs, which were then overlaid on the respective maps. To highlight the rate differences between geographic areas, infection rates were expressed in groups and in descending order.

Overseas data were collected from the surveillance networks of Australia (NSW Health, Victoria Health), Canada (Canada Com Dis Report), the United Kingdom (PHLS), and the United States (CDC). Their data were available for periods of 2 to 9 years, depending on jurisdiction. The denominator populations used were those from the census data published by the respective government census authorities.

**Results**

Between July 1996 and June 2000, there were 7818 notifications throughout New Zealand. There were three missing cases for age. Gender was recorded for 99% of cases. Of these, half (50.10%) were females. There was no significant difference in age between genders (Chi\(^2\)=1.04).

The mean age for giardiasis cases was 26.0 (SE 0.23) years. Rates showed a bimodal pattern, peaking in children under 5 years of age and in the 25–44 years age group. The infection pattern did not change after adjusting for ethnicity, gender, or area of residence in combination or separately. Notification rates were higher among male children in the 1–4 years age group, whereas females had higher rates in the 25–34 years age group (Figure 1).

The completeness of information varied by Public Health Unit (PHU) and time. Ethnicity was recorded for 82% of cases. Of these, most were of Pakeha/European origin. Maori and Asian/others shared equal proportions of notifications, whereas Pacific people accounted for only 1%. The incidence of giardiasis varied significantly between ethnic groups (Chi\(^2\) 2133, df 5, p<0.0001). The Asian/other category had a two-fold increased risk of infection compared with Europeans, whereas Pacific people and Maori rates were lower than for Europeans (Figure 2).
Table 1. Frequency of giardiasis notifications in New Zealand by age-group and ethnicity

<table>
<thead>
<tr>
<th>Age group</th>
<th>European</th>
<th>Maori</th>
<th>Pacific people</th>
<th>Asian/others</th>
<th>Unspecified</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1</td>
<td>100.3 (126)</td>
<td>43.8 (26)</td>
<td>32.0 (6)</td>
<td>101.0 (12)</td>
<td>1570.0 (52)</td>
<td>101.4 (222)</td>
</tr>
<tr>
<td>1-4</td>
<td>215.2 (1151)</td>
<td>70.0 (159)</td>
<td>19.2 (14)</td>
<td>208.8 (95)</td>
<td>1774.3 (333)</td>
<td>194.8 (1752)</td>
</tr>
<tr>
<td>5-9</td>
<td>71.3 (494)</td>
<td>15.6 (42)</td>
<td>4.8 (4)</td>
<td>113.2 (65)</td>
<td>230.4 (114)</td>
<td>62.3 (719)</td>
</tr>
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<td>10-14</td>
<td>23.0 (149)</td>
<td>2.2 (5)</td>
<td>5.8 (4)</td>
<td>62.5 (40)</td>
<td>80.0 (37)</td>
<td>22.2 (235)</td>
</tr>
<tr>
<td>15-19</td>
<td>15.4 (100)</td>
<td>1.9 (4)</td>
<td>0.0 (0)</td>
<td>30.1 (24)</td>
<td>75.2 (36)</td>
<td>15.6 (164)</td>
</tr>
<tr>
<td>20-24</td>
<td>29.7 (213)</td>
<td>11.6 (22)</td>
<td>9.6 (6)</td>
<td>47.0 (30)</td>
<td>132.6 (72)</td>
<td>31.6 (343)</td>
</tr>
<tr>
<td>25-34</td>
<td>73.3 (1149)</td>
<td>16.7 (57)</td>
<td>14.6 (18)</td>
<td>66.7 (88)</td>
<td>283.7 (295)</td>
<td>70.9 (1607)</td>
</tr>
<tr>
<td>35-44</td>
<td>64.2 (1026)</td>
<td>21.3 (55)</td>
<td>12.5 (11)</td>
<td>51.8 (66)</td>
<td>274.7 (249)</td>
<td>65.1 (1407)</td>
</tr>
<tr>
<td>45-54</td>
<td>32.1 (439)</td>
<td>22.1 (34)</td>
<td>9.2 (5)</td>
<td>32.4 (22)</td>
<td>163.3 (110)</td>
<td>35.6 (610)</td>
</tr>
<tr>
<td>55-64</td>
<td>32.5 (316)</td>
<td>21.8 (21)</td>
<td>0.0 (0)</td>
<td>43.9 (13)</td>
<td>155.6 (74)</td>
<td>36.1 (424)</td>
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<td>65-74</td>
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<td>30.2 (14)</td>
<td>12.5 (2)</td>
<td>39.0 (6)</td>
<td>103.2 (45)</td>
<td>24.7 (244)</td>
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<tr>
<td>75+</td>
<td>10.0 (64)</td>
<td>11.8 (2)</td>
<td>15.8 (1)</td>
<td>44.6 (3)</td>
<td>53.8 (18)</td>
<td>12.5 (88)</td>
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<tr>
<td>All</td>
<td>52.1 (5404)</td>
<td>21.1 (441)</td>
<td>10.3 (71)</td>
<td>66.2 (464)</td>
<td>236.5 (1435)</td>
<td>54.0 (7815)</td>
</tr>
</tbody>
</table>

*Missing value = 3

Table 2. Proportion of giardiasis cases by ethnicity and crude rates in Health Districts (July 1996-June 2000)

<table>
<thead>
<tr>
<th>Health Districts (HD)</th>
<th>Code</th>
<th>Total Cases</th>
<th>European</th>
<th>Maori</th>
<th>Pacific people</th>
<th>Asian/Other</th>
<th>Unspecified</th>
<th>Total</th>
</tr>
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<td>Eastern Bay of Plenty</td>
<td>BE</td>
<td>45</td>
<td>30.9</td>
<td>7.6</td>
<td>0.0</td>
<td>164.5</td>
<td>56.6</td>
<td>22.3</td>
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<td>Central Auckland*</td>
<td>CA</td>
<td>939</td>
<td>70.9</td>
<td>17.4</td>
<td>14.4</td>
<td>35.0</td>
<td>278.2</td>
<td>67.9</td>
</tr>
<tr>
<td>Canterbury</td>
<td>CB</td>
<td>784</td>
<td>39.0</td>
<td>15.2</td>
<td>23.1</td>
<td>168.7</td>
<td>226.4</td>
<td>47.6</td>
</tr>
<tr>
<td>Gisborne</td>
<td>GS</td>
<td>114</td>
<td>75.6</td>
<td>37.4</td>
<td>98.0</td>
<td>110.4</td>
<td>115.7</td>
<td>62.3</td>
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<tr>
<td>Hawkes Bay</td>
<td>HB</td>
<td>382</td>
<td>41.2</td>
<td>25.3</td>
<td>29.3</td>
<td>78.9</td>
<td>703.8</td>
<td>66.9</td>
</tr>
<tr>
<td>Hutt</td>
<td>HU</td>
<td>354</td>
<td>71.6</td>
<td>37.6</td>
<td>3.2</td>
<td>84.5</td>
<td>168.2</td>
<td>66.7</td>
</tr>
<tr>
<td>Manawatu</td>
<td>MW</td>
<td>159</td>
<td>27.9</td>
<td>10.4</td>
<td>0.0</td>
<td>14.4</td>
<td>98.1</td>
<td>26.4</td>
</tr>
<tr>
<td>Northland</td>
<td>NL</td>
<td>229</td>
<td>52.3</td>
<td>14.5</td>
<td>0.0</td>
<td>51.0</td>
<td>77.0</td>
<td>41.8</td>
</tr>
<tr>
<td>Nelson-Marlborough</td>
<td>NM</td>
<td>113</td>
<td>22.3</td>
<td>15.7</td>
<td>0.0</td>
<td>69.2</td>
<td>79.4</td>
<td>24.2</td>
</tr>
<tr>
<td>Northwest Auckland</td>
<td>NW</td>
<td>961</td>
<td>58.0</td>
<td>11.8</td>
<td>5.8</td>
<td>36.8</td>
<td>337.2</td>
<td>60.9</td>
</tr>
<tr>
<td>Otago</td>
<td>OT</td>
<td>259</td>
<td>34.6</td>
<td>12.2</td>
<td>0.0</td>
<td>114.9</td>
<td>109.0</td>
<td>37.5</td>
</tr>
<tr>
<td>Rotorua</td>
<td>RO</td>
<td>165</td>
<td>46.5</td>
<td>65.1</td>
<td>17.0</td>
<td>34.9</td>
<td>342.9</td>
<td>64.0</td>
</tr>
<tr>
<td>Ruapehu</td>
<td>RU</td>
<td>23</td>
<td>35.3</td>
<td>8.1</td>
<td>0.0</td>
<td>0.0</td>
<td>201.4</td>
<td>34.4</td>
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<tr>
<td>South Auckland</td>
<td>SA</td>
<td>614</td>
<td>53.7</td>
<td>12.2</td>
<td>10.5</td>
<td>31.3</td>
<td>194.3</td>
<td>44.9</td>
</tr>
<tr>
<td>South Canterbury</td>
<td>SC</td>
<td>85</td>
<td>42.3</td>
<td>8.3</td>
<td>0.0</td>
<td>37.7</td>
<td>0.0</td>
<td>39.1</td>
</tr>
<tr>
<td>Southland</td>
<td>SO</td>
<td>150</td>
<td>36.4</td>
<td>10.9</td>
<td>0.0</td>
<td>99.7</td>
<td>22.4</td>
<td>33.7</td>
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<tr>
<td>Tauranga</td>
<td>TG</td>
<td>291</td>
<td>45.8</td>
<td>13.6</td>
<td>0.0</td>
<td>246.9</td>
<td>783.9</td>
<td>64.5</td>
</tr>
<tr>
<td>Taranaki</td>
<td>TK</td>
<td>81</td>
<td>18.1</td>
<td>11.7</td>
<td>0.0</td>
<td>56.6</td>
<td>56.3</td>
<td>19.0</td>
</tr>
<tr>
<td>Taupo</td>
<td>TP</td>
<td>71</td>
<td>35.5</td>
<td>29.5</td>
<td>0.0</td>
<td>0.0</td>
<td>583.9</td>
<td>57.9</td>
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<td>West Coast</td>
<td>WC</td>
<td>121</td>
<td>65.4</td>
<td>53.0</td>
<td>170.1</td>
<td>3586.5</td>
<td>130.2</td>
<td>93.2</td>
</tr>
<tr>
<td>Wanganui</td>
<td>WG</td>
<td>93</td>
<td>41.2</td>
<td>22.7</td>
<td>0.0</td>
<td>0.0</td>
<td>70.8</td>
<td>37.9</td>
</tr>
<tr>
<td>Waikato</td>
<td>WK</td>
<td>944</td>
<td>80.2</td>
<td>27.5</td>
<td>12.7</td>
<td>124.9</td>
<td>307.8</td>
<td>78.0</td>
</tr>
<tr>
<td>Wellington</td>
<td>WN</td>
<td>811</td>
<td>95.7</td>
<td>38.6</td>
<td>1.5</td>
<td>66.1</td>
<td>149.2</td>
<td>83.5</td>
</tr>
<tr>
<td>Wairarapa</td>
<td>WR</td>
<td>30</td>
<td>18.9</td>
<td>4.3</td>
<td>38.4</td>
<td>171.2</td>
<td>42.6</td>
<td>19.5</td>
</tr>
</tbody>
</table>

*Central Auckland includes data from Central, North and West Auckland health regions
The proportion of age specific notifications across the ethnic groups was similar other
than for the Maori population who were distributed more towards the younger (<10
years) age group (Table 1). A significant difference in mean age among ethnic groups
was also observed (F=18.2, p<0.0001). The mean age was higher for females than for
males in each ethnic group other than for Asian/others, for whom the opposite was
true.

The Local Authority (LA) was used as the unit for residence. Notification data from
73 LAs were analysed; no notifications were from the Chatham Islands. Infection
rates varied widely across the boundaries of LAs from 7.86/100,000 (Stratford,
Taranaki) to 117.03/100,000 (Hurunui, Canterbury). Notification rates for the North
and South Islands were 57 and 42 cases per 100,000 population, respectively. This
variation was statistically significant (Chi²=534.08, p<0.0001).

Analysis of unadjusted giardiasis rates by LA showed high notification rates
(>100/100,000) in parts of the East and West Coasts of the South Island and in one
area of the central North Island. Moderately high notification rates (>60/100,000)
were also found in the West Coast, central Canterbury, the south of the South Island,
the central North Island, Gisborne, Hastings, Rotorua, Waikato, Auckland, and
Wellington. When these rates were adjusted for age, gender and ethnicity, the
notification rates in ‘moderately high’ areas actually increased.

Local Authorities (LAs) were further aggregated to form the 24 Health Districts
(HDs). Information on ethnicity was incomplete for a number of HDs, mostly in the
North Island, including (in descending order) Taupo, Hawke’s Bay, Tauranga,
Ruapehu, Auckland, and Rotorua (Figure 3). The proportion of missing information
on ethnicity was statistically significant for these HDs separately compared to total
cases. For example, Auckland Health District (chi²=1685.08, p<0.0001), Rotorua and
Taupo (chi²=345.37, p<0.0001), and Tauranga (chi²=956.33, p<0.0001) all had
significantly high proportions of undocumented ethnicity in case notifications.

Notification rates were low in a number of HDs but remained high for many others
compared to the national rate of 46/100,000,13 including the West Coast, Wellington,
Waikato and Tauranga (Table 2). When infection rates were adjusted for age, gender,
and ethnicity, no additional changes were observed except for the West Coast (of the
South Island). This variation disappeared when ethnicity was removed from
controlling factors, suggesting a confounding effect.

The proportion of change in notification rate was calculated for each HD for the most
recent year compared to previous years by using the formula: \{(CR÷PR-1)×100\},
where CR denotes current rate and PR denotes the average rate for previous years. A
substantial reduction (50%) in infection rates was found in Wanganui and Gisborne
(Figure 4). Rates were higher in the Wairarapa, central Auckland, Hawke’s Bay, and
in the Ruapehu region; rates remained unchanged in north-west Auckland, and in
Taupo.

Analysing giardiasis notification rates by Health District ‘evened-out’ the range of
rates to some extent. The notification rates for Auckland, central Canterbury, and
southeastern Otago dropped from the >60/100,000 to <60/100,000 category (Figure
5). However, some areas of the North Island increased their rates at the expense of
adjacent zones; for example, Tauranga rates increased compared to the comparable
LA distribution.
Figure 1: Crude and adjusted (ethnicity) rates of *Giardia* infection by age & gender

![Graph showing Giardia infection rates by age group](chart1)

Figure 2: *Giardia* infection rates by ethnicity

![Graph showing Giardia infection rates by ethnicity](chart2)
Figure 3: Proportion of giardiasis cases notified by ethnicity and Health Districts in New Zealand

Figure 4. Proportion change in infection rates for the 1999–2000 year compared with previous years
Figure 5: Spatial distribution of giardiasis notifications in New Zealand by Health Districts (HD)
A significant seasonal variation of Giardia notification was observed (Edward’s test: \(\text{Chi}^2=15.0, \text{df}=2, p<0.001\)), peaking in late summer and early autumn. This varied by age group with, for example, the 10–19 year group rate peaking in autumn (Edward’s \(\text{Chi}^2=5.30, \text{df}=2, p=0.07\)), and a sustained high in late summer, autumn and in winter in the 1–4 (Edward’s \(\text{Chi}^2=36.99, \text{df}=2, p<0.0001\)) and 25–44 (Edward’s \(\text{Chi}^2=17.62, \text{df}=2, p<0.0001\)) year group rates.

**Discussion**

This study provides the first comprehensive review of national giardiasis notification data since the disease became notifiable in June 1996. It describes the main epidemiological characteristics of the disease in New Zealand, and also highlights potential improvements to the quality of surveillance data.

Giardiasis notifications were evenly distributed between genders in this study. This is inconsistent with one earlier GP-based active surveillance study which reported a higher proportion of cases for females than males at a regional level.\(^\text{14}\) However, the gender difference was not statistically significant in either study. An overseas prevalence study, however, reported a significant increase in infection rates for females.\(^\text{15}\)

The mean age for all cases nationally (and by gender) was consistent with other published reports where the means for females were slightly higher than for males but not significantly so.\(^\text{14}\) This finding was also consistent with our study of Auckland notification data.\(^\text{10}\) A higher mean age in females of childbearing age may reflect closer association with children, resulting in person-to-person transmission. However, an increased rate of *Giardia* infection in females is not universal either in developed\(^\text{8}\) or developing countries.\(^\text{16}\) The gender difference, therefore, could be biased by presenting behaviour, ethnicity and socioeconomic conditions. A pattern of transmission typical of developing countries is not uncommon among minorities or economically disadvantaged groups.\(^\text{10,17}\) The bimodal pattern of infection peaking in children under 5 years old and in adults 20–40 years is common, especially in developed countries.\(^\text{8,14,18,19}\) Cross-sectional studies in Australian Aborigines, and in Africa and Asia found the highest incidence in those among under 15 years, especially in the 6–14 years age group.\(^\text{17,20,21}\)

Infection rates in children may be confounded by ethnicity. Ethnicity differences in the under 5 age group were highly significant (chi\(^2=474.05\) df=4, \(p<0.0001\)). Australian data indicated a higher proportion of *Giardia* infection among Aborigine children.\(^\text{17}\) However, a US survey of pre-school children attending early childhood education facilities reported an eight-fold lower infection rate in children of African (Black) descendants compared with their White counterparts.\(^\text{22}\) Very high rates of notifications observed for some ethnic groups in a number of HDs could be due to misclassification error or unreported outbreaks; for example, the high rates among Asians in the West Coast and elsewhere or the unknown ethnic group in Tauranga (Table 2).

The pattern of *Giardia* infection has remained relatively similar over the years, but variations in rates persist between the areas. Although infection rates decreased in most areas, they have increased in five areas (representing 30% of the national population). No specific reasons for these changes have been promoted. Random
variation in yearly rate could be a possibility. However, anecdotal reports suggest that enhanced surveillance, better provision of drinking water, and health promotion are likely to have contributed to these changes in some areas,\textsuperscript{10}—eg, in the West Coast (Humphrey A, Canterbury Health, NZ – personal communication). Nevertheless, reductions in giardiasis notifications of up to 50\% in a number of HDs, compared to the previous rates, warrants further investigation.

Infection rates in the South Island were lower than in the North Island compared to the national average rate.\textsuperscript{11} Among the 12 PHUs reporting average annual infection rates above the national average for 2000, two were in the South Island, and the remainder from the North Island. Of the 12 PHUs, the West Coast (of the South Island) had the highest infection rate (93.2/100,000), followed by Wellington (83.5/100,000). Three out of four regions of Auckland had notification rates of more than 60 cases per 100,000 population. A similar higher infection pattern has been reported from the metropolitan regions of Victoria, Australia, with an average rate of 20 cases per 100,000 population for the region\textsuperscript{23}—although their rate was one-third that of Auckland rates.

Giardiasis surveillance in England and Wales has also highlighted a regional trend, where one-quarter of cases are reported from the South-East regions.\textsuperscript{24} Regional high Giardia infection rates have also been reported from the US but at much lower rates than in New Zealand. Giardia infection rates in the US varied from 0.9 to 42.3 cases per 100,000 with a national average of 9.5 cases per 100,000 population.\textsuperscript{25} Out of 43 states reporting giardiasis regularly, 10 states reported more than 20 cases per 100,000, including New York State (20.3/100,000), with Vermont (42.3/100,000) being the highest. Unlike New Zealand, these American states have active surveillance systems in place for giardiasis.

The seasonal distribution of giardiasis cases over the years showed a consistent pattern of peaking in late summer and early autumn, and low incidence in winter and early spring. This finding was consistent with other giardiasis studies.\textsuperscript{8,10,18,19} The summer peak possibly reflects enhanced outdoor activities and more contact with contaminated water, or could be a result of more personal contact between friends and family during summer vacations. However, it is difficult to explain why the 10–19 years age group, which would be expected to be most exposed to recreational water during the summer, had the lowest reported infection rate. This group also showed a weak seasonal distribution peaking slightly in early autumn, as also reported elsewhere.\textsuperscript{18}

In contrast, the age-group with the highest reported infection rate, 1–4 year old children, showed a significant seasonal variation with sustained peak periods in both late summer and autumn, and in the winter, suggestive of recreational exposure to contaminated water during summer vacation.\textsuperscript{19} Increased family activities and contact during the vacation season has been reported to favour person to person transmission of Giardia parasites. The same seasonal variation of infection was seen in the 22–44 years age group but to a lesser degree, suggestive of similar external environmental exposures and person-to-

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person contacts. Although it is not clear why the usual incidence peak continues to be in autumn, one explanation could be the long incubation period of *Giardia* infection combined with the complacency of infected person for weeks or months at the end of their holidays, before acting on symptoms and then visiting a local GP for diagnosis and subsequent notification.

Cases of enteric diseases are suspected to be grossly under-reported in the national surveillance data. The main reason could be that most people with gastroenteritis do not consult a doctor. A large prospective study of infectious intestinal disease in England found that only half of community cases of giardiasis presented to a GP.\(^{27}\) However, even when diagnosed on the basis of laboratory tests, subsequent notification to health authorities is not guaranteed.

It is likely that the clinical diagnosis of *Giardia* infection will vary by attending GP and according to local environmental situations and presentations of disease.\(^{18,28}\) The rate of notification varies with the degree of severity of the disease.\(^{29}\) The frequency of notification of the disease also depends on GPs’ perceptions of the importance of the disease and the severity of illness in presenting patients as GPs do not request stool tests for most patients presenting with diarrhoea.\(^{28}\)

An early laboratory-based study observed that GPs missed 66% of giardiasis cases due to not requesting stool examinations for patients with gastrointestinal complaints.\(^{30}\) In addition, data sampling and recording was performed by various people and was not uniform. Thus, adequate training on data management and the coding method is useful for maintaining a quality data collection process.\(^{31}\)

A major weakness in ethnicity information on *Giardia* infection in New Zealand was data incompleteness. Unknown ethnicity in this study was considered to be high at 18% of cases. This was reminiscent of the previous study on Auckland notification data.\(^{10}\) Unlike laboratory based reported cases,\(^{32}\) notified giardiasis cases are usually investigated by local public health units, where recording ethnicity is a routine step in epidemiological investigation in a multiethnic population.

Incomplete ethnicity information has been reported in other notifiable disease surveillance studies in multiethnic communities. The CDC has reported that 37-40% of case notifications do not identify the ethnicity of cases.\(^{32,33}\) Variation in the completeness of ethnicity reporting may reflect differences in sources of notification and the frequency of case investigation by the local health department.\(^{32}\) Reporting may also be influenced by disease priority.\(^{34}\)

Overseas experiences suggest that the completeness of diagnosis and reporting is reduced in vulnerable ethnic groups due to cultural complexities and economic difficulties.\(^{35}\) Under-representation in GP visits among socially deprived communities, which are often ethnic minority groups in New Zealand, has been observed elsewhere.\(^{27}\) Information gaps in ethnic data in the present study are age-group sensitive. Given the lowest rates of ethnicity recording are in areas with high proportions of mixed ethnic groups (such as Auckland, Rotorua), this information could be influenced by cultural factors.

Under-diagnosis and the data gaps limit our capacity to estimate the true burden of giardiasis in New Zealand as well as hampering an effective and meaningful analysis.
of risk factors for the disease. Nevertheless, we were able to compare the information with exposure information collected from external sources.

The spatial depiction of data in the present study has helped to identify areas with high rates of notification. Descriptive analysis using GIS could be useful for the monitoring of surveillance performance and/or the need for enhancement. Superimposing multi-layer information, and displaying it simultaneously by the administrative boundaries of an area, can facilitate the step from descriptive to analytical epidemiological work and raise hypotheses about associations.

Analysis of spatial information is critically dependent on the accuracy of the source data and technology-driven which implies additional cost and skilled manpower. ‘Point data’, which identify individuals by residential address, are desirable for investigating causal relationships or for longitudinal studies and to maximise the benefits of GIS in public health studies, although they may not be accessible due to perceptions of the ethical considerations of personal privacy.36

Information from LAs on area and population could not be correlated with exposure factors because of incomplete supporting data, such as lack of street addresses. Due to such data restrictions, aggregated point data was used in this study. This has restricted the capacity to manipulate information.

Lastly, further investigation of reasons for variation in reported rates could promote better understanding of the transmission of this disease in New Zealand and assist in the development of intervention strategies.

Author information: M Ekramul Hoque, Research Fellow, Section of Epidemiology & Biostatistics, School of Population Health, University of Auckland, Auckland; Virginia T Hope, Senior Lecturer, Section of Epidemiology & Biostatistics, School of Population Health, University of Auckland—and Auckland Regional Public Health Services, Auckland; Robert Scragg, Associate Professor, Section of Epidemiology & Biostatistics, School of Population Health, University of Auckland; Michael Baker, Public Health Medicine Specialist, ESR Ltd, Porirua (currently Senior Lecturer, Department of Public Health, Wellington School of Medicine and Health Sciences, University of Otago, Wellington); Rupendra Shrestha, PhD Candidate, Environmental Health Group, National Centre for Epidemiology and Population Health, Australian National University, Canberra, Australia

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Correspondence: Dr M Ekramul Hoque, Section of Epidemiology & Biostatistics, School of Population Health, University of Auckland, Private Bag 92019, Auckland. Fax: (09) 373 7503; email: e.hoque@auckland.ac.nz

References:


Lifestyle screening: development of an acceptable multi-item general practice tool

Felicity Goodyear-Smith, Bruce Arroll, Sean Sullivan, Raina Elley, Barbara Docherty, Ron Janes

Abstract

Aims To develop a short screening tool for lifestyle and mental-health risk factors that adults can self-administer, and to determine acceptability and feasibility of use of this tool in primary care settings.

Methods The multi-item tool was designed to screen patients in rural and urban New Zealand general practices for smoking, alcohol and drug misuse, problem gambling, depression, anxiety, abuse, anger, sedentary lifestyle, and weight issues. Patients were offered help for identified risk factors. Fifty consecutive adult patients per practice (n=2,543) were recruited to participate from 20 randomly-selected urban general practitioners; 20 general practice nurses and 11 rural general practitioners.

Results Patients came from diverse ethnic, geographical, and socioeconomic backgrounds. The sample prevalence of positive responses identified ranged from 2.8% (gambling) to 42.7% (depression). The number of patients requesting immediate assistance with these responses (0.5 to 13.5%) did not overwhelm clinicians. The tool was well accepted by patients, with few objections to specific questions (0.1–0.8%). Most practitioners stated they will use the screening tool once available.

Conclusions Screening for lifestyle and mental health risk factors is becoming increasingly important in primary health care. This screening tool was acceptable to patients and was not considered overly burdensome by practitioners.

Increasing emphasis on preventive practice in primary health care settings necessitates screening for lifestyle and mental health risk factors. Screening tools are available for specific factors—for example, the Alcohol Use Disorders Identification Test (AUDIT); the South Oaks Gambling Screen instrument for the identification of problem gambling; the Beck Depression Inventory; the Partner Violence Screen; and the Conflict Tactic Scale (measuring use of reasoning, verbal aggression and physical violence in resolving conflict). Opportunistic screening is likely to have limited effect compared with routine screening by invitation. However, given consultation time restraints, compliance with routine screening regimes can be low for both patients and practitioners.

Furthermore, some patients are embarrassed or object to being asked sensitive questions about their lives. For example, several studies examining women’s acceptability of domestic violence screening show huge variability in the percentage of women who object—ranging from 15 to 57%. Similarly, most studies indicate that the majority of general practitioners and other primary healthcare workers are not in favour of screening for partner abuse. We hoped that screening all patients...
for several potentially sensitive issues would not offend patients, yet allow collection of important information.

Cigarette smoking, alcohol and other drug misuse meet World Health Organization (WHO) criteria for primary care screening, as do the mental health conditions of depression and anxiety.24 Recent court rulings in New Zealand (highlighting the need for employers to attend to the psychological safety of the workplace and the role of GPs in assessing the ‘stress’ levels of their patients) are likely to increase.

Problem gambling is an identified increasing social problem, which can impact negatively on health. The development of screening tools and effective interventions supports primary care screening.

Interpersonal violence (including spousal abuse) is a growing concern. Partner abuse currently does not meet the internationally-recognised criteria for screening,25 particularly regarding its unacceptability to many women patients;26 however, medical organisations (in New Zealand and worldwide) advocate routine screening for it.27 By embedding a generic question about violence and threats, and offering patients opportunity to address their own issues with anger management, it was hoped to increase the acceptability of screening for these issues.

Physical inactivity has been associated with an increase in risk of several disease states, as well as lower quality of life compared with an ‘active’ lifestyle. Interventions aimed at improving the physical activity of sedentary patients can help to reduce cardiovascular disease, diabetes, obesity, osteoporosis, and symptoms of depression as well as improve quality of life.28 Given the high health burden due to physical inactivity, and it being an area of significant health gain potential, screening and intervention should be effective.28 Similarly, obesity poses a health burden at all ages, being associated with a number of diseases caused by metabolic complications and/or the excess weight itself, and there is justification in screening for eating disorders and obesity.29

The aims of this study were to develop a short one-page screening tool for lifestyle and mental-health risk factors that adults can self-administer, and to determine the acceptability and feasibility of use of this tool in primary care settings.

Methods

Background—The tool was designed by the lead author (Felicity Goodyear-Smith) in collaboration with a team that included general practitioners, university researchers, a psychologist, and a community-based brief-intervention educator of primary healthcare providers. A literature search of screening tools for the areas of interest was conducted. Where possible, existing short screening tools (for example, the two-question depression screen30 and the question assessing sedentary behaviour28) or key questions from longer tools (for example, the AUDIT31) were incorporated into the screening tool. Most items have been previously validated independently in primary care settings.

The tool was assessed by primary healthcare providers in three settings. General practitioners in Auckland City, and practice nurses in urban and rural centres in the Otago region (of the South Island), were randomly selected using a computer-generated random number table. To include more rural patients, all 13 rural general practitioners in the Hawke’s Bay region (of the North Island) were invited to participate.

Fifty consecutive adult patients were recruited per practitioner. All consecutive patients aged 16 years and over attending the practice (including those attending as caregiver of another patient) were invited
to complete the lifestyle assessment screening tool and evaluation sheet. Exclusion criteria were unable to understand English or mental impairment that precluded meaningful participation.

Lifestyle screening forms were self-administered by patients in the waiting room, or administered by a practice nurse in a consulting room, prior to the patient’s consultation. Where the screening tool detected a risk factor that the patient wanted addressed, general practitioners could either deal with the problem at the time of the consultation or schedule a later appointment. To determine acceptability and feasibility of use of the tool, all patients and practitioners also completed feedback forms, which recorded objections to any of the screened topics and positive and negative responses to the tool.

Analysis—Data analysis, using descriptive statistics and non-parametric binomial (Chi-squared tests) was conducted using the SPSS-10.0 statistical package. Data included demographic information; positive responses to each screening question; number of patients requesting assistance from their doctor or nurse concerning risk factors; patients’ objections to questions; and estimation of patient and practitioner satisfaction with the resource.

Results

A total of 2,543 consecutive patients (1000 in Auckland; 1000 in Otago, and 543 in Hawke’s Bay), 20 urban doctors, 20 practice nurses, and 11 rural doctors participated in the study. Three general practitioners and two nurses declined participation, giving a 91% practitioner participation rate. In Auckland (where patients were recruited by a research assistant), 23 patients actively declined to participate (97.75% response rate). In the other regions, the refusal rate was not recorded, but it is unlikely to differ significantly from the Auckland rate.

Approximately two-thirds of the patients were female in all three settings. Their ethnicity varied markedly. In Otago, 93% were New Zealand European, compared to 68% in Auckland, and 62% in Hawke’s Bay. The Auckland sample was ethnically diverse including 7% indigenous Maori and 15% Pacific people, whereas the non-European population in the Hawke’s Bay sample were almost exclusively Maori (33%). Patients’ age ranged from 16 to 91 years, with an average age of 46 (Auckland and Hawke’s Bay) and 49 (Otago).

Thirty-four percent (182/543) of Hawke’s Bay patients admitted to being cigarette smokers, compared with 22% (221/1000) of Auckland patients (p=0.0002). Otago patients were similar to Auckland (198/994, 20%). Of those patients who smoked, 16% (86/548) in Hawke’s Bay smoked over 10 cigarettes per day compared with 9% (90/999) in Auckland and 9.75% (97/999) in Otago.

Fewer Auckland (701/999; 70%) than Hawke’s Bay (450/538; 83.6%) and Otago (834/994; 83.9%) patients used alcohol, but an equal percentage (12%) drank four or more times a week in each setting.

The numbers of those patients who gave positive responses to screening questions; who wanted assistance with specific problems, and who objected to being asked specific questions are presented in Tables 1, 2, and 3 respectively.

The prevalence of identified risk factors ranged from 43% (for depression) and 40% (for anxiety) down to 11% for concerns about drinking and 3% for gambling and other drug use. Three times as many (15%) patients admitted to trouble with anger control than those who admitted trouble with being abused (5%).

Few patients with positive responses requested help for the identified problem; only 15% for depression and anxiety and 8.6% for smoking—down to 3.5% for anger, 1.4% for alcohol, 2.2% for abuse, 0.8 for drug misuse, and only 0.5% for gambling.
Table 1. Positive responses to screening questions
(This is effectively the questionnaire, excluding questions on quantity/frequency of smoking and drinking (reported in the text). Some missing data in Otago and Hawke’s Bay samples because there was no on-site research assistant at these locations.)

<table>
<thead>
<tr>
<th>Screening questions</th>
<th>Auckland</th>
<th>Otago</th>
<th>Hawke’s Bay</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
<td>N (%)</td>
</tr>
<tr>
<td>Do you ever feel the need to cut down on your smoking?</td>
<td>123/1000 (12.3)</td>
<td>106/1000 (10.6)</td>
<td>41/506 (8.1)</td>
<td>270/2506 (10.8)</td>
</tr>
<tr>
<td>Do you ever feel the need to cut down on your drinking?</td>
<td>12/1000 (1.2)</td>
<td>39/1000 (3.9)</td>
<td>21/536 (3.9)</td>
<td>72/2536 (2.8)</td>
</tr>
<tr>
<td>Have you sometimes felt unhappy or worried after a session of gambling?</td>
<td>24/1000 (2.4)</td>
<td>37/1000 (3.7)</td>
<td>19/519 (3.7)</td>
<td>80/2519 (3.2)</td>
</tr>
<tr>
<td>During the past month have you often been bothered by feeling down, depressed or hopeless?</td>
<td>436/1000 (43.6)</td>
<td>446/992 (45)</td>
<td>198/536 (36.9)</td>
<td>1080/2528 (42.7)</td>
</tr>
<tr>
<td>During the past month have you often been bothered by having little interest or pleasure in doing things?</td>
<td>326/1000 (32.6)</td>
<td>350/978 (35.8)</td>
<td>128/529 (24.2)</td>
<td>804/2507 (32)</td>
</tr>
<tr>
<td>Have you been worrying a lot about everyday problems?</td>
<td>41/1000 (4.1)</td>
<td>41/965 (4.2)</td>
<td>143/520 (27.5)</td>
<td>998/2485 (40.2)</td>
</tr>
<tr>
<td>Is there anyone in your life whom you are afraid of, who hurts you in any way or prevents you doing what you want?</td>
<td>160/1000 (16)</td>
<td>147/975 (15.1)</td>
<td>79/532 (14.8)</td>
<td>386/2507 (15.4)</td>
</tr>
<tr>
<td>Is controlling your anger sometimes a problem for you?</td>
<td>449/1000 (44.9)</td>
<td>395/981 (40.3)</td>
<td>243/534 (45.5)</td>
<td>1087/2515 (43.2)</td>
</tr>
<tr>
<td>As a rule, do you (not)* do at least 30 minutes of moderate or vigorous exercise (such as walking or a sport) on 5 or more days of the week?</td>
<td>388/1000 (38.8)</td>
<td>421/970 (43.4)</td>
<td>218/531 (45.9)</td>
<td>1027/2501 (41.1)</td>
</tr>
</tbody>
</table>

*The actual question asked was asked in the positive, but the inverse is reported to facilitate clarity of comparison with other risk factors.

Table 2. Responses requesting assistance with identified risk factor

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>N</th>
<th>% *</th>
<th>Yes, but not today</th>
<th>N</th>
<th>% †</th>
<th>Yes, today</th>
<th>N</th>
<th>% †</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking</td>
<td>1946 / 2133</td>
<td>91.2</td>
<td>119 / 2133</td>
<td>5.6</td>
<td>68 / 2133</td>
<td>3.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>2114 / 2143</td>
<td>98.6</td>
<td>19 / 2143</td>
<td>0.9</td>
<td>10 / 2143</td>
<td>0.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other drugs</td>
<td>2055 / 2072</td>
<td>99.2</td>
<td>9 / 2072</td>
<td>0.4</td>
<td>10 / 2072</td>
<td>0.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gambling</td>
<td>2050 / 2061</td>
<td>99.5</td>
<td>6 / 2061</td>
<td>0.3</td>
<td>5 / 2061</td>
<td>0.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>1857 / 2127</td>
<td>87.3</td>
<td>117 / 2127</td>
<td>5.5</td>
<td>153 / 2127</td>
<td>7.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>1851 / 2139</td>
<td>86.5</td>
<td>139 / 2139</td>
<td>6.5</td>
<td>149 / 213</td>
<td>7.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abuse</td>
<td>1962 / 2007</td>
<td>97.8</td>
<td>22 / 2007</td>
<td>1.1</td>
<td>24 / 2007</td>
<td>1.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anger</td>
<td>1935 / 205</td>
<td>96.5</td>
<td>44 / 205</td>
<td>2.2</td>
<td>26 / 205</td>
<td>1.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise</td>
<td>1992 / 2007</td>
<td>95.8</td>
<td>57 / 2007</td>
<td>2.8</td>
<td>28 / 2007</td>
<td>1.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>1838 / 2016</td>
<td>91.2</td>
<td>105 / 2016</td>
<td>5.2</td>
<td>73 / 2016</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
*Because results were very similar across all three regions (Auckland, Otago, Hawke’s Bay), only findings for total number of patients are presented for the sake of clarity; †Percent excluding missing data for factor in question.
<table>
<thead>
<tr>
<th>Question</th>
<th>Auckland* N (%)</th>
<th>Otago† N (%)</th>
<th>Hawkes Bay‡ N (%)</th>
<th>Total patients N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objected to any question</td>
<td>8 (0.8)</td>
<td>24 (2.4)</td>
<td>24 (4.4)</td>
<td>56 (2.2)</td>
</tr>
<tr>
<td>Smoking</td>
<td>1 (0.1)</td>
<td>3 (0.3)</td>
<td>5 (0.9)</td>
<td>9 (0.3)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>1 (0.1)</td>
<td>4 (0.4)</td>
<td>8 (1.5)</td>
<td>13 (0.5)</td>
</tr>
<tr>
<td>Other drugs</td>
<td>4 (0.4)</td>
<td>5 (0.5)</td>
<td>13 (2.4)</td>
<td>22 (0.8)</td>
</tr>
<tr>
<td>Gambling</td>
<td>0 (0)</td>
<td>5 (0.5)</td>
<td>10 (2.2)</td>
<td>15 (0.6)</td>
</tr>
<tr>
<td>Depression</td>
<td>0 (0)</td>
<td>1 (0.1)</td>
<td>7 (1.3)</td>
<td>8 (0.3)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1 (0.1)</td>
<td>4 (0.4)</td>
<td>5 (0.9)</td>
<td>10 (0.4)</td>
</tr>
<tr>
<td>Abuse</td>
<td>0 (0)</td>
<td>4 (0.4)</td>
<td>6 (1.1)</td>
<td>10 (0.4)</td>
</tr>
<tr>
<td>Anger</td>
<td>0 (0)</td>
<td>3 (0.3)</td>
<td>4 (0.7)</td>
<td>7 (0.3)</td>
</tr>
<tr>
<td>Exercise</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>3 (0.6)</td>
<td>3 (0.1)</td>
</tr>
<tr>
<td>Weight</td>
<td>1 (0.1)</td>
<td>2 (0.2)</td>
<td>6 (1.3)</td>
<td>9 (0.3)</td>
</tr>
</tbody>
</table>

*Auckland: No patient objected to more than one question. †Otago: 9 patients objected to more than 1 question. ‡Hawke’s Bay: 3 patients objected to every question; all objectors objected to more than one question.

There was minimal (<1%) objection to the screening questions, ranging from 0.8% objecting to being asked about their drug use down to 0.1% objecting to the question on physical activity.

Feedback from both patients and practitioners on the tool was overwhelmingly positive. Most patients liked using it; they found it clear, short, quick and easy to complete. Some commented that it was ‘non-threatening’; made them aware of lifestyle practices that might impact on their health; and gave them options regarding seeking help. Ninety-three (3.6%) patients recorded negative comments—because either they thought questions were too personal or too vague, or they were concerned that issues such as diet, employment difficulties, or allergies were omitted.

The tool was also well-received by practitioners. Overall, doctors were more positive than nurses, with all but three (one urban, two rural) doctors saying they would use it in their practice. Half of the practitioners would like it in paper form and the other half would like it in either electronic or dual formats. Many would use the tool with all new patients, some would screen all patients in the waiting room for one month each year, while some would use the tool opportunistically. Seventy-five percent of the nurses also said they would use the tool. The five nurses not intending to use the tool filled in the form on behalf of their patients, rather than allowing the patients to self-complete.

**Conclusion**

This is the first multi-item lifestyle and mental-health screening questionnaire in the literature. It was very acceptable to patients in both urban and rural settings. For example, only 0.4% of patients objected to the question on abuse, and this included three patients who objected to every question. This compares very favourably with other screening studies, where 15 to 57% of female patients objected to being asked about abuse.4,8–19
These findings indicate that more than 99% of all adult patients in a New Zealand general practice setting will complete a self-administered generic questionnaire requesting sensitive information on lifestyle and mental-health issues without patient objection. Less than 1% of patients objected to being asked any of the questions, with the greatest number of objections to the question on other drugs such as cannabis use (0.8%).

Given the illegal nature of this behaviour, this is not surprising, however. This raises the issue of patient honesty with respect to self-reporting of such behaviours. Under-reporting may be an issue, given that responses were not anonymous to patients’ practitioners. However some studies comparing self-reporting of alcohol and drug use with blood alcohol measures, and blood or urine testing for other drugs, have found self-reporting consistent with the biological markers, although these studies were not necessarily conducted within the primary health care setting.\textsuperscript{32–34}

Generally, findings were similar between urban and rural populations, and between doctor and practice nurse patients. The tool was acceptable to most general practitioners and nurses, who found it simple to use. The small number of practice nurses who were less enthusiastic were those who interviewed the patients to collect feedback information about screening and commented that this was time-consuming. However, as a self-administered questionnaire without the research feedback component, this issue would not arise.

The questions on depression and anxiety yielded high response rates, some of whom requested assistance. It is not known whether these were newly detected problems or whether patients’ consultations were for ongoing care of these pre-existing conditions. A study is currently underway to determine whether those patients requesting help are those with moderate or severe depression in greatest need of intervention.

Initial fears that doctors would be inundated with requests for help with newly identified lifestyle problems, in addition to the scheduled consultation, were not realised. Having identified a problem, patients had the option to state that they did not wish to deal with it today. For those patients that did identify a problem (for which they wanted help today), the doctor had the option of either dealing with it if time allowed, or scheduling another appointment for it.

To our knowledge this is an innovative approach not utilised in other tools, and may help gauge patients’ willingness to address the issue.\textsuperscript{35} The highlighting of a lifestyle risk factor (such as smoking in a patient who does not want help) still allows for a brief intervention—ie, acknowledging that the patient smokes and advising that help is available should it be required in the future.

A strength of this study was the large sample size conducted with consecutive adult patients with concurrent assessment of the acceptability of the tool. We chose to test the tool in three different settings to assess its usefulness across a broad range of patient ages, ethnicity, and sociodemographic circumstances and with both rural and urban general practitioners and practice nurses. The items chosen are predominantly those expected to be screened for in general practice (such as smoking, alcohol use, depression, physical activity) plus several for which there are significant associated health sequelae (for example gambling and exposure to violence).
There is growing demand for these issues to be addressed within primary health care settings.\textsuperscript{27,36,37} However a weakness in this tool is that; while there is a general expectation and sometimes ministerial directive that GPs identify and manage mental health disorders such as anxiety, and social problems such as gambling and domestic violence; some of these issues currently do not meet international guidelines for screening.\textsuperscript{25}

The tool consists of a number of brief screens, some of which have been validated under different conditions—for example, the two-question depression screen.\textsuperscript{30} While several mental health and lifestyle screening tools have been developed for general practice, either for single or multiple issues (for example, conjoint screening for alcohol and other drugs\textsuperscript{38}), there is no alternative tool offering brief screening for a broad range of mental health and lifestyle behaviours relevant to general practice. Thus, a limitation of the findings are that they are derived from the development of a multi-item tool and assessment of the feasibility and acceptability of its use. As the composite tool is not validated, care needs to be taken in interpreting the findings of prevalence of various risk factors and conditions.

The entire screening questionnaire will undergo a validation exercise against appropriate ‘gold standards’ for each condition. Once validated for use in New Zealand primary health care, paper versions will be made available, and electronic versions integrated into patient management software. Ideally, a positive response will lead seamlessly to a more comprehensive screening or diagnostic tool—for example, access to the full version of the AUDIT (a validated 10-question screening tool for problematic drinking).

Several of our screened conditions do not yet meet WHO criteria for screening (for example, there are no randomised controlled trials of effective treatment for gambling). Future research may involve assessing the treatment for some of these conditions. We had concerns about the utility of our weight questions and our amended tool will use the weight screening question from the Primary Care Evaluation of Mental Disorders (PRIME-MD)\textsuperscript{39}—a screening instrument developed using diagnostic criteria from the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV). The full PRIME-MD has limited clinical usefulness due to its lengthy administration time.\textsuperscript{40}

In summary, general practice is highly accessible to patients requiring help with problem behaviours, and patients expect to receive preventive lifestyle advice from their general practitioner—but, given consultation time restraints, compliance with routine screening regimes can be low for both patients and practitioners.

This is the first brief multi-issue self-administered screening tool for lifestyle risk factors and mental health issues for use in primary healthcare, and it proved very acceptable to large sample of consecutive adult patients. Furthermore, it was well-received by general practitioners and practice nurses, who were not inundated with requests for help with lifestyle problems in addition to the scheduled consultation issues. Asking if assistance is required, either now or later, is an innovation that may gauge patients’ readiness to change their behaviour. This tool is promising and goes some way to meet demands for screening lifestyle and mental health issues in primary healthcare.
A study validating the tool against a composite ‘gold standard’ in the context of a randomised trial (with 6-month outcome and process evaluations) is currently underway. Once the tool has been validated, it will be available for use by general practitioners, practice nurses, and other clinical primary healthcare workers nationwide.

Author information: Felicity Goodyear-Smith, Department of General Practice and Primary Health Care, School of Population Health, University of Auckland, Auckland; Bruce Arroll, Associate Professor, Department of General Practice and Primary Health Care, School of Population Health, University of Auckland, Auckland; Sean Sullivan, Director, Abacus Counselling & Training Services Ltd, Auckland; C Raina Elley, Senior Lecturer, Department of General Practice, University of Otago, Wellington; Barbara Docherty, National Project Director, Tobacco, Alcohol and other Drugs Early Intervention Training Programme, Department of General Practice and Primary Health Care, School of Population Health, University of Auckland, Auckland; Ron Janes, Associate Professor, New Zealand Institute of Rural Health, Hamilton

Correspondence: Dr Felicity Goodyear-Smith, Department of General Practice and Primary Health Care, School of Population Health, University of Auckland, Private Bag 92019, Auckland. Fax (09) 373 7624; email: f.goodyear-smith@auckland.ac.nz

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The study involved initial collaboration between primary healthcare researchers (with specific lifestyle or mental health interests and expertise in the Department of General Practice and Primary Health Care, the University of Auckland) in the development of the tool.

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Salmonella Brandenburg: changing patterns of disease in Southland Province, New Zealand

Rachel Clarke, Paul Tomlinson

Abstract

Background Salmonella Brandenburg has previously been an infrequent human pathogen in New Zealand, however a marked increase in human isolates has been noted since 1996.

Aim To research the incidence and pattern of Salmonella Brandenburg infection in New Zealand and specifically the characteristics of human isolates seen at Southland Hospital, Invercargill, Southland Province, New Zealand.

Methods A literature review was performed, and statistical data from the Enteric Reference Laboratory, Institute of Environmental Science and Research Limited (ESR) was reviewed. A retrospective case series was performed, collecting demographic and clinical information for all patients with salmonellosis seen at Southland Hospital between September 1997 and May 2002.

Results Salmonella Brandenburg is shown to have become the predominant human isolate seen at Southland Hospital from 1997 to 2001. Of a total of 62 cases of salmonellosis, 30 were culture-positive for S. Brandenburg (48%). Of these cases, 13 (43%) were from extra-intestinal sites. Eleven of these 13 (85%) cases did not have any risk factors for invasive disease. During the study period, the incidence of S. Brandenburg infection increased, as did the incidence of invasive disease.

Conclusion The incidence and invasive potential of S. Brandenburg seems to be increasing, particularly in Southland, with peak infection rates corresponding to the lambing and calving season (September to November). S. Brandenburg seen in immunocompetent hosts may be a more invasive organism, and present with a wider spectrum of disease than has been previously considered.

Salmonella infections are usually confined to the gastrointestinal tract, characterised by acute diarrhoea and fever, and are generally self limited. Salmonellae bacteria are less frequently isolated from blood culture or from focal extraintestinal sites. Once bacteraemia occurs, focal supplicative infections in salmonellosis may occur almost anywhere by haematogenous spread. The clinical course may be influenced by risk factors such as young age, underlying disease, and immunosuppression, which may predispose to invasion of the blood stream and focal complications such as meningitis and osteomyelitis. Salmonella Brandenburg is one of nearly 2500 different serotypes of Salmonella. Kauffmann and Mitsui reported the first case of S. Brandenburg infection in 1930 following a case in Germany. There have also been reports of an outbreak of S. Brandenburg gastroenteritis in England in 1963, Switzerland in 1992, and in Japan in 2001. There have been only eight reported cases of invasive S. Brandenburg infection in the literature.
Salmonella Brandenburg has been an infrequent human pathogen in New Zealand, accounting for 1% of the 14,000 salmonellosis case isolates from 1985–1994. The first human isolate in New Zealand was recorded in 1985, and the first animal isolate was recorded in 1996. During the first three months of 1995, the first human bacteraemia due to S. Brandenburg was recorded in New Zealand. The first focal infection was subsequently reported in 1999 (from a peritoneal swab), followed by a knee aspirate in 2000.

The incidence of human infection with S. Brandenburg in New Zealand has been rising. Data from the Enteric Reference Laboratory (ESR) showed that for the period January 1990 to March 1995 there were 85 viable human isolates of S. Brandenburg. Of these isolates, 72% were from the Auckland-Waikato area and 6% from the Otago-Southland area. The sources were identified mainly as bovine (23%), meat and bone meal (23%), and porcine (20%).

National statistics for 2001 report 137 human isolates, with 5.1% of cases occurring in the Auckland-Waikato region and 69% in the Otago-Southland region. The sources were reported as 71.5% ovine (associated with sheep), compared with 14% bovine, and 1.5% meat and bone meal. These data suggest a change in both host and geographic location.

Since 1996, a new strain of S. Brandenburg has been associated with an epidemic of late pregnancy abortions and deaths in ewes in Southland, infecting farm workers who have been involved in caring for sick or newborn livestock and handling aborted foetuses. A spring peak in human S. Brandenburg infection was first observed in New Zealand in 1998 and has since occurred every year, coinciding with the period following lambing and calving.

The incidence of human infection with S. Brandenburg in Southland has also been rising. Southland is a predominantly rural community with a large dairy and sheep farm industry. The first human case was reported in Southland in 1997, followed by 46 cases in 1998, 71 in 2000, and 50 in 2001. Since 1998, an increasing number of infections due to S. Brandenburg have been seen at Southland Hospital, including a case of meningitis, a case of osteomyelitis, and a case of septic arthritis.

The possibility of an increasing incidence of both gastrointestinal and invasive disease due to S. Brandenburg, and a lack of published information on the spectrum of human illness caused by the organism prompted this study.

Materials and Methods

A literature review was performed using internet Medline and Cinahl as search engines. ‘Salmonella’ and ‘Brandenburg’ were chosen as search words, and all dates from 1966 to May 2002 were searched. Annual reports published by the Enteric Reference Laboratory (ESR) were reviewed, and data on incidence, site of infection, and proportion of all salmonellosis caused by S. Brandenburg were collated.

Southland Hospital is a secondary referral centre that services a predominantly rural community of about 100,000 people. The region has a large dairy and sheep farm industry. Patients seen at Southland Hospital from September 1997 to May 2002 who had salmonellosis confirmed by positive laboratory culture were included in the study. Cases were identified from the database maintained by the microbiology laboratory at the hospital.

A retrospective review of their medical and laboratory charts was conducted for all cases where cultures (stool, urine, blood, cerebrospinal fluid [CSF], wound aspirates, and swabs) grew Salmonella bacteria. Demographic data and clinical details were obtained from each medical chart. Risk factors
(such as immunosuppression, underlying or pre-existing disease process, and age) were noted. Each patient was considered to have a single episode of salmonellosis, regardless of the number of positive cultures obtained from that patient during their admission to hospital.

Blood cultures were incubated at 35°C using the BacTAlert Microbial Detection System. Faecal and urine specimens were plated onto a variety of selective media and incubated at 35°C. Cerebrospinal fluid and joint or wound aspirates were plated onto selective aerobic, anaerobic, and enrichment media and incubated in 5% CO₂ at 35°C. All cultures were incubated for a total of 5 days, positive cultures were subjected to Gram staining, and an automated Microscan system was used for identification and antimicrobial sensitivities. All Salmonella isolates identified at Southland Hospital laboratories were referred to the Enteric Reference Laboratory for confirmation and serotyping.

**Results**

Eight case reports were found in the literature search: a thigh abscess in Sweden, a suppurative thyroiditis in Italy, primary S. Brandenburg peritonitis in France, an infected aortic aneurysm and manubriosternal junction osteomyelitis in the UK, and a recurrent urinary tract infection in Germany.

Data from the Enteric Reference Laboratory showed that the incidence of human infection with S. Brandenburg in New Zealand, and specifically Southland, has also been rising since 1985 (Table 1). The proportion of S. Brandenburg infection compared to infection caused by other types of salmonellae has also increased since 1985. Between January 1997 and May 2002, there were 23 reported cases of S. Brandenburg isolated from blood cultures in New Zealand, and 12 isolates from sites other than stool or blood.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total number of cases</th>
<th>% of S. Brandenburg among all cases of salmonellosis</th>
<th>Number of cases of S. Brandenburg in Southland</th>
<th>Number of cases of S. Brandenburg at Southland Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>2</td>
<td>0.2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1992</td>
<td>6</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>7</td>
<td>0.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1994</td>
<td>33</td>
<td>2.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1995</td>
<td>31</td>
<td>2.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1996</td>
<td>27</td>
<td>2.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1997</td>
<td>39</td>
<td>2.8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1998</td>
<td>156</td>
<td>7.0</td>
<td>46</td>
<td>2</td>
</tr>
<tr>
<td>1999</td>
<td>176</td>
<td>7.6</td>
<td>48</td>
<td>9</td>
</tr>
<tr>
<td>2000</td>
<td>184</td>
<td>9.3</td>
<td>71</td>
<td>7</td>
</tr>
<tr>
<td>2001</td>
<td>137</td>
<td>5.2</td>
<td>50</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 1. Human isolates of Salmonella Brandenburg in New Zealand

During the period from September 1997 to May 2002, a total of 62 patients were identified as having culture positive Salmonella infection at Southland Hospital. Salmonella Brandenburg was isolated from 30 patients (48%), Salmonella Typhimurium from 27 patients (43%), and other Salmonella serotypes were isolated in 4 patients (6%).
Table 2 lists the serotypes identified and their site. With the exception of a *Salmonella* Heidelberg isolate from one urine culture, there were no extraintestinal cultures of *Salmonella* species other than *S. Brandenburg*.

**Table 2. *Salmonella* species isolated from cultures at Southland Hospital (1997–2002)**

<table>
<thead>
<tr>
<th>Culture type</th>
<th>Stool</th>
<th>Blood</th>
<th>Urine</th>
<th>CSF</th>
<th>Joint</th>
<th>Wound</th>
<th>Total no. of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Salmonella</em> type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>S. Brandenburg</em></td>
<td>26</td>
<td>8</td>
<td>2*</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>n=30</td>
</tr>
<tr>
<td><em>S. Typhimurium</em></td>
<td>27</td>
<td>0</td>
<td>1*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=27</td>
</tr>
<tr>
<td><em>S. Heidelberg</em></td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=1</td>
</tr>
<tr>
<td><em>S. Mikawasima</em></td>
<td>1†</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=1</td>
</tr>
<tr>
<td><em>S. St Paul</em></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=1</td>
</tr>
<tr>
<td>Phage type 3,10:R</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=1</td>
</tr>
<tr>
<td>Nonviable isolate</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>n=1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>57</strong></td>
<td><strong>8</strong></td>
<td><strong>4</strong></td>
<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td><strong>N=62</strong></td>
</tr>
</tbody>
</table>

*Urine isolate considered to be contaminant; †Patient had just returned from Africa; CSF=cerebrospinal fluid.

Of 30 patients with *Salmonella* Brandenburg infection, 13 (43%) isolates were from cultures of extra-intestinal sites. Two of these were urine cultures that were considered as contaminants. The remaining 11 cases comprised eight blood cultures (27%), one hip aspirate (3%), one cerebrospinal fluid sample (3%), and one tibial wound aspirate (3%).

Little difference was seen according to age in infections of stool or blood. Of 17 cases of *S. Brandenburg* infection confined to the gastrointestinal tract, there were 5 cases less than 1 year of age, 5 in the 1–15 year age group, and 7 in the >15 year age group. Of 8 blood cultures that grew *S. Brandenburg*, 4 were in the 1–15 year age group, and 4 in the >15 year group. All cases of invasive infection due to *S. Brandenburg* were in the paediatric population, with positive cultures from cerebrospinal fluid (age 6 months), hip joint aspirate (age 2 years) and a tibial wound aspirate (age 8 years).

Four patients without a recent history of gastroenteritis presented with extraintestinal infections due to *S. Brandenburg*. One had a positive faecal specimen in the absence of symptoms. One child with *S. Brandenburg* isolated from a tibial wound aspirate gave a positive history of diarrhoea a week prior to presentation, however stool and blood cultures were negative. One child with meningitis had negative stool and blood cultures. Seven patients with extra-intestinal infection due to *S. Brandenburg* presented with gastroenteritis and had positive blood cultures. One of these patients had Non-Hodgkins lymphoma and cardiac failure with *Salmonella* infection as part of polymicrobial septicaemia; another patient had chronic cardiorespiratory disease and Type II diabetes.
Figure 1. *Salmonella* Brandenburg at Southland Hospital
September 1997- May 2002

Period: 1= January - April, 2= May - August, 3= September - December
Table 3 lists the characteristics of the patients with *Salmonella* infection.

### Table 3. Characteristics of patients with *Salmonella* infection seen at Southland Hospital, Invercargill (September 1997 to May 2002)

<table>
<thead>
<tr>
<th>Isolate</th>
<th>S. Brandenburg n=30</th>
<th>S. Typhimurium n=27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female (%)</td>
<td>14 (47%)</td>
<td>18 (67%)</td>
</tr>
<tr>
<td>Median age (years)</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Deaths</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Clinical presentation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td>19</td>
<td>21</td>
</tr>
<tr>
<td>Vomiting</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Diarrhoea</td>
<td>20</td>
<td>23</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>Localised pain</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td><strong>Extra-intestinal <em>Salmonella</em> infection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No risk factors identified</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Age &lt; 1 year</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Immunosuppression</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Chronic lung disease/LVF/DM</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

LVF=left ventricular failure; DM=diabetes mellitus

An overall increase in the number of infections caused by *S. Brandenburg* in Southland (including Southland Hospital) each year was noted over the study period (Table 1). An increasing trend in invasive disease was seen during this time. Prior to 1999, infection was confined to the gastrointestinal tract. The first four cases of extra-intestinal (invasive) disease were seen in 1999 with *S. Brandenburg* isolated from blood.

In 2001, there were 6 cases of extra-intestinal infection, including the first isolates from sites other than blood (cerebrospinal fluid, joint fluid, and bone). The proportion of *Salmonella* Brandenburg infections seen at Southland Hospital increased between the years 1997 to 2001—from 1 of 5 salmonellosis cases (20%) in 1997 to a peak in 1999, with 9 of 10 (90%) of cases, and 9 of 12 (75%) cases in 2001. A peak was seen during September, October and November each year, which corresponds to the lambing and calving season (Figure 1).

**Discussion**

A recent worldwide increase in non-typhoidal salmonella infections has been noted in the literature.\(^9\) Generally there has been a corresponding steady increase in the incidence of salmonellosis in New Zealand, and in *Salmonella* Brandenburg infection in particular. Self-limited gastroenteritis is the typical manifestation, although bacteraemia and focal infections may also develop.\(^2,5,6,8,10,11,28–30\) It is also been demonstrated that children under the age of 1 year are more vulnerable to invasive salmonellosis, particularly to meningitis.\(^5,7–9,11,30\)
In contrast to other series, few of our patients with invasive S. Brandenburg infection were identified to have any risk factors. Specifically, only 3 of the 13 patients with invasive salmonellosis had an identifiable risk factor: our patient with meningitis was less than 1 year of age, one patient with bacteraemia had Non-Hodgkins lymphoma and left ventricular failure, and the other patient had thrombophlebitis with secondary bacteraemia caused by S. Brandenburg.

Ten of 13 patients with invasive extra-intestinal manifestations of S. Brandenburg had no recognisable risk factors. Two patients with recognised risk factors for extra-intestinal disease (one with systemic lupus eryththematosis and a history of chronic alcohol abuse, the other with Non-Hodgkins lymphoma and post-chemotherapy neutropaenia) had negative blood cultures in the presence of positive stool cultures.

The reported incidence of Salmonella bacteraemia has varied widely from 2%–47%5,7,11, with a higher incidence seen in children under 1 year of age. We are unable to calculate Salmonella bacteraemia incidence from our data (as blood cultures were not done on eight of the cases seen at Southland Hospital, and blood cultures are not commonly performed in the community). Based on our data, there was no difference in the rate of bacteraemia according to age. A rate of 27% is seen in all patients with infection due to S. Brandenburg, none of which were in children less than 1 year of age.

Salmonella serology has been shown to support invasive salmonellosis as the diagnosis in 62% of children with negative blood cultures,8 and this may help in the diagnosis of the true incidence of S. Brandenburg in Southland, especially if previous antibiotic therapy has been given. Our patient with osteomyelitis had negative stool cultures and had been treated with cotrimoxazole for diarrhoea in the week preceding admission. Serology may have been helpful in this case.

Our experience suggests that extra-intestinal salmonella infection is not rare, and can occur in the absence of commonly recognised risk factors. Where there is no identifiable risk factor, no history of gastroenteritis, and negative stool cultures, the portal of entry of S. Brandenburg and its dissemination and sequestration remain speculative, although presumably the origin of infection was the gastrointestinal tract with spread into the blood and further to metastatic sites.

In our case of S. Brandenburg osteomyelitis, stool cultures were negative and there was no preceding history of gastroenteritis. A similar case has been previously reported in the literature,18 and the authors postulated that it was possible that the patient carried Salmonella in the gut before haematogenous spread, despite negative stool cultures. In the case reported by Magliulo,14 there was no history of diarrhoea or vomiting (other than an episode 6 months previously), and rectal swab cultures were negative.

Wright et al noted the possibility that the incidence of Salmonella Brandenburg was increasing in New Zealand and that the virulence may be changing. This hypothesis was based on human isolates of up to 33 per year, and 3 cases of bacteraemia in 1995. The incidence in now much higher, and the non-human reservoir appears to have changed from mainly pigs and cattle to mainly sheep and cattle. Infection is no longer confined to the gastrointestinal tract, with increasing numbers of extra-intestinal disease being reported.
Salmonella Typhimurium has been associated with a more severe spectrum of invasive disease in the US, and has been reported as being associated with a higher incidence of septicaemia and meningitis. It has also previously been the predominant cause of invasive disease in the UK and Malaysia, and is currently the most common isolate causing human infection in New Zealand. In contrast to previously published reports, S. Typhimurium has not been isolated in any invasive infection at Southland Hospital.

All our cases of non-gastrointestinal disease have been caused by S. Brandenburg, other than one urine infection where S. Heidelberg was isolated. S. Brandenburg was implicated in 30/62 (48%) cases of salmonellosis seen at Southland Hospital over the 56-month study period. This finding differs from the proportions seen nationwide, with S. Typhimurium being the predominant isolate (60%–64%) over the last few years and S. Brandenburg accounting for 5%–9% of all salmonellosis cases in New Zealand.

There are a number of possible reasons for the observed differences. The geographic distribution of human isolates has changed from the north of the North Island (71% in the Auckland/Waikato region in 1995) to the south of the South Island (69% in Southland/Otago region in 2001). The characteristic peak of salmonellosis in New Zealand during the summer months (December to March, inclusive) has now shifted—as S. Brandenburg is associated with lambing and calving during spring (September to November, inclusive).

Human infection appears to be associated with areas of high stock density and high animal-infection rates. There also appears to be an increased risk of infection to residents in rural centres. Specifically, Southland may have a greater burden of disease due to S. Brandenburg being associated with the large sheep and dairy industry and predominantly rural population.

The type of S. Brandenburg strain causing infection in the South Island has not been found in other parts of New Zealand, and this particular strain may have more infectious potential than previous types, although there are no recent studies available in the literature to confirm this possibility.

Using three typing methods to determine strain diversity, Wright et al. found that strains isolated from blood cultures prior to 1995 were indistinguishable from other strains isolated from diarrhoeal patients, Wright et al. thus concluded that invasiveness was not due to newly emergent strains. It is also possible that the increasing numbers of extra-intestinal disease are a reflection of the overall increase in human infection due to S. Brandenburg, rather than an actual increase in virulence.

Conclusion

The geographic and seasonal distribution of human infections due to Salmonella Brandenburg has changed, along with a change in the animal host (from pigs and cows to mainly sheep) for the bacteria. Although there are a number of conditions associated with an increased risk of invasive salmonellosis, few such risk factors were documented in our series.

The incidence and invasive potentiality of S. Brandenburg seems to be increasing, particularly in Southland, with peak infection rates corresponding to the lambing and calving season. Thus, Salmonella Brandenburg seen in immunocompetent hosts may
be a more invasive organism, and could be present with a wider spectrum of manifestations than previously thought.

**Author information:** Rachel Clarke, Paediatric Registrar, Paul Tomlinson, Consultant Paediatrician, Southland Hospital, Invercargill, Southland. Fax: (03) 214 5720; email: Rachel.Clarke@xtra.co.nz

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**References:**


The Auckland Hospital Ethics Committee: The first 7 years

Ralph Pinnock, Jan Crosthwaite

Abstract
We describe the establishment and development of the Clinical Ethics Advisory Group (CEAG) at Auckland Hospital. The CEAG provides a case-consultation service for clinicians and managers and on request advises on policies and guidelines. Relatively few cases have been referred for consultation despite the fact that 82% of doctors and 98% of nurses see a role for the CEAG in helping to resolve dilemmas in clinical practice. Most clinicians (80%) who have consulted the CEAG have valued the opinions they were given. The majority of doctors (81%) and nurses (76%) indicated that they would value further education in ethics. Based on our experience and a review of the literature, we recommend that all healthcare workers should have access to ethical expertise.

Clinical ethics committees have developed in response to doctors and other health professionals becoming increasingly aware of the ethical decisions they are required to make. They have been defined as:

> A group established by a hospital or healthcare institution formally charged with advising, consulting, discussing or otherwise being involved in ethical decisions and policies that arise in clinical care\(^1\)

The committees are multidisciplinary with at least one (and often all) of the following functions:

- Review of ethical issues arising in particular clinical cases.
- Education in the area of ethics, at least of their own members and often more broadly within and beyond the host institution.
- Assistance in the development of institutional policies that involve clinical ethical issues.

These committees differ in function and constitution from Research Ethics Committees the purpose of which is the ethical review of research on human subjects.

We describe our experience with the clinical ethics committee at Auckland Hospital.

Hospital Ethics Committees in New Zealand

In 1997, we surveyed the 23 Crown Health Enterprises (CHEs). Three had established clinical ethics committees, two were being established, and two CHEs used other clinical committees of senior staff to help resolve ethical dilemmas. Since then, we have become aware of the establishment of at least one more committee.

The Report of the Inquiry into National Women’s Hospital (1988)\(^2\) recommended establishment of Ethics Committees independent of healthcare providers, with 50% lay (non-health professional) membership, and chaired by a lay person to deal with the ethical review of research proposals and other issues. There are 15 such ‘Health and Disability Ethics’ committees currently in New Zealand, established and
functioning under national guidelines (Operational Standards for Ethics Committees, 2002) and accredited by the Health Research Council Ethics Committee for the ethical review and approval of research. While these committees can and do address clinical issues, the public nature of their deliberations and their identification as primarily research-oriented (particularly in Auckland) has appeared to leave an unmet need for clinical ethics advice.

The Auckland Hospital Ethics Committee

Establishment and development—In 1995, the Medical Advisory Committee (comprising senior doctors) from Auckland Healthcare considered that there was a need to establish a committee to provide a forum for clinicians to discuss ethical dilemmas arising in everyday clinical practice. The Committee would not consider resource allocation because that was viewed as too politically sensitive. The group had access to ethical expertise but an ethicist was not appointed as a permanent member because as it was feared that this could lead to protracted, and unproductive discussions.

The first meeting of the Clinical Ethics Committee was held on the 11th March 1997. One of the authors (RP) was appointed chairperson. The other members present were a nurse, a Maori advisor, social worker, a lay person (who was a lawyer), and a senior doctor from outside Auckland Healthcare.

One of our first activities was to review the literature on clinical ethics committees, and, in a changing context institutionally and socially, reflection on its own composition and role has remained a regular part of the committee’s activities. The initial ‘terms of reference’ dictated that the Committee was to act as ‘a sounding board for clinicians with ethical dilemmas’. The Committee’s decisions would not be binding and clinical decisions remained still the responsibility of clinicians.

‘Hypothetical situations’ would not be discussed. The Committee would not provide ethical approval for research, as this is the responsibility of the Regional Health and Disability Ethics Committees accredited for that purpose. Within 12 months, a representative from management and the Chair of the Medical Advisory Committee joined us. At about the same time, approval was sought and granted for the formal inclusion of an ethicist in the membership of the committee, as it soon became apparent that it was impossible to engage in discussions on ethics without an expert present.

Members were initially appointed for a term of 3 years but this was to be varied to ensure continuity and succession. The Clinical Board of Auckland Healthcare appoints the members from nominations by the ethics committee.

Initially the Committee reported to the Medical Advisory Committee, later to the Clinical Quality Council (a multidisciplinary group) and finally following the latest restructuring in management to the Clinical Board.

As the Committee gained credibility, its ‘terms of reference’ were altered so that any clinician or manager could consult the group. Fostering education of staff in ethics also became a legitimate function.

In 2000, the Committee changed its name to the Clinical Ethics Advisory Group (CEAG) as we considered that this more accurately described its function, and
provided further differentiation from the Regional Ethics Committees responsible for the review and approval of research.

The CEAG meets once a month, but can meet at short notice at other times to consider urgent cases.

**Referral process**—The referrer submits a written request for review of a case to the Committee and this is then forwarded to committee members (often with further relevant information pertaining to the cases; eg, copies of relevant journal articles) before the meeting.

Often an informal approach is made to the chairperson in the first instance but formal written requests for an opinion are always required. Clinicians or managers who consult the Committee are asked to present their case in person so as to provide an opportunity for members to ask questions and seek further information and clarification of the issues involved. We believe this to be important as some members come from a non-medical background, and as some cases involve highly specialised information.

After the referrer has presented the case and answered any questions, the Committee discusses the case. This is done in the referrer’s absence to allow committee members to discuss the case without revealing their individual opinions. The discussion usually lasts about an hour but sometimes longer. On occasions, the matters are so complex that an additional meeting is arranged.

Once the Committee has reached a decision (usually on the same day that the case was presented), the Chairperson contacts the referrer by phone to inform him/her of the opinion. This is followed by a written opinion, which clearly states the reasons for the decision. The opinions of the Committee are not binding, and the clinician is still responsible for making the final decision.

**Activities and types of dilemmas considered**—For each year (1997–2003), the Committee reviewed five to nine cases (average=7).

The cases considered spanned the breadth of medical practice. They included cases of withholding and withdrawal of treatment, dilemmas in medical genetics (genetic testing of children, pre-implantation genetic diagnosis), issues related to consent (sterilisation of a mentally retarded adolescent, refusal of parental consent for a child requiring life-saving treatment, sterilisation of single use medical devices), access of non-residents to medical care, issues related to organ transplantation, patients with HIV infection, confidentiality (storage of serum samples, adolescent sexual abuse), and potentially fatal cross-infection of medical staff.

In addition to case consultation, the Committee was invited to comment on the ethical aspects of some areas of Hospital policy, particularly where policy documents were under review. It also produced papers for the hospital management on the treatment of non-residents, patient-requested treatment, and possible conflicts of interest when doctors give expert opinions.

**User satisfaction**—One of the concerns regarding clinical ethics committees is the inability to vigorously evaluate them.\(^4\) Attempts have included subjective assessments by chairpersons or comparison of the consistency of opinions on identical hypothetical research protocols submitted to different committees.\(^5,6\)
Little has been done to formally evaluate ethics consultations, and there is no agreement on how they should be assessed. Indeed, as our Committee was primarily established to aid staff, we considered that the most practical way to evaluate our performance was to assess the perceived usefulness of our opinions to those who consulted the Ethics Committee.

At the end of each year, those persons who had consulted the Committee were asked to complete an anonymous questionnaire. They were asked to rate the usefulness (on a scale of 1=very unhelpful to 5=very helpful) of the consultation, and also whether they would recommend the Committee to colleagues (1=never recommend to 5=strongly recommend). Respondents were also encouraged to add any other comments.

Over 80% of those persons surveyed, responded. Most responses to both questions posed were rated between ‘4’ and ‘5’. Even those persons who did not agree with the Committee’s opinion had found the consultation helpful. Numerous positive comments were made. The only negative comment was from a clinician who referred a matter related to research and was annoyed at having sent his ethics application to the wrong committee. Clearly we are dealing with small numbers and it would be presumptuous to draw firm conclusions.

### Survey to assess awareness and usefulness of Clinical Ethics Advisory Group—

Three years after the Committee was formed, the medical and nursing staff at Auckland Hospital were surveyed to assess the awareness and utility of the group.

**Methods**

With the permission of Dr I Kerridge, we used a modified version of the questionnaire used by the Clinical Unit in Ethics and Health Law at John Hunter Hospital. We surveyed doctors and nurses as we considered that these groups were most likely to use the CEAG. A sample of doctors (22%) and nurses (7%) was randomly selected from a list supplied by the Humans Resources and Payroll Departments. Seven of the questionnaires sent to the doctors and five questionnaires sent to nursing staff were erroneously sent to other employees and had to be omitted from analysis.

**Results**

Results are summarised in the following tables.

### Table 1. Response rate

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Questionnaires</th>
<th>Response (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Sent</td>
</tr>
<tr>
<td>Doctors</td>
<td>1096</td>
<td>230</td>
</tr>
<tr>
<td>Nurses</td>
<td>3298</td>
<td>227</td>
</tr>
</tbody>
</table>

### Table 2. Median years in practice

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Median number of years in practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>10 years</td>
</tr>
<tr>
<td>Nurses</td>
<td>14 years</td>
</tr>
</tbody>
</table>
Most doctors and nurses surveyed were aware of, and believed there was a role for, the Ethics Committee. (Table 3)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aware of the existence of Committee</td>
<td>67%</td>
<td>60%</td>
</tr>
<tr>
<td>Believed there was a role for the Committee</td>
<td>82%</td>
<td>98%</td>
</tr>
</tbody>
</table>

The doctors and nurses were asked to select (out of a total of 16) areas of ethical dilemmas commonly encountered in practice. (Table 4)

**Table 4. Common ethical dilemmas encountered in clinical practice**  
(rankings are for frequency or commonness of encounters with problem area)

<table>
<thead>
<tr>
<th>Ethical dilemma</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informed consent / Patient autonomy</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Resource allocation</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Confidentiality and record-keeping</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Assessment of competence</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>End-of-life issues</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Conflicts between health professionals</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Respondents were also asked how they currently dealt with ethical issues (Table 5) and who should be able to consult the Ethics Committee. (Table 6)

**Table 5. How staff currently deal with ethical dilemmas**  
(respondents were able to choose more than one option)

<table>
<thead>
<tr>
<th>Action</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consult with peers</td>
<td>66 (73%)</td>
<td>66 (66%)</td>
</tr>
<tr>
<td>Consult with supervisor</td>
<td>20 (22%)</td>
<td>44 (44%)</td>
</tr>
<tr>
<td>Consult with senior colleague</td>
<td>36 (39%)</td>
<td>55 (55%)</td>
</tr>
<tr>
<td>Refer to Ethics Committee</td>
<td>8 (9%)</td>
<td>4 (4%)</td>
</tr>
</tbody>
</table>

**Table 6. Who should be able to consult the Ethics Committee**  
(respondents were able to choose more than one option)

<table>
<thead>
<tr>
<th>Who can consult the Committee?</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health advocates</td>
<td>46 (50%)</td>
<td>75 (76%)</td>
</tr>
<tr>
<td>Patients</td>
<td>39 (43%)</td>
<td>66 (67%)</td>
</tr>
<tr>
<td>Family members</td>
<td>35 (38%)</td>
<td>67 (68%)</td>
</tr>
</tbody>
</table>

Both doctors and nurses were interested in receiving further education on ethics. They were asked to choose from a total of 16 possible topics (Table 7).
Table 7. Topics for further education

<table>
<thead>
<tr>
<th>Topic</th>
<th>Doctors</th>
<th>Nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making “Not for Resuscitation” orders</td>
<td>52%</td>
<td>48%</td>
</tr>
<tr>
<td>Provision/withdrawal of life-saving treatment</td>
<td>58%</td>
<td>58%</td>
</tr>
<tr>
<td>Ethical issues of HIV infections</td>
<td>35%</td>
<td>26%</td>
</tr>
<tr>
<td>Parent’s refusal to consent to treatment for children</td>
<td>68%</td>
<td>51%</td>
</tr>
<tr>
<td>Principles of clinical ethics</td>
<td>52%</td>
<td>62%</td>
</tr>
<tr>
<td>Informed consent</td>
<td>63%</td>
<td>61%</td>
</tr>
</tbody>
</table>

Table 8. Should the Committee be involved with clinical case consultation/review?

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors</td>
<td>49%</td>
<td>10%</td>
</tr>
<tr>
<td>Nurses</td>
<td>58%</td>
<td>3%</td>
</tr>
</tbody>
</table>

Discussion

With a response rate of 40% to 44%, it is not possible to generalise these results. However, the type of ethical issues that caused concern (Table 4) and the major role for the Ethics Committee in education (Table 7) were also found in Australian surveys.\(^9,10\)

Though most of the doctors and nurses were aware of (67% and 60%, respectively) and recognised a role for the Committee (82% and 98%, respectively), only 10% of doctors and 6% of nurses had consulted it. The reasons for this were not investigated in our survey. A survey in the United States however, assessed this and found that some physicians were not referring to Committees because of fear of loss of control, intrusion into the doctor-patient relationship and misperceptions about what ethics committees can offer.\(^11\) We speculate that similar reasons may have inhibited our clinical staff from consulting the CEAG.

More doctors and nurses believed there was a role for the Committee than were aware of its existence. (Table 3). It is clear that the Committee should make its presence more widely known.

Both groups thought that the Ethics Committee should be involved in clinical case consultation/review (Table 8). Forty-nine percent of doctors and 58% of nurses held this view. Only 10% of doctors and 3% of nurses believed that the Ethics Committee should have no role in case reviews.

Many staff would like further education on ethics. (Table 7). The most common areas selected by both groups are similar. The most overwhelming area of concern for both groups was informed consent /patient autonomy issues. (Table 4)

Unfortunately because of limited resources the Committee has only been able to make a very modest contribution to education in ethics. We were invited to meet with two specialist groups where participants discussed common ethical dilemmas with the Committee. Grand rounds and the regular departmental clinical meetings would be suitable venues to further education in ethics.
The development of clinical ethical committees worldwide

The development of the CEAG follows a worldwide trend.

The United States—One of the earliest proposals for the development of such committees was the 1971 Medico-Moral Guide of Canadian bishops.\textsuperscript{12} The purpose of such committees was first and foremost to assume responsibility for educating all clinicians concerning the development of medical-moral trends in healthcare.

Members were to be drawn from administration, the board of trustees, medical and nursing staff, social workers, pastoral care workers, legal counsel and moral theology. The need for such committees was also advocated in the first issue of The Journal of Medical Ethics though emphasis was given to consideration of research as the primary objective.\textsuperscript{12} A few hospitals in the United States developed such committees in the late seventies, but by 1982 they had been adopted by only 1\% of hospitals.

Doctors and other health professionals often dominated these early committees. It was strongly recommended that all committees should have ethical expertise in their membership. Initially, as the guide of the Canadian bishops indicates, this was often thought of as provided by the clergy, though increasingly professionally trained ethicists or bioethicists fill this role.

The first national conference on Institutional Ethics Committees was held in 1983 in Washington.\textsuperscript{12} The credibility of these committees was a concern from inception. It was recognised that such committees ‘face a complex task in winning acceptance and in learning how to mediate fairly among competing interests’.\textsuperscript{12}

In 1984, the American Medical Association and the American Hospital Association endorsed the development of these committees. Their tasks were viewed as encompassing several areas (including education in ethics) and guiding hospital policy, but the prime and most innovative objective was to make recommendations in individual cases.\textsuperscript{12} There was vigorous debate over the value of these committees.\textsuperscript{13}

Inherent dangers were seen to include some committees having too much political power and the adverse effects of group dynamics including ‘groupthink’. This occurs when groups within the committee undermine the value of committee review, by unconsciously manoeuvring to minimise conflict and controversy by downplaying of risks, limiting alternatives and a coercive push to reach consensus.\textsuperscript{13,14}

As professionally trained ethicists became available they were seen as complementary to but not substitutes for the committees.\textsuperscript{15} The committee model was seen to best represent the conviction that moral debate was a community enterprise that should not be relegated to experts.\textsuperscript{16}

By 1987, the number of hospitals with ethics committees had increased to 60\% and by 1990 hospitals were required to develop clinical ethics committees in order to qualify for Medicare and Medicaid payments.\textsuperscript{12} In 1991, the Joint Commission for Accreditation of Healthcare Organisations required healthcare organisations in the United States to have ‘a mechanism for the consideration of ethical issues arising in the care of patients’\textsuperscript{17}.

The United Kingdom—Clinical Ethics Committees have developed more slowly in the United Kingdom.\textsuperscript{7,18} The Clinical Ethics Forum at Great Ormond Street Hospital formed at the request of staff has published its experience.\textsuperscript{19} Their Forum is valued by
staff. A survey of National Health Trusts in 2000 indicated that 18% had some formal method of addressing ethical issues that arise in clinical practice. As in the United States, these committees varied in their focus.

Australia—Clinical ethics committees have developed in Australia but the vast majority of institutions do not have access to them. The Committee at John Hunter has documented their experience.

Other countries—Clinical Ethics Committees in France, Israel, Italy, and Ireland have reported their experience.

Conclusion—Several concerns have been expressed regarding clinical ethics committees. These include interference with the doctor-patient relationship, erosion of the professional autonomy of doctors, reduction of the patient’s freedom of choice, and fear that they will create a further layer of bureaucracy in hospitals.

These criticisms are unfounded if it remains the clinician’s decision to consult the Committee, and if decision-making responsibility is not shifted to the committee. None of the clinical ethics committee, which have reported on their activities, considers that their opinions should be binding.

We believe that these committees are here to stay and with time will play a significant role in patient care.

Challenges for the future include more objective assessments of effectiveness and the ethical education members of such committees require. Within the New Zealand context, the relationship of these committees to the national structure and guidelines for ethics committees remains to be resolved. Some requirements appropriate to any committee reviewing and approving research may be unnecessary or inappropriate in the context of advice on individual clinical situations.

However it is desirable that there be common understanding of the role and composition of such committees, and opportunity to share expertise and experience gained in their work.

**Recommendations**

Based on our own experience, and that of others, we would recommend that:

- All healthcare practitioners have access to a clinical ethics committee—the employer should provide this access. Smaller centres could gain access to ethicists/clinical ethics committees via teleconferencing.
- Clinical ethics committees should be multidisciplinary. Membership should represent the major clinical activity areas. It is essential that committees include awareness and representation of cultural diversity, ethical expertise, and legal expertise. It is desirable also that some health professional members should be external to the institution, to avoid parochialism.
- All healthcare practitioners should have access to education regarding ethics—by distance learning if necessary.
- Clinical ethics committees should attempt to assess their effectiveness and keep abreast of developments in this area.
Opportunities at a national level for committees to communicate and recognise one another (through a colloquium of chairs, for example) would be helpful to increase expertise and for consistency of practice and procedure.

All healthcare professionals should have a strong grounding in ethics during their undergraduate training. Providers of postgraduate training and continuing education should regularly include ethics in their programmes.

Author information: Ralph Pinnock, Paediatrician, Starship Children’s Hospital, Auckland; Jan Crosthwaite Associate Professor in Philosophy, Department of Philosophy, University of Auckland, Auckland

Acknowledgements: We acknowledge the important contribution that all members of the Committee have made to the establishment and development of the Auckland Services Clinical Ethics Advisory Group. The development of this group would not have been possible without strong support from management. We wish to pay particular thanks to Raewyn Wolcke.

Correspondence: Ralph Pinnock, Starship Children’s Hospital, Auckland. Fax (09) 307 8977; email: ralphp@adhb.govt.nz

References:


Effects of nursing industrial action on relatives of Intensive Care Unit patients: a 16-month follow-up

Peter Dzendrowskyj, Geoff Shaw, Lucy Johnston

Abstract

Aims In December 2001, nursing industrial action occurred at Christchurch Hospital. This study assesses the effect industrial action had on relatives of those Intensive Care Unit (ICU) patients involved.

Method A written questionnaire was sent to the relatives of the 17 patients on Intensive Care around the time of the strike; 11 of these patients had needed to be transferred to out of region hospitals for continuing care, whilst the others remained in the intensive care unit. Comparisons were made with a control group of 26 next-of-kin.

Results Compared with relatives of patients not involved in the strike, relatives involved during the strike were significantly more angry (p<0.007) and less trusting that the patients had received the best possible care (p<0.05). Compared to the control group, they were also more negative in their continuing view of the healthcare system (p<0.05). Those relatives involved in air transfers were more distressed (p<0.05), angry (p<0.001), and less trusting than those not involved in a transfer (p<0.005).

Conclusion The study shows that industrial action caused measurable distress and anxiety to the relatives involved some 16 months after the strike, especially in patients who were transferred. A persistent negative perception of the healthcare system in New Zealand could be demonstrated in this group.

On the 2nd and 3rd of December of 2001, 50 hours of industrial action occurred in Canterbury District Health Board. This constituted a complete withdrawal of nursing care to all inpatient wards.\(^1\) Christchurch Hospital, with 650 beds was the most severely affected of the five district-board hospitals.

In the Intensive Care Unit, there was only one full-time nurse available for duty (although provisions were made for a civil emergency, when specific teams of nurses were available to work).

Contingency planning had taken place in the weeks preceding the strike, aiming for a substantial decrease of inpatient numbers. Existing inpatients were also transported and cared for around the entire country, causing 15 days of disruption.\(^1\) Forty-five inpatients were transferred to other hospitals by air; others were transported by road to local institutions.

Patients were frequently transferred out of Christchurch Hospital at short notice and with only one relative—other relatives were either transferred up at a later date (at hospital expense) or had to remain in Christchurch for the duration of the strike.
Intensive Care patients were the largest single group (11 out of the 45 transferred patients) transported by air. They were also transported the furthest distance, because of the necessity to locate them to similarly equipped ICUs around the country.

The situation for families with a critically ill relative in a new and remote ICU is distressing because of:

- Unfamiliar surroundings.
- Reduced access to social and family support.
- New 'house rules'.
- A new professional relationship needing to be developed with new medical and nursing teams.
- Unfamiliar accommodation.
- Decisions regarding transfer of patients were not actioned until just before transportation.

A similar situation may occur with relatives of patients who remain in the ICU during the industrial action, when minimal suitably trained staff are available to care for the patients. During the industrial action, there were six patients (with relatives) who remained or were admitted to the understaffed ICU.

Method

A written questionnaire was designed in conjunction with clinical psychologists to assess the psychological impact this major life event had on relatives of Intensive Care patients. The questionnaires included both qualitative and quantitative elements and had both open-ended and closed questions about events during the strike. Questionnaires such as this have been used before, and have proved reliable in assessing distress and anxiety.\textsuperscript{2–4}

Participants were asked to assess and rate the degree of any symptoms (from 1 being ‘not at all’ to 10 being ‘very strongly’) in addition to writing free text. It also investigated any possible evidence of a post-traumatic stress disorder being present through enquiry about specific symptoms.\textsuperscript{5,6}

The study was performed 16 months after the industrial action had finished. This was chosen because it was a short enough time for relatives to remember events clearly and not forget emotions and feelings at the time, but not so short that it would cause unnecessary distress to relatives by making them discuss situations that they would rather have forgotten. It was a similar time as that chosen by previous studies.\textsuperscript{7,8}

After consultation with Maori and approval from the Canterbury Ethics Committee, the closest relatives of all patients who were in Intensive Care around the time of the strike were contacted by telephone to discuss the study (the STRIKE GROUP). If verbal consent was given, the questionnaire was sent with a postage-paid self-addressed envelope.

The STRIKE GROUP was sub-divided into:

- The TRANSFER GROUP (those relatives whose patients were transferred to other hospital ICUs because of the strike).
- The CHRISTCHURCH GROUP (those patients who remained in Christchurch ICU during the strike).

In addition, relatives of patients from the Intensive Care database were selected to act as controls (the CONTROL GROUP). Every fifth patient on the ICU database admitted for a period between 3 and 6 months after the industrial action was chosen. During this time, the ICU and hospital were at normal workload and capacity. The relatives of these patients were contacted in the same fashion, and postal questionnaires, with written consent forms were sent out.
For the purposes of this study, the relative contacted was the contact person recorded in the clinical notes or ICU database.

A follow-up telephone call was made 2 weeks after the initial contact to ensure the questionnaires had been received and to discuss any possible ambiguities that may have been present. The returned questionnaires were then assessed according to the quantitative and qualitative questions.

The quantitative answers were analysed and rated on an ordinal basis according to strength of response, from 1 to 10. The subsequent contingent data was analysed by Chi-squared test and Fischer’s exact test for statistical significance. Ordinal data was analysed by the Mann-Whitney U test.

Two intensive care nurses (from another ICU, who were not involved in the industrial action and previously unaware of the study) assessed each response independently. Each rated the qualitative responses to all the questionnaires. They ranked the overall valence (1=extremely negative; 9=extremely positive) of each response and identified key themes (eg, confusion, anger, etc.) across all the responses to each question. Inter-rater reliability was assessed. These responses were analysed by one-way ANOVA.

We compared the responses of relatives from the STRIKE GROUP with the CONTROL GROUP. Where appropriate, we also compared the responses of those relatives involved in a transfer (the TRANSFER GROUP) with those relatives NOT involved in a transfer (the CHRISTCHURCH GROUP subset of the STRIKE GROUP plus the CONTROL GROUP).

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The specific issues raised in the questionnaires were:

1. **Quantitative questions:**
   - Memory of events and transfer / admission details of relative on ICU
   - Rating of the emotional reaction of the relatives during the Intensive Care experience
   - The presence or absence of distress (mental / financial / social / relationship) during this period
   - A quantitative assessment for symptoms associated with post-traumatic stress: (sleeplessness / unhappiness / anxiety / depression / difficulty concentrating / lack of energy / recurrent or persistent thoughts that intruded in an unwanted way). For each respondent a total symptom score was created by summing the total “yes” responses with a score of 1, if a symptom lasted less than 1 month, and 2 if lasting greater than 1 month.
   - Perception of the healthcare system after the events

2. **Qualitative questions:**
   - Open-ended questions involving the opportunity for the participants to write free text involving:
     a. Thoughts surrounding events
     b. Feelings during that period
     c. Distress caused by the experience
     d. Feelings regarding the healthcare system
     e. Projected feelings if a future similar scenario were to occur

Independent-blinded reviewers subsequently assessed the intensity of these answers.
Results

The pool of potential respondents is summarised in Figure 1. It consisted of:

The **STRIKE GROUP** (relatives of those patients involved in the strike), which was divided into:

- The **TRANSFER GROUP**: 11 Intensive Care patients who were transported by air to distant hospitals.
- The **CHRISTCHURCH GROUP**: six patients who remained in Intensive Care, or were admitted to the ICU during the strike and not transferred.
- All 17 next-of-kin (NOK) in the strike group were contacted, verbal consent gained, and the questionnaire sent out. Sixteen out of the 17 NOK returned a completed written consent form and questionnaire.

Figure 1. Relatives involved in the study
The CONTROL GROUP (relatives of those patients not involved in the strike):

- Thirty patients admitted to Intensive Care 3 to 6 months after the strike.
- Of the 30 next-of-kin in the control group, twenty-six could be contacted but four were lost to follow up. Of the twenty-six, all gave verbal consent to be sent the questionnaire. Twenty-two next of kin returned a completed written consent form and questionnaire.

The patient demographics in this study are summarised in Table 1.

Table 1. ICU patient demographics

<table>
<thead>
<tr>
<th></th>
<th>STRIKE GROUP</th>
<th>Christchurch Group</th>
<th>CONTROL GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age of patients</td>
<td>59.6 years</td>
<td>47.8 years</td>
<td>55.8 years</td>
</tr>
<tr>
<td>Gender ratio</td>
<td>6 Male : 5 Female</td>
<td>2 Male : 3 Female</td>
<td>11 Male : 11 Female</td>
</tr>
<tr>
<td>Patient status at time of questionnaire</td>
<td>5 alive : 6 deceased</td>
<td>4 alive : 1 deceased</td>
<td>16 alive : 6 deceased</td>
</tr>
<tr>
<td>Average ICU stay in Christchurch</td>
<td>13.5 days</td>
<td>2.8 days</td>
<td>8.4 days</td>
</tr>
<tr>
<td>Total ICU length of stay</td>
<td>18.5 days</td>
<td>2.8 days</td>
<td>8.4 days</td>
</tr>
<tr>
<td>Number of non-respondents*</td>
<td>-</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

*All relatives contacted in the Transfer Group replied (100% response). 5 out of 6 relatives contacted in the Christchurch Group replied (83% response) The one non-respondent was a 37 year old female who had spent one day in Intensive Care and remains alive at the time of the study. 22 out of 26 relatives in the Control Group replied (85% response). The four non-respondents were aged between 21-68 years and were 2 males and 2 females. Their length of stay on ICU ranged from 1 to 12 days and 2 remained alive at the time of the questionnaire.

Quantitative answers

**Memory of events**—In the STRIKE GROUP, all relatives clearly remembered the strike (whether their relative was transferred or not) and in the CONTROL GROUP, all remembered their relative being treated in ICU.

**Emotions felt by relatives** (Table 2)—The STRIKE GROUP, when compared with the CONTROL GROUP, had significantly:

- Less trust (mean rating of 7.7 versus 9.5); * (p<0.05)
- More anger (mean rating of 5.7 versus 3.1) **(p=0.007)

The TRANSFER GROUP, when compared to those not transferred (ie. the CHRISTCHURCH GROUP plus the CONTROL GROUP) had significantly:

- Less trust that their relative was receiving the best care possible (mean rating of 7.15 versus 9.6 - this answer was not completed in 1 questionnaire)(p<0.005)
- More anger (mean rating of 8.0 versus 3.0 - this answer was not completed in 1 questionnaire) (p<0.001)
Table 2: Mean ratings (out of 10) of emotions felt by relatives during strike / time in Intensive Care

<table>
<thead>
<tr>
<th></th>
<th>Resignation</th>
<th>Trust*</th>
<th>Hopelessness</th>
<th>Isolation</th>
<th>Anger*</th>
<th>Denial</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>STRIKE GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer Group</td>
<td>6.89</td>
<td>7.15</td>
<td>7.90</td>
<td>5.36</td>
<td>8.00</td>
<td>4.50</td>
</tr>
<tr>
<td>Christchurch Group</td>
<td>8.25</td>
<td>10.00</td>
<td>7.00</td>
<td>2.75</td>
<td>2.25</td>
<td>6.00</td>
</tr>
<tr>
<td>STRIKE GROUP Mean</td>
<td>7.31</td>
<td>7.70</td>
<td>7.64</td>
<td>4.67</td>
<td>5.70</td>
<td>4.90</td>
</tr>
<tr>
<td><strong>CONTROL GROUP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Not Transferred)</td>
<td>8.68</td>
<td>9.50</td>
<td>5.96</td>
<td>3.82</td>
<td>3.14</td>
<td>3.64</td>
</tr>
</tbody>
</table>

*p <0.05; **p =0.007.

Symptoms experienced by relatives—When the symptoms suggestive of any post-traumatic stress were assessed, the means of the cumulative symptom score for the three groups (TRANSFER, CHRISTCHURCH, and CONTROL) respectively were 3.3, 0, and 5.36. There were no significant differences suggesting on-going post-traumatic stress disorders, either in the STRIKE GROUP (or any sub-divisions) or the CONTROL GROUP.

Distress (Table 3)—It was found that the transfer of a patient to a distant hospital caused an increased incidence of distress to relatives, in addition to that caused by exposure to Intensive Care.

- 10 out of 11 relatives in the TRANSFER GROUP [91%] indicated they had suffered distress.
- There were 27 patients not transferred to a distant hospital in the overall study. This was made up of the CHRISTCHURCH GROUP plus the CONTROL GROUP.
- Only 13 relatives out of the 24 who answered this part of the questionnaire [54%] had suffered distress [answer left incomplete in 3 questionnaires]. (p<0.05)

Table 3: Numbers of relatives indicating distress

<table>
<thead>
<tr>
<th>STRIKE GROUP</th>
<th>Distress</th>
<th>No Distress</th>
<th>No Answer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer Group</td>
<td>10</td>
<td>1</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Christchurch Group</td>
<td></td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>CONTROL GROUP</td>
<td>(Not Transferred)</td>
<td>13</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

View of healthcare system (Table 4)—There was a significantly increased number of relatives in the STRIKE GROUP who felt more negative toward the healthcare system, compared to the CONTROL GROUP (7 out of 17 versus 1 out of 20 [2 non-respondents in the control group]) (p<0.05)

Within the STRIKE GROUP itself we found a difference. In the TRANSFER GROUP, 6 out of 11 relatives felt more negative toward the healthcare system and
this was significant when compared to 1 out of 5 of the CHRISTCHURCH GROUP. (p < 0.005)

Table 4. Overall number of relative’s views of healthcare system after strike / exposure to ICU

<table>
<thead>
<tr>
<th></th>
<th>More positive</th>
<th>More negative</th>
<th>No change</th>
<th>No answer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRIKE GROUP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer Group</td>
<td>2</td>
<td>6</td>
<td>3</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Christchurch Group</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>5</td>
</tr>
<tr>
<td>CONTROL GROUP</td>
<td>(Not Transferred)</td>
<td>13</td>
<td>1</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>

Hospital visit stress—Overall, the subjective experience of simply visiting a hospital appeared to remain unchanged regardless whether or not the relatives were caught up in the strike action.

Patient status at time of questionnaire—There were no differences in all of the answers given as a function of whether or not the relative was still alive at the time that the questionnaire was completed.

Qualitative answers

The correlations between the ratings of positivity and negativity given by the two-blinded assessors for each of the questions were high and statistically significant (correlation 0.8142 across all 224 statements with p < 0.0001, using Pearson’s product-moment correlation test). Accordingly, a mean rating was calculated and subsequently analysed by one-way ANOVA. This is represented in Table 5 and Figure 2.

Table 5: Mean valence ratings (1 – “very negative”; 9 – “very positive”) of comments of the qualitative responses.

<table>
<thead>
<tr>
<th>Variable</th>
<th>STRIKE GROUP</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transfer Group</td>
<td>Christchurch Group</td>
</tr>
<tr>
<td>Thoughts about strike (strike group) or about coming to Intensive Care (control group)</td>
<td>2.68</td>
<td>2.80</td>
</tr>
<tr>
<td>Feelings during ICU stay</td>
<td>2.33</td>
<td>7.0**</td>
</tr>
<tr>
<td>Comfort level while relative in Intensive Care (and lack of distress)</td>
<td>2.1</td>
<td>6.8**</td>
</tr>
<tr>
<td>Impact of feelings about NZ Healthcare System</td>
<td>4.88</td>
<td>3.98</td>
</tr>
<tr>
<td>Future similar scenario</td>
<td>2.83</td>
<td>5.9</td>
</tr>
<tr>
<td>General Comments</td>
<td>5.77</td>
<td>6.8</td>
</tr>
</tbody>
</table>

There was no significant difference in the valence of responses to relatives’ first thoughts regarding the nursing strike or first impression of Intensive Care for control group.
Whilst in Intensive Care, relatives in the CHRISTCHURCH GROUP had significantly more positive feelings than relatives in the two other groups. Relatives of those patients transferred were the least positive (p<0.01).

Those relatives in the CHRISTCHURCH GROUP had a significantly more positive attitude than either of the other two groups, and felt they had suffered less distress during their experiences. See Figure 2 (p<0.0001).

Those relatives in the STRIKE GROUP (TRANSFER plus CHRISTCHURCH GROUPS) were significantly more negative toward the healthcare system than the CONTROL GROUP (p<0.05).

The TRANSFER GROUP gave significantly more negative responses regarding any future similar scenario than the other two groups (p<0.05).

There were no significant findings within or between groups with any general comments made.

The analysis of the responses indicated that there was more negativity and anger associated with the relatives involved in Intensive Care during the strike than the controls, when there was no strike. There did not seem to be blame attached to the nursing or medical staff, merely to the systems and managers that had allowed the situation to arise, eg:

‘I have the utmost respect for the nurses and doctors and felt the ICU nurse deserve more pay. It is the system that I still fail to comprehend that allowed this strike to arise’. Another example: “The healthcare system has been run down by staff shortages and staff not really interested and caring of their jobs. This did not apply in the ICU department’

The TRANSFER GROUP was much more negative in its responses than either of the other two groups when asked what their feelings might be if they were involved in a similar situation, eg:

‘I could only cope with this situation once in my lifetime. I don’t even want to think about the possibility of it happening again’

The CHRISTCHURCH GROUP was more likely to describe positive feelings than the transferred group, eg:

‘Oh how lucky we were! If she had been transferred she would have had no support as we had her four children to care for also. This would have caused a great deal of added stress for all concerned’

The CONTROL GROUP was more likely to describe positive feelings toward the healthcare system than either of the groups involved in the strike, eg:

‘First World standard of care on a third World budget. How do these great people achieve such high standards of care in such struggling times? Great job, well done’

There was a general criticism in the TRANSFER GROUP regarding a lack of communication between medical and nursing staff and relatives, eg:

‘Every time we saw a doctor, we felt the next time we visited Mum she would be gone as we didn’t know what was happening’
Figure 2. Graph of mean emotional ratings of relatives

- As can be seen from the above graphical representation, all three groups were negative in their thoughts surrounding their relative’s admission to ICU (all rated below 3).

- However, all groups were positive in their general comments regarding the treatment that they and their relatives had received during the period questioned (all rated above 5).

- Of note, the patients who had been involved in the strike and yet had not been transferred to distant hospitals (CHRISTCHURCH GROUP) felt more positive in their outlook and felt that they had suffered less distress and had a higher comfort level than either of the other 2 groups.
Discussion

Our study shows that those families whose relatives were in Intensive Care around the time of industrial action suffered significant emotional distress, anger and anxiety, whether or not their relative was transferred out of their native city. This was in addition to the stress and anxiety felt by having a relative critically ill in the Intensive Care Unit (the control group). A Medline search could not find any references for comparison on the effect hospital industrial action has on relatives and families of Intensive Care patients involved.

The very high response rates and blinding of the assessors helped minimise population and observer bias. However, the fact that the assessors used were nursing staff (albeit with no prior knowledge of the strike or events in Christchurch) could be a criticism of the study, since there could be sub-conscious bias in their views. We tried to overcome any short-term negative effects in responses by waiting sixteen months after the events before approaching relatives. This time allowed us to assess for any measurable differences in relatives’ views unclouded by the temporising of events.

The study population was necessarily small, and therefore would not have been powered to detect small differences. It is possible that the small cohort that we had was skewed by a few individuals who felt vehemently about events with their views overwhelming the less strenuous comments. We did not include all relatives involved in the strike (both non-ICU air transfers plus road transfers) because the vastly different casemix of patients would have caused problems with study design. We attempted to delay contacting the Control group to ensure the time interval was similar, but there was by necessity a difference in timing in sending out the questionnaires between the Strike and Control groups. The Strike group was contacted sixteen months after their Intensive Care involvement and the Control contacted between twelve and 15 months after their experience.

There is evidence to suggest people caught up in a major disaster suffer distress, with both physical and psychological symptoms persisting for up to 44 months after an event.\(^7\) The shut down of the largest hospital in the South Island of New Zealand, with the subsequent transfer of inpatients around the whole of New Zealand, can be likened to a major disaster with similar knock-on effects locally.

Transfer (or relocation) anxiety is a well-recognised phenomenon, where patients are taken out of an environment where they are comfortable and have trust in staff, and transported to an unfamiliar environment, new staff, and have to build up trust anew.\(^2,3\) This anxiety undoubtedly contributed to our relatives’ reactions as well.

It is interesting to note that the relatives from the Christchurch group rated their trust of the Intensive Care staff higher than either of the two other groups. The independent assessors also rated them as having more positive feelings related to their relatives’ Intensive Care stay. It is possible this group felt like “hostages” of the strike action, but grateful their “captors” (Intensive Care Staff) did not send them away. Relatives perceived a lack of control over events that possibly developed into helplessness and from there into thankfulness that no harm had occurred. This phenomenon may well be analogous to the so-called “Stockholm effect” In 1973, two ex-convicts held four hostages during a robbery in Stockholm, Sweden for 6 days. Despite death threats, the
hostages later defended the behaviour of their captors. This was later dubbed “the Stockholm Effect”.

Intensive Care Units (both adult\textsuperscript{9,10} and paediatric\textsuperscript{11,12}) cause anxiety to relatives of those critically ill, a fact borne out by our study. One of the most important requests by relatives in Intensive Care is to be kept informed of the patient’s condition and of any changes that may occur,\textsuperscript{13,14} something that is often performed badly.\textsuperscript{8,15–17} This was criticism amongst our cohort: namely that the situation often changed so quickly that relatives were not always kept fully informed.

Mendonca and Warren\textsuperscript{18} showed that the presence of nearby friends and family for support whilst having critically ill relatives was vital; this was not possible with our families who were transferred to distant cities, at short notice.

The literature regarding the psychological effect that an Intensive Care Unit and all its sequelae has on individuals concentrates heavily on the effect on patients themselves.\textsuperscript{19–21} Some studies suggest that at risk individuals (eg, burns victims, victims of criminal violence or volcanic eruptions for example) have a risk of developing post-traumatic stress disorder of between 3% to 58%.\textsuperscript{22–24}

Schelling\textsuperscript{25} found the presence of post-traumatic stress disorder in patients who are discharged from Intensive Care to be 27.5%, in comparison with an incidence in the general population of only 2%.

Scragg, using a complex postal questionnaire survey sent out to one hundred and forty-two ICU survivors also indicated that survivors had a high incidence of post-traumatic stress disorder, depression and anxiety.\textsuperscript{26} In our questionnaires we did not formally assess all the symptoms associated with post-traumatic stress disorder according to the DSM IV criteria,\textsuperscript{5} but asked for general symptoms indicative of this illness. Our study, although not as detailed in searching for post-traumatic stress disorder as Schelling or Scragg, suggests that the relatives concerned did not complain of such symptoms. This may seem surprising given the amount of upheaval incurred. The incidence of post-traumatic stress disorders in relatives of Intensive Care patients is unknown, but might be expected to be higher than in the general population. If our results had indicated a proportion of post-traumatic stress we would have recommended sending a more formal questionnaire specifically assessing this. Further work in this area is needed.

Several families also suffered financial distress from having to move cities (one relative had to return to his place of work, because his employer did not believe that he was in a distant city with a critically ill relative, and felt that he was merely avoiding work).

We have shown that the industrial action had a significant impact on how the families involved view the healthcare system: those involved felt significantly more negative toward the healthcare system on account of the strike. This is in contrast to the control group who seemed more positive toward the healthcare system after exposure of Intensive Care. Whilst these findings may seem unsurprising, the depth of feeling and distress should be noted, since an already stressful situation of having a relative in Intensive Care was added to by the fact that the hospital they were in was temporarily closing down. It is important to accept this from an individual, familial, and political standpoint.
There was an increased length of stay in ICU of patients who were transferred compared to patients who remained or were controls. This may merely reflect the fact that the longer, more complex patients were transported and the patients with a quicker anticipated turnaround remained. Also, the cancellation of elective surgery around the time of the strike meant the only patients left in ICU in Christchurch were the long stay patients and the acute admissions through the Emergency Department.

The very high return rate of questionnaires among all relatives is noteworthy. Specifically a 100% return rate from the Transfer group suggests a significant life event. Many postal questionnaires, or surveys, have a poor response rate, as low as 10-20%. Some studies recommend the use of at least three written reminders to achieve a response rate of 67.6%, whereas we used a single follow-up telephone call and achieved an excellent response rate of 94% Strike and 85% Control.

There was positive feedback from relatives of those transferred, who were very thankful for the opportunity to express their views regarding the events. This positive finding is consistent with relatives being given the opportunity to discuss procedures and processes in the Intensive Care Unit after the death of their relative. It may be appropriate to apply this type of questionnaire routinely to relatives of Intensive Care patients, or to offer a feedback network or counselling service for these relatives to discuss any relevant issues arising from their experience with Intensive Care.

**Conclusion**

This study shows that strike action caused a negative reaction from those relatives involved. The transfer of patients around the country caused distress and anxiety and a persistent negative perception toward the healthcare system. This negativity was more pronounced in those whose relatives were transferred, but was also present throughout the entire cohort involved in the strike.

Before such strike action should be allowed to occur again, necessitating the transport of critically ill patients to out of region hospitals, those employed in the healthcare system at every level should consider the negative psychological impact of this action on family and whanau. The existing system that allows such action to proceed, should negotiation fail, is flawed.

Resolution of medical professional industrial conflict must be resolved through negotiation if at all possible. The system, and those who work in it at every level, have a responsibility to avoid the last resort of strike action not least because of the knock-on effect to all concerned.

**Acknowledgments:** We thank Tony Williams, Tom Marshall, Sue Mann, Claire Sherring, and Jackie McDonald.

**Author information:** Peter Dzendrowskyj, Specialist Intensivist, Middlemore Hospital, Auckland, Geoff Shaw, Specialist Intensivist, Christchurch Hospital, Christchurch; Lucy Johnston, Senior Lecturer in Psychology, University of Canterbury, Christchurch

**Correspondence:** Peter Dzendrowskyj, Department of Intensive Care Medicine, Middlemore Hospital, Private Bag 93311, Otahuhu, Auckland. Fax (09) 276-0080; email: Pdzendro@middlemore.co.nz
References:


The health of alternative education students compared to secondary school students: a New Zealand study

Simon Denny, Terryann Clark, Peter Watson

Abstract

Aim To describe the health and wellbeing of alternative education (AE) students from the Northland and Auckland regions of New Zealand and compare these AE students with secondary school students of similar age from the same region.

Methods All 36 AE schools in the region were surveyed in the year 2000. A total of 268 AE students completed a youth health questionnaire using laptop computers. Regional data from a 2001 national secondary school survey that used the same methodology was used for comparison with the AE student data.

Results This study found that compared to secondary school students, AE students are more likely to come from disadvantaged backgrounds, with proportionally more AE students reporting socioeconomic difficulty and less parental connection. AE students were more likely to be vulnerable to behaviours that endanger their health, such as drug and alcohol use, risky sexual behaviours and risky motor vehicle use than secondary school students. AE students were also more likely to suffer from high levels of depressive symptoms indicative of significant psychopathology.

Conclusions Findings from this study support the need for specific policies and programs for alternative secondary school students to address urgent and serious threats to their health and wellbeing.

Alternative education schools serve students with behavioural problems, repeated expulsions and/or pregnancy/child care responsibilities that preclude them from attending their usual secondary schools. In New Zealand, alternative education (AE) is a relatively new concept. In 1999, the New Zealand Ministry of Education set up the Alternative Education Initiative in response to a growing concern by schools, communities and families about the increasing number of young people who were excluded from school and had few other educational options. In New Zealand, alternative education is limited to students in school years 9 through 11 (aged 13 to 15 years). By 2002, there were 2756 students enrolled in alternative education schools from throughout New Zealand; this is approximately 1.6% of the total population of young people aged 13 to 15 years.\(^1,2\)

Previous research from overseas suggests that young people excluded from mainstream education are more likely to have significant health issues compared to students attending mainstream education.\(^3\) We have previously shown that AE students from New Zealand are similar to AE students in the United States and engage in high rates of health risking behaviours.\(^4\) What is less clear is the context for these health issues among AE students in New Zealand and how the health and wellbeing of AE students compare to students from secondary schools in New Zealand.
Methods

Background—In the year 2000, the Adolescent Health Research Group developed a youth health questionnaire administered by laptop computers (Youth2000) as part of a national youth health survey to provide data on the health and wellbeing of New Zealand’s youth. Alternative education schools from Auckland and northern New Zealand were surveyed in the lead-up to the national survey using the same youth health questionnaire and laptop computer methodology.

Questionnaire development—The questionnaire was developed over a 2-year period and includes major themes and research questions identified by key stakeholders and end-users, including health providers, youth health researchers, government agencies, schools, young people, and Maori and Pacific community leaders. A survey tool using multi-media computer-assisted self-interviewing (M-CASI) was developed to administer the questionnaire. Using M-CASI, the questionnaire was pilot tested in a sample of 110 students (aged 12 to 18 years) from a diverse range of socioeconomic and ethnic backgrounds.

Revisions of the questionnaire were made based upon the findings and experiences from the pilot study. The Reynolds Adolescent Depression Scale (RADS) which measures depressive symptoms was incorporated into the final survey. The RADS also allows for an empirically derived cutoff score to define a clinically relevant level of depressive symptomatology (ie, of sufficient severity to be considered pathological).

Study populations—All 36 AE schools from Auckland and Northland were surveyed in 2000. Lists of AE schools were obtained from the Ministry of Education and local coordinators of alternative education programs. The requirement for inclusion was that each school receives funding from the Ministry of Education to provide alternative education to students aged 13 to 15 years who are outside of and alienated from the education system. All 36 AE schools in the region consented to take part in this study. Of the 365 students enrolled in the AE schools, 276 completed the survey, 88 students were absent, one student declined consent and seven student surveys were lost due to computer error. The reasons for student absence were sickness or illness (16%), pregnancy related (4%), truancy (23%), at work placement (3%), miscellaneous (14%), and unknown (40%). The overall AE student response rate for survey analysis was 76%.

The national secondary school youth health survey was conducted in 2001. 133 schools were randomly selected and invited to participate from a total of 389 New Zealand secondary schools with school rolls greater than 50 students. A total of 114 schools agreed to participate. At each school, the study administrators randomly selected 15% of all eligible Year 9 to Year 13 students. A further 15% of the students were randomly selected to be reserves if the selected students did not arrive at the study venue on the day of the survey. Students were ineligible to participate if they were not New Zealand residents, if they had insufficient English language skills, or had a disability that preventing them from using a standard laptop computer. For the majority of students who were selected but did not participate, no reason could be identified. Twenty-eight percent of non-participating students were absent on the day of the survey and 2.5% actively declined to participate. A total of 9567 students completed Youth2000 with an overall response rate of 64.3%.

Because AE schools only enrol students from Year 9 through Year 11, comparisons with the secondary school students were restricted to students in Year 9 to 11. Only students from Auckland and Northland regions from the national youth health survey were used for comparison with the alternative education school data. This resulted in 2104 students in Years 9 to 11 from the national youth survey for comparison with AE data.

Table 1 shows the demographic characteristics of the AE students and secondary school student sample. The majority of AE students are male (68%), aged between 14 and 15 years (75%) and Maori (78%). The secondary school student sample has slightly more female students (58%), mostly aged 13 years to 15 years, and represented a range of ethnic backgrounds.

Consent procedures were the same for both studies. Information about the survey was sent to all families of students who were invited to participate in the surveys. Parents were able to withdraw their child from the study. Informed consent was obtained from all participating young people. Ethical approval for both studies was obtained from the University of Auckland Human Subjects Ethics Committee.
Analysis—Estimated proportions and their 95% confidence intervals were calculated separately for males and females. Estimates and standard errors were adjusted for the clustering of data within schools and the unequal probabilities of selection of students. Differences are considered statistically significant if the 95% confidence intervals do not overlap. The use of non-overlapping confidence intervals to test for significant differences has been shown to underestimate significant differences. This method was chosen for this analysis because of the number of comparisons being made and the small size of the alternative education sample. Confidence intervals are able to give a better understanding of the differences between the two populations than more direct tests of proportions.

Table 1. Demographic characteristics of students at alternative schools and secondary schools from Auckland and northern New Zealand (NZ)

<table>
<thead>
<tr>
<th>Variable</th>
<th>AE students* n (%)</th>
<th>Secondary school students† n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>268</td>
<td>2104</td>
</tr>
<tr>
<td>Gender (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>180 (68.3)</td>
<td>883 (42.0)</td>
</tr>
<tr>
<td>Female</td>
<td>86 (32.1)</td>
<td>1221 (58.0)</td>
</tr>
<tr>
<td>Age (years)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤13</td>
<td>36 (13.5)</td>
<td>631 (30.8)</td>
</tr>
<tr>
<td>14</td>
<td>103 (38.7)</td>
<td>689 (32.6)</td>
</tr>
<tr>
<td>15</td>
<td>97 (36.5)</td>
<td>633 (30.0)</td>
</tr>
<tr>
<td>≥16</td>
<td>30 (11.2)</td>
<td>151 (6.6)</td>
</tr>
<tr>
<td>Ethnicity (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ European</td>
<td>24 (9.1)</td>
<td>730 (34.3)</td>
</tr>
<tr>
<td>Maori</td>
<td>206 (78.3)</td>
<td>551 (25.0)</td>
</tr>
<tr>
<td>Pacific</td>
<td>25 (9.5)</td>
<td>411 (19.3)</td>
</tr>
<tr>
<td>Asian</td>
<td>2 (0.8)</td>
<td>281 (13.2)</td>
</tr>
<tr>
<td>Other</td>
<td>6 (2.3)</td>
<td>127 (6.2)</td>
</tr>
</tbody>
</table>

*Mean age=14.5; 95% confidence interval=14.3–14.6; †Mean age = 14.1; 95% confidence interval=14.0–14.2; AE=Alternative education.

Results

Socioeconomic and family environments—Table 2 shows that there are large differences between AE students and secondary school students on a range of socioeconomic indicators. Over 40% of AE students had moved their home two or more times in the previous year compared to less than 15% of secondary school students. Proportionally more AE students said that an adult in their home had a community services card than secondary school students. Basic household resources, like a working car, were reported less frequently among AE students than secondary school students.

AE students were less likely than secondary school students to report supportive relations with their parents (Table 2). More male AE students than male secondary school students report that they feel that they have less supportive home environments and were less likely to report getting enough time with their mother or father, getting praise from their family, or feeling close to their mother or father. Both male and female AE students were less likely to report that their mother or father care a lot about them than male and female secondary school students. In contrast, similar
proportions of AE and secondary school students report supportive relations with other family members and relatives who do not live with them.

Table 2. Socioeconomic indicators and family environments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male %</th>
<th>Female %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative education</td>
<td>Secondary schools</td>
</tr>
<tr>
<td>A car at home that is working</td>
<td>84.6‡</td>
<td>95.5‡</td>
</tr>
<tr>
<td></td>
<td>(±5.9)</td>
<td>(±1.8)</td>
</tr>
<tr>
<td>A telephone at home that is connected</td>
<td>72.8‡</td>
<td>93.7‡</td>
</tr>
<tr>
<td></td>
<td>(±6.0)</td>
<td>(±2.4)</td>
</tr>
<tr>
<td>More than two people per bedroom at home</td>
<td>18.7</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>(±7.1)</td>
<td>(±3.6)</td>
</tr>
<tr>
<td>Moved home two or more times in the previous year</td>
<td>46.2‡</td>
<td>12.8‡</td>
</tr>
<tr>
<td></td>
<td>(±7.3)</td>
<td>(±2.9)</td>
</tr>
<tr>
<td>An adult in their home has a community services card</td>
<td>75.9‡</td>
<td>39.3‡</td>
</tr>
<tr>
<td></td>
<td>(±7.0)</td>
<td>(±6.9)</td>
</tr>
<tr>
<td>Mother or father care a lot</td>
<td>80.4‡</td>
<td>92.1‡</td>
</tr>
<tr>
<td></td>
<td>(±6.6)</td>
<td>(±1.3)</td>
</tr>
<tr>
<td>Feel close to mother or father*</td>
<td>59.6‡</td>
<td>72.0‡</td>
</tr>
<tr>
<td></td>
<td>(±6.9)</td>
<td>(±2.8)</td>
</tr>
<tr>
<td>Always get enough time with their mother or father</td>
<td>42.4‡</td>
<td>61.8‡</td>
</tr>
<tr>
<td></td>
<td>(±6.2)</td>
<td>(±5.0)</td>
</tr>
<tr>
<td>Get praise from their family†</td>
<td>57.2‡</td>
<td>77.2‡</td>
</tr>
<tr>
<td></td>
<td>(±7.5)</td>
<td>(±2.0)</td>
</tr>
<tr>
<td>Other family members care a lot</td>
<td>55.9</td>
<td>59.9</td>
</tr>
<tr>
<td></td>
<td>(±8.2)</td>
<td>(±2.8)</td>
</tr>
<tr>
<td>Relatives care a lot (who do not live with student)</td>
<td>55.0</td>
<td>57.5</td>
</tr>
<tr>
<td></td>
<td>(±8.6)</td>
<td>(±4.2)</td>
</tr>
</tbody>
</table>

*Most of the time; †Usually or always; ‡Non-overlapping confidence intervals between the AE and secondary school students.

School and Community Environments—Both AE students and secondary school students report high levels of supportive school environments (Table 3). A higher proportion of AE students say that a teacher had gotten to know them well during the school year than secondary school students. Proportionally fewer female AE students report that people at their school expect them to do well compared to female secondary school students.

Similarly, both AE students and secondary school students report feeling connected to their communities and environments (Table 3). All students report high levels of connection to friends, and over half of the students indicated there was an adult in their community they could talk to about a serious problem. Compared to male students, proportionally more female students from both AE schools and secondary schools indicated that they had a friend they could talk to about serious problems and/or that their friends care a lot.

About half of all students said that their spiritual beliefs were very important to them. AE students were significantly less likely to report attending a place of worship regularly than secondary school students. Less than 10% of AE students reported attending a place of worship regularly, compared to about 25% of secondary school students.
Table 3. School and community environments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male % (95% CI)</th>
<th>Female % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative education</td>
<td>Secondary schools</td>
</tr>
<tr>
<td>Like their school a lot or feel it is OK</td>
<td>82.1 (±6.4)</td>
<td>88.7 (±3.9)</td>
</tr>
<tr>
<td>People at their school expect them to do well</td>
<td>91.8 (±5.4)</td>
<td>90.5 (±1.8)</td>
</tr>
<tr>
<td>Feel part of their school</td>
<td>78.3 (±6.6)</td>
<td>81.8 (±3.8)</td>
</tr>
<tr>
<td>People at their school care about them (some or a lot)</td>
<td>89.7 (±5.3)</td>
<td>87.6 (±4.0)</td>
</tr>
<tr>
<td>Teachers treat students fairly (sometimes or most of the time)</td>
<td>84.4 (±6.9)</td>
<td>87.2 (±2.0)</td>
</tr>
<tr>
<td>A teacher has gotten to know them well during this school year</td>
<td>80.0* (±6.9)</td>
<td>50.4* (±5.6)</td>
</tr>
<tr>
<td>An adult they could talk to about a serious problem (who is not in their family)</td>
<td>56.3 (±9.5)</td>
<td>52.5 (±5.3)</td>
</tr>
<tr>
<td>A friend they could talk to about a serious problem</td>
<td>71.9 (±6.7)</td>
<td>68.9 (±3.8)</td>
</tr>
<tr>
<td>Friends care a lot</td>
<td>59.1 (±9.9)</td>
<td>50.5 (±3.2)</td>
</tr>
<tr>
<td>Spiritual beliefs are very important</td>
<td>53.4 (±9.9)</td>
<td>38.0 (±6.2)</td>
</tr>
<tr>
<td>Often attends church, mosque or shrine (or place of worship)</td>
<td>7.6* (±4.0)</td>
<td>24.2* (±6.4)</td>
</tr>
</tbody>
</table>

*Non-overlapping confidence intervals between the AE and secondary school students.

Health risking behaviours—Most AE students have been sexually active (Table 4). Over 80% of AE students have had sexual intercourse compared to approximately 25% of secondary school students. More than 70% of AE students have been sexually active in the previous 3 months compared to less than 20% of secondary school students. Proportionally more AE students had been pregnant or been involved in a pregnancy than secondary school students, and more female AE students reported that they have had a sexually transmitted infection than female secondary school students. Among those students who were sexually active, proportionally fewer female AE students had used a condom during previous sexual intercourse than female secondary school students.

About three-quarters of male AE students reported being exclusively attracted to the opposite sex which was significantly less than male secondary school students where almost 90% reported being exclusively attracted to the opposite sex.

Table 4 shows that AE students were much more likely to report using cigarettes, alcohol and other drugs than secondary school students. About 50% of male AE
students and 70% of female students report smoking cigarettes weekly or more often, compared to less than 15% of male and female secondary school students.

Table 4. Percentages of students who engaged in sexual behaviours and substance use

<table>
<thead>
<tr>
<th>Sexual behaviours</th>
<th>Male % (95% CI)</th>
<th>Female % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative education</td>
<td>Secondary schools</td>
</tr>
<tr>
<td>Ever had sexual intercourse</td>
<td>84.7† (±4.8)</td>
<td>28.8‡ (±6.8)</td>
</tr>
<tr>
<td>Currently sexually active*</td>
<td>72.9‡ (±6.5)</td>
<td>18.1‡ (±4.9)</td>
</tr>
<tr>
<td>Condom use during previous sexual intercourse</td>
<td>61.5 (±9.0)</td>
<td>74.9 (±7.6)</td>
</tr>
<tr>
<td>Have had a sexually transmitted infection</td>
<td>3.6 (±3.0)</td>
<td>0.5 (±0.4)</td>
</tr>
<tr>
<td>Have been pregnant or got someone pregnant</td>
<td>23.6‡ (±9.4)</td>
<td>2.2‡ (±1.6)</td>
</tr>
<tr>
<td>Sexually attracted to the opposite sex</td>
<td>76.5‡ (±6.6)</td>
<td>89.1‡ (±2.3)</td>
</tr>
<tr>
<td>Ever smoked a cigarette</td>
<td>84.8‡ (±5.9)</td>
<td>44.5‡ (±8.8)</td>
</tr>
<tr>
<td>Weekly cigarette use or more often</td>
<td>52.8‡ (±10.3)</td>
<td>11.2‡ (±3.4)</td>
</tr>
<tr>
<td>Ever drunk alcohol</td>
<td>89.6‡ (±5.1)</td>
<td>72.8‡ (±8.0)</td>
</tr>
<tr>
<td>Weekly alcohol use or more often</td>
<td>31.3§ (±8.4)</td>
<td>13.7‡ (±3.8)</td>
</tr>
<tr>
<td>Episodic binge drinking†</td>
<td>64.1‡ (±6.2)</td>
<td>28.8‡ (±7.9)</td>
</tr>
<tr>
<td>Ever used marijuana</td>
<td>85.9§ (±6.3)</td>
<td>34.2‡ (±6.6)</td>
</tr>
<tr>
<td>Weekly marijuana use or more often</td>
<td>50.4‡ (±11.4)</td>
<td>6.8‡ (±2.2)</td>
</tr>
<tr>
<td>Ever used other drugs (Hallucinogens, stimulants,</td>
<td>38.1‡ (±10.5)</td>
<td>5.9‡ (±2.3)</td>
</tr>
<tr>
<td>narcotics and/or cocaine)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Had sexual intercourse during the 3 months preceding the survey; †Drank ≥5 drinks of alcohol in one session (within 4 hours) in the previous 4 weeks; ‡Non-overlapping confidence intervals between the AE and secondary school students.

Almost half of female AE students reported that they drink alcohol weekly or more often, and three-quarters of female AE students report binge drinking during the previous 4 weeks.

Most AE students had tried marijuana, and over half of the AE students reported using marijuana weekly or more often—compared to less than 7% of secondary school students. Over one-third of AE students reported that they had tried other drugs, such as hallucinogens, stimulants, narcotics and/or cocaine, compared to less than 6% of secondary school students.
Violence, injuries, and motor vehicle use—A greater proportion of AE students report experiencing violence and abuse in the previous 12 months compared to secondary school students (Table 5). Almost 70% of AE students had been in a serious physical fight in the previous 12 months compared to less than 30% of secondary school students. A greater proportion of AE students report experiencing sexual abuse in their lives compared to secondary school students, especially among female AE students. More than half of female AE students have experienced sexual abuse, compared to one-quarter of female secondary school students.

Table 5. Experience of violence, injuries, and motor vehicle use

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male % (95% CI)</th>
<th>Female % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a serious physical fight in the previous 12 months</td>
<td>66.4† (±6.4)</td>
<td>64.0† (±14.9)</td>
</tr>
<tr>
<td>Physically harmed by another person on purpose in the previous 12 months</td>
<td>51.0 (±8.6)</td>
<td>53.3 (±11.4)</td>
</tr>
<tr>
<td>Has been touched in a sexual way or made to do things that they didn’t want</td>
<td>29.3† (±7.7)</td>
<td>52.0† (±11.9)</td>
</tr>
<tr>
<td>Has been bullied in school this year</td>
<td>19.3 (±6.1)</td>
<td>21.9 (±10.0)</td>
</tr>
<tr>
<td>Has been bullied in school this year</td>
<td>20.5† (±7.0)</td>
<td>12.2 (±8.0)</td>
</tr>
<tr>
<td>Has been bullied in school this year</td>
<td>48.8† (±7.0)</td>
<td>50.6† (±10.5)</td>
</tr>
<tr>
<td>Has been bullied in school this year</td>
<td>59.7† (±6.2)</td>
<td>67.5† (±10.3)</td>
</tr>
<tr>
<td>Has been bullied in school this year</td>
<td>69.8† (±6.9)</td>
<td>62.2† (±9.6)</td>
</tr>
</tbody>
</table>

*During the previous 4 weeks; †Non-overlapping confidence intervals between the AE and secondary school students.

Table 5 shows that AE students are significantly more vulnerable to injury due to dangerous motor vehicle use than secondary school students. Regular seatbelt use was three to four times lower among AE students compared secondary school students. About half of AE students had been in a car driven by someone who had been drinking alcohol during the previous 4 weeks compared to about one-quarter of secondary school students. Similarly, about two thirds of AE students had been in a car driven by someone who had been taking drugs and/or driving dangerously such as speeding, car chases and burnouts, compared to less than one-third of secondary school students.

Emotional wellbeing—A significantly higher proportion of AE students report emotional health problems and/or attempted suicide compared to secondary school students (Table 6). Approximately 30% of female and 20% of male AE students reported levels of depressive symptoms above the RADS cutoff score indicating a high likelihood of clinically significant depressive symptoms. Similar proportions of
female and male AE students had made one or more suicide attempts in the previous 12 months.

Serious suicide attempts that resulted in medical treatment were made by about 10% of AE students in the previous 12 months, compared to about 2% of secondary school students. Significantly more male AE students had made serious suicide attempts in the previous 12 months compared to male secondary school students.

Table 6. Relative emotional wellbeing of students

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male % (95% CI)</th>
<th>Female % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alternative education</td>
<td>Secondary schools</td>
</tr>
<tr>
<td>Significant symptoms of depression*</td>
<td>21.1‡ (±6.4)</td>
<td>8.0‡ (±2.3)</td>
</tr>
<tr>
<td>Attempted suicide† one or more times during the previous 12 months</td>
<td>21.2‡ (±6.9)</td>
<td>5.1‡ (±1.5)</td>
</tr>
<tr>
<td>Suicide attempt requiring medical treatment during the previous 12 months</td>
<td>9.3‡ (±5.2)</td>
<td>0.9‡ (±0.7)</td>
</tr>
</tbody>
</table>

*Reynolds Adolescent Depression Scale cutoff; †Tried to kill yourself (attempt suicide); ‡Non-overlapping confidence intervals between the AE and secondary school students.

Discussion

This study compares the health and wellbeing of AE students to secondary school students in the northern region of New Zealand. This study also examines the community, school, and family contexts of AE students and secondary schools students. This study demonstrates that (compared to secondary school students) AE students are more likely to come from disadvantaged backgrounds, are vulnerable to behaviours that threaten their health and wellbeing, and suffer from serious emotional health concerns. These findings highlight the need for explicit policies and programs to address the health concerns of AE students.

Compared to secondary school students, AE students are more likely to come from disadvantaged backgrounds, with proportionally more AE students reporting socioeconomic difficulty and less parental connection than secondary school students. These findings are supported by research that has shown students who are risk of dropping out of secondary school are more likely to come from families experiencing poverty⁰ and to experience adverse family environments.¹¹

In contrast, AE students’ positive connections to their wider family, school, and community are similar to secondary school students. AE students were just as likely as secondary school students to report that other family members, relatives, and their friends care a lot about them. Of importance is that most AE students in this study report that they feel like they are part of their school and that people at their school care about them. Indeed, alternative education schools (more than secondary schools)
have been recognised for providing more supportive and nurturing environments for students at risk of education failure.\cite{12,13}

This study highlights that AE students engage in significantly higher rates of health-risking behaviours than secondary school students.

These behaviours place AE students’ health at greater vulnerability due to:

- Sexually transmitted infections and/or being involved in an unplanned pregnancy;
- Injuries or death from suicide behaviours, risky motor vehicle use, and/or violence; and
- Chronic ill health from cigarette, alcohol and/or other substance use.

Several recent studies have shown similar results.\cite{3,14,15} Our study found that AE students are at higher risk for significant symptoms of depression than students from secondary schools. Over 25\% of AE students had levels of depressive symptoms indicative of significant psychopathology and a similar proportion had made one or more suicide attempts in the previous 12 months.

While there have been few direct comparisons of the emotional wellbeing of AE students compared to secondary school students, the rates of significant depression symptoms found in this study among AE students are similar to a study of AE students from a large urban city in southeast Texas, USA.\cite{16} Those findings show that students who are in alternative educational settings have significant health issues, both acute and chronic, as a result of a higher prevalence of health risking behaviours and emotional health concerns.

A major strength of the current study is that the methodology was the same for both AE and secondary school populations. This makes comparisons between the two student populations in our study more valid than studies biased by comparing data from different methodologies and questionnaires. That said, this study included some limitations. It used cross-sectional design, and cannot answer questions such as the effect of AE schools themselves on students’ behaviour. A further limitation of this study is that the two student populations may not be directly comparable.

The average age of AE students is slightly higher than students from secondary schools in Year 7 through Year 9. This may account for higher rates of health jeopardising behaviours among AE students as most health risking behaviours increase through the secondary school years.\cite{17} However, younger students in AE schools have been shown to be as likely, or more likely, to be engaging in health risk behaviours compared to older students.\cite{18} Demographic differences were not adjusted for in the current study as it is primarily a descriptive study.

A further limitation of the current study was the different ethnic composition of the AE schools compared to the secondary schools, leading to the inaccurate conclusion that the health-risking behaviours and emotional health problems of the AE students are attributable to their different ethnic and cultural backgrounds.

Post-hoc analyses stratifying by ethnicity showed very few differences in the findings from the current study (tables available upon request). This suggests that it is the pathways to school failure that are the most detrimental to students’ health and wellbeing rather than ethnic or cultural background. That said, it must be recognised that many secondary schools are failing significant numbers of Maori students. Maori
students are more likely to be suspended from school than students from other ethnic groupings, and leave school earlier than other students.\textsuperscript{19}

In the past, lower socioeconomic status and lower levels of parental education of Maori were thought to be the main influence on poor school performance and higher school drop-out rates.\textsuperscript{20} However, recently there has been a renewed focus on the role of teachers and the teaching process on student learning and achievement.\textsuperscript{21,22}

For Maori, creating culturally appropriate and responsive learning environments has been shown to significantly improve educational outcomes.\textsuperscript{23} Compared to secondary schools, it appears that alternative education schools are providing more supportive environments, especially for Maori students. It is paramount that secondary schools take a proactive approach to also improve the learning environments for Maori students to improve education achievements and retention at school.

**Conclusion**

This study highlights the need for explicit health policies and programs for alternative secondary school students. Indeed, the high levels of health-risking behaviours and emotional health problems within the AE population are of serious concern. Given the magnitude of the health problems that AE students face, collaborations between community health providers, specialist youth, and mental health services and educators are vital to most effectively utilise available resources and improve health services access.

One of the major findings from this study is that AE schools are providing supportive and caring environments for AE students. This is significant as one of the most important components of effective alternative education appears to be a caring environment for students in alternative schools.\textsuperscript{13} Furthermore, current research shows that effective alternative education can improve the outcomes for young people by improving attitudes towards school and education, reducing drop-out rates, reducing health-risking behaviours, and improving long-term employment prospects.\textsuperscript{12,24,25}

Alternative-education schools are in a unique position to improve the health of their students by:

- Providing accessible culturally appropriate healthcare;
- Encompassing comprehensive biopsychosocial assessment, services, and referral; and
- Delivering interventions that decrease the prevalence of health-risking behaviours.

Lastly, secondary schools can look to AE schools to model more supportive and caring environment for students at risk of educational failure.

**Author information:** Simon Denny, Senior Lecturer, Department of Paediatrics, Faculty of Medical and Health Sciences, University of Auckland, Auckland; Terryann Clark, Adolescent Nurse Specialist, University of Minnesota, Minneapolis, USA; Peter Watson, Senior Lecturer, Department of Paediatrics, Faculty of Medical and Health Sciences, University of Auckland, Auckland

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Correspondence: Dr Simon Denny, Senior Lecturer, The Centre for Youth Health, Department of Paediatrics, Faculty of Medical and Health Sciences, University of Auckland; PO Box 23-562, Auckland. Fax (09) 279 5111; email: sdenny@middlemore.co.nz

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Kava update: a European perspective

Edzard Ernst

Kava is the beverage prepared from the rhizome of the kava plant (Piper methysticum Forster), and is traditionally used for recreational or medicinal purposes by the islanders of the South Pacific. Its active ingredients are kava pyrones (eg, kavain\(^1\)), which are thought to mediate effects on GABA\(_A\) receptors, particularly in the hippocampus (region of the brain) and amygdale complex. Numerous clinical trials have shown kava to be an effective anxiolytic, and a Cochrane Review leaves little doubt about its efficacy.\(^2\)

Kava was also deemed to be a safe remedy,\(^3,4\) but recent case reports associate it with liver damage which was severe (hepatic failure) in some instances.\(^5\) Today, about 70 cases of various degrees of liver damage have been documented worldwide.\(^6\) Kava-containing products were therefore banned, first in Germany and Switzerland and subsequently in several other countries.\(^6\) Australia also currently bans kava supplements while New Zealand authorities recommend that labels should warn against the possibility of liver damage and a watching brief should be kept over the issue.\(^7\) This article is an attempt to summarise recent developments on the safety of kava.

Several experts have implied that the German authorities’ decision to withdraw kava from the market was politically, not scientifically, motivated.\(^8\) Since Germany has the reputation of having generally sound expertise on herbal medicine, other national authorities tended to follow the German example of a ban. There is, however, evidence from Canada that the ban is less than effective.\(^9\) In several countries, the regulatory authorities are being taken to court by lobbyists who argue that the ban was not justified. In the United Kingdom (UK), a recent judgement rejected the challenge to the kava ban by 420 health stores.\(^10\)

Meanwhile, several in-depth analyses of the known cases of hepatotoxicity have emerged.\(^11,12\) They conclude that about 80% of these patients took kava overdoses and/or self-medicated kava for longer than 3 months. Most patients administered comedications with known hepatotoxicity. A typical Australian case was published recently\(^13\) in which a 56-year old woman developed fatal liver failure after taking a kava preparation for 3 months. The fatality was rated as ‘probably’ caused by kava toxicity, even though the patient had taken two other herbal remedies associated with liver damage and the cause of death was progressive blood loss after liver transplant which is clearly not directly related to kava. Generally speaking, causality is not well established and kava taken as recommended may not be as toxic as the regulators seem to believe.

Others have pointed out that liver damage is likely to be the result of non-traditional ways of production of commercially available kava supplements. The traditional kava beverage is essentially a water extract. Australian epidemiological studies suggest that regular users of the traditional water extract consume quantities equivalent to 10–50 times the recommended daily dose without signs of liver damage.\(^14\) Yet two cases of
hepatitis have been recently associated with ingesting traditional aqueous kava extracts for 4–5 weeks. Commercial kava supplements are produced through alcohol or acetone extraction. It is conceivable that different methods yield different kava alkaloids. UK scientists suggested that differences between aqueous and acetonolic extraction are associated with differences in toxicity; indeed, only water extraction delivers sufficient glutathione which seems to be essential for protection against hepatotoxicity. 

Another possible explanation for liver damage is that suboptimal raw material was used during the ‘kava boom’ of the late 1990s. For instance, manufacturers purchased peelings of the kava stump which contain the hepatotoxic alkaloid pipermethystine not normally contained in good quality kava supplements. A further explanation is the possibility of a genetic difference between Europeans and Pacific Islanders, which could protect the latter group from kava-induced liver damage. Comparative toxicity studies are required to improve our understanding of these issues.

The mechanism of kava hepatotoxicity (if any) is not yet understood. Direct toxicity is unlikely but an immunologically mediated idiosyncratic mechanism appears the most likely explanation, particularly at high doses of kava intake. Kava also has the potential for causing drug interactions through inhibition of P450 enzymes responsible for the metabolism of numerous pharmaceuticals. The importance of this finding is, however, not clear at present.

Even though few direct comparisons have been published, the efficacy of kava seems to be similar to that of benzodiazepines. Therefore it is relevant to note that a rough estimation of the incidence of liver damage yields similar results for kava and benzodiazepines. There seems to be little difference between the reported incidence of kava-induced hepatotoxicity and that of other psychoactive drugs such as valproic acid, fluoxetine, paroxetine, sertraline, fluvoxamine, imipramine, and codeine. Of course, the seriousness of the liver damage also needs consideration, but there are only very few cases of serious hepatotoxicity associated with kava. The many adverse effects (other than hepatotoxicity) of psychoactive drugs (eg, sedation, dependence, memory impairment, accidents) should also be taken into account.

Meanwhile more positive trial data have emerged, which were not available when kava was banned in Germany. They showed that kava reduces anxiety in perimenopausal women and is as effective as opipramol or buspirone for generalised anxiety disorder. A further randomised, placebo-controlled trial demonstrated that kava is more effective than placebo in improving sleep in patients suffering from sleep disturbances associated with non-psychotic anxiety disorders. In none of these studies was there evidence of liver toxicity or other adverse events, but clinical studies are of course too small for detecting rare adverse events.

Vis a vis the totality of this new evidence, German physicians now recommend kava as an herbal anxiolytic at a dose of 120–210 mg kavapyrone/day. The length of medication should be limited to 1–2 months, and liver enzymes should be checked before and during kava medication. This recommendation is, of course, more theoretical than practical: in Germany, kava remains ‘off limits’ and, in other countries, it is marketed as a food supplement for which such advice is not legally enforceable. Food Standards Australia and New Zealand (FSANZ) currently propose
to prohibit the use of organic solvents or root peelings of the plant in the production of kava products.\textsuperscript{28}

Based on the data available to date, my personal impression is that the traditional water extract seems to have no or only low hepatotoxicity. Commercial acetone or alcohol extracts are associated with serious liver damage in extremely rare cases. The risk/benefit balance of such products may nevertheless turn out to be positive, particularly in comparison to that of synthetic psychoactive drugs. But, to err on the safe side, I would recommend caution until our knowledge is more complete.

**Author information:** Edzard Ernst, Director, Complementary Medicine, Peninsula Medical School, Universities of Exeter and Plymouth, UK

**Correspondence:** Professor Edzard Ernst, Complementary Medicine, Peninsula Medical School, Universities of Exeter and Plymouth, 25 Victoria Park Road, Exeter EX2 4NT, UK. Fax: +44 1392 427562; email: Edzard.Ernst@pms.ac.uk

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Small bowel bleeding as a unique presentation of metastatic lung carcinoma

Hagit Padova, Michael Lishner, Avishay Elis

The main cause of iron deficiency anaemia in adult men and postmenopausal women is chronic blood loss from the gastrointestinal (GI) tract. Upper GI bleeding is commonly caused by oesophagitis, gastritis, or duodenal ulcer, whereas colon cancer is the main cause of chronic bleeding in the lower tract. Although rare, the small intestine may also be a source of chronic blood loss, mainly due to vascular ectasias and tumours.1–3

Small bowel neoplasms account for only 1% of all GI tumours. Benign lesions include adenomas, leiomyomas, fibromas, and lipomas—whereas the most common malignant tumours are adenocarcinoma, carcinoid, lymphoma, and sarcoma. The small intestine is the most common site of GI metastatic melanoma. Primaries from breast, lung and kidney carcinoma, although unusual, metastasise to the small bowel by haematogenous spread—whereas cervical, ovarian, and colon carcinoma involve the small bowel by direct extension.4,5

Many patients with malignant tumours of the small bowel are asymptomatic until the tumour has been spread. The often vague and nonspecific nature of the symptoms, as well as the fact that small bowel lesions are currently technically difficult to identify, may make the diagnosis complicated.3

We present an unusual case of severe and recurrent small bowel bleeding as the first manifestation of metastatic lung cancer.

Case report

A 57-year-old male was admitted to hospital because of weakness and dizziness for a few weeks secondary to anaemia. He reported having night sweats, but denied weight loss, fever, a change in bowel habits, or bloody stools. The patient had smoked 30 cigarettes per day until 2 years previously. On physical examination, he was pale, his blood pressure was 122/72 mmHg, and his pulse was 70 bpm. Heart and lung examination was normal.

Abdominal palpation revealed minimal periumbilical tenderness without organomegaly. Rectal examination was normal and stool examination showed the presence of occult blood.

Laboratory tests revealed iron deficiency anaemia (Hb: 6.9 g/dL; mcv: 71.6 fl; iron: 8 mg/dL; transferrin: 295 mg/mL; ferritin: 7 ng/mL). The erythrocyte sedimentation rate was 120 mm/hr. Electrolytes, kidney- and liver-function tests were normal. Chest X-ray was normal.

Gastroscopy and colonoscopy did not detect any source of bleeding. An abdominal CT-scan demonstrated only a very mild thickening of the small intestine at two sites, raising a suspicion of inflammatory bowel disease or a malignancy. There was no
evidence of lymph node enlargement. A small bowel radiographic examination was normal.

During this time, melaena appeared occasionally and the patient received 12 units of packed red cells over 7 weeks. However, he remained haemodynamically stable without any new complaints or findings.

Seven weeks after his first admission, a re-evaluation was done. Abdominal CT scan showed the previous two thickened small bowel sites, but also enlarged mesenteric lymph nodes. A chest CT-scan revealed a 2.5 cm lesion in the apical segment of the upper lobe of the right lung, and mediastinal lymphadenopathy. A wedge resection of the right-lung upper-lobe lesion revealed squamous cell carcinoma of the lung.

Because of severe recurrent uncontrolled GI bleeding, the patient underwent explorative laparotomy. A single 5-cm small bowel tumour and an adjacent enlarged mesenteric lymph node were resected. Apparently they were metastasis of the lung carcinoma.

The patient was treated with Navelbine. Three months later haemoptysis due to a tracheal bleeding mass occurred, and radiation treatment was added. The GI bleeding continued, which was treated with recurrent weekly blood transfusions.

Discussion

Squamous cell carcinoma of the lung is already metastatic at presentation in up to 50% of the patients. The commonly involved sites are local lymph nodes, liver, adrenal glands, bone and brain. In two autopsy series, the rate of small bowel metastases in lung carcinoma was 5% and 11%. However, in all cases there was concurrent metastatic disease of at least one other site. Indeed, all reported cases of small bowel metastases of lung carcinoma were diagnosed either by an autopsy, or by an emergency laparotomy to treat perforation, obstruction, or massive bleeding.

Rarer still is the presentation of lung carcinoma by a metastatic lesion in the small bowel. In fact, there are only 10 reported cases of metastases to the small bowel as the presenting symptom of lung cancer. However, all patients presented with an acute abdomen due to perforation and peritonitis and underwent an emergency laparotomy.

Our patient presented with the primary lung carcinoma as well as small bowel metastases by iron-deficiency anaemia due to recurrent GI bleeding from an unknown source. For further evaluation, we considered using technecium –99m radionuclide scanning or angiography. However, the decision to use these modalities depends on the briskness of bleeding (requiring blood loss of more then 0.1 mL per minute for radionuclide scanning and more than 0.5 mL per minute for angiography), while the bleeding in our patients was rather slow and continuous.
In conclusion, we present a unique case of a symptomatic severe iron deficiency anaemia caused by chronic GI bleeding as the first presentation of diffuse metastatic lung carcinoma.

**Author information:** Hagit Padova, Resident; Michael Lishner, Head; Avishay Elis, Senior Physician, Department of Medicine, Meir Hospital, Kfar-Saba, and Sackler Faculty of Medicine, Tel-Aviv University, Tel-Aviv, Israel

**Correspondence:** Dr Avishay Elis, Department of Medicine, Meir Hospital, Kfar-Saba 44281, Israel. Fax: +972 9 7460781; email: avishayel@clalit.org.il

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The Orewa Speech: another threat to Maori health?

Cindy Towns, Nathan Watkins, Arapera Salter, Patricia Boyd, Lianne Parkin

Abstract

In early 2004, Dr Don Brash, leader of the National Party (New Zealand’s opposition political party), gave a speech to a community group regarding what he perceived to be the preferential treatment of Maori in health and education policies. This viewpoint article is written by a group of concerned medical students at Otago University. It argues that epidemiological data provide strong support for specifically addressing Maori health need, whilst the Treaty of Waitangi represents a contractual obligation on behalf of the New Zealand Government to ensure equity of outcome for Maori. Underpinning both the epidemiological and legal arguments, are ethical principles. The central tenets of medicine (ie, to reduce suffering, and to improve and prolong the quality and length of life) should provide a strong driving force to address these inequalities.

On the 27th of January, 2004, Don Brash addressed the Orewa Rotary Club on the subject of race relations, and what he perceived to be the preferential treatment of Maori in health and education.¹ According to the New Zealand Herald newspaper, ‘The Orewa Speech’ has had a ‘seismic impact on the political landscape’ in New Zealand.²

The National Party’s meteoric rise in the polls³ suggests that their new leader has indeed struck a chord with the New Zealand public.

Brash established his stance early in the speech by stating:

‘We are one country with many peoples, not simply a society of Maori and Pakeha where the minority has a birthright to the upper hand’.

He later claimed:

‘In both education and healthcare, government funding is now influenced not just by need—as it should be—but also by the ethnicity of the recipient.’

This viewpoint article seeks to evaluate, from the perspective of health, whether specifically addressing the needs of Maori is justified—or whether (as Brash suggests) such an approach cannot be justified. One way to determine the legitimacy of a targeted strategy, is to prove that Maori have a need in excess of other societal groups. With regard to need, mortality and life expectancy data are arguably the most frequently used measures of health status. This is due, in part, to their accessibility; certification of death being a legal requirement in most industrialised countries.⁴ In New Zealand, the most recent life expectancy figures (2000–2002) show that non-Maori live on average 8.5 years longer than Maori.⁵ Specifically, life expectancy at birth for females of Maori ethnicity is 73.2 years compared with 81.9 years for their non-Maori counterparts. For men, life expectancy at birth is 69.0 for Maori and 77.2 years for non-Maori.
Until recently, meaningful comparisons of ethnic-specific mortality rates and the study of time trends in Maori and Pacific mortality rates have been hampered by changing definitions of ethnicity and a numerator-denominator bias.\(^6\) Mortality rates are calculated using two primary sources: death registration forms (the numerator) and census records (the denominator). Between 1981 and 1995 funeral directors completing deaths registration forms used a biological definition of ethnicity (half or more blood), while the census collected self-identified ethnicity data. This resulted in an undercounting of Maori and Pacific deaths and the underestimation of Maori and Pacific mortality rates.

Ajwani et al (2003) address this bias in their comprehensive description of trends in ethnic-specific mortality rates in New Zealand from 1980 to 1999.\(^6\) Their results are disturbing. There has been little, if any, decline in Maori and Pacific mortality rates over the last two decades, despite a steady decline in non-Maori non-Pacific rates. Hence, the gaps in life expectancy between these groups increased markedly over the 1980s and 1990s.

The major contribution to the disparity has been the differential chronic disease mortality in the middle to older age groups—most notably from ischaemic heart disease, diabetes, and cancer. For example, for the prioritised series (those persons identifying Maori ethnicity as their primary, but not sole, ethnic group) age-standardised cancer mortality rates were 2.0 (male) and 2.1 (female) times greater for Maori than for non-Maori non-Pacific people during 1996–1999.

Cardiovascular mortality rates have decreased over the last two decades, but to a lesser extent amongst Maori. Consequently, by 1996–99, cardiovascular mortality rates were 3.0 times higher for Maori males compared to non-Maori non-Pacific males, and 4.2 times higher for Maori females compared to non-Maori, non-Pacific females.\(^6\) Carr et al (2002) found similar disparities in a study of heart failure outcomes.\(^7\) In a retrospective analysis, they compared outcomes for Maori and non-Maori using mortality and hospital admission data from 1988 to 1998. Mortality from heart failure was more than 8.8 times higher among Maori men aged 45–64 years when compared to non-Maori.

To understand what is contributing to these disparities in life expectancy and mortality rates, it is necessary to consider some of the determinants of health status. It has long been recognised, for example, that poor socioeconomic status is associated with poor health outcomes. In fact, the link was established as early as 1840, when reliable data first became available.\(^8\)

More recently, it has been observed that about 80% of the 80 most-common causes of death occur more frequently in lower socioeconomic groups.\(^9\) Ajwani et al (2003) also cite numerous data from both the United Kingdom and United States that confirm that widening health inequalities are strongly associated with widening socioeconomic inequalities.\(^6\) Similar gradients are evident within the New Zealand population.

Several tools are available for measuring socioeconomic status. The NZDep96 is an area-based measure of socioeconomic deprivation that uses nine variables obtained from 1996 census data to provide a summary deprivation score for each meshblock (a geographical unit containing a median of 90 people) in New Zealand. The score is based on the proportion of people within each meshblock who don’t have access to a telephone or car, are unemployed, in receipt of a means-tested income, live in a low
income or single-parent family, have no educational qualifications, live in non-tenured homes, and live in crowded households. The meshblocks are ranked into deciles with one being the least deprived and 10 being the most deprived.\textsuperscript{10} Although care should be taken in using NZDep96 as the sole indicator of socioeconomic status, the ranking of individuals by the decile assigned to their neighbourhood is, on average, strongly and linearly related to health and other social outcomes.\textsuperscript{11} An examination of NZDep96 by ethnicity reveals that the Maori ethnic group is over-represented in the most deprived areas. Reid et al (2000) found that more than half (56\%) of Maori live in areas represented by the three lowest deciles.\textsuperscript{12} Indeed, only 3\% of Maori are represented in decile one (the most affluent) whilst 26\% reside in decile 10 (the most deprived). This pattern is consistent within both categories of the Maori ethnic group: sole Maori (those who give Maori as their only ethnicity) and mixed Maori (those who give Maori as only one of their ethnicities). Other socioeconomic data reveal that Maori households (when compared with non-Maori) earn on average $10,000 less than non-Maori households, are more likely to rely on income support than non-Maori, and are more likely to run out of food because of a lack of money.\textsuperscript{13} Hence, these data suggest that Maori are over-represented in the lower socioeconomic classes, and that this level of deprivation puts them at increased risk of poor health outcomes. However, there is clear evidence that poor health outcomes in Maori are not simply due to socioeconomic deprivation. For example, Reid et al (2000) combined NZDep96 data from deciles 1–7 (due to the relatively few number of Maori in this category) and deciles 8–9, and compared them with decile 10.\textsuperscript{12} They found that life expectancy of Maori from birth is consistently less than that of non-Maori at each of these three deprivation points. These authors state that such data provide support for the argument that ‘above and beyond the effects of increasing deprivation in New Zealand, there is an additional and significant health effect of ethnicity’.

Similar patterns are noted by Sporle et al (2002), who used data from 1996–97 to update previous studies of social-class mortality differences in Maori and non-Maori New Zealand men aged 15–64 years.\textsuperscript{14} They found that within each social class, Maori all-cause mortality was significantly higher than non-Maori, and that these disparities increased with increasing disadvantage. Moreover, the mortality rate of Maori in the highest social class was still higher than that of non-Maori in the lowest social class. The greatest disparities between Maori and non-Maori were found in an analysis of amenable causes of death, that is, deaths that should have been avoidable had the individuals received appropriate medical care.

Sporle and colleagues conclude that the persistently high Maori mortality rates, when controlled for social class, indicate that the poor state of Maori health cannot be explained solely by relative socioeconomic disadvantage. They further note that the high Maori rate of potentially preventable deaths indicates that the health sector is still not meeting the serious health needs of this ethnic group. Indeed, in terms of targeting health resources, this research indicates that Maori ethnicity and high need are synonymous.

In relation to other determinants of health, there is evidence to suggest that Maori are over-represented among those with intermediate risk factors for disease. Provisional results of the 2003/03 New Zealand Health Survey demonstrate that the prevalence of
smoking in Maori is more than twice that of non-Maori, and higher than any other ethnic group.\textsuperscript{15} This data also shows that the prevalence of hypertension (a major risk factor for heart failure) is highest in Maori and that approximately 30\% of Maori are obese. These risk factors have a considerable impact on both the rate and outcomes of amenable disease and are likely to contribute to the significant burden of disease suffered by Maori.

Disparities between Maori and non-Maori in the treatment of chronic disease have also been observed. For example, diabetic Maori in one study appeared to have poor glycaemic control and poor knowledge about diabetes.\textsuperscript{16} The South Auckland Diabetes Study confirmed these findings\textsuperscript{17} whilst other research demonstrates that Maori patients are more likely to have diabetic complications such as nephropathy and retinopathy.\textsuperscript{18}

Research into cardiovascular disease and outcomes suggests that, despite high hospitalisation rates for cardiac diseases, intervention rates for Maori are much lower.\textsuperscript{19} Similarly, Tukuitonga and Bindman (2002) state that even though Pacific and Maori peoples have higher rates of coronary artery disease morbidity and mortality, revascularisation rates are lower in both groups.\textsuperscript{20} Adequate access to care is also raised by Ellison-Loschmann et al (2004) who found that asthma hospitalisation rates are higher in Maori than in non-Maori, despite asthma prevalence being similar in Maori and non-Maori children.\textsuperscript{21} They conclude that the differences are likely to reflect differences in asthma exacerbation and disease severity due to reduced access to asthma health services.

Although there is considerable evidence for the existence of significant disparities between Maori and non-Maori in socioeconomic status, distribution of risk factors for disease, and access to healthcare, there is less definitive research identifying the barriers and obstacles to good health outcomes. It has been suggested that the younger age structure of the Maori population, in comparison to the general population, may play a role in the inequalities.\textsuperscript{22} Failure to account for these structural differences, when designing and delivering services, may help explain why health promotion and education strategies have had less impact on this ethnic group. Cost has been recognised as a barrier to care with regard to diabetes and, given the socioeconomic data previously discussed, it is likely that this obstacle plays a significant role in other areas of Maori health care.\textsuperscript{22,23}

Although caution is required in attributing blame, the Government reforms of the 1980s and early 1990s may also have had a disproportionate effect on Maori. The sharp rise in Maori suicide rates may suggest that Maori suffered considerably during this period.

In 1980, Maori men aged 24–44 years had suicide rates 22\% less than non-Maori—but by 1999, the rates were 70\% higher than non-Maori.\textsuperscript{6} More recently, Malcolm (2003) has questioned whether health resources are actually filtering down to where they are needed most and suggests that the inverse care law (ie, those populations in greatest need are those least likely to receive the services they need) remains a dominant feature of New Zealand’s primary care system.\textsuperscript{24}

To summarise, the epidemiological data highlight several important points in terms of healthcare policy and funding. First, Maori have significantly lower life expectancy than non-Maori; the high mortality rates are largely due to the burden of chronic

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disease. Second, Maori are over-represented in socioeconomic-deprivation statistics; a measure highly correlated with greater morbidity and mortality. Third, and most importantly in terms of ‘The Orewa Speech’, Maori have worse health outcomes independent of socioeconomic measures. Finally, Maori suffer disproportionately from diseases amenable to health service intervention.

Together, this evidence provides a compelling argument for specific initiatives focused on improving Maori health outcomes and reducing disparities. Contrary to the opinions of Dr Brash, current evidence identifies a need for health policies to continue to directly target Maori and further, aim to elucidate the barriers to care that presently exist.

The arguments above cite epidemiological evidence for targeting Maori as an ethnic group. However, there are other grounds, the most obvious of which is the Treaty of Waitangi.

The Treaty, signed in 1840, consists of three articles:

- The first article grants the Crown governing powers over New Zealand,

- The second article guarantees Maori exclusive and undisturbed control over their resources such as forests and fisheries, and

- The third article confers the equal rights, privileges and protection of British citizenship onto Maori.

It may be argued that the current inequalities in health status between Maori and non-Maori violate this contract and that the Crown has not provided equal protection and rights to Maori compared with non-Maori. For example, Reid et al (2000) state that the current disparities are a breach of the Treaty that sought to protect Maori from marginalisation as a result of colonisation.\textsuperscript{12}

Durie (1989) notes that the deteriorating health of Maori may actually have been the driving force behind a formal relationship between the British Crown and Maori.\textsuperscript{25} He states that a British protectorate was proposed in 1837 due to the ‘miserable’ condition of the Maori people, particularly their ‘high mortality rate’ resulting from ‘total European’ impact.

The Treaty of Waitangi represents the New Zealand Government’s contractual obligation to explicitly ensure equitable outcomes for Maori. Thus it offers a legal impetus for addressing the continuing health needs of this specific ethnic group.

The Ministry of Health, amongst other Government bodies, recognise these responsibilities and obligations. In terms of the New Zealand Health Strategy,\textsuperscript{26} recognition of the Treaty translates to the participation of Maori at all levels, partnership with Maori in service delivery, and the protection and improvement of Maori health status.

In conclusion, epidemiological data provide strong support for specifically addressing Maori health need, whilst the Treaty of Waitangi represents a contractual obligation on behalf of the New Zealand Government to ensure equity of outcome for Maori. Underpinning both the epidemiological and legal arguments are ethical principles.
The central tenets of medicine, to reduce suffering, improve and prolong the quality of life, should provide a strong driving force to address these inequalities.

Health policies should be shaped by the four basic principles of medical ethics: beneficence, non-maleficence, justice and autonomy. The moral imperatives that form the very basis of the medical profession should drive us (its practitioners and students) to strongly resist any health policy that attempts to thwart the progress of Maori towards equality in health status.

In essence, with regard to 'The Orewa Speech, Dr Brash’s claims that Maori have the ‘upper hand’ remain unsubstantiated. Unfortunately, these views may provide yet another threat to Maori health.

Author information: Cindy Towns, PhD Student, Department of Anatomy and Structural Biology; Nathan Watkins, Medical Student; Arapera Salter, Medical Student; Patricia Boyd, Medical Student, Dunedin School of Medicine; Lianne Parkin, Lecturer in Epidemiology, Department of Social and Preventive Medicine, University of Otago, Dunedin.

Correspondence: Cindy Towns, C/- Department of Anatomy and Structural Biology, University of Otago, Dunedin. Fax: 03 479 7254; email: cindy.towns@anatomy.otago.ac.nz

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The trend of modern midwifery

This is an excerpt from an article by Dr James R. Purdy that was published in the New Zealand Medical Journal 1905, Volume 4 (14), p79–86.

In the bright light at present thrown on the great advances in surgery and medicine it is apt to be forgotten that the science and art of midwifery has made as great if not greater, advances.

The improvements in surgery and medicine are understandable by the general public, or at any rate they think they understand them, which is the same thing to them. A layman who has read a paragraph in the newspapers or a popular article in a review or magazine knows all about appendicitis, cancer, the Finsen light, x rays, and microbes (as he calls them). He is an authority on antiseptics and anaesthetics; he often confuses the two, but that is a mere detail.

Midwifery, however, is not a subject that is written about in popular articles. Newspapers that publish articles on the fertility of the unfit, the declining birthrate, &c., consider it indecent to even mention the title of a paper at a medical congress if it deals with midwifery, and so we are saved the opinion of the man in the street, and only those really interested in the subject are able to note the many advances made in midwifery during the last sixty years. A mother of ten has still great power in the land; she is supposed to know all about the science and art of midwifery, and if anything is done differently from her way the accoucheur is, of course, wrong.

We in the profession are also not free from blame in the attitude the public take up towards us. We are far too apt to bow to public opinion and to follow the mother of ten—at any rate, many medical men are content to follow out their old teaching, and do not, in the science of midwifery at any rate, keep pace with the times. As a prominent obstetrician puts it, "Most men observe only what they have been taught—much or little, true or false—but nothing more, if even that; hence the prevalence and tenacity of error handed down from generation to generation."

I have not time at this meeting to go into all the many advances that have been made in midwifery during the last sixty years. I have said, the last sixty years, for it is about that time since chloroform was first used in labour, and it is really chloroform we have to thank for the majority of improvements on the old methods.

Of course, the general grounding that every one gets in his medical career has an important bearing upon his obstetrical work, and, although the majority of students look upon midwifery as a bugbear when at the schools, yet when men go out into the world and find that midwifery is the backbone of general practice, then they have to consider the position, and it is now that the general drilling of a hospital in technique comes in.

There is no nobler work in our profession than the saving of mothers and children: the preservation of life is the justification of our existence. The great drawback to the practice of midwifery in the minds of many men is to me one of its greatest charms. You must be self reliant; you cannot in many cases wait even a few minutes for
additional help, and in many cases no colleague could be got under hours of waiting; and so a man, singlehanded, generally with an incompetent nurse, has to tackle work—and big work at that—work upon which depends the present safety and after well-being not only of the mother, but also of the child.
Flank Football

A 65-year-old lady presented with a large right-sided flank mass (Figure 1). She had been non-specifically unwell and had a recent recrudescence of a low-grade pyrexia. Past history includes known nephrolithiasis.

Initial investigation was with a contrast-enhanced CT scan (Figure 2 and Figure 3).

Questions

What is the diagnosis? What are the treatment options?

(See the next page to view the answers)
Answers

The CT scan shows a large peri and paranephric fluid collection extending into the posterior abdominal wall. The ipsilateral kidney shows dilatation of the pelvicalyceal system and a stag horn calculus. The collection was drained percutaneously and the obstructed kidney was decompressed with a percutaneous nephrostomy.

The perinephric fluid grew *Proteus mirabilis*. A diagnosis of Xanthogranulomatous pyelonephritis was subsequently made.
Benefits of the flu jab

Chronic obstructive pulmonary disease (COPD) is a common disease, and evidence shows that its prevalence is increasing worldwide. Most of the morbidity, mortality, and health-care costs of patients with COPD are related to the exacerbation of COPD. Viral infection, particularly influenza, plays an important role in the exacerbation of COPD and may cause one third of these exacerbations.

Enter the flu immunisation programme. Does it work? Apparently it does if the antigenic strains of the vaccine are appropriate to the region. In a recent report of a randomised controlled trial from Bangkok the authors found that the vaccination is highly effective at preventing influenza-related acute respiratory illness, regardless of the severity of the underlying lung disease, comorbidity, age, or smoking status.

Is CT screening dangerous for your health?

The practice of whole-body CT screening of healthy adults is being touted as an early detection device for a variety of diseases, including lung cancer, coronary artery disease, and colon cancer.

Sceptics note the lack of evidence of benefit, the likelihood of clinically unimportant findings that may result in possibly needless further investigations, and the risks of radiation. Furthermore there have been no published studies of the safety or efficacy of whole-body screening. And, even worse the prevalence of irrelevant findings on whole-body CT is high.

In a recent report, it has been noted that, of 1200 whole-body CT scans, 87% showed at least one finding, and nearly a third of patients were advised to undergo further testing or follow-up. In a study using CT to screen for lung cancer, 700 ancillary findings (not related to lung cancer) were noted in about 1520 screened individuals. Most were false-positive results, and the follow-up adversely affected the patients’ quality of life resulted in unnecessary diagnostic and interventional procedures.

No wonder that the Royal Australian and New Zealand College of Radiologists published statements indicating that there is insufficient scientific evidence to support whole-body CT screening in asymptomatic patients with no family history suggesting disease.

Mammography screening controversy

No less that six consecutive papers debate the merits of mammographic breast cancer screening in a current epidemiology journal. The proponents, statisticians and epidemiologists, conclude that “clinical trials of mammography have led to
substantial advances in understanding breast cancer, and a substantial reduction in mortality from this disease. It is time to move on, although some questions remain.”

On the other hand, Gøtzche of the Nordic Cochrane Centre in a review of Swedish randomised trials points out that for every 1000 women invited for screening throughout 10 years, at most one—and possibly none, since an effect on overall survival has not been demonstrated—is saved; five additional women will be diagnosed with cancer who would not have got a cancer diagnosis had they not been screened; two additional women will get a mastectomy and three a tumourectomy; and more that 100 women will experience important psychological distress for many months because of false positive findings.

Therefore, even under the most optimistic survival estimate, it is not clear whether screening does more good than harm. This opinion is shared by eminent British breast cancer surgeon, Michael Baum, in one of the other papers. It sounds as if the jury is still out, and it is not time to move on.

Int J Epidemiol 2004;33:43–73

Cardiac disease and air travel

Clinicians are often asked about the safety of air travel in those with severe cardiac problems. This issue has recently been evaluated in a paper from Yale Medical School. After reviewing the literature and various guidelines, the authors name a handful of specific cardiac contraindications. Their list includes myocardial infarction and angioplasty or intracoronary stent placement within the previous 2 weeks and coronary artery bypass grafting within previous 3 weeks. Unstable angina, uncontrolled ventricular or supraventricular arrhythmias and poorly compensated heart failure are also regarded as reasons for avoiding air travel.

Ann Intern Med 2004;141:148–54

HIV/AIDS treatment costs

The US National Institutes of Health (NIH) has declined to impose a price cut on a key AIDS medicine. The refusal to accede to complaints about drug costs, made after drug firm Abbott Laboratories hiked the price of one of its AIDS medications by more than 400%, won praise from research universities.

“Pharmaceutical pricing is an issue, but marching in on a company’s patent is not the appropriate way to deal with it,” says Patrick White, director of federal relations at the Association of American Universities in Washington. The association feared that NIH intervention would deter companies from commercializing scientific findings.

So what was it all about? Abbott increased the price of the protease inhibitor Norvir (ritonavir) from US$1.71 to US$8.57 a day. (The current daily treatment cost in NZ is NZ$17.33).

A debatable NIH decision.

Nature, 12 August 2004, p715
Shaken baby syndrome: a medicolegal problem

Has infantile scurvy, or Barlow’s disease, really disappeared? Or is it now diagnosed as ‘shaken baby syndrome’, without any evidence that the infant was ever shaken?\textsuperscript{1,2}

If so, we may be missing the mark in infant care and subjecting parents to a grave injustice.\textsuperscript{3,4}

Even Caffey,\textsuperscript{5} in his original observations of ‘child abuse’, observed subperiosteal haemorrhages and long-bone fractures typical of infantile scurvy in his six infants with subdural haematomas.

We do not like to believe that scurvy could possibly occur today in the modern world. Yet, 6\% of a consecutive sample of people attending a Health Maintenance Organization (HMO) clinic in Arizona were found to have deficient plasma vitamin C concentrations in 1998 (<11.4 micromols/L), and 30\% had depleted levels (<28.4 micromols/L).\textsuperscript{6}

Blood levels of vitamin C and histamine are inversely related, because L-ascorbic acid is essential for the removal of histamine by conversion to hydantoin-5-acetic acid. Thus, severe vitamin C deficiency can cause a 10-fold increase in the blood histamine concentration.\textsuperscript{7} Any further production of histamine by vaccinations, infections, and other stresses can give rise to toxic histaminaemia, which could be fatal.

We will not be able to solve the present-day medicolegal dilemma regarding shaken babies, until hospital laboratories are set up to provide accurate, same-day plasma ascorbic acid and whole blood histamine analyses for all sick infants.\textsuperscript{7–9}

C Alan B Clemetson
Professor Emeritus
Tulane University School of Medicine
New Orleans, Louisiana, USA

References:


James Thomas Kearney (Jim) was born in Christchurch and educated at Sumner District High School and Christchurch Teachers’ College.

His teaching career was curtailed when he joined the Army where he served for 5 years. During the latter part of his Army service, he managed to pass Matric Latin to complete Medical Prelim.

After the war, Jim taught for a year before starting his medical course. There were several ex-servicemen at Otago Medical School at that time and most found the going pretty tough, and their bursaries guaranteed a pretty Spartan life.

Jim qualified in the mid-1950s and did house surgeon years at Christchurch before setting up in general practice in New Brighton and later in the suburb of St Albans where he remained until his retirement.

Jim had been an above-average sportsman in rugby, tennis, surfing, and golf but he gave these away in favour of his studies and his medical practice. He was a dedicated practitioner, generous with his time and help. He was not a ‘joiner’ and took little part in medical politics.

Following his retirement and because of his lost interests in sport, Jim opted for a quiet life—a very quiet life indeed. But that was the way he chose to spend his retirement.

On 18 September 2004, Jim died only a few hours after being admitted to Christchurch Hospital where he had started his clinical working life 50 years earlier.

He leaves his wife (Diana), three sons, and a daughter.

We are thankful to Jim’s brother (HI Kearney) and Roy Holmes for this obituary.
Edwin Kincaid (Eddie) died on 12th September, 2004 after having been unwell for some time.

Eddie was born in Glasgow, Scotland in 1927, and he retained the Scottish accent of that city all his life. His mother was a GP and he followed her to Anderson’s Medical College in Glasgow. This was a teaching school preparing candidates for the Scottish Conjoint Board of Examiners. There were similar Boards in Ireland and England. Soon after when Eddie qualified, all teaching became focussed on the University of Glasgow.

After house jobs around Glasgow, he and his bride (Mary) spent a happy year in one of the (then very new) training posts near Galashiels.

There seemed little prospect of becoming a principle in a practice in Scotland, and at that time, Dr Derek Paterson advertised in the *BMJ* for an associate.

Thus, the Kincaids came to Christchurch and to the seaside suburbs where Eddie stayed or the rest of his professional life until his retirement in 1995. Eddie was a dedicated and hardworking practitioner.

Outside medicine, Eddie was an enthusiastic Lions Club member. A charter member of the New Brighton Lions, he served as President and then filled every possible office in New Zealand and came very close to being elected to The International Board of Lions.

There was something about this tall laconic Scot with a dry sense of humour that struck a resonance both with his colleagues in Lions and with the people of eastern Christchurch.

Eddie left his wife (Mary) and four children.

We are grateful to Roy Holmes (with generous help from Eddie’s wife, Mary) for this obituary.
Special offer: CD ROM of the New Zealand Medical Journal

The first 2 years of the online New Zealand Medical Journal (June 2002–June 2004) are now available in CD ROM format. This means you can own your own copy of the NZMJ for this 2-year period.

**Cost**
- Within New Zealand: NZ$21 (includes GST, postage, and packaging)
- Outside New Zealand: NZ$25 (includes $5 postage and packaging)

If you wish to purchase the NZMJ CD ROM, please email Debbie@nzma.org.nz to arrange payment.
FACULTY OF MEDICINE
POSTGRADUATE SCHOLARSHIP IN
OBSTETRICS, GYNAECOLOGY AND WOMEN’S HEALTH

The above Scholarship is open to medical graduates who will normally be Registrars undertaking the Royal Australian and New Zealand College of Obstetrics and Gynaecology (RANZCOG) Integrated Training Programme, or are Members or Fellows of the College who intend to undertake research. The holder of the Scholarship is encouraged to enrol for a Master of Medical Science or PhD. The Scholarship is $16,800 per annum for two years.

Further details are available from:
Secretary to the Faculty of Medicine
University of Otago Medical School
P O Box 913
Dunedin
Email: medical.faculty@stonebow.otago.ac.nz

Applications close on November 30, 2004
The Fellowship recipient’s research project may involve, but is not limited to, the prevention, diagnosis, treatment and cure of health conditions. The monetary value of the Fellowship will be based on the nature of the application.

Expressions of interest are invited from any organisation who wishes to sponsor a person who could be considered or would qualify for this Fellowship.

David Gault, Chairman of the Trust Evaluation Committee says, “The Fellowship recipient will be a person who has achieved pre-eminence in their particular field of expertise. The awarding of the Fellowship is a significant recognition by Lions Clubs New Zealand of that person’s merit, knowledge and qualifications and their potential to advance the welfare of New Zealanders.”

This is only the second Fellowship in the 25 year history of the Trust. The first was awarded in April 2000 to Dr. Roderick D MacLeod to celebrate the Trust’s 20th Anniversary.

Ron Lawrence, Chief Executive Officer, Lions Clubs New Zealand says “The Fellowship is a significant honour. In monetary terms it provides valuable recognition to an individual who has made a noteworthy contribution in his or her respective field.”

Expressions of interest must be submitted by 31 January 2005 (for details on how to apply please see fact sheet). The Fellowship will be awarded in April 2005.

For any further information please contact:

David Gault
Chairman, Trust Evaluation Committee
Phone – (04) 237 7436
Email – david.gault@xtra.co.nz
FACT SHEET

The Lloyd Morgan Lions Clubs Charitable Trust

• The Trust was established in 1979-80 in honour of Lions member Lloyd Morgan, and to commemorate Lloyd's year as President on the International Association of Lions Clubs. Lloyd sadly passed away on 27 August 2001.

• The Trust has become the national resource for the charitable work of Lions Clubs throughout NZ, providing a grant or a loan to Lions Clubs for a range of projects.

• The Trust benefits sick, disabled and distressed people in NZ and the Pacific Islands. It also helps in the field of education.

• The Trust has been able to assist with numerous appeals and projects and already hundreds of thousands of dollars have been given to Lions Clubs by way of grants or loans to assist with a multitude of Lions Club projects.

Fellowship Applications

• Expressions of interest are invited from any organisation that wishes to sponsor a person who would be considered or would qualify for this recognition of excellence.

• In the first place, please send a curriculum vitae in full, addressed to the:

  Trust Chairman
  The Lloyd Morgan Lions Clubs Charitable Trust.
  P.O. Box 1335,
  Palmerston North.

• The closing date for expressions of interest accompanied by a CV is 31 January 2005. The Fellowship award will be made in April 2005.

Lions Clubs in New Zealand

The first New Zealand Lions Club was formed in 1955 in Auckland. Now there are around 500 Clubs, and 12,700 members. Worldwide, the International Association of Lions Clubs has a membership of over 1.3 million in 192 countries and geographical areas.

The emphasis is on community service in all forms. Lions programmes serve the young and the aged, the disabled and the disadvantaged - anybody who has a need. Programmes are conducted locally, nationally and internationally. They include sight, conservation and work with the blind, citizenship services, hearing and speech action, programmes with the deaf, drug education, and environment, recreational, health and social services.

Lions' contributions to the development and care of New Zealand youth include living skills programmes, drug awareness, an international youth exchange programme, the national Young Speechmaker Contest and International Peace Poster Competition.

In 2005, Lions Clubs New Zealand will celebrate its 50th anniversary of service in New Zealand.
Sport and Alcohol: Understanding the Mix (Conference)

The Centre for Studies in Sport and Exercise at Massey University are running a conference entitled ‘Sport and Alcohol: Understanding the Mix’ on February 8–10, 2005, in Palmerston North, New Zealand. The Conference is a joint undertaking between Massey staff involved in sport and exercise teaching across the colleges of Business, Science and Education.

The Conference will critically analyse and debate the relationship between New Zealand sport and alcohol especially in relation to:

- Social issues (eg, youth, gender, culture, socialisation)
- Health issues (social marketing, holistic health issues)
- Performance issues (the effects of alcohol on sport performance)
- Business issues (sponsorship, management, marketing, legal issues, event management, media)

Speakers include:

- **Dave Currie** – NZ Olympic team Chef De Mission
- **Professor Wray Vamplew** – Researcher from Stirling University in Scotland
- **Greg Cox** – Australian Institute of Sport
- **Professor David Gerrard** – Scholar and former NZ Olympic team Chef De Mission
- **Andrew Martin** – Former All Black Manager
- **Glenda Hughes** – Sports Agent and former sport manager
- **Professor Gary Hermansson** – NZ Olympic team sport psychologist
- **Andrew Dawson** – Sydney Olympic Stadium Manager
- **Dr Farah Palmer** – Scholar and dual World Cup Winning Captain of Black Ferns
- **Graham Seatter** – Commonwealth Games Athlete/Coach and Lion Nathan Sponsorship Director
- **Norm Hewitt** – Former All Black
- **Doug Rollerson** – Former All Black and North Harbour Rugby CEO
- **Hugh McGahan** – Kiwi Rugby League Great and former administrator
- Representatives from other relevant groups like Alcohol and Liquor Advisory Council (ALAC), the New Zealand Rugby Union (NZRU), and Lion Nathan.
A light-hearted debate between high-profile athletes, sports management personnel and media personalities is being organised for the conference dinner.

**Early Bird (3-day conference registration) Cost:** NZ$570 GST inclusive (before December 15, 2004).

**Full Cost:** NZ$680 GST inclusive (After December 15th, 2004).

**Single Day Registrations:** NZ$300 GST inclusive.

*Group registration discounts will be negotiated depending upon specific details.*

For more general and registration information please check out our website: [http://www.sport-alcohol.co.nz](http://www.sport-alcohol.co.nz)

Proudly sponsored by: ALAC, The Institute of Food Nutrition and Human Health, Massey University Department of Management, Lion Nathan, Kingsgate Hotels and Resorts, Origin Pacific, The New Zealand Rugby Football Union
Please note that applications for the Written Examination 2005 are now available from the Executive Officer, Tania Ireland.

Please email Tania.Ireland@racp.org.nz or telephone her on (04) 460-8127

APPLICATIONS ARE DUE BEFORE 22 NOVEMBER 2004

• If you are re-sitting the examination, an application from will automatically be sent to you.

• Any queries regarding your basic training? Please see your Director of Physician Training (DPT)/Director of Paediatric Physician Training (DPPT) first. If they are unable to answer your query, please contact the Executive Officer.
The Power of Posture


This book sets out to convey easily understood information about posture, and techniques by which to manage or prevent problems arising from poor posture. It is written by an experienced physiotherapist and it includes ample illustrations and photographs to guide readers wanting to work through the exercises. The layout includes pleasant graphic design work in keeping with the sentiments of the book.

The content is coherently organised around various aspects of personal improvement. For the most part, these are physical and postural, although as suggested in the book title, it also extends into psychological aspects such as self-esteem, identity, and self-confidence. The early chapters include promising messages such that posture is an expression of personality and that on completion of exercises, the reader “will feel and look really beautiful anywhere and anytime” (page 51). Other mood altering suggestions include to “smile and wink at everyone you walk past” (page 52).

The book’s greater forte lies in the area of the very detailed and easily understood exercises and information good postural habits. The reader is given appropriately pitched lay-explanations about physiological mechanisms and lifestyle factors involved in poor posture, and a rich selection of remedial and preventative exercises. In general, the writing style is gently encouraging and supportive, placing emphasis on the experiences of women and their unique anatomic issues. Scientific evidence is clearly referred to and briefly explained in layman’s terms without interrupting the flow of the text. For those wanting to read more, a brief reference list is included.

The writer is appropriately cautious in telling readers that the book is not designed to diagnose serious conditions, and that any such concerns should be taken to other medical practitioners. In short, the book is likely to be a very valuable resource for physiotherapists as well as those situated in the self-help market.

Lois Surgenor
Senior Lecturer
Christchurch School of Medicine and Health Sciences
Practical Guide to the Care of the Medical Patient (6th edition)


The author’s forward modestly states this is a “practical, portable resource to get you through your internal medicine clerkship or residency”. Well, is it?

The first section advises on general evaluation of the medical patient, how to write progress notes, prepare a discharge summary, and pronounce death. The next provides exhaustive lists for differential diagnoses. Particular diseases are then explored in detail. At first glance management of asthma seemed cursory. I would have expected a practical guide to include more about drugs, dosages, and routes of administration than “in the Emergency Room: oxygen, inhaled short acting beta agonists, consider anticholinergics (ipratropium), intravenous or oral corticosteroids.” Yes, that’s it. This is followed by nine pages on mechanical ventilation, which seems like overkill. Then the text returns to acute asthma.

Why the duplication? Treatment of non-alcoholic fatty liver disease is “weight reduction in all obese patients (not unreasonable)….500g per week in children, 1600g per week in adults is preferred….”. Well, good luck. I specialise in diabetes and “split dose therapy with regular and NPH insulin…2/3 of the total daily dose administered in the morning and 1/3 in the evening” wouldn’t work for most of my patients, nor would these particular insulins likely be chosen with insulin analogues now on offer. It tries to do too much. A tour-de-force, largely the efforts of one man, it could be so much better if half the size (it might really fit into a pocket) contributed to by a panel of experts who do this stuff for real and then keenly edited. My junior staff agreed. There are some excellent guides to practical management available, one example being from my own hospital, the Christchurch “Blue Book”. Not as exhaustive as Fred Ferri’s book, it certainly is far more practical.

David Cole
Consultant Physician
Department of General Medicine
Christchurch Hospital