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CONTENTS

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This Issue in the Journal

Editorials

Original Articles

Case Report

Case Notes

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100 Years Ago in the NZMJ

Arsenic and cancer

Medical Image

A hairy device

Methuselah

Selected excerpts from Methuselah

Letters

The lost generation
RW Jones

Attention-Deficit/Hyperactivity Disorder
John Lambe

HbA1c standardisation issues: should New Zealand follow the DCCT or the IFCC position?
Chris Florkowski

Obituary

John Bird Lovell-Smith

Book Reviews

ABC of clinical haematology, 2nd edition, Drew Provan (ed)
Peter Ganly

Evidence-based cardiology, 2nd edition, Salim Yusuf, John A Cairns, A John Camm, Ernest L Fallen, Bernard J Gersh (eds)
John Lainchbury

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This Issue in the Journal

The nature and prevalence of psychological problems in New Zealand primary healthcare: a report on Mental Health and General Practice Investigation (MaGPIe)
The MaGPIe Research Group

Mental health problems, among the greatest causes of disability in the general population, are very common among general practice attenders. Contrary to the prevailing view that general practitioners seldom identify psychological problems in their patients, the randomly selected GPs in this study identified about half their patients as having some type of psychological problems in the past year. However, they considered that these problems were moderate or severe in about one in ten patients only.

A health profile of New Zealand youth who attend secondary school
Adolescent Health Research Group

The results of a national survey of nearly 10 000 randomly selected young people who attend secondary school indicate that most New Zealand youth are healthy and well. Approximately 90% of the students reported that they feel healthy and that they have positive relationships with adults in their family or at school. A few (12%) students reported engaging in multiple health risk behaviours. About one half of students reported not seeking healthcare due to a range of barriers.

Quality of life before and after heart, lung and liver transplantation
S Beilby, R Moss-Morris, L Painter

This study was the first to investigate the quality of life of New Zealand heart, lung and liver transplant patients before and after transplant surgery. Results showed that people who had received transplants had significantly better physical and psychological functioning than did patients waiting for a transplant. When compared with the general New Zealand population, transplant recipients were more physically disabled but they reported higher levels of psychological wellbeing. Overall, this study confirms that patients experience a dramatic improvement in quality of life following transplant.

Into the unknown: the anticipation and experience of membership of independent practitioner associations
P Barnett

Large numbers of GPs joined independent practitioner associations (IPAs) during the 1990s. Research found that GPs hoped IPAs would help deal with threats from the 1991 health reforms, but felt that joining might undermine professional autonomy and

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increase bureaucratic control. Their hopes on joining were largely fulfilled and their concerns unrealised, and views on the management and leadership of IPAs were positive. International research suggests that organisational disruption encourages practitioner 'disengagement' from non-clinical activities. Current policy changes in health, therefore, may pose some risks to the effective management of primary care.

Ecstasy use in New Zealand: findings from the 1998 and 2001 National Drug Surveys

C Wilkins, K Bhatta, M Pledger, S Casswell

Seizures of ecstasy have increased dramatically in New Zealand in recent years fuelling speculation about the extent of its use. Findings from two National Drug Surveys, 1998 and 2001, were used to examine changes in its use, availability, harms related to use, and demographic characteristics of users. Ecstasy use had increased, the drug was perceived to be more available, and users reported problems in a range of areas of their lives. Users were predominantly male and aged 20–29, but from a broad range of occupational backgrounds and income-earning capacities.

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Psychiatric illness in primary care: whom should we treat?

Roger Mulder

The paper by the MaGPIe Research Group published in this issue of the Journal is the first systematic survey of the prevalence and types of common mental disorders among patients attending New Zealand GPs. The study's strengths include a high response rate and prospective design. The authors report that one third of patients visiting a GP had experienced a DSM-IV psychiatric disorder (diagnosed using a structured interview; the CIDI) during the previous 12 months. The GPs recognised even higher rates of psychopathology. In their opinion 54% of female and 46% of male patients had some type of psychological problems in the past 12 months.[1]

Are these apparent high rates of psychopathology typical? The most comprehensive survey of psychiatric illness among GP attendees is the WHO study of general practice,[2] which the authors cite. This study reported that 24% of GP attendees have a current mental disorder according to ICD-10 criteria with another 9% having a subthreshold disorder. Other studies have reported even higher rates. Kessler et al, for example, claimed that over half the patients attending GP surgeries are depressed.[3]

How do the rates from GP practice data compare with community rates of psychiatric disorders? Fortunately, the Australian National Mental Health Survey also used the CIDI and has reported 12-month prevalence so its findings are directly comparable. It has reported that the 12-month prevalence rate of affective disorder is 6.6%, anxiety disorder 5.6%, and substance use disorder 7.9%.[4] Like the MaGPIe study, it reports substantial overlap so that the incidence of individuals having any of these disorders is 15.5%, roughly half the rate of those presenting to GPs.

Therefore, the Australian and NZ data suggest that one in seven people meet criteria for a mental disorder over the past 12 months and that one in three people attending a GP similarly meet those criteria. Are all these people actually mentally ill? It has been argued that many subjects are diagnosed as having disorders because of formulaic diagnostic practices enshrined in instruments such as the CIDI. The emphasis on clinical symptoms diagnosed by trained interviewers leads to an overestimation of the true level of psychiatric disorder. The diagnoses were an attempt to achieve some reliability and hence comparability in patient groupings, usually for research purposes. There is, so far, little evidence to establish the validity of the entities defined.[5] Many would argue that diagnostic schemes are more applicable to the 3% of the population seen by psychiatrists than to the much larger proportion considered to have mental health problems by their GP.

Health surveys should inform service delivery. Do these results imply that one third of all GP patients should be undergoing psychiatric clinical intervention? If taken at face value such an effort would overwhelm current primary healthcare resources. No country could afford, even if it had sufficient trained staff, to offer treatment to such a large group of its citizens.

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Some form of triage is necessary. The best method of achieving this is not clear. One argument put forward is to separate 'proper syndromes' from generalised distress.[6] The former can be treated with appropriate medication and cognitive therapy, while the latter requires empathy and non-specific counselling. How this separation is to be achieved is far from obvious. CIDI diagnoses, for example, are claimed to be 'proper syndromes'. An alternative method is to measure level of impairment or disability. The argument here is that while many individuals have symptoms only a minority experience impairment sufficient to justify treatment. One strong predictor of impairment is the presence of more than one psychiatric disorder. Andrews et al, for example, reported that while 20% of those with one psychiatric disorder reported disability, this rose to 64% in the presence of three of more disorders.[4]

Fortunately, the MaGPIe study has the potential to address questions regarding the validity and usefulness of psychiatric diagnoses in general practice. The GPs surveyed already have a triage system in place. Although they consider about half their patients to have some level of psychological problems, they judge this to be moderate or severe in only one in ten patients. How do they make this judgement?

This study can also examine the relationship of the GP assessment to CIDI diagnoses and the level of disability. Are those patients whom GPs identify as moderately to severely ill the same patients who have multiple diagnoses and/or higher levels of impairment? In fact, are the patients whom the GPs identify as having psychological problems the same as those who have psychiatric diagnoses? Perhaps most importantly, as its authors note, the design enables the study of the relationships between recognition of disorder, management and outcome. There has been some rather disquieting evidence suggesting that the recognition and treatment of depression in general practice does not significantly alter one-year outcome.[7] This may not be the case in New Zealand. The MaGPIe study has the potential to answer these important questions and we look forward to future papers from the Group.

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THE NEW ZEALAND MEDICAL JOURNAL
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The health of New Zealand youth

Rob McGee

In this issue of the Journal, the Adolescent Health Research Group headed by Dr Peter Watson publishes the findings of the first national examination of health profiles of youth in Aotearoa New Zealand.[1] Using an innovative survey based upon computer self-interviews, the Group has collected detailed information on health ratings, health-compromising and health-promoting behaviours, and social and environmental protective factors for some 9570 Year 9 to Year 13 students. Rural youth, hitherto a relatively under-studied group, and Maori youth are well represented. The sample looks to be well chosen, ethnically diverse and representative of young New Zealanders.

What are these young people telling us? The good news is that most see their health as good or better. They lead lives supported by adults who care for them. Nine in ten report having at least one parent who cares about them; adults at school care about them; their teachers are generally seen as fair; and their neighbourhoods are viewed as relatively safe, although more so by boys than girls. Prevalences of behaviours such as daily tobacco smoking, weekly use of cannabis and being bullied, while still of consequence, hover around or below 10% of the sample. The bad news is that their mental health is a cause for concern; depressive symptoms were common (one in five girls, one in ten boys), as was violence (one in seven girls, one in four boys). Nearly one third of girls and one sixth of boys thought about killing themselves in the last year; one in ten girls and one in twenty boys tried to do so. Four in ten young New Zealanders binged on alcohol in the last month; over one quarter had been a passenger in a car with a drunk driver. One quarter of boys and one third of girls who were sexually active did not use a condom at last intercourse. About three in ten boys and four in ten girls did not exercise regularly, yet many strived for reduced weight.

Should we believe what they are telling us? It's tempting to think that these figures simply reflect youthful exaggeration, that things can't be that bad. Unfortunately, what adults might think is the case could well be far from the truth. There is evidence that parents often remain blissfully unaware of the kinds of behaviours reported here.[2] A recent survey of young people in Dunedin reports similarly high prevalences of depression, suicidal thoughts and attempts, physical violence, and problematic alcohol use.[3] In the absence of good reasons to do otherwise, the findings need to be taken at face value, implications and all. However, good information on the *severity* for the individual of reported problems would help clarify how much impairment of everyday life these problems represent.

Why are these health-compromising behaviours so prevalent? It is naive to attribute these behaviours to peer pressure, impulsiveness, youthful risk taking or poor self-esteem and think that by addressing these issues we can make lasting changes to the mental health, substance use or sexual behaviour of youth. Social class and disadvantage in all its forms again and again have been shown to affect adolescent health.[4] The strain of family life may well account for the finding that four in every

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ten young people did not feel that they got enough time with at least one parent. Of course this raises the question why our families are under such strain. Further, in our search for explanations we cannot somehow disengage adolescent behaviour and seek causes that lie outside the wider society in which they live. After all, adults market and sell (and in some cases buy) the alcohol and tobacco that young people consume, and it is adults who make the rules regarding their availability. Adults control the media that project the images many young people yearn to copy. Adults control the resources that determine the availability and accessibility of health services and health promotion programmes that might go some of the way to addressing health-compromising behaviours. Richard Eckersley writes convincingly that behind youth depression and suicide lies a general failure of Western societies to provide young people with a sense of meaning or coherence, a sense of relatedness and connectedness to the wider world, and a sense of being valued for themselves rather than as members of some niche market.[5] Should we make much of the finding that spiritual beliefs were very important to only about one third of the sample? The question for the remaining two thirds might be 'What are the beliefs that provide a sense of meaning or coherence to your life?'

The Adolescent Health Research Group has produced a well-focused snapshot of the health of young people in Aotearoa New Zealand. The survey included 523 questions so there are doubtless more analyses to be done to elaborate on the findings reported here. It has taken until 2003 to get such a national picture of young New Zealanders. It can only be hoped that more regular and consistent surveying of youth, perhaps along the lines of the US Youth Behaviour Profile,[6] will provide a developmental picture of how well we are doing when it comes to young people in this country.

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The nature and prevalence of psychological problems in New Zealand primary healthcare: a report on Mental Health and General Practice Investigation (MaGPIe)

The MaGPIe Research Group

Abstract

Aims This paper describes the methods used in a study of the prevalence and types of common mental disorders among patients attending New Zealand general practices, and reports some key findings from the first phase of the study. The study also aimed to determine the degree of associated disability and other factors influencing recognition, management, course and outcome of these disorders, and subsequent papers will address these issues.

Methods General practitioners (GPs) were selected randomly. In the first phase of the study, all adult attenders at each practice on selected days were administered a short questionnaire, the General Health Questionnaire (GHQ-12), which screens for psychological symptoms. The GP recorded the reasons for each consultation, and was interviewed at the end of each day about selected patients to determine their opinion about the type of psychological problems experienced. Selected patients were then visited in their own homes and an extensive interview conducted, which included the Composite International Diagnostic Interview (CIDI) to determine mental health status, the World Health Organization's Disability Assessment Schedule (WHODAS) to determine disability, and a detailed exploration of use of health services. In the second phase of the study, patients were contacted by telephone at three, six, nine and 12 months, and both patients and GPs were re-interviewed at 12 months.

Results The study achieved a very high response rate among the GPs (90%). Nearly all eligible patients (93%) completed the GHQ screening, and their response rate was 70% for the first-phase interview. GPs thought that 54% of female and 46% of male patients had experienced some level of psychological problems in the past year. GHQ screening also found that more than half of those attending their general practitioner experienced some psychological symptoms at initial screening, and the CIDI interview found that more than one in three had a diagnosable mental disorder during the past 12 months. The most common mental disorders were depressive, anxiety and substance use disorders. These disorders were more common among younger than older general practice attenders, and comorbidity was high.

Conclusions Mental health problems are very common among general practice attenders. Contrary to the prevailing view that general practitioners seldom identify psychological problems in their patients, they identified about half their patients as having some type of psychological problems in the past year, although they considered that these were moderate or severe in about only one in ten patients. Further work from this large New Zealand study will focus on the nature of the relationship between disorder and disability, and on the recognition, management and outcome of psychological problems.

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Mental disorders are increasingly recognised as a major public health problem.[1,2] A World Health Organization (WHO) study of the global burden of disease has shown that mental disorders make up five of the ten leading causes of disability.[3] The provision of appropriate and effective mental healthcare is an important and challenging priority for New Zealand, especially in view of some measures of poor performance such as the rate of suicide among young people.[4]

While the general practice and primary care sectors provide an appropriate context for the detection and management of mental disorders, there is relatively little information about rates of presentation to primary care in New Zealand. There is no local research exploring how general practitioners and patients make decisions about diagnosis, management or referral of psychological problems.

In the general population of New Zealand, as in other Western countries,[5] over one quarter of the population have had a diagnosable mental disorder in the last six months. Three quarters of those with a recent mental disorder have attended a health (mainly general practice) service, but only about one third have sought help for their mental health problem from any agency.[6] One quarter of those who received any treatment got it from specialist mental health or addiction services, while GPs delivered three quarters of the treatment for mental disorders.[7]

In general practice, most studies of mental health have found that about one quarter of patients have had a diagnosable mental disorder. The WHO study of general practice attenders, conducted in 15 different centres across 14 countries,[8] found that 24% of general practice attenders had a current mental disorder reaching ICD-10 criteria, and another 9% had a sub-threshold disorder (clinically significant symptoms, but not meeting full criteria for ICD-10). The most common diagnoses were depression, generalised anxiety disorder, neurasthenia, and problems with alcohol.[9] Compared with the high prevalence of disorders in the general population,[10] only a small proportion of patients in New Zealand general practice settings present mental health problems to their doctor as the main reason for their consultation. Four studies have found that between 3.1% and 7.6% of patients had a mental health problem as the main presentation at the consultation.[11–14] The apparently low rate of presentation of common mental disorders to general practitioners may reflect a problem of access to healthcare by those with mental disorders resulting from New Zealand's fee-for-service system for access to general practice and other primary care services.[15]

The overall aims of this study were to describe the prevalence and nature of common mental disorders among patients attending New Zealand general practices, and to determine the degree of associated disability and other factors influencing recognition, management, course and outcome of these disorders. This paper describes the methods used in the study and reports selected key findings about the nature and prevalence of the psychological problems from the first phase of the MaGPIe study.

Methods

Setting and sampling

Participants were 70 randomly selected GPs in the Wellington, Kapiti and Manawatu areas of the North Island, New Zealand. Fifty eligible consecutive adult patients were recruited from the practice of each participating general practitioner.

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Table 1. Instruments used in the MaGPIe study and main domains of assessment procedures

Stage **Instrument (completed by)**	**Domain**
Screening and selecting patients	
Eligibility and consent (all eligible attenders at selected GPs n=3687)	Consent or refusal, age, sex.
General health questionnaire (GHQ-12) (all eligible and consenting respondents n=3414)	Psychological symptoms.
Selection worksheet (all eligible consenting respondents n=3414)	Basis for assignment to GHQ strata.
Sampling general practitioners	
GP personal questionnaire (all participating GPs n=70)	Demographics of general practitioner; duration of practice; perception of barriers to care for patients; opinions on mental healthcare in general; opinions on mental healthcare in own practice.
General practitioner assessment of patient	
Encounter form (all eligible and consenting respondents n=3414)	GP's assessment of: main reason for contact; extent that presenting symptoms are psychological; overall rating of health; severity of physical illness; severity of psychological disorder.
GP patient questionnaire (all respondents selected and consenting to interview n=910)	GP's assessment of: relevance of psychological issues; diagnoses of mental disorders in last 12 months; duration of mental disorders; impact of psychological problems on functioning; treatment delivered/planned for psychological problems; expected outcome.
MaGPIe interview	
The MaGPIe patient interview (910 completed, 2 lost, final n=908)	Patient demographics revised for NZ conditions. CIDI (v2.1) components covering 12-month ICD10 and DSM-IV disorders:*† hypochondriasis, phobias, panic disorder, generalised anxiety disorder, obsessive-compulsive disorder and post-traumatic stress disorder, depression and dysthymia, alcohol and marijuana dependence and abuse disorders, neurasthenia; and (in women under 30 years) anorexia and bulimia nervosa. Psychological health dimensional scale SPHERE-34 (Somatic & Psychological Health Report). Disability measures including WHODAS II (WHO Disability Assessment Schedule); and disability resulting from particular disorders. Patient perceptions of 'barriers to care' and 'attitudes to GP'. Use of health services, including hospital, other health services, and use of psychotropic medications.

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Longitudinal phase follow-up interviews	
Three-month (n=829), six-month, (n=804), nine-month (n=779) and twelve-month (n=753) telephone interviews	All four phone follow-up interviews explicitly covered 'the last three months' and contained an administrative section covering any changes of contact details or general notes. A short-form version of the SPHERE, consisting of nine questions. Recording number and nature of any GP visits, hospitalisations, any other health professional consultations (including alternative practitioners) and any new medications being used. A 'Barriers to Care' section identifying any reasons patient did not talk to their doctor despite having psychological problems. A section covering recent significant life events and the degree of upset caused. The nine-month phone follow-up interview checked that the GP at original contact was the respondent's regular doctor. The twelve-month phone follow-up interview also asked whether any medications were prescribed but not taken or completed.
Final MaGPIe interview (n=696)	Repeated MaGPIe interview, with changes to demographics and health service use to avoid unnecessary duplication of questions, and small improvements to fluency of wording in three sections.
GP final patient questionnaire (n= 676)	Nature and extent of the patient's psychological problems; effectiveness of the GP's management plan, if any, over the previous 12 months; frequency and appropriateness of the patient's consultations; barriers to care for that patient; 'heartsink' question addressing the GP's emotional response to that patient.
GP final personal questionnaire (n=68 participating GPs)	Impact of involvement in MaGPIe study; mental health training; barriers to providing care for mental health issues; interest in mental health issues, and confidence in diagnosis, treatment, and referral.
GP notes search (n=590 'complete' notes)	Date of consultations; reasons for consultations; medications prescribed; other treatment; referrals; investigations, lab tests ordered.

*At the time the study began, the 12-month version of CIDI was not available using the WHO ISHELL programme, so the lifetime version was adapted to assess the presence of the disorder in the last 12 months.

†DSM-IV applies a diagnostic hierarchy, such that if criteria for a 'lower' disorder are met at the same time as a 'higher' disorder, and these symptoms may occur as part of the 'higher' disorder, then the 'lower' disorder is not separately diagnosed. Because less common disorders such as organic mental disorder, schizophrenia, and bipolar disorder were not assessed in the version of the CIDI used in this study, only those hierarchical rules applying within anxiety disorder, depression and substance use could be applied.

Measures

The measures used (Table 1) were based on the World Health Organization's Collaborative Study of Psychological Problems in General Health Care.[8] The main modifications to this model were: the use of a 12-month version of the Composite International Diagnostic Interview (CIDI) version 2.1, with additional components added to determine syndromes common in primary care; the use of the World Health Organization's Disability Assessment Schedule (WHODAS) version II to determine disability;[16] use of the Somatic and Psychological Health Report (SPHERE-34)[17] as a dimensional measure of severity; and adaption of other sections, such as the demographics, general practitioner questionnaire, and encounter form, to fit them to the New Zealand context.

Procedures

Ethical approval

The Wellington and Manawatu-Whanganui Ethics Committees approved the methods and procedures used in the study.

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Recruitment of general practitioners

GPs were selected at random from a list of all 299 known eligible general practitioners in a geographical area encompassing the administrative health districts around and between Wellington City and Palmerston North. Proportionality of selections from Wellington City, Palmerston North and small town/rural regions was maintained. Seventy GPs were recruited, 15 in Palmerston North, 16 in the small town/rural group, and 39 in Wellington City. GPs were eligible if they were currently practising a minimum of 0.5 full time equivalent per week, working in the geographical area for which they were selected, and working without restriction (eg, due to ill-health or compulsory supervision). After initial telephone contact, the Project Manager visited each practitioner to seek written consent to proceed, and arranged for data collection by the field interviewers to begin. GP participation in the study attracted a reimbursement of $1000, $800 payable after the initial data collection phase and a further $200 after the 12-month follow-up phase. Involvement in the study qualified doctors for at least 10 Maintenance of Professional Standards (MOPS) points and up to 30 MOPS points if they used the study as a self-audit activity.

Characteristics of general practitioners

Participating GPs completed a questionnaire outlining their own demographic details, background, and experience with mental health issues.

Phase 1a: recruitment of patients/index consultation

The aim was to screen 50 eligible patients per participating GP using the GHQ-12 as a screening instrument. Usually this took two to three working days, but was continued for a maximum of ten days. There were four practices with fewer than 50 persons screened after ten days.

Patients were eligible for screening if they were 18 years old or over, read English well enough to understand and complete the GHQ-12 screening instrument, and were about to consult with the index GP (ie, not just accompanying someone else, seeing the nurse or seeing a different GP). During the appointed surgery days, the field interviewer approached consecutive patients until 50 eligible patients had been recruited. Reception staff assisted in this procedure. A record was kept of reasons for ineligibility or refusal.

Patients were primarily selected for interview and follow up by GHQ-12 score. Each field interviewer was supplied with a numbered sequence of 50 GHQ-12 forms per GP. The interviewer would introduce themself to the patient, briefly explain the study and ask if they would fill out the GHQ. On completion, the interviewer would score it and determine if the patient was selected for follow up by comparing the patient's score to a cut-off value pre-printed on the form headers in order to yield the following sampling strata: 100% of those with high GHQ scores of 5 or more were selected; those with medium scores (2–4) had a 30% probability of selection; while those with low scores (0–1) had an 8% probability of selection. If selected, a follow-up appointment time was made immediately, or by phone as soon as possible.

An Encounter Form was completed by the GP for every patient aged 18 or over who was seen that day. The Encounter Form included an assessment of psychological health. In addition to those selected by GHQ screening as described above, a random 50% of those *not* selected by GHQ but whom the GP had identified on the Encounter Form as having psychological problems, were also selected. Patients selected for follow up by this method were then contacted by telephone to arrange an interview.

For each patient who was selected for follow up and consented to participate, the GP was also asked to complete a more detailed questionnaire covering their care and treatment over the previous 12 months.

Phase 1b: first MaGPIe patient interview

Responses to the structured patient interview were entered by the interviewer directly into a laptop computer using the World Health Organization's ISHELL software. The interview was usually carried out in the patient's home, but occasionally at another site selected by the patient. Before beginning the interview, the interviewer gave detailed verbal and written information about the study and gained written consent from the participant.

Phase 2: longitudinal phase of the MaGPIe study

Follow-up telephone interviews with patients were conducted every three months and a second face-to-face interview was conducted at 12 months. The GP was also re-interviewed at 12 months, and GP notes for each selected patient audited to determine diagnosis, management and referral.

Statistical methods

All statistical analyses were carried out using Statistical Analysis Software (SAS) version 8.2. Data were weighted to adjust for differences in probability of being sampled using the method of Kish.[18] Weighted prevalences were derived using the SAS procedure 'surveymeans', which adjusted standard errors for the effects of clustering within GPs.

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Results

Response rates

General practitioner response rates

Of the 78 eligible GPs approached, 70 (90%) agreed to participate.

Patient response rates

GHQ screening questionnaires were completed by 3414 of 3687 eligible general practice attenders (93%). Of the 1334 selected for interview, 357 refused further contact, 27 became ineligible for the more demanding interview (because of limited language skills or worsening illness), 37 were not traceable, and 3 were lost through operational error, yielding 910 interviews. This represented a response rate of 70% for completion of the initial MaGPIe interview. Two interviews were lost after completion, leaving 908. During the year of follow up, a further 62 respondents became ineligible, with 696 completing the final interview – 82% of those undertaking the first interview.

Characteristics of general practitioners

Fifty six of the randomly selected GPs were male (80%), and their mean age was 48.1 years (SD 8.9). Nearly two thirds identified themselves as New Zealand European/Pakeha (64.3%), one was Maori (1.4%), 18.6% were from Europe, and the remainder mainly from India or China, with a smaller number from other parts of Asia or South Africa. Most had trained in New Zealand (73%), with smaller numbers training in UK and Eire (12%), South Africa (9%), or Asia (5%).

Mean length of time practising as a GP was 17.5 years (SD 9.0, range 1–43 years). Forty three GPs (62%) were Fellows of the Royal New Zealand College of General Practitioners, 29% were Associate Members, and 9% did not belong to the College.

One third of the GPs (33%) had worked in posts in mental health services, most commonly as house officers for periods of less than a year. In the previous two years, 20 GPs (29%) had undertaken a training course in mental health, most commonly as part of a programme organised by their independent practitioners association. Just over half the GPs (54%) had no specific education or training about mental health since their undergraduate degree.

Table 2. Age and gender of patients attending New Zealand general practices

Gender	Age group	Overall (n=3414)	
		%	SE*
Male	**Overall 18+**	**38.9**	1.6
	18–24	3.0	0.5
	25–44	11.7	0.8
	45–64	13.5	0.8
	65+	10.6	1.0
Female	**Overall 18+**	**61.1**	1.6
	18–24	6.8	0.9
	25–44	23.6	1.9
	45–64	17.1	0.9
	65+	13.6	1.1

*****SE adjusted for clustering within GPs

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Characteristics of patients

Demographic characteristics

Almost two thirds of the general practice attenders were women, and the age distribution is shown in Table 2. Sociodemographic characteristics of the participating patients are shown in Table 3. Six people out of ten lived with a partner, and two thirds had one or more children. Eight out of ten had some school or post-school educational qualification and half were in paid employment. Seven per cent were unemployed for health reasons and four out of ten had a community services card.

Table 3. Demographic characteristics of general practice attenders by gender

	Overall n=908		Male n=313		Female n=595	
	%*	SE†	%*	SE†	%*	SE†
Marital status						
Living with a partner	59.2	2.8	62.1	4.7	57.5	3.5
Not living with a partner	40.8	2.8	37.9	4.7	42.5	3.5
Educational qualifications						
No qualification	19.7	2.3	19.6	3.9	19.9	2.5
School qualification only	22.4	2.6	16.9	3.8	25.6	3.2
Any post-school qualification	57.8	2.8	63.6	4.4	54.5	3.4
Number of children						
No children	34.4‡	3.3	34.2§	4.8	34.5	4.1
One child	11.1‡	1.6	9.5§	2.4	12.0	2.0
Two children	23.9‡	2.5	26.9§	4.1	22.1	3.2
Three children	16.3‡	2.4	17.0§	3.7	15.9	2.7
Four or more children	14.3‡	2.4	12.4§	3.1	15.5	2.8
Employment status						
Salary/self employed < 30hrs	8.9	1.4	3.6	1.3	12.0	2.0
Salary/self employed >= 30hrs	41.3	3.3	56.0	4.9	32.7	3.8
Home-maker/voluntary unpaid	12.9	1.9	0.8	0.4	20.0	2.8
Student	4.4	2.2	1.0	0.4	6.4	3.2
Retired	21.7	2.7	23.8	3.7	20.6	3.1
Unemployed for health reasons	7.1	1.2	9.6	2.1	5.7	1.4
Unemployed	3.1	0.9	5.0	2.1	2.1	0.6
Other	0.3	0.2	0.2	0.2	0.4	0.2
Other						
Usually speak English at home	98.7	0.6	99.1	0.4	98.5	0.8
Community services card	40.8	3.0	32.2	4.3	45.8	3.6
High user card	10.3	1.9	11.1	3.0	9.8	2.2
Access to car	86.1	1.9	94.3	2.0	81.3	2.8
Access to telephone	98.5	0.6	98.2	0.6	98.7	0.8

*estimated for the population by weighting the sample according to probability of selection; †SE adjusted for clustering within general practitioners; ‡n= 907 because of missing data; §n=312 because of missing data

Psychological health status

Figure 1 shows that half of general practice attenders currently experienced psychological symptoms, and about one in five had GHQ scores of 5 or greater.

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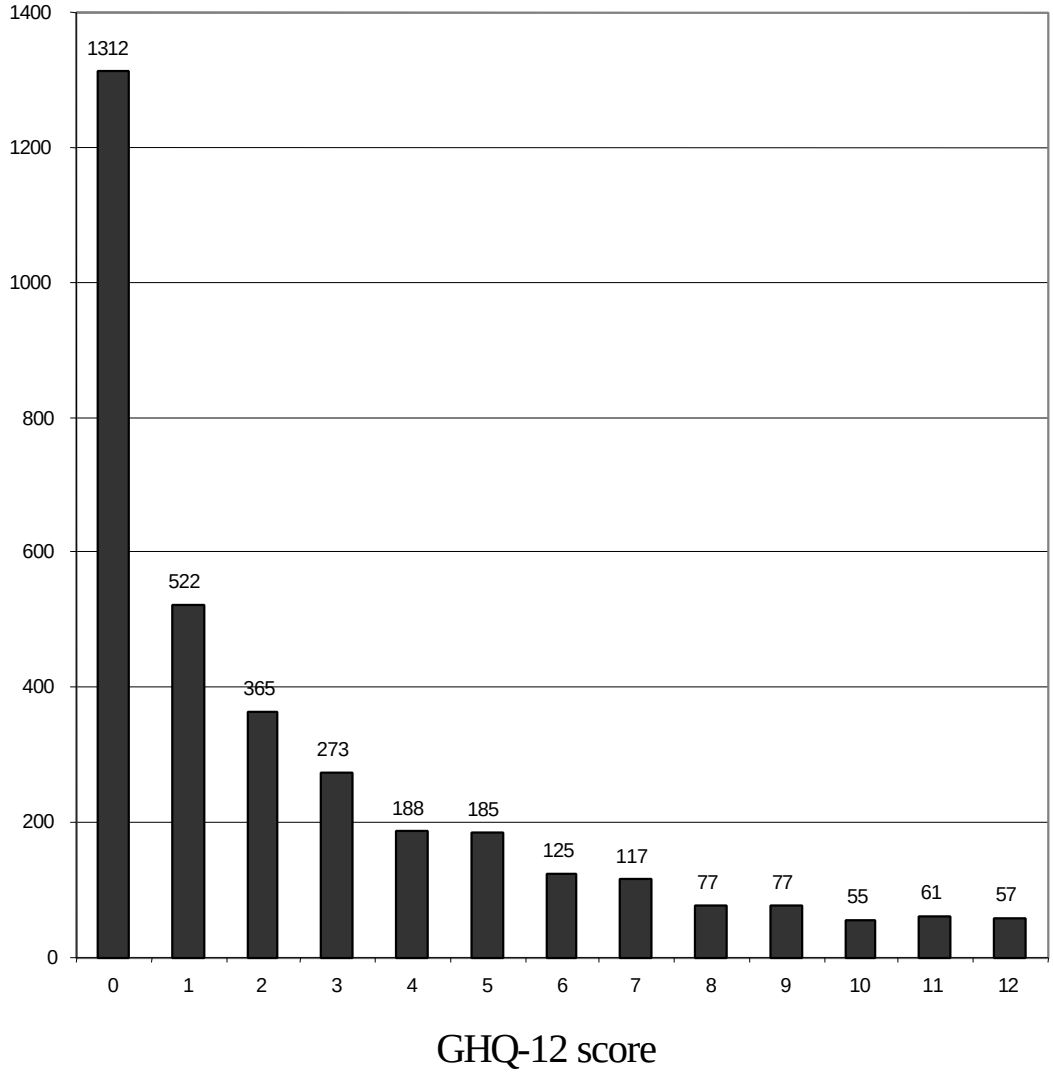
Figure 1. Distribution of GHQ-12 scores for the first-stage sample



Frequency of consultations

One third of male and 42% of female patients had five or more consultations in the year preceding the index consultation. These proportions increased with the age of the patient: among patients aged 65 or over, half the men and nearly two thirds of the women had attended five or more times (Table 4).

General practitioner assessment of severity of psychological disorder

GPs recognised that about half their patients had experienced psychological problems in the past year, although they considered that these were moderate or severe in about only one in ten of their patients. GPs reported that another one in ten patients had a mild psychological disorder and, furthermore, more than one quarter of all age groups

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were thought to have psychological distress but at a 'sub-clinical' level of severity (Table 5).

Table 4. Number of general practice consultations in last 12 months

Gender	Age group	Overall		18–24		25–44		45–64	
		%*	SE†	%*	SE†	%*	SE†	%*	SE†
Male	**Frequency‡**	**n=1320**		**n=104**		**n=400**		**n=456**	
	None	14.2	1.3	26.9	5.0	25.3	2.6	11.2	1.7
	1 or 2 times	21.2	1.5	38.5	5.3	28.3	2.8	20.4	2.1
	3 or 4 times	30.7	1.7	22.1	3.1	25.3	2.6	34.0	2.8
	5 or more times	33.9	2.1	12.5	3.1	21.3	2.4	34.4	2.7
Female	**Frequency‡**	**n=2053**		**n=229**		**n=789**		**n=577**	
	None	10.2	1.0	21.0	3.3	12.4	1.4	8.8	1.5
	1 or 2 times	19.8	1.2	26.2	2.6	22.4	1.7	21.8	2.0
	3 or 4 times	28.1	1.4	25.3	3.8	30.9	2.2	27.6	1.9
	5 or more times	41.9	2.2	27.5	3.9	34.2	2.8	41.8	2.8

*percentages are unweighted rates based on n=3414 pre-selection sample minus 41 with incomplete data; †SE adjusted for clustering within GPs; ‡frequency of consultations

Table 5. General practitioner opinion about severity of psychological disorder in last 12 months among general practice attenders

Gender	Age group	Overall		18–24		25–44		45–64		65+	
		%*	SE†	%*	SE†	%*	SE†	%*	SE†	%*	SE†
Male	**Severity‡**	**n=1312**		**n=101**		**n=398**		**n=453**		**n=360**	
	None	54.4	2.9	62.4	5.0	56.8	3.6	51.7	3.7	53.1	3.9
	Sub-clinical	26.5	2.0	22.8	3.7	23.1	2.9	28.0	2.7	29.4	3.2
	Mild	9.0	1.1	[5.0]	2.7	10.3	2.0	9.1	1.7	8.6	1.9
	Moderate	8.2	1.1	8.9	3.3	7.3	1.2	8.8	1.7	8.1	1.7
	Severe	1.9	0.4	[1.0]	1.0	2.5	0.8	2.4	0.7	[0.8]	0.5
Female	**Severity‡**	**n=2048**		**n=225**		**n=787**		**n=574**		**n=462**	
	None	45.8	2.5	60.0	3.9	49.8	2.7	39.7	3.0	39.4	3.9
	Sub-clinical	29.8	1.7	23.1	2.8	26.2	1.9	33.3	2.3	34.8	3.1
	Mild	13.1	1.2	9.8	3.0	12.5	1.3	12.9	1.8	16.0	2.0
	Moderate	9.4	1.0	5.8	1.4	9.4	1.3	11.1	1.3	8.9	2.3
	Severe	2.0	0.4	[1.3]	1.0	2.2	0.7	3.0	1.0	[0.9]	0.5

*percentages are unweighted rates based on n=3414 pre-selection sample minus 54 with incomplete data; †SE adjusted for clustering within general practitioners; ‡severity of psychological disorder
NB: percentages in [ ] should be interpreted with caution as standard error is high (mean +/- (SE * 1.96) <0 or >100)

CIDI-DSM-IV disorder overall

Over one third of patients had experienced a DSM-IV diagnosable disorder in the 12 months prior to the consultation. One in five had experienced an anxiety disorder, nearly one in five a depressive disorder, and more than one in ten a substance use disorder (Table 6).

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Table 6. Twelve-month overall prevalence of mental disorder among general practice attenders

Disorder*	Overall		
	n†	%‡	SE§
Any substance use/dependence	905	11.3	1.7
Any depressive disorder	907	18.1	1.9
Any anxiety disorder	907	20.7	2.2
Any DSM-IV disorder	908	35.7	2.8

*DSM-IV disorder assessed by CIDI v2.1; †n varies from 910 interviewed because of incomplete data; ‡rates of disorder are estimated for the population by weighting the sample according to probability of selection; §SE adjusted for clustering within GPs

Specific CIDI-DSM-IV disorders by gender

Substance use disorders were twice as common among males as females (16.6% vs 8.2% in the last year); anxiety disorders twice as common among females as males (25.7% vs 12.2%), and depression also much more common in females than males (21.6% vs 12.1%). Among both male and female GP attenders, over half of those under the age of 44 had one or more mental disorders. Those over the age of 65 had the lowest rates of disorder of any age group (Table 7).

Table 7. Twelve-month prevalence of groups of mental disorder among general practice attenders by age and gender

Gender	Age group	Overall		18–24		25–44		45–64		65+	
	Disorder*	%†	SE‡	%†	SE‡	%†	SE‡	%†	SE‡	%†	SE‡
Male		n=313		n=16		n=114		n=122		n=60	
	Any substance use/dependence	16.6§	3.3	40.3	19.2	25.3§	6.9	16.5	5.1	[0.9]	1.0
	Any depressive disorder	12.1§	2.0	[22.6]	12.9	22.0§	4.8	8.6	2.3	[2.1]	1.4
	Any anxiety disorder	12.2§	2.2	[19.4]	11.1	19.9§	5.1	9.3	2.4	4.9	2.1
	Any DSM-IV disorder	31.5	3.9	50.0	22.3	50.4	6.3	28.0	5.8	7.6	2.6
Female		n=595		n=62		n=253		n=165		n=114	
	Any substance use/dependence	8.2¦	1.9	18.9	4.7		3.8	16.0§	0.3	0.0	0.0
	Any depressive disorder	21.6	2.8	33.9	9.6	27.6	4.5	23.1	5.0	4.8	1.6
	Any anxiety disorder	25.7	2.7	26.6	7.4	34.6	4.9	27.5	5.1	7.8	2.8
	Any DSM-IV disorder	38.2	3.4	58.0	7.8	49.4	5.1	37.3	6.0	12.1	3.3

*DSM-IV disorder assessed by CIDI v2.1; †rates of disorder are estimated for the population by weighting the sample according to probability of selection; ‡SE adjusted for clustering within GPs; §n=(n-1), and ¦ n=(n-2) because of incomplete data

NB: prevalence figures in [ ] should be interpreted with caution as standard error is high (mean +/- (SE * 1.96) <0 or >100)

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Most substance use disorders were related to alcohol consumption, with disorders related to cannabis much less frequently encountered. The majority of the depression was represented by a single episode of moderate or severe intensity. Phobic anxiety disorders were extremely common in women and the prevalence of generalised anxiety disorder was also high (Table 8).

Table 8. Twelve-month prevalence of specific mental disorders among New Zealand general practice attenders by gender

Disorder*	Overall		Male		Female	
	%[†]	SE[‡]	%[†]	SE[‡]	%[†]	SE[‡]
	n=908		n=313		n=595	
Alcohol abuse without dependence	3.5[§]	1.0	7.0	2.6	[1.4][¶]	0.8
Alcohol dependence without abuse	2.8[§]	0.8	2.1	0.7	3.2[¶]	1.1
Alcohol dependence and abuse	4.1[§]	1.0	5.9	1.9	3.0[¶]	1.1
Cannabis abuse without dependence	0.8**	0.2	1.2[¶]	0.5	0.6[¶]	0.3
Cannabis dependence without abuse	[0.3]**	0.2	[0.4][¶]	0.4	[0.2][¶]	0.2
Cannabis dependence and abuse	0.5**	0.2	0.8[¶]	0.3	[0.3][¶]	0.2
Any substance use/dependence	11.3[§]	1.7	16.6	3.3	8.2[¶]	1.9
Depression single episode mild	6.2[§]	1.2	3.6[¶]	0.8	7.6	1.9
Depression single episode moderate	5.8[§]	1.3	5.0[¶]	1.7	6.2	1.8
Depression single episode severe	3.8[¶]	1.0	2.7[¶]	0.7	4.4	1.4
Depression recurrent mild	0.6[¶]	0.1	0.0[¶]	0.0	0.9	0.2
Depression recurrent moderate	0.8[§]	0.2	[0.2][¶]	0.1	1.1	0.4
Depression recurrent severe	0.6[¶]	0.2	[0.2][¶]	0.1	0.8	0.3
Dysthymia	0.8[§]	0.3	0.4	0.2	1.1[¶]	0.4
Any depression mild	6.7[¶]	1.2	3.6[¶]	0.8	8.5	1.9
Any depression moderate	6.6[§]	1.3	5.2[¶]	1.7	7.3	1.8
Any depression severe	4.4[¶]	1.0	2.9[¶]	0.7	5.2	1.4
Any depressive disorder	18.1	1.9	12.1	2.0	21.6	2.8
Hypochondria	1.8	0.6	1.0	0.5	2.3	0.8
Phobia – social	3.7	1.2	2.2	0.7	4.5	1.8
Phobia – animal	3.6	1.1	[0.9]	0.5	5.2	1.7
Phobia – blood	3.2	0.8	1.7	0.6	4.1	1.1
Phobia – natural phenomena	3.9	0.8	1.6	0.6	5.2	1.2
Phobia – situational	2.4	0.7	1.0	0.5	3.2	1.0
Agoraphobia without panic	[0.2]	0.1	0.0	0.0	[0.3]	0.2
Any phobia	13.0	2.0	5.2	1.1	17.5	2.8
Panic with agoraphobia	[0.2]	0.1	0.0	0.0	[0.3]	0.2
Generalised anxiety disorder	6.6[§]	1.1	4.1	0.9	8.0[¶]	1.5
Obsessive compulsive disorder	2.9**	0.9	[2.1][¶]	1.4	3.4[¶]	1.1
Post-traumatic stress disorder	3.4[††]	0.9	2.1[††]	0.6	4.2[††]	1.3
Panic without agoraphobia	2.0	0.7	[2.3]	1.3	1.8	0.5
Any anxiety disorder	20.7	2.2	12.2	2.2	25.7	2.7
Bulimia[††]	[1.9][††]	1.0			[1.9]	1.0
Any DSM-IV disorder	35.7	2.8	31.5	3.9	38.2	3.4

*disorders determined using DSM-IV criteria by CIDI v2.1; [†]rates of disorder are estimated for the population by weighting the sample according to probability of selection; [‡]SE adjusted for clustering within GPs; [§]n=(n-3), [ ] n=(n-1), [¶]n=(n-2), **n=(n-4) because of missing or incomplete data; [††]bulimia assessed only among 131 women aged 18–30 years; PTSD in 573 women, 306 men, n=879 overall
NB: prevalence figures in [ ] should be interpreted with caution as standard error is high (mean +/- (SE * 1.96) <0 or >100)

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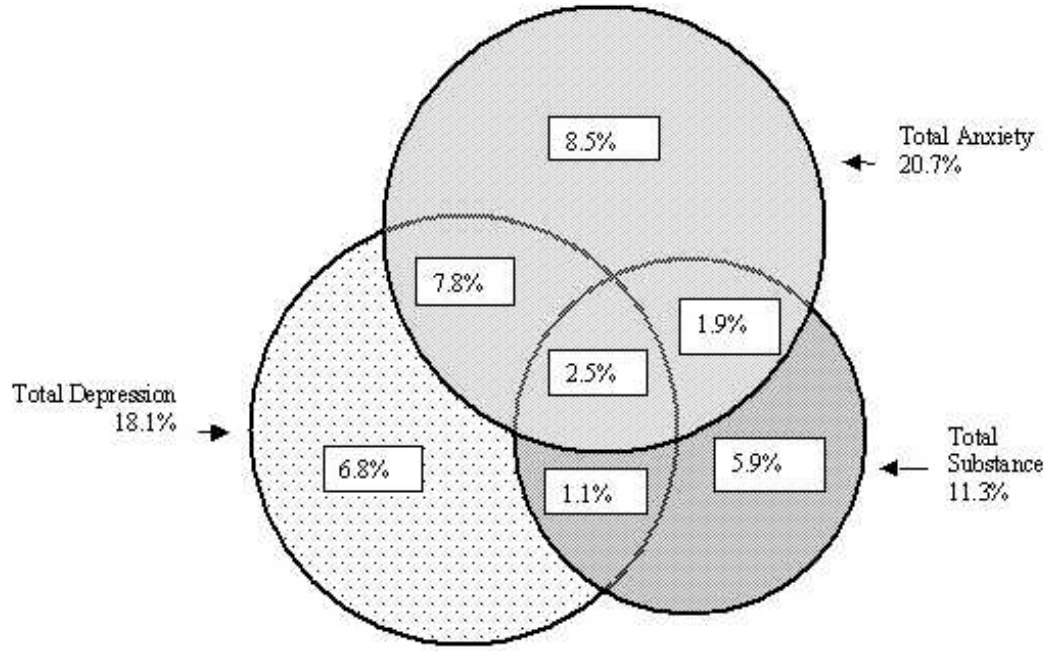
Comorbidity of CIDI-DSM-IV disorder

There was considerable overlap of DSM-IV disorders. More people with anxiety disorders had a comorbid depression than had an anxiety disorder alone. Similarly, depression without anxiety was less common than depression with a diagnosable anxiety disorder. Substance use with either depression or anxiety disorder was as common as substance use alone (Figure 2).

Figure 2. Comorbidity of anxiety, depression and substance use disorders in the last 12 months among New Zealand general practice attenders



NB: percentages are estimates of proportion of general practice attenders with these characteristics, weighted for probability of selection. Disorders were determined by CIDI v 2.1 using DSM-IV criteria

Discussion

The response rate from the randomly selected GPs is higher than achieved in comparable research, and provides some assurance of the representativeness of the practices sampled. However, some aspects of the setting for this study may limit its use to make generalisations: it includes the more affluent areas of Wellington City, and the study has a greater proportion of New Zealand educated doctors than found elsewhere in the country. The acceptable response rate from patients suggests data from this study provide a reasonably representative picture of psychological morbidity in New Zealand general practice.

More than one third of people attending their GP had a diagnosable mental disorder during the previous 12 months. The most common disorders identified by accepted and well-validated psychological instruments were anxiety disorders, depression, and substance use disorders. There was high comorbidity of these three groups of

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disorder, with the experience of mixed pictures as common as disorders occurring alone.

Many of the patterns of disorder varied with age and gender. The high prevalence of mental disorder in both males and females under the age of 44 years highlights the difficulty facing the GP who has most frequent contact with those with the lowest rates of disorder and less frequent contact with the age groups with highest rates of disorder.

Strategies to improve treatment of mental disorders in primary care should include an appropriate consideration of not just GP behaviour but a wider consideration of the patient, the doctor and the health system.[19] Relatively high direct costs to the patient may be a barrier to consultation about symptoms of mental disorder, especially when those symptoms may not be identified by patient or doctor as requiring medical attention. Time pressure on GPs within consultations may limit the scope for the lengthier assessments required for mental health issues. However, this paper challenges some accepted views about low rates of identification of mental disorders in primary care.[20–24] In fact, GPs thought that about half their patients had some type of psychological problems in the past year, although they considered that these were moderate or severe in about only one in ten of their patients. We anticipate that further analysis of MaGPIe study data will provide important information about relationships between the nature and severity of disorder and disability, and between recognition of disorder, management and outcome. This will provide a sound basis for discussions of future service developments in a wider context, considering the patient, the doctor and the health system as a whole, rather than individual, unrelated elements.

Author information: The MaGPIe (Mental Health and General Practice Investigation) research group at Wellington School of Medicine, University of Otago consists of a management committee and an advisory committee. The management committee, which undertook day-to-day oversight and management of this study, consisted of John Bushnell, Deborah McLeod, Anthony Dowell, Clare Salmond, Stella Ramage and Rowena Cave. The advisory committee consisted of Sunny Collings, Pete Ellis, Marjan Kljakovic and Lynn McBain. Members of both committees were involved in the detailed planning of the study and have reviewed this paper. John Bushnell drafted and revised the paper and is the corresponding author. Two former members of the research group Karin Friedli and George Salmond were involved with early planning for the study but not its execution.

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A health profile of New Zealand youth who attend secondary school

Adolescent Health Research Group

Abstract

Aim To determine the prevalence of selected health behaviours and protective factors in a representative population of New Zealand youth who attend secondary school.

Methods The study sample comprised 12 934 Year 9 to 13 youth from 133 randomly selected secondary schools across New Zealand in 2001. A cross-sectional, anonymous, self-report survey was conducted, incorporating 523 questions in a multimedia computer assisted self-interview (M-CASI) format.

Results The school response rate was 85.7% and the student response rate was 75.0%, resulting in an overall response rate of 64.3%. The final dataset comprised 9570 students (males 46.2%, females 53.8%) belonging to diverse ethnic groups (Maori 24.7%, NZ European 55.3%, Pacific 8.2%, and Asian 7.2%). Most students (males 94.2%, females 90.3%) rate their health as good or better, and 90% report the presence of a caring adult in their family or at school. More than one quarter of students (males 27.2%, females 27.6%) report riding in a car driven by a potentially intoxicated driver within the last four weeks. Students report high levels of suicidal thoughts (males 16.9%, females 29.2%), suicide attempts (males 4.7%, females 10.6%), and depressive symptoms (males 8.9%, females 18.3%).

Conclusions This survey finds that most school students are healthy, but there are areas of serious concern including driving behaviours and mental health. Students report a high prevalence of positive connections with family and school; these connections are known sources of resiliency in the lives of young people. Findings of the current study support the implementation of the New Zealand Government's newly released youth policies: the Youth Development Strategy Aotearoa and the Youth Health Action Plan.

The health of our youth to a large part determines the health of our society. In 2001, youth aged 12 to 24 years constituted 18% of New Zealand's total population.[1] Much of New Zealand's current preventable morbidity and mortality can be attributed to behaviours that are initiated during adolescence, for example substance use, sexual behaviours, eating and exercise.[2]

Until recently, New Zealand youth have been overlooked in terms of national policy, age-specific health services, and nationally representative population-based databases. This is despite New Zealand's current generation of youth having rates of unintended pregnancy, suicide and self-harm that are among the highest in the Western World.[3,4] In 1990, the Scientific and Technical Advisory Group to the World Health Organisation identified, as a top priority, the urgent need for comprehensive population-based studies of adolescent health problems, concerns, risk behaviours and resiliency.[7] This is particularly pertinent for sensitive personal health areas, such as

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sexuality, in which New Zealand research to date has tended to study small, non-representative samples. There is a specific paucity of information on the health and wellbeing of Maori and Pacific youth.

There is likewise a comparative lack of representative population research into the protective and resiliency factors in the lives of youth that promote health and wellbeing. While there exists a considerable amount of knowledge on the presence and impact of risk factors on the health of youth, there has been a shift in focus to examine protective factors and sources of resilience in the lives of adolescents.[6–8] The concept of resilience offers insight into possible effective interventions and programme development.

This study aims to determine the prevalence of selected health risk behaviours, protective factors, health status, and service utilisation indicators in a representative population of New Zealand youth who attend secondary school. This paper presents a contemporary health profile of New Zealand's youth population that informs policymakers, educators, health providers and communities working to improve the health and wellbeing of youth.

Methods

Participants and setting The sampling frame for the survey consisted of all 389 New Zealand schools with greater than 50 students enrolled in Years 9 to 13 (ages 12 to 18 years). From this group, 133 schools were randomly selected and invited to participate in the data collection between March and October 2001. At each school, the study administrators, in collaboration with school staff, generated a random list of 30% of all eligible Year 9 to Year 13 students. The first 15% of students on this list were identified as the selected students, the second 15% were identified as the reserve list. The selected students were all invited to participate. On the day of the survey, if selected students did not arrive at the school study venue students on the reserve list were then invited to participate. Students were ineligible to participate if they were not New Zealand residents, if they had insufficient English language skills to participate, or a disability preventing them from using a standard laptop computer.

Questionnaire The development and piloting of the survey questionnaire has been previously reported elsewhere.[9] In brief, the questionnaire was developed following consultation on youth health information needs with key stakeholders and end users, including health providers, youth health researchers, government agencies, schools, youth, and Maori and Pacific community leaders. An innovative survey tool using multimedia computer assisted self-interviewing (M-CASI) was developed to administer the questionnaire. The pilot study demonstrated that students found a questionnaire using M-CASI acceptable and enjoyable. Results from the pilot study provided suggestions that led to refinements of the questionnaire and its administration. The final M-CASI questionnaire used in this survey had a bank of 523 questions. The Reynolds Adolescent Depression Scale[10] (RADS), which measures depressive symptoms, was incorporated into the final survey.

Data collection protocol Approval for this study was obtained from the University of Auckland Human Subjects Ethics Committee. Information about the survey was sent out to all families of students who were invited to participate in the survey. Parents were able to withdraw their child from the study. Written informed consent was obtained from all participating schools and all participating students. The M-CASI delivered questionnaire was administered using laptop computers. Questionnaire responses were automatically coded and stored on the computer hard disk. The data files were transferred via a floppy disk and collated for analysis.

Analysis Students were recruited using a clustered sample design with unequal probabilities of selection. In all analyses, the data have been weighted and the variance of estimates adjusted to allow for correlated data from the same school. Chi-square tests were used to test for differences in proportions between males and females. Prevalences and their 95% confidence intervals are presented adjusted for the sampling design. All analyses have been conducted using either SAS version 8.2,[11] or SUDAAN version 7.5.[12]

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Results

A total of 9699 students from 114 schools participated in the survey. The school response rate was 85.7% (114/133), and the student response rate was 75.0% (9699/12 934), resulting in an overall response rate of 64.3%. Participating students accounted for 4.0% of the total 2001 New Zealand secondary school roll.

Participating schools were geographically spread across the country from New Zealand's most northerly to most southerly town. Of participating schools, 70.2% (80/114) were state funded, 23.7% (27/114) state integrated (previously private, now receiving state funding to deliver New Zealand Curriculum), and 6.1% (7/114) private. Almost one third of schools (32.5%) were situated in a rural setting. Of the non-participating schools, 78.9% (15/19) were from New Zealand's three largest urban centres, and 52.6% (10/19) were private or state integrated secondary schools.

The 3235 students who did not participate included students from both selected and reserve student lists. No reason for non-participation could be identified for most students. Students who were invited to participate but were reported as being absent due to sickness on the day of the survey accounted for 28.1% (908/3235) of all non-participating students. A small number of non-participating students (2.5%, 81/3235) were known to have actively declined to participate. A small number of data files (1.3%, 129/9699) were unusable due to technical computer problems, resulting in a final study database of 9570 files available for analysis.

Demographics The age and gender distributions of students who participated in the survey were similar to those of the student population at the surveyed schools and of all secondary students nationwide (Table 1). Fewer than expected students aged 17 and above participated. This was partly due to the inclusion of three schools whose year 13 students were unavailable to participate due to other commitments. The survey sample had a higher proportion of female students than the national population due to the fact that the surveyed schools had higher percentages of female students than the national population.

Table 1. Age and gender of survey participants

	2001 NZ school population Number (%)	**Surveyed schools population** Number (%)	**Survey sample** Number (%)
Age (years)			
13	48 377 (20.2)	13 533 (20.7)	1972 (20.8)
14	54 312 (22.7)	15 146 (23.1)	2285 (24.1)
15	51 430 (21.5)	14 570 (22.2)	2179 (23.0)
16	43 000 (18.0)	11 765 (18.0)	1725 (18.2)
$\geq$ 17	42 378 (17.6)	10 487 (16.0)	1308 (13.9)
Gender			
Male	129 989 (50.3)	30 312 (46.0)	4416 (46.2)
Female	128 507 (49.7)	35 538 (54.0)	5153 (53.8)

Table 2 shows the diverse ethnic distribution of the study population and compares it with the 2001 New Zealand school roll and the 2001 New Zealand Census. Each of these datasets uses different methods for defining ethnicity. The use of the 1996 New Zealand Census ethnicity question in this questionnaire may have resulted in an

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apparent over-classification of Maori.[13,14] Of note, almost one third (32.5%) of students identified with more than one ethnicity.

Table 2. Ethnic diversity of survey participants

Ethnic group	2001 national school population (%)	2001 Census 12–18 years (%)	Survey sample (%)
Maori	17.5	20.0	24.7
Pacific	7.2	7.0	8.2
Asian	6.8	8.0	7.2
NZ European	67.1	61.0	55.3
Other/unspecified	1.4	4.0	4.6

Health status and service utilisation The majority of students rated their health as good, very good or excellent (males 94.2%, females 90.3%). Approximately two thirds of students (males 67.9%, females 63.9%) stated they did not have a long-term (greater than six months) health condition. Asthma was the most common chronic health condition, being reported by 20.3% of all students.

A family doctor was identified by 83.4% of the students as the one person they usually approach for healthcare. When asked to select the barriers they faced in obtaining healthcare, 54.1% of male students and 49.7% of female students reported no barriers. Among those barriers identified in accessing healthcare, the most common were: not wanting to make a fuss (27.7%); could not be bothered (23.8%); cost (15.0%); not feeling comfortable with the health provider (14.9%); too scared (14.9%); and worries that the consultation would not be kept private (13.2%).

Table 3. Prevalence of selected protective factors in survey participants

	Male Adjusted percent 95% CI	**Female** Adjusted percent 95% CI	**p value**
Family			
Get enough time with at least one parent	62.9 (60.9, 64.8)	60.8 (59.2, 62.4)	0.1
At least one parent cares a lot	92.7 (91.7, 93.7)	92.3 (91.4, 93.2)	0.5
School			
Teachers are fair	86.2 (84.8, 87.5)	89.5 (88.4, 90.6)	0.0001
Adults at school care	89.0 (87.9, 90.2)	89.6 (88.7, 90.5)	0.4
Peers			
If had a serious problem have a friend to talk to	72.8 (71.3, 74.3)	89.4 (88.5, 90.4)	<0.0001
Neighbourhood			
Feel safe in neighbourhood	86.7 (85.2, 88.2)	82.9 (81.2, 84.7)	0.001
Spirituality			
Spiritual beliefs are very important	27.9 (24.8, 31.0)	38.6 (35.4, 41.8)	<0.0001

Social and environmental protective factors Table 3 lists the prevalences of social and environmental protective factors by gender. Approximately 90% of the students reported the presence of a caring adult in their family or at school. Of note, nearly

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40% of all students feel they do not get enough time with at least one parent. Most students (males 86.7%, females 82.9%) reported feeling safe in their neighbourhood. Female students were more likely than male students to identify having a peer to talk to about a serious problem ($p < 0.0001$) and have higher rates of important spiritual beliefs ($p < 0.0001$).

Health behaviours Table 4 lists prevalences for individual health behaviours by gender. The majority of both male and female students report participating in regular exercise, defined as moderate or strenuous exercise on three or more of the last seven days, though males are more likely to report this ($p < 0.0001$). Females are twice as likely as males to report not having breakfast ($p < 0.0001$) and trying to lose weight ($p < 0.0001$).

While two thirds of students (males 65.2%, females 65.9%) report always wearing a seatbelt while driving or riding in a car, more than one quarter of students (males 27.2%, females 27.6%) report riding in a car driven by a potentially intoxicated driver within the last four weeks.

Most students (males 83.7%, females 80.4%) report that they have drunk alcohol. One half of all students (males 50.3%, females 54.6%) report having ever smoked a cigarette, and more than one third (males 38.5%, females 37.9%) report having ever used marijuana. The reported prevalences of drinking alcohol, cigarette smoking and marijuana use were similar between genders, except for a higher proportion of females reporting daily cigarette smoking.

Two thirds of students (males 67.6%, females 69.6%) report they have never had sexual intercourse. The prevalence of sexual activity increases across age groups with 16.8% of 13 year olds, 33.3% of 15 year olds, and 48.7% of 17 year olds reporting having had sexual intercourse. Use of a condom by a student or their partner during the most recent episode of sexual intercourse was reported by more than two thirds of all sexually active students, and by more males than females (males 76.5%, females 68.8%, $p = 0.0007$).

Male students report significantly higher rates of involvement in violent behaviours than female students ($p < 0.0001$). Female students report higher rates of suicidal thoughts ($p = 0.0001$) and suicide attempts ($p = 0.0007$) than male students. Significant depressive symptoms are more than twice as prevalent among female students (18.4%) than male students (males 9.0%, $p < 0.0001$).

Many students (39.5%) report engaging in none or only one of the following six health risk behaviours: ever having drunk alcohol, ever smoked a cigarette, ever used marijuana, ever had sex, been in a fight in the last year, or thought of killing themselves in the last year. A small number (11.8%) report they have engaged in either five or all six of these health risk behaviours. An ordinal logistic regression found no difference in the average number of these six health risk behaviours engaged in by male students compared with female students ($p = 0.2$).

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Table 4. Prevalence of selected health behaviours in survey participants

	Male Adjusted percent 95% CI	**Female** Adjusted percent 95% CI	**p value**
Activities			
Regular exercise	70.4 (68.7, 72.1)	57.3 (55.2, 59.4)	<0.0001
Nutrition			
Never have breakfast	11.8 (10.6, 13.1)	23.2 (21.4, 24.9)	<0.0001
Tried to lose weight in last year	28.6 (27.2, 30.0)	63.2 (61.3, 65.2)	<0.0001
Driving			
Always wear seatbelt	65.2 (62.9, 67.5)	65.9 (64.2, 67.6)	0.6
Passenger of drunk driver in last 4 weeks	27.2 (24.9, 29.4)	27.6 (25.6, 29.6)	0.7
Alcohol			
Ever drunk alcohol	83.7 (80.8, 86.5)	80.4 (77.3, 84.4)	0.007
Binge drinking in last 4 weeks	41.4 (38.1, 44.7)	38.5 (35.7, 41.3)	0.03
Smoking			
Ever smoked	50.3 (47.3, 53.3)	54.6 (51.9, 57.3)	0.003
Daily smoking	7.9 (6.6, 9.1)	10.6 (9.2, 12.0)	0.0009
Marijuana			
Ever used	38.5 (35.6, 41.3)	37.9 (35.2, 40.7)	0.7
$\geq$ Weekly use	7.9 (6.6, 9.2)	5.7 (4.6, 6.8)	0.004
Sex			
Ever had sex	32.4 (29.7, 35.0)	30.4 (28.2, 32.7)	0.1
Currently sexually active	20.6 (18.8, 22.5)	21.6 (19.6, 23.7)	0.4
Used condom at last sex	76.5 (73.7, 79.3)	68.8 (66.2, 71.3)	0.0007
Violence			
Been bullied once a week or more	9.2 (8.1, 10.3)	5.2 (4.4, 6.0)	<0.0001
Been in a serious physical fight in last year	27.9 (26.0,29.8)	14.5 (13.0,16.0)	<0.0001
Suicide			
Thought about killing self in last year	16.9 (15.5, 18.2)	29.2 (27.7, 30.7)	<0.0001
Tried to kill self in last year	4.7 (3.9, 5.6)	10.6 (9.3, 11.8)	0.0007
Depressive symptoms	8.9 (8.0, 9.9)	18.3 (17.0, 19.6)	<0.0001

Discussion

The major findings of this study are that New Zealand secondary school students are generally healthy. Most students feel healthy and have positive connections to families, schools and peers. Likewise, few students engage in multiple health risk behaviours, including sexual intercourse, cigarette smoking, or marijuana use.

The current study has several strengths. It is the first nationally representative sample of New Zealand secondary school students that gives a comprehensive picture of their health risk behaviours, protective factors, health status and service utilisation indicators. It includes an ethnically diverse group of New Zealand's young people that is similar to New Zealand's current youth population. The survey's sampling frame, sample size and response rates provide a basis for the accurate prediction of population prevalences of a wide range of health risk behaviours, protective factors, health status, and service utilisation indicators. However it should be noted that the findings of this survey cannot be generalised to the entire youth population. Many students leave secondary school from year 11 (age 16 years) onwards. In 2001, New

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Zealand secondary school retention rates were 80% of 16 year olds and 58% of 17 year olds.[15] Youth who leave secondary school at a young age or who are in alternative education are known to have high rates of health risk behaviours.[16,17] Non-response bias from students being absent on the day of the survey is a further limitation of this study. Past research has found youth who do not attend school,[18] and students absent on the day of a school health survey,[19] have higher rates of health risk behaviours. Therefore, it is likely that the findings of this survey may overestimate the health and wellbeing of New Zealand's school-age youth population.

Comparison between these findings and previous New Zealand research is limited by the absence of previous research on a nationally representative population of secondary school students. However, analysis of age-specific rates of past sexual activity suggests the current findings may be different to past New Zealand research. In the current study, 33.3% of students aged 15 years report having had sexual intercourse. The Dunedin and Christchurch longitudinal studies report rates of sexual activity before the age of 16 years of 29.3%, and 25.5% respectively.[20,21] A recent survey of Hawkes Bay Year 10 students found 39.4% of students reported having had sexual intercourse.[22] Possible explanations for these differences include: the use of different methodologies; the use of different survey instruments; and changes in the frequency of behaviour over time.

While this survey finds most school students are healthy, there are areas of serious concern. Motor vehicle crash deaths remain the leading cause of mortality in this age group.[23] The substantial numbers of youth who report engaging in risky behaviours while driving or riding in a car suggest there is an ongoing need to develop effective strategies that will prevent motor vehicle crash injuries and deaths in this age group. The prevalence of emotional health problems, including depression, eating issues and suicidal behaviours, are alarmingly high amongst students, particularly female students. The rates of these problems in New Zealand youth are up to twice those found in the recent national mental health survey of young people in Australia.[24] These findings support the current priority of promoting improved mental health for young New Zealanders.

Similarly, although the current study finds most students have positive connections with family and school, some do not, and strengthening these students' resiliency factors may enhance their healthy development and wellbeing. Further examination is required to determine whether it is simply the presence or absence of such protective factors or more complex interactions between protective and risk factors that better explain the relationships of these factors to behaviours and outcomes. Analyses by age, gender, ethnicity and socioeconomic factors and their relationships to health risk behaviours, protective factors and health status are the subject of ongoing work by this research group.

This survey finds that for many New Zealand youth there exists a range of barriers to health services that require the health sector to be more responsive to their needs. There is increasing evidence that youth-specific health services promote health service utilisation and better health outcomes for young people.[25]

This study has important implications. The findings provide valuable information to policymakers, educators, health providers and communities working to improve the health and wellbeing of youth. Specifically, the findings inform the implementation of

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the New Zealand Government's newly released youth policies: the Youth Development Strategy Aotearoa,[26] and the Youth Health Action Plan,[27] both of which identify risk reduction and promotion of protective factors as effective strategies in improving outcomes for youth. This study reports a contemporary health profile of New Zealand's youth that has the potential to be compared with future surveys to enable the monitoring of trends in the health and wellbeing of young New Zealanders.

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Quality of life before and after heart, lung and liver transplantation

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Abstract

Aims To compare the quality of life of heart, lung and liver transplant patients in New Zealand before and after transplantation and in comparison with New Zealand normative data for the general population.

Methods All surviving transplant recipients and patients on the waiting list for a transplant from the Heart and Lung Transplant Unit at Green Lane Hospital and the New Zealand Liver Transplant Unit at Auckland Hospital were invited to participate in this study. 72% of the pre-transplant patients and 75% of the post-transplant patients completed a questionnaire, which included a standardised measure of quality of life – the MOS Short-Form 36 Health Survey (SF-36).

Results Post-transplant patients reported significantly higher levels of physical and psychological functioning compared with pre-transplant patients. When compared with New Zealand normative data, post-transplant patients had poorer physical functioning but higher levels of psychological wellbeing and vitality. Time since transplant and the type of organ transplant were generally unrelated to quality of life.

Conclusions These data suggest that patients experience a dramatic improvement in quality of life following transplant, irrespective of the nature of the transplanted organ. These gains appear to be relatively independent of time since transplant.

Heart, lung and liver transplantations are increasingly common interventions that have become the treatment of choice for end-stage cardiac, respiratory or liver disease in New Zealand. Clinic data from the Heart and Lung Transplant Unit at Green Lane Hospital and the New Zealand Liver Transplant Unit at Auckland Hospital at the time this study was conducted (September 2001), showed that 136 heart transplants had been performed in New Zealand since 1987, 52 lung transplants since 1994, and 96 liver transplants since 1998.

Survival statistics compiled from the clinical data suggest that heart recipients in New Zealand have a one-year survival rate of 86%, and a five-year survival rate of 75%. Refinements in organ procurement and preservation have resulted in a gradual improvement in the survival rates for lung transplant patients, with recent clinic data suggesting a one-year survival rate of 80%, and a two-year survival rate of 66%. A 2002 review of the first four years of liver transplantation in New Zealand showed that the outcomes for liver transplant patients are particularly optimistic. They have a one-year survival rate of 94%, and three-year survival rate of 87%.[1] The one-year New Zealand survival rates are equivalent to international UNOS data for heart transplantation, and are superior for lung and liver transplantation.[2]

As survival rates following transplantation have improved, focus has shifted towards assessing the success of transplant surgery not only in terms of survival rates but also

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in terms of the recipients' quality of life. The World Health Organization definition of quality of life is 'a state of complete physical, mental and social wellbeing and not merely the absence of disease'.[3] Quality of life has gained importance as an outcome measure, especially because of the intense resource allocation and cost that transplantation demands.[4] The literature suggests that during the organ-waiting period patients experience significant difficulties, including high levels of emotional distress, and physical and functional disability.[5–8]

Following transplantation, most patients appear to enjoy a dramatic improvement in quality of life. Improvements in physical functioning are often accompanied by improvements in psychological functioning, although problems persist for some patients.[6,8–10] One of the limitations of the research to date is that most studies have examined quality of life outcomes at one to two years post-transplant only. This is despite the fact that survival rates, particularly for heart and liver transplantation, are well over 50% even at 5–10 years after transplantation.[11–13] Few studies have compared the differences in quality of life status among the transplant groups. There is some evidence that although performance improves after heart, lung and liver transplantation, the trajectories may not be the same and liver recipients may enjoy slightly better health-related quality of life than their heart or lung counterparts.[14,15] Furthermore, while transplant recipients may experience dramatic improvements in physical functioning following transplantation, their functioning level may not approximate to that of the general population, even for liver recipients.[16–18]

The current study recruited all heart, lung and liver recipients still living in New Zealand, and all patients currently on the waiting list for one of these transplants. The purpose of the study was to compare quality of life between pre- and post-transplant groups, and between each of the three patient groups post-transplant. To determine the extent to which quality of life is affected by transplants in general, the study also aimed to compare quality of life scores in post-transplant patients with New Zealand normative data. Finally the study aimed to look at the effects of time since transplant on patients' quality of life. This was the first study to evaluate quality of life outcomes in transplant patients in New Zealand.

Methods

Ethical approval for this study was granted by the Health Funding Authority Northland to Franklin. All patients currently on the waiting list for a transplant and surviving transplant recipients at the Heart and Lung Transplant Unit at Green Lane Hospital and the New Zealand Liver Transplant Unit at Auckland Hospital were invited to complete a questionnaire. At the time of this study, this amounted to 45 patients on the waiting list and 179 transplant recipients. Questionnaires were either given to patients at clinics or sent in the mail. Non-responding patients were sent a reminder letter in the mail after six weeks. The questionnaire assessed quality of life and demographic information.

The MOS 36-item Short-Form Health Survey (SF-36) was used to measure quality of life.[19] This is a standardized general health survey that can be used across general and patient populations. It has been revised and developed over a number of years and has excellent validity and reliability. It measures quality of life across eight domains including physical functioning (the ability to perform everyday tasks such as climbing stairs, dressing and lifting objects), role-physical (the impact of physical health on the performance of everyday roles), general health, bodily pain, vitality, social functioning, role-emotional (the impact of emotional health on the performance of everyday roles) and psychological wellbeing. Scores are standardized to range between 0 and 100 for each of the subscales. Normative data for the New Zealand population are available, allowing for the comparison of quality of life between transplant patients and the general population.[20]

Data were analysed using SPSS for Windows, version 10.0. Differences between the groups were tested using independent and single samples t-tests and Analysis of Covariance (ANCOVA). The

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relationship between time since transplant and quality of life was assessed using Pearson's correlation coefficients. Because a number of analyses were conducted, statistical significance was set at the relatively stringent level of $p < 0.01$.

Results

Response rate Completed questionnaires were returned by 34 pre-transplant patients (72%) and 129 post-transplant patients (75%).

Demographic profile Table 1 shows the patient characteristics in the pre-transplant sample. The majority of patients were of European descent and the remainder identified themselves as New Zealand Maori. The mean ages across the groups ranged from 43–50 years. Patients on the waiting list for a heart transplant were all male, while the gender ratios in the lung and liver waiting-list groups were more balanced.

Table 1. Demographic profile of patients on the waiting list for a transplant

	Heart (n = 9)	Lung (n = 16)	Liver (n = 9)
% Male	100%	56%	44%
Age M (SD)	50 (10.2)	43 (12.79)	45 (12.89)
Ethnicity			
NZ Maori	22%	6%	22%
NZ European	78%	88%	78%
Other European	0	6%	0

NB: Total numbers in each category vary due to non-response to a question.

Table 2 shows the patient characteristics in the post-transplant sample. Again, the majority of patients were of European descent, and the mean ages were similar to the pre-transplant sample. There were no Pacific Island people in the heart and lung transplant groups, but 7% of the liver transplant group were of Pacific descent. The majority of patients in the heart and liver transplant groups were male but there were more females in the lung transplant group.

Table 2. Demographic profile of post-transplant patients

	Heart (n = 56)	Lung (n = 19)	Liver (n = 54)
% Male	84%	42%	67%
Age M (SD)	49 (11.84)	48 (10.90)	52 (13.01)
Ethnicity			
NZ Maori	11%	16%	4%
NZ European	82%	79%	74%
Other European	3%	5%	4%
Pacific Island	0	0	7%
Asian	4%	0	11%

NB: Total numbers in each category vary due to non-response to a question.

Quality of life Because the numbers in some of the patient groups were rather low, the initial comparison of pre- and post-transplant quality of life included patients from all three patient groups. Independent samples t-tests were used to compare the mean

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SF-36 subscale scores across these groups. Table 3 shows that all the SF-36 subscale scores, except for bodily pain and role-emotional, were significantly higher in the post-transplant group suggesting that there is a dramatic improvement in quality of life following transplantation.

Table 3. SF-36 subscale mean scores in pre- and post-transplant patients

Variable	Pre-transplant (n = 34) M (SD)	Post-transplant (n = 125) M (SD)	t-test	p value
General health	36.45 (13.83)	66.41 (19.33)	t(157) = -68.35	0.000
Physical functioning	31.07 (24.35)	79.54 (20.17)	t(154) = -11.56	0.000
Role-physical	17.42 (26.87)	60.95 (42.00)	t(156) = -7.24	0.000
Bodily pain	37.50 (26.40)	27.76 (19.00)	t(155) = +2.41	0.02
Vitality	58.69 (8.69)	71.05 (12.45)	t(157) = -5.36	0.000
Social functioning	56.62 (19.28)	81.56 (19.54)	t(158) = -6.62	0.000
Role-emotional	64.58 (49.32)	83.15 (31.18)	t(155) = -2.02	0.05
Psychological wellbeing	67.79 (17.21)	80.27 (16.36)	t(156) = -3.86	0.000

To ascertain whether the same pattern of results occurred within each of the patient groups, further analyses were run comparing pre- and post-transplant patients in each of the groups. To a large extent, the results remained consistent across the groups. However, while role-emotional scores were not significantly different pre- and post-transplant in the heart or lung groups, they were significantly improved in the liver group following transplantation (pre-transplant: M = 40.74, SD = 43.39; post-transplant: M = 81.00, SD = 31.90; t(58) = -3.30, p = 0.01). Similarly, the post-transplant liver group showed a significantly higher level of psychological wellbeing than the pre-transplant liver group (t(57) = -3.09, p = 0.01), but there was no significant difference in the heart pre- and post-transplant groups, and only a marginally significant difference in the lung groups, (t(33) = -2.15, p = 0.03).

Single samples t-tests were conducted on the data collected from the post-transplant group to investigate their quality of life in relation to New Zealand normative data. These analyses suggested that transplant recipients scored significantly lower than the New Zealand norms on physical functioning (t(126) = -3.39, p = 0.00); role-physical (t(124) = -5.079, p = 0.000); social functioning (t(125) = -7.25, p = 0.00); and self-rated general health (t(125) = -4.22, p = 0.00). On the other hand, mental health and vitality scores were significantly higher among transplant recipients than the general population (t(125) = 5.10, p = 0.00 and t(124) = 22.86, p = 0.00 respectively), and role-emotional scores were not significantly different (t(124) = -0.42, p = 0.68). The SF-36 scores were all significantly lower in the pre-transplant sample with the exception of mental health scores, which were not significantly different to NZ normative data (t(33) = -0.39, p = 0.59).

Because liver transplants have been conducted in New Zealand over the past four years only, it was only possible to compare the SF-36 scores across post-transplant groups for patients who had transplants during this period. This amounted to 24 heart patients, 50 liver patients, and 16 lung patients. The analyses were conducted using ANCOVA, with gender entered as a covariate. Gender was included as a covariate as, although the groups were generally equivalent for age and ethnicity, the gender make-

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up in each of the groups was significantly different. Table 4 shows that there were no significant differences between the groups on any of the subscale scores, suggesting that self-reported quality of life is equivalent across the groups up to four years post-transplant. The effect of gender was also non-significant in all of the analyses.

Table 4. Estimated marginal means controlling for gender for SF-36 subscale scores across post-transplant patient groups

Variable	Heart n = 23 M (SE)	Lung n = 16 M (SE)	Liver n = 50 M (SE)	*F* for patient group	p value
General health	68.83 (3.88)	66.91 (4.76)	65.47 (2.66)	0.26	0.77
Bodily pain	36.79 (3.66)	45.44 (4.41)	36.40 (2.46)	0.51	0.48
Physical functioning	80.17 (3.98)	86.17 (4.87)	76.08 (2.66)	1.73	0.18
Role-physical	55.61 (9.02)	67.08 (10.87)	54.62 (6.07)	0.71	0.40
Role-emotional	84.23 (6.73)	79.00 (8.12)	82.34 (4.54)	0.13	0.88
Social functioning	71.53 (11.41)	52.87 (14.05)	51.74 (7.84)	1.07	0.35
Mental health	85.03 (2.46)	82.69 (3.03)	81.72 (1.69)	0.62	0.54
Vitality	69.01 (2.41)	73.99 (2.96)	70.60 (1.65)	0.85	0.43

NB: Data included for transplants conducted in the past 4 years only.

To ascertain whether time since transplant affected patients' quality of life, we conducted Pearson's correlation coefficients between time since transplant and each of the SF-36 subscale scores. These correlations were conducted for the total post-transplant sample and for the post-transplant heart patients. The heart group included the widest range of patients with patients having received a transplant from between one year and 14 years prior to the study. None of the correlations was significant in either the total sample or the heart group on its own, with correlations ranging from 0.02 ($p = 0.83$) for vitality, to $r = -0.24$ ($p = 0.07$) for general health. The majority of the correlations were less than 0.1, suggesting that time since transplant accounts for little of the variance in self-reported quality of life.

Discussion

Consistent with the literature, New Zealand transplant recipients reported better physical and psychological functioning than pre-transplant patients. The positive changes in psychological functioning appeared to be particularly pronounced for the liver patients. Although physical functioning improved following transplantation, it was found to be worse than that of New Zealand normative data. This is also consistent with previous research, which has found that physical functioning in transplant recipients is worse than that of non-patient community samples.[16–18]

A noteworthy finding is that transplant recipients reported SF-36 mental health and vitality scores that were superior to those of the normative data, a finding that has not been reported in previous research. This finding may be explained by a social desirability bias, whereby transplant recipients may have reported better psychological functioning than they actually have. Alternatively, this finding may be explained by a contrast effect. Transplant recipients are likely to perceive their quality of life more positively than the general population because of the striking contrast

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between terminal illness before transplantation and better functioning following transplantation, thus accounting for a positive perception of functioning.

The results of this study suggest that self-reported quality of life is equivalent across the groups up to four years post-transplant. This appears to be inconsistent with both the literature and medical opinion, which posit that heart, and particularly liver transplant patients not only live longer, but may enjoy slightly better health-related quality of life than lung transplant patients.[14,15] The results obtained in this study suggest that patients' perceptions of their quality of life may be different to medical perceptions. Lung transplant patients' perceptions of their quality of life may be determined by a contrast effect, whereby their experience of the striking difference between respiratory insufficiency pre-transplant and better functioning following transplantation may account for why they report functioning equivalent to their heart and liver counterparts.

This study has provided the groundwork for transplant quality of life research in New Zealand and has added to the literature by comparing quality of life outcomes with the general population and, where able, across the transplant groups. It has also shown that time since transplant is largely unrelated to SF-36 scores. This suggests that the quality of life gains following transplant may be sustained over time. However, this was a cross-sectional study, and clearly a longitudinal analysis is needed to confirm whether patients' perceptions of their quality of life differ over time or remain stable. Longitudinal analysis may also be useful to compare the quality of life benefits of heart, lung and liver transplantations over a longer time period.

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Into the unknown: the anticipation and experience of membership of independent practitioner associations

Pauline Barnett

Abstract

Aims To understand why general practitioners (GPs) joined independent practitioner associations (IPAs), their concerns on joining, and the extent to which both positive and negative expectations have been realised.

Methods A self-complete postal questionnaire to a sample of IPA rank-and-file members invited their views on their decision to join, their satisfaction with leadership, and the experience of being in an IPA.

Results The most popular reasons for joining were related to the uncertainties of the health sector environment, including the prospect of contracting and the place of general practice within the health sector. Aspirations on joining were largely realised, although at a general rather than specific level. Concerns over joining related mostly to day-to-day operation and practitioner autonomy, but were less strongly held and less likely than aspirations to be realised. Satisfaction with IPA leadership was quite high and associated with practitioner involvement in IPA activities.

Conclusions Results are consistent with the international literature, with importance attached by practitioners to both 'personal' and 'system' level aspirations. Research also suggests that where management remains 'connected' with rank-and-file clinicians then perceived threats to autonomy are likely to be minimised. In moving towards primary health organisations, care needs to be taken not to undermine this 'connectedness' and therefore pose risks to the effective management of primary care.

The structure of general practice in New Zealand remained virtually unchanged from the 1940s until the 1990s.[1] Health reforms announced in 1991 challenged the individual, fee-for-service reimbursement relationship between general practitioners (GPs) and the state.[2] Although mandatory contracting was deferred until 1995, during the early 1990s GPs prepared themselves for this by developing collective organisations designed to manage contracts on their behalf. The most prominent form of grouping has been the independent practitioner association (IPA) – the voluntary joining of GPs from multiple practices into formal organisations, ie, companies, incorporated societies or trusts.

By mid 1996 it was reported that approximately 60% of all GPs were members of IPAs or similar groups.[3] By 1998, 82% of GPs were in some form of primary care organisation, with 67% in organisations specifically defined as IPAs.[4] The development and performance of IPAs has been monitored by governments and researchers.[5–8] Anecdotal reports suggested that GPs joined IPAs reluctantly, expecting membership to provide protection in the new environment but concerned that professional and economic autonomy would be compromised. However, there has

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been no broadly based national research on GPs' perspectives on IPAs, an omission given the continuing impetus for change in primary care.[9]

This research aims to establish the reasons why GPs joined IPAs, their concerns on joining, and the extent to which these positive and negative expectations have been realised.

Methods

The research design chosen was a self-complete postal questionnaire to a national sample of rank-and-file GP members of IPAs, ie, those not currently members of the governing body of their IPA. In 1999, 17 IPAs with 30 or more members were identified (2027 members overall). Small IPAs (<30 members) were excluded, as some were about to amalgamate and they represented only 6% of members overall. A one-in-two sample was sought from each IPA to ensure adequate coverage of different organisational types, localities and practice groupings, and to eliminate as much bias as possible.
The research instrument, a self-complete questionnaire, dealt with three issues: the circumstances surrounding joining; satisfaction with the leadership; and the experience of being in an IPA. Individual items comprised an assessment of statements using a standard five-point Likert scale, a method used successfully in studies of medical practitioners.[10–12] Questions were derived from the research literature, interviews with IPA leaders and consultation with six practising or former GPs.
Exploration of the decision to join an IPA included a question to establish 'keenness to join', six questions on reasons for joining, and seven questions on concerns about joining. The problem of retrospective recall is acknowledged in the literature[13] and was dealt with through careful structuring of the questionnaire and appropriate use of language. For example, retrospective questions used the term 'RHA' (regional health authority) to represent the specific purchasing agency of the mid 1990s, whereas questions referring GPs' current (1999) situation used the more generic, and by then more common, term 'funder'. Fourteen statements relevant to assessing the extent to which aspirations and concerns were realised were drawn from among 25 'autonomy' items. All questions were consistent with the literature on collective organisation[14,15] and professional autonomy,[16] but operationalised for New Zealand. Four questions on satisfaction with IPA leadership were included, along with eight practitioner variables (gender, decade trained, country of training, size of practising group, full-time status, NZMA member, RNZCGP member, ever a member of any IPA board or committee).
Mailing lists were compiled either with IPA cooperation (16/17) or from public sources. Once mailing list errors were corrected, a one-in-two sample of 940 rank-and-file GPs was identified. A questionnaire was mailed to each GP, with one follow-up mailing. Completed questionnaires totalled 661, a response rate of 70.3%. Thirteen of seventeen IPAs achieved a response rate of over 65%, with only three below 60%. It was not possible to establish the representativeness of the sample because there was no national database or profile of IPA members for comparison.
Bivariate statistical techniques were used to establish relationships within the data set. The chi-square statistic was used as a non-parametric test of association applicable to either dichotomous or continuous variables, without the constraints of a normal distribution, and to control for individual variables in a three-way analysis. The sample was analysed as a whole and according to practitioner subcategories. Comparison between IPAs had been specifically excluded in seeking consent for mailing lists.

Results

Aspirations on joining the IPA Enthusiasm for joining IPAs was not great, with fewer than half the respondents (43.6%) indicating that they were keen or very keen to join; 35.3% were indifferent and 18.4% reluctant or very reluctant to join. Keenness to join was related to male gender ($\chi^2 = 24.7$, $p = 0.001$), full-time status ($\chi^2 = 14.3$, $p = 0.006$), being trained prior to 1970 ($\chi^2 = 25.7$, $p = 0.01$), and being a member of the RNZCGP ($\chi^2 = 9.9$, $p = 0.04$), suggesting groups with significant investment in established arrangements were more challenged by the health reforms and ready to seek alternatives. Levels of support for reasons for joining and association with GP characteristics appear in Table 1.

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Table 1. Reasons for joining IPAs and associated practitioner characteristics

How important were the following reasons for you when you joined the IPA?	Respondents reporting 'strong' or 'very strong' reason for joining (%)	Practitioner variables associated with reasons for joining the IPA	c^2	p value
Chance of better deal for general practice	77.3	Size of group practice Decade trained	12.1 12.8	0.04 0.05
Best way to handle threat of withdrawal of Section 51* without negotiation	77.1	NZMA membership Decade trained	13.8 17.2	0.008 0.009
Everyone else was joining	65.9	Gender Full time/part time Size of group practice	17.9 14.3 9.2	0.001 0.005 0.05
Aggressive contracting approach by the RHA	63.4	Gender Decade trained RNZCGP member NZMA member	11.6 12.6 13.7 6.4	0.03 0.05 0.008 0.04
Best prospects of securing future income	62.9	Gender	9.4	0.008
Better care for my patients	60.8	Decade trained	18.8	0.005

*Section 51 of the Social Security Act provided for fee-for-service reimbursement of practitioners

Reasons related to the more micro-level practice/practitioner environment ('better care for my patients', 'best way of securing future income') were reported as less important than those framed in a regional context ('everyone was joining', 'aggressive contracting by the RHA', 'dealing with the prospect of unnegotiated Section 51 withdrawal') or the wider political environment ('better deal for general practice'). Two reasons were differentiated by RHA. GPs in the Midland region were more likely to agree that 'everyone else was joining' was important ($\chi^2 = 25.9$, $p = 0.01$), but 'aggressive contracting by the RHA' was more important for those in the Northern region ($\chi^2 = 44.7$, $p = 0.001$).

In terms of practitioner variables, patterns of association were specific to particular reasons. For example, NZMA members and more-established GPs were likely to see IPA membership as an effective mechanism for preserving fee-for-service. These groups and RNZCGP members were also likely to see aggressive contracting as an important reason for joining. Consistent with this, established GPs were more likely to consider IPAs as able to secure a better deal for general practice, as were GPs from larger practice groups. 'Everyone else was joining' was associated with two different attributes: those reluctant to join (female and part-time GPs) who could not afford to become isolated, and members of group practices. More-recently-trained GPs reported 'better care for my patients' as important in greater numbers than those trained in earlier decades.

Realisation of aspirations GPs could have expected positive outcomes from IPA membership related to five of the reasons assessed as important on joining. Two of these reasons ('threat of unnegotiated Section 51 withdrawal', 'aggressive contracting approach by the RHA') related specifically to relationships with the purchaser/funder. Overall, 82.2% of respondents agreed or strongly agreed that being in the IPA had given them 'more negotiating strength with the funder'. There was no significant difference between the views of GPs who had been concerned about the status of

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Section 51 on joining and those of other GPs. However, GPs agreeing or strongly agreeing that 'aggressive contracting by the RHA' was an important reason for joining were significantly more likely to have agreed or strongly agreed that being in the IPA had led to greater negotiating strength than those who had reported it as not important or had no views ($\chi^2 = 20.1$, $p = 0.001$). This suggests that the decision to join made by GPs concerned about RHA contracting behaviour was vindicated by subsequent experience.

A third reason for joining the IPA, 'securing a better deal for general practice', was reported as important or very important by 77.3% of GPs. Of these, a high proportion (86%) reported 'more strength in negotiation with the funder' had been achieved. However, this had yet to translate into recognisable gains, with a smaller proportion agreeing or more strongly agreeing that there was now 'more clout for GPs in the local health system' (58.9%) and 'increased status for general practice' (40.8%). Those GPs seeking a 'better deal for general practice' reported significantly higher agreement on positive outcomes from IPA membership than GPs who had not identified this as an important reason for joining ('more strength in negotiations with funder': $\chi^2 = 29.5$, $p = 0.001$; 'more clout for GPs in the local health system': $\chi^2 = 30.8$, $p = 0.001$; 'increased status for general practice': $\chi^2 = 47.5$, $p = 0.001$). Again, this indicates that these specific expectations of GPs were realised.

The fourth reason postulated for joining an IPA ('better care for my patients') had been considered important or very important by 60.6% of respondents. The extent to which this expectation was realised amongst this group varied, with the more specific outcome 'meant I can offer new services' receiving a lower level of agreement or strong agreement (46.8%) than the more general 'improved care' (52.2%). GPs citing 'better care for my patients' as an important or very important reason for joining reported improved outcomes at significantly higher levels ('new services': $\chi^2 = 42.2$, $p = 0.001$; 'improved care': $\chi^2 = 55.5$, $p = 0.001$) than those who had not specified these as important reasons for joining. Again, expectations on joining had been realised.

It is not possible to establish, from the available data, whether respondents felt that the fifth reason for joining an IPA, to 'secure future income', had been realised, although only 8.4% reported a 'negative effect' on income from membership of the IPA.

Concerns on joining Concerns about joining fell into three groups: financial, managerial and clinical. The relationships between strength of concern and practitioner variables are set out in Table 2.

High levels of concern over financial issues were significantly related to practitioner gender and length of time since training. Concern over 'move away from fee-for-service' was related to male gender and greater length of time since training. In contrast, concern over 'costs of setting up IPAs' was related to female gender and more-recently-trained (ie, younger) doctors.

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Table 2. Practitioner variables significantly associated with concerns on joining the IPA

How concerned were you about the following on joining the IPA?	Respondents reporting 'some concern' or 'great concern' (%)	Practitioner variables significantly associated with concerns on joining the IPA	c^2	p value
More paperwork or bureaucracy	70.0	Decade trained RNZCGP member	20.9 13.4	0.05 0.05
Possible move away from fee-for-service	56.0	Gender Decade trained Size of group	12.0 23.3 20.2	0.02 0.03 0.01
Costs of setting up IPAs	53.3	Gender Decade trained Country trained	7.6 21.2 21.2	0.02 0.05 0.007
Heavy-handed management	50.7	Decade trained Country trained	15.1 20.8	0.05 0.05
Less control over clinical decisions	49.5	Gender	14.5	0.006
More computerisation	37.7	Size of group Decade trained RNZCGP member	9.2 12.1 9.1	0.05 0.02 0.05
Negative effect on my income	29.8	Country trained Size of group	18.4 16.1	0.02 0.02

Perspectives on managerial issues were led by the concern or major concern over 'paperwork and bureaucracy', reported by 70% of respondents. These GPs were more likely to be members of the RNZCGP (ie, practitioners already committed to high levels of documentation) and trained prior to 1970 (ie, practitioners already having experienced growth in paperwork and reporting requirements). Earlier training was also associated with concern over 'heavy-handed management' and 'increased computerisation'. Computerisation was of less concern to GPs in group practice and to members of the RNZCGP, probably reflecting greater exposure among these GPs. Concern over loss of control over clinical decisions was reported by half of all respondents and significantly associated with female gender.

Realisation of concerns With respect to financial concerns, 56% of practitioners had been concerned about a 'possible move away from fee-for-service'. Of these, only a minority (36.9%) reported that they felt that this had in fact occurred. This was actually less than the proportion of those who had been unconcerned or had had no view at the time of joining (40.8%; $\chi^2 = 18.1$; $p = 0.001$). Conversely, GPs who had been very concerned or concerned that being in an IPA might negatively affect their income were significantly more likely to agree that this had indeed occurred (22.6%) than GPs who had not felt this way on joining (3.2%) ($\chi^2 = 95.4$; $p = 0.001$).

Respondents who had reported themselves concerned or very concerned over managerial issues on joining the IPA had had these concerns realised to a significantly greater extent than those GPs who had not expressed that concern (Table 3).

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Table 3. Realisation of some or major concern about managerial intrusion

	Agree or strongly agree (%)			Difference between GPs concerned on joining IPA and others	
Being in an IPA had:	All GPs	GPs who had not been concerned when joining IPA	GPs who had been concerned when joining IPA	χ^2	p value
Led to more paperwork or bureaucracy	63.9	38.9 (n=199)	78.5 (n=465)	171.9	0.001
Meant more computers in the practice	57.4	45.5 (n=415)	77.3 (n=246)	71.5	0.001
Made me concerned about use of computerised data	50	41.9 (n=415)	63.4 (n=246)	37.2	0.001
Made me feel 'over-managed'	33.7	14.8 (n=330)	52.6 (n=331)	123.6	0.001

Concern over possible loss of control over clinical decisions was reported by 49.5% of respondents. Although only a minority of these concerned GPs (23%) actually agreed or strongly agreed that being in an IPA had limited their clinical freedom, this was four times the rate of GPs who had not been concerned or had no views at the time of joining the IPA (5.8%) ($\chi^2 = 58.0$, $p = 0.001$). More specifically, although only a minority (27.6%) of this concerned group of GPs agreed or strongly agreed that being in an IPA had limited their choice of drugs, this number was three times greater than those who had not been concerned on joining (8.6%) ($\chi^2 = 51.9$; $p = 0.001$). Linked with the relatively low impact on clinical and managerial autonomy are the high levels of reported satisfaction with IPA leadership (Table 4). The only practitioner variable consistently and positively associated with this approval was whether the respondent had ever been a member of any IPA committee or board (25% of respondents).

Table 4. Practitioner satisfaction with IPA leadership

I am satisfied that the IPA leadership:	GPs satisfied or very satisfied (%)	Practitioner variables	c^2	p value
Is doing a good job overall	69.6	NZMA member IPA committee	10.1 21.0	0.04 0.001
Is philosophically 'in tune' with my approach to practice	66.8	Decade trained IPA committee	21.7 16.9	0.04 0.002
Takes my views into account	60.0	IPA committee	24.0	0.001
Keeps me informed	78.8	IPA committee	9.9	0.04

Discussion

Despite GPs' limited enthusiasm for joining IPAs, the reasons for joining were strongly held, particularly in relation to 'system' issues such as the continuation of fee-for-service, the aggressive stance of the RHAs and the status of general practice, with a slightly lesser emphasis on patient care. This reflects the international literature on practitioner motivation, which reports a similar range of priorities, from immediate

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'self-interest' themes[14] and more intrinsic factors such as clinical freedom and professional status,[17–21] to the altruistic motivations surrounding the provision of care.[15] Aspirations arising from the reasons for joining were well fulfilled by IPA membership, particularly with respect to the increased negotiating strength that might be expected to lead to subsequent improvements on a range of matters of importance to GPs.

In contrast, concerns about joining focused on micro-level issues. However, while those anticipating problems were more likely to report their expectations realised, these were reported at very low levels. Neither clinical autonomy nor economic circumstances appeared much affected by being an IPA member. While there was a reported increase in bureaucracy and computerisation this was not accompanied by a feeling of being 'over-managed', with high levels of satisfaction with leadership performance reported. There is evidence that when the medical elite remains 'connected' with colleagues, antipathy to management interventions can be overcome.[22] This appears to be the case with IPAs, with high levels of leadership approval reported here and elsewhere.[8] The high proportion of respondents reporting that they had, at some point, been members of an IPA committee or working group attests to the extent to which IPAs, throughout the 1990s, involved individual members in developing both professional and business aspects of their organisations.

The literature suggests that practitioner variables such as age or gender are rarely important in relation to autonomy and satisfaction decisions,[10–12] except where these are linked with other contextual variables.[22–24] This appears to be the case here, with both gender and time since training reflecting particular contextual situations (ie, being full or part time, being less or more established in practice). It is these contextual circumstances, rather than intrinsic practitioner characteristics, that assist in understanding GP views on IPAs. Contextual characteristics, such as collegial influences and involvement in local committees, are consistently related to positive perspectives on IPAs.

The findings from this research have implications for managing the future of general practice in New Zealand. When facing threat and uncertainty in the 1990s, the 'safety valve' for GPs was to opt for collective arrangements, which they hoped would improve their professional security, enhance their position and improve care. That their aspirations on joining were mainly fulfilled and their concerns on joining largely unrealised appears related to the strength of collegial endorsement, the success of professional leadership, and the involvement of GPs in the professional and business decisions of IPAs.

Research from the UK[24] reports that, as recent NHS reforms have imposed more bureaucratic arrangements, there is disengagement by GPs from primary care trust/group decision-making, a situation considered to pose risks for managing primary care. In New Zealand, there is still considerable uncertainty over the way in which the Government's Primary Health Care Strategy will be implemented and the destabilizing effect that this may have on general practice. The success of IPAs over a range of resource management, quality and service initiatives in the last decade would not have been possible without the confidence of rank-and-file members in the professional (medical) leadership of their organisations. Within the context of proposals for primary health organisations, care needs to be taken to secure an

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environment that maintains constructive GP engagement in primary healthcare decision making.

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Ecstasy use in New Zealand: findings from the 1998 and 2001 National Drug Surveys

Chris Wilkins, Krishna Bhatta, Megan Pledger and Sally Casswell

Abstract

Aims To examine changes in the use of ecstasy, current conditions of supply, harms resulting from use, and the demographics of users.

Methods National Drug Surveys were conducted in 1998 and 2001. In each survey, a representative national sample of approximately 5500 people aged 15–45 years were asked about their drug use, including ecstasy use, using a Computer Assisted Telephone Interview (CATI) system. Response rates of 79% and 80% respectively were achieved.

Results Last-year use of ecstasy increased from 1.5% in 1998, to 3.4% in 2001. Large increases were found among men aged 20–24 (4.3% to 12.5%), and 25–29 (3.2% to 8.8%). In 2001, 43% of users thought ecstasy was easier to obtain and 29% thought the price was lower compared with a year earlier. About one in ten ecstasy users reported problems related to 'energy and vitality', 'financial position', 'health', and 'outlook on life'. Ecstasy users were predominately male, aged 20–29, European and single, but were from a broad range of occupational and income-earning groups.

Conclusions The use of ecstasy in New Zealand increased between 1998 and 2001. Conditions of supply became easier. Users reported problems related to use in a range of areas of their lives. There was little evidence to suggest ecstasy use was limited to high-income-earning professionals.

The use of ecstasy became a global phenomenon in the late 1990s with use spreading to Eastern Europe, the Americas, southern Africa, the Middle East and South-East Asia.[1] Although global consumption remains concentrated in Western Europe and North America, both Australia and New Zealand have reported high prevalence levels by international standards.[1] Ecstasy is widely associated with dance music youth culture and use at 'raves' and dance clubs.[2,3] It is used in these contexts to provide the energy to dance for long periods of time and to enhance sociability.[4]

Ecstasy (3,4-methylenedioxymethamphetamine, MDMA) combines traditional amphetamine qualities and hallucinogenic characteristics, like LSD.[4] Immediate effects include increase in heart rate, blood pressure and body temperature, increased energy and alertness, and a warm state of empathy for others.[4] High doses cause teeth clenching, paranoia, anxiety, hallucinations and confusion.[4] Tolerance to ecstasy develops rapidly, characterised by a reduction in the positive effects and increase in the negative effects of the drug, and this has been associated with self-limiting patterns of use (ie, periods of voluntary abstinence to regain initial positive effects). However, a recent study of ecstasy use in Australia found evidence of more-frequent use of larger doses to overcome short-term tolerance, intravenous administration of the drug, and extensive poly-drug use in combination with ecstasy use.[5,6]

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Ecstasy can cause two types of acute side effect that often have lethal consequences: hyperthermia and hyponatraemia.[7,8] These outcomes appear to result from the compounding of ecstasy's natural pharmacological effects (on the body's thermoregulatory mechanisms and ability to excrete fluid) with specific individual behaviours (such as dancing without a break and excessive intake of fluids) in specific settings (hot dance clubs).[7,8] Although instances of serious acute effects are low relative to the extent of use, it is the unpredictability of such events (dose is not clearly predictive of adverse effects) and the risk of mortality that makes them significant.[7,8] Three people have died as a result of taking ecstasy in New Zealand since 1998 (personal communication, National Drug Intelligence Bureau, 2002). Ecstasy has controversially been linked to damage to serotonin terminals in the brain with possible implications for short-term memory, cognitive function and mood regulation, particularly in later life.[7,8] Confirmation of these effects awaits large-scale epidemiological studies.[4,7,8]

Predicting the consequences of taking ecstasy is made more difficult by a number of features of the illicit market in which it is manufactured and sold. Although the term 'ecstasy' is supposed to refer to MDMA, in reality a number of substances with similar effects to MDMA are commonly sold as 'ecstasy', including MDEA, MDA and PMA.[4,8,9] Users are generally unaware of the actual substance they are taking and this can cause problems when they experience effects that they were not anticipating or take additional doses before the full effects of the original dose are manifest leading to overdose.[10] Ecstasy manufactured on the black market also varies in quality and potency (personal communication, New Zealand Police, 2002), and is cut with a range of adulterants such as caffeine and aspirin, or with other drugs such as methamphetamine, ketamine and ephedrine.[8] Again, these features are unknown to the user and can have important implications for effects and harm. Finally, ecstasy users tend to be poly-drug users and this exposes them to the risks and harms of combining ecstasy with other drugs.[6]

A number of record seizures of ecstasy have been made by New Zealand Customs and Police in recent years. Total seizures of ecstasy increased from fewer than 3000 tablets in 1998, to 73 000 tablets in 2001, to 220 000 tablets in 2002 (personal communication, National Drug Intelligence Bureau, 2002). The dramatic increase in seizures has fuelled speculation about the extent of use of ecstasy and the current conditions of supply. Unlike methamphetamine, a drug that is also commonly associated with the dance party scene, there is no known domestic manufacture of ecstasy in New Zealand (personal communication, National Drug Intelligence Bureau, 2002).[3] The synthesis of ecstasy is a complex process that requires sophisticated and closely monitored precursor chemicals, such as oil of Sassafras. The difficulty of manufacture has precluded the establishment of any large-scale domestic production in New Zealand to date. Only one case of ecstasy manufacture has ever been detected and this was on a small scale (personal communication, New Zealand Police, 2002). All of the ecstasy used in New Zealand is smuggled into the country from overseas; mainly from Western Europe but more recently from Asia.[3] New Zealand is generally considered to have relatively effective border controls, as evidenced by the success against heroin importation in the 1970s.[11] The high price of ecstasy in New Zealand[3] and its apparent availability in urban centres such as Auckland and Wellington have led the popular media to characterise it as the drug of choice of young, high-income-earning professionals.[11,12]

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This paper draws on data from the 1998 and 2001 National Drug Surveys to examine changes in the use of ecstasy, current conditions of supply, harms related to use, and the demographic characteristics of users in New Zealand. The prevalence of ecstasy use is put into the wider context of drug use in New Zealand through comparison with data relating to the use of marijuana and amphetamines from the same surveys.

Methods

The National Drug Survey interviews a sample of approximately 5500 people aged 15–45 years about their alcohol, tobacco, marijuana and other drug use, using a Computer Assisted Telephone Interview (CATI) system. Telephone numbers are selected using a stratified random digit dialling method so that each household (of a particular stratum) nationwide has an equal chance of being called. To represent the different socioeconomic characteristics of the population the country was divided into 33 strata. A proportionate sample from each stratum was then taken. Within each household, one person is randomly selected for an interview. Interviewers receive intensive training at the beginning of the survey, and a supervisor is present at each shift to monitor the quality and consistency of interviewing, and to handle any special problems. Each telephone number is called up to at least ten times in an effort to reach those seldom at home. The 1998 and 2001 surveys achieved response rates of 79% and 80% respectively. More details of the methodology can be found in Wilkins et al, 2002.[13]

During the interview, respondents are asked whether they have ever used substances from a list of drug types for recreational purposes. Ecstasy is included in this list. To enhance recognition by respondents interviewers read out a number of common terms and technical names for each drug type and for ecstasy they read 'E' and 'MDMA'. Questions are also asked about 'stimulants', which are described by the interviewer as 'uppers, speed, amphetamine, methamphetamine'.

In 2001, those who had used ecstasy in the last 12 months were asked a number of additional questions about their experience of use and supply. These included questions about whether use had harmed eight areas of their lives in the previous 12 months, and how price and availability compared with a year earlier.

All respondents were asked a range of general demographic questions including age, gender, ethnicity, marital status, employment status, occupation and income.

The findings of the two surveys were analysed for differences between the two samples as a whole, and for differences between the subgroups of the two samples using chi-square tests. All comparisons were tested at a 1% level for statistical significance after adjusting for design effects. Only significant changes are reported. Ninety nine per cent confidence intervals are reported. All analyses were conducted using SAS software.

A descriptive analysis is presented of the demographic characteristics of last-year ecstasy users. Descriptive comparisons are made between males aged 18–29 who used ecstasy in the last year and those who did not.

Results

Prevalence of use Last-year use of ecstasy by those aged 15–45 years increased from 1.5% (1.0, 1.9) in 1998, to 3.4% (2.7, 4.1) in 2001. Increases were found for those aged 20–24 (from 3.2% (1.4, 5.1) in 1998 to 10.0% (6.9, 13.2) in 2001) and 25–29 (from 2.5% (0.9, 4.1) to 6.3% (3.8, 8.9)).

Most of the increase in ecstasy use was due to increased use by men (Figures 1 and 2). Last-year use by men aged 20–24 increased from 4.3% (1.4, 7.3) in 1998, to 12.5% (8.0, 17.1) in 2001, and last-year use by men aged 25–29 increased from 3.2% (0.8, 5.7) to 8.8% (4.8, 12.9).

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Figure 1. Last-year use of ecstasy by men by age group, 1998 and 2001

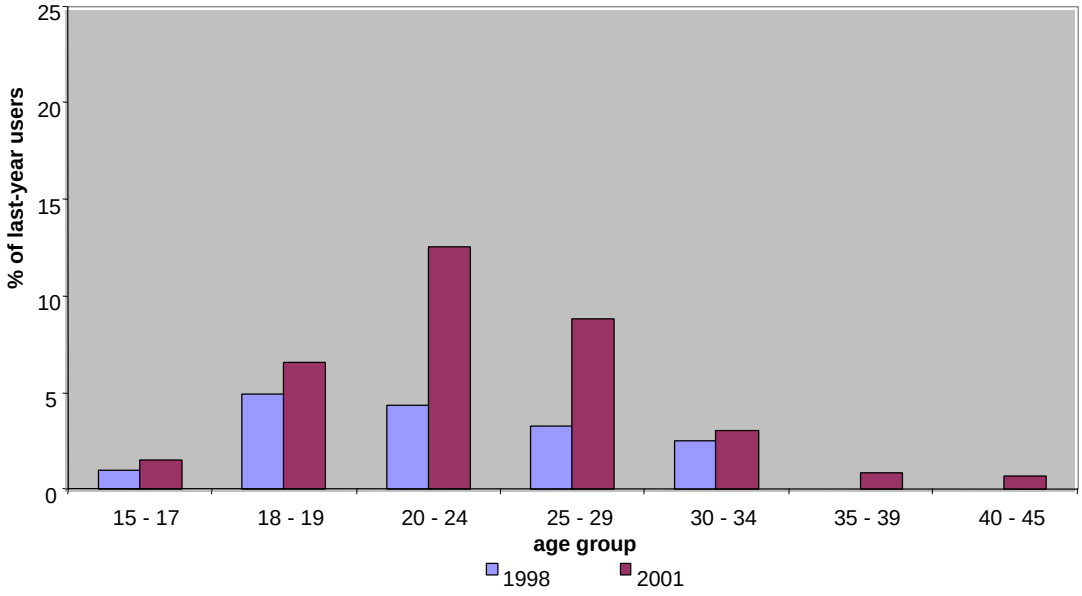
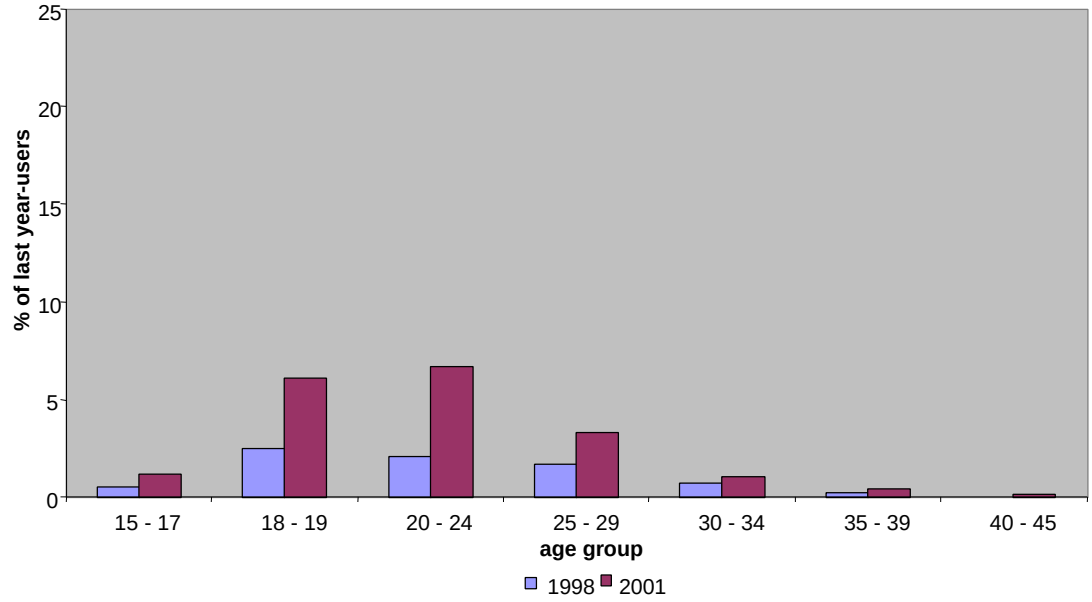


Figure 2. Last-year use of ecstasy by women by age group, 1998 and 2001



Between 1998 and 2001, ecstasy use increased from 1.5% (1.0, 1.9) to 3.4% (2.7, 4.1), and stimulant use (uppers, speed, amphetamine, methamphetamine) increased from 2.9% (2.2, 3.5) to 5.0% (4.2, 5.8), while there was no statistical change in marijuana use (19.9% (18.3, 21.4) and 20.3% (18.8, 21.9)) (Figure 3).

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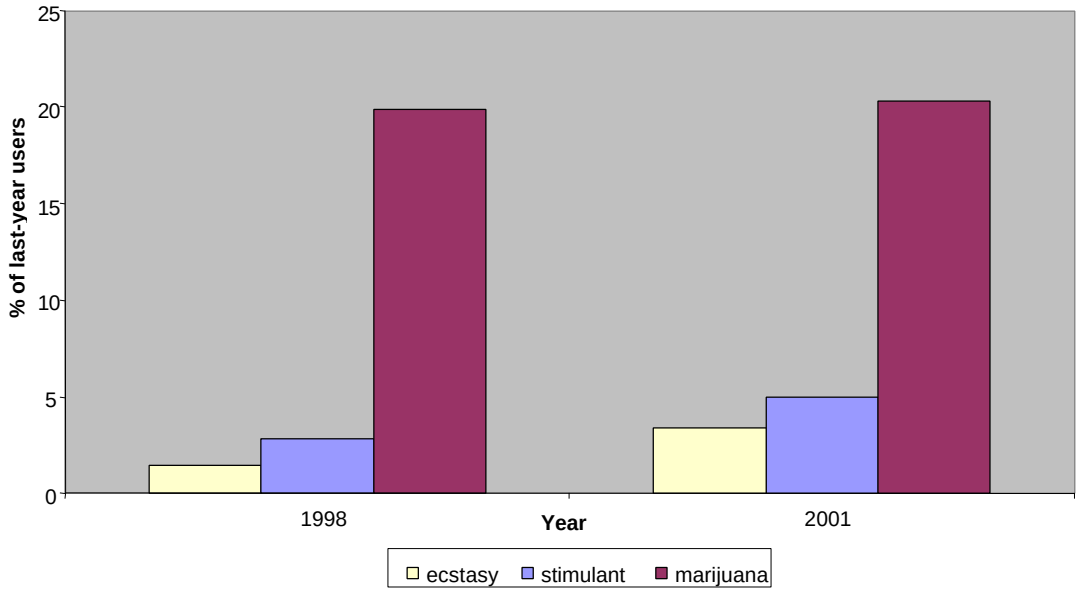
Figure 3. Last-year use of ecstasy, stimulants, and marijuana, 1998 and 2001



Conditions of ecstasy supply in 2001 In 2001, those who had used ecstasy in the previous 12 months were asked how the availability of the drug compared with that of a year earlier. Forty three per cent of users thought it was 'easier' to get ecstasy, 33% said it was 'about the same', 13% thought it was 'harder', and 11% 'did not know'.

These respondents were also asked how the price of the drug compared with that of a year earlier. Forty one per cent thought the price was about the same, 29% thought it was lower, 16% said the price was higher, and 13% did not know.

Self-reported harms from ecstasy use in 2001 In 2001, last-year ecstasy users were asked whether the use of ecstasy had harmed eight areas of their lives in the previous year (Table 1). About one in ten reported problems related to 'energy and vitality', 'financial position', 'health', and 'outlook on life'. Approximately one in twenty reported problems with 'friendships and social life' and 'home life'. Problems related to 'work and work opportunities' and 'children's health' were rare.

Table 1. Identified areas of life that were harmfully affected by the use of ecstasy in the last year, 2001

Area of life affected	Last-year users (%)
Energy and vitality	13
Financial position	12
Health	7
Outlook on life	8
Friendship and social life	5
Home life	4
Work or work opportunities	1
Children's health or wellbeing	0

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Demographics of last-year ecstasy users in 2001 Ecstasy users were overwhelming male (70%) and from the 18–29 age cohorts. Ecstasy users were particularly concentrated in the 20–29 age groups (67% of all users). Forty one per cent were 20–24 compared with 13% of the whole sample, and 26% were 25–29 compared with 13% of the whole sample. Only 5% of ecstasy users were 15–17, while this age group made up 12% of the whole sample.

Ecstasy users were overwhelming European (84%) or Maori (13%), as opposed to Asian (1%) or Pacific Island peoples (1%). A similar ethnic bias was displayed in the comparison of men aged 18–29 who had used ecstasy in the last year with those who had not. The ecstasy-using group were more likely to be European (82% vs 72%) and less likely to be Asian (2% vs 8%) or Pacific Island peoples (2% vs 6%), while numbers of Maori were comparable (14% both groups).

Ecstasy users were predominantly single (68%), as opposed to living with a partner (ie, either married or defacto, 20%) or separated from a partner (widowed, divorced or separated, 12%). When males aged 18–29 who used ecstasy in the last year were compared with those who did not, the ecstasy-using group were more likely to be single (74% vs 60%) than living with a partner (19% vs 36%).

Ecstasy users had a broad range of occupations with some in managerial positions (10%) and professional positions with university degrees (8%), but many others were in clerical/sales (34%), manual employment (15%), and skilled trade jobs (21%) (Table 2).

Table 2. Occupations of last-year ecstasy users in 2001

Occupation	Last-year users (%)
Professional university degree	8
Professional other tertiary	9
Director	1
Managerial	10
Clerical/sales	34
Skilled trade	21
Manual worker	15
Other	2

Comparison of males aged 18–29 who used ecstasy in the last year with those who did not showed that more of the ecstasy-using group were employed in clerical/sales positions (31% vs 20%) and fewer were manual workers (18% vs 28%), while employment in skilled trade (25% vs 23%) and managerial positions (10% vs 8%) was comparable (Table 3).

Respondents were asked about the amount of income they usually receive ‘in the hand’ (ie, after taxes). Consistent with the range of occupations reported, ecstasy users reported a broad range of net incomes. Twenty per cent of ecstasy users earned less than $10 000, and 61% earned less than $30 000. Ten per cent of ecstasy users earned $50 000 or more. Comparison of men aged 18–29 who used ecstasy in the last year with those who had not found the ecstasy users earned only slightly more than those who hadn’t used ecstasy. More of the ecstasy-using group earned $30 000–$39

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999 (25% vs 20%) and $40 000–$49 999 (13% vs 10%), but fewer earned $50 000+ (5% vs 8%).

Table 3. Occupations of men aged 18–29 who used ecstasy and did not use ecstasy in last year, 2001

Occupation	Ecstasy users (%)	Others (%)
Professional university degree	6	9
Professional other tertiary	7	8
Director	0	1
Managerial	10	8
Clerical/sales	31	20
Skilled trade	25	23
Manual worker	18	28
Other	3	2

Discussion

Comparison of the findings from National Drug Surveys in 1998 and 2001 indicates increased use of ecstasy in New Zealand. Due to the difficulties of surveying illicit drug users,[14,15] and in particular heavy drug users,[16] these figures are likely to underestimate the true number of ecstasy users to some extent and consequently are best thought of as conservative estimates. However, the consistency of the survey methodology between the survey waves suggests the increase in use is likely to be fairly accurate. In combination with the increased use of amphetamines, and no change in cannabis use,[17] these findings indicate some change in the nature of drug use in New Zealand. However, cannabis remains New Zealand's most-widely-used illicit drug, with 20% of those aged 15–45 reporting last-year use.[18]

Comparison of the changes in the prevalence of ecstasy use with changes in the use of stimulants (uppers, speed, amphetamine, methamphetamine) from the 1998 and 2001 surveys reveals some interesting differences despite both drugs being commonly associated with the dance party scene. As reported previously, increases in stimulant use were found among those aged 15–17 (1.6% (0.2, 3.0) in 1998 to 5.3% (2.8, 7.9) in 2001) and 20–24 (5.8% (3.4, 8.2) to 10.5% (7.3, 13.7)), and among men aged 15–17 years (1.5% (0.0, 3.2) to 5.7% (2.2, 9.2)).[18] As reported here, increases in ecstasy use were found among those aged 20–24 (3.2% (1.4, 5.1) to 10.0% (6.9, 13.20)) and 25–29 (2.5% (0.9, 4.1) to 6.3% (3.8, 8.9)), and among men aged 20–24 (4.3% (1.4, 7.3) to 12.5% (8.0, 17.1)) and 25–29 years (3.2% (0.8, 5.7) to 8.8% (4.8, 12.9)). The increases in ecstasy use were larger than for stimulants in many of the age cohorts despite the absence of any domestic manufacture of ecstasy in New Zealand. However, there was no significant change in ecstasy use by those aged 15–17 (0.8% (0.0, 1.7) to 1.4% (0.1, 2.7)) compared with a fairly large and significant change in stimulant use in the same age group (1.6% (0.2, 3.0) to 5.3% (2.8, 7.9)). In 2001, 15.0% (7.6, 22.3) of men aged 18–19 had used stimulants in the last year (the highest prevalence of stimulant use for any age cohort for men)[18] compared with only 6.6% (1.4, 11.7) of men aged 18–19 using ecstasy in the last year. This may indicate some cultural, social or economic separation between the use of amphetamine and the use of ecstasy by young people in New Zealand. It may be the case that locally

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manufactured amphetamine is easier for young people to access than internationally smuggled ecstasy.

Reports in 2001 of easier availability and lower prices for ecstasy compared with a year earlier suggest improving conditions of supply despite record seizures of the drug by Customs and Police. However, these data indicate only *changes* in availability and prices and not absolute conditions of supply. It still may be the case that internationally smuggled ecstasy is more difficult to obtain than locally produced methamphetamine and cannabis.

A minority of ecstasy users reported problems related to their use of ecstasy. The areas in which problems were most commonly reported were 'energy and vitality', 'financial position', 'health' and 'outlook on life'. Many of these problems are consistent with the amphetamine attributes of ecstasy, which allow users to sustain long periods of intensive physical activity, such as dancing, while under the influence of the drug but result in exhaustion and depression in the days after use.[5,6] The relatively low level of problems related to 'friendship and social life' (5%) may reflect the empathy-enhancing qualities of ecstasy as opposed to the aggression sometimes reported by amphetamine users. The low level of problems experienced with 'work and work opportunities' (1%) may reflect the fact that unlike traditional amphetamines, which are sometimes used to extend endurance at work, the empathy-inducing qualities of ecstasy restrict its use to leisure contexts.

The eight questions asked about the harms relating to ecstasy use in the 2001 survey can provide only a very broad assessment of the health consequences of use. Respondents were not asked about specific problems and were not able to express the seriousness of the harms they had experienced. Time constraints on the length of the interview meant detailed questioning about the harms of any one drug were not feasible in a population-level drug survey of this type. An Australian study of regular ecstasy users (three times or more in the last year) that drew on a snowball sample and conducted in-depth questioning about harms found users commonly reporting a range of psychological and physical side effects.[6] These included blurred vision (46% of participants), numbness (42%), confusion (30%) and anxiety (27%) while experiencing the effects of the drug, and loss of energy (61%), irritability (60%), muscle aches (58%), insomnia (52%), depression (50%), confusion (36%), anxiety (33%) and paranoia (31%) in the days after use.[6] A high proportion of the participants in the Australian study reported binge and intravenous use of ecstasy, and extensive poly-drug use, all of which may have had an impact on the extent of harms reported.

The popular perception of ecstasy users in New Zealand, as portrayed in the popular media, is often of young, high-income-earning professionals involved in the dance party scene. The examination of the demographic characteristics of last-year ecstasy users from the 2001 National Drug Survey provided only mixed evidence to support this popular stereotype. Ecstasy users were predominantly male and from the 20–29 year age cohorts, but were from a broad range of occupational backgrounds and income-earning capacities. Ecstasy users were more likely to be European, single, have clerical/sales employment, and earn middle-level incomes.

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Minocycline-induced lupus: a case series

David Porter and Andrew Harrison

The potential for medications to cause lupus-like illness has been recognised since 1945, when sulphadiazine was reported to cause a lupus-like syndrome.[1] More than 70 drugs have since been reported as causing a lupus-like syndrome.[2] The more notorious of these drugs, such as procainamide and hydralazine, are no longer in common use, but others such as anticonvulsants, isoniazid, and chlorpromazine are still widely prescribed.

Minocycline is a semisynthetic tetracycline commonly prescribed for the treatment of acne vulgaris, and occasionally prescribed as a disease-modifying anti-rheumatic drug (DMARD) for rheumatoid arthritis. Since 1992, minocycline has increasingly been recognised as a cause of several autoimmune conditions, the most commonly reported of which are a lupus-like syndrome and hepatitis.[3] Serum sickness and ANCA-positive vasculitis have also been described.[3]

Differentiating minocycline-induced lupus (MIL) from idiopathic lupus, or systemic lupus erythematosus (SLE), is important as it has greatly different prognostic and therapeutic implications. We describe six patients with clinical features consistent with minocycline-induced lupus, who presented to rheumatology clinics in Wellington in 1998 and 1999, and review those features in relation to the published literature.

Case reports

Case 1

An 18-year-old woman was referred with a three-month history of arthralgia and swelling of the wrists, proximal interphalangeal (PIP) joints and feet, widespread myalgia and early-morning stiffness of 30 minutes. She had had a transient rash over the shins, which had resolved prior to her clinic appointment. Laboratory testing showed erythrocyte sedimentation rate (ESR) 49, C-reactive protein (CRP) 10, and a positive antinuclear antibody (ANA) test with a titre of 1:1280. She had evidence of hepatitis with alanine transaminase (ALT) 804 and aspartate transaminase (AST) 696. Tests for hepatitis A, B and C, cytomegalovirus (CMV), and Epstein-Barr virus (EBV) were negative, as were tests for rheumatoid factor (RF), antibodies to extractable nuclear antigens (ENA), and histones.

The patient had taken three courses of minocycline for acne in the year prior to symptom onset, each of three months' duration. Within two weeks of stopping minocycline, symptoms had almost fully resolved, ALT had fallen to 95 and AST to 77. Three months after stopping minocycline, all symptoms had resolved, ESR had fallen to 8, ALT to 22 and ANA to 1:320.

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Case 2

A 19-year-old woman presented with a three-month history of intermittent fever, and progressive arthralgia and morning stiffness involving the metacarpophalangeal (MCP) and PIP joints, wrists, elbows, shoulders, neck, ankles and feet. She had been taking minocycline for nine months for acne vulgaris. Three years previously, she had taken a 12-month course of minocycline. Laboratory testing showed ESR 38, CRP 24, ANA 1:320, with negative tests for RF, anti-dsDNA, and ENA. She was advised to discontinue minocycline. Within four days of stopping minocycline, all inflammatory symptoms had fully resolved.

Case 3

A 31-year-old woman developed pain and morning stiffness involving the neck, shoulders, elbows, wrists, and the joints of the fingers and thumbs, 12 months after commencing minocycline. She had additional symptoms of profound lethargy, malaise, intermittent fever and night sweats, and numbness and tingling in a stocking distribution. She had a previous history of autoimmune thyroiditis, and a brother had SLE with predominant skin and renal involvement.

On examination, there was a right knee effusion, left ankle synovitis, and a malar rash. Laboratory testing revealed an ESR of 58, CRP 62, positive ANA 1:80, negative dsDNA and ENA. Immediately after stopping minocycline, her fever, rash, lethargy, malaise and arthralgia fully resolved. ESR fell to 13 and CRP to 0. She remained asymptomatic with normal inflammatory markers six months later.

Case 4

A 32-year-old woman had been under the care of a dermatologist for severe pustular eczema, and been successfully treated with minocycline and azathioprine for two years. After stopping treatment for four months, the eczema returned and treatment was restarted. Three months later she became unwell with fever, sweating, headache, arthritis of the feet and hands, and arthralgia of the knees and shoulders with prominent morning stiffness.

ESR was 114, ANA 1:2560, dsDNA and RF negative. After a month of symptoms, minocycline was stopped and doxycycline substituted. Within a week, fever, joint symptoms, sweating and headache had all resolved. Four months later, she remained asymptomatic, although ANA was further elevated at 1:5120.

Case 5

A 16-year-old male had previously taken minocycline for 15 months, and after a short break had been taking it for a further six months. He presented with intense arthritic pain of two weeks' duration, involving the wrists, hands and feet. On examination, there was diffuse swelling of the fingers and wrists, and bilateral ankle arthritis. ESR was not elevated. ANA was positive 1:5120; dsDNA antibodies, ENA and RF negative. Tests for antineutrophil cytoplasmic antibody (ANCA) were positive in a perinuclear (p-ANCA) distribution. Antihistone antibodies were strongly positive. There was a mild hepatitis with ALT 257. Tests for hepatitis A, B and C, CMV, and EBV were negative. On stopping minocycline, his ALT rapidly returned to normal but he continued to have significant joint pain.

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Four months later, the patient had a flare of joint symptoms, and his ALT rose to 177. He was treated with pulsed methylprednisolone (1000 mg x 3), followed by weekly methotrexate (7.5 mg), daily prednisone (10 mg) and hydroxychloroquine (200 mg). He gradually weaned himself off all medications and had stopped all treatment within six months. At review a further six months later, he remained asymptomatic. His ANA titre was negative on repeated testing, and transaminases remained consistently normal.

Case 6

A 16-year-old female had taken minocycline for five months. After a break of three months she had taken a further two-week course, shortly after which she developed severe arthralgia in the elbows, wrists and knees, with early-morning stiffness of 3–4 hours. She had a photosensitive rash on the cheeks and an effusion in the left knee. Initial blood tests showed ESR 27, CRP 2, ANA 1:160, p-ANCA positive, RF negative, and ALT 139. She was initially diagnosed as having MIL.

Over the next six months, after stopping minocycline, the patient complained of increasing lethargy, morning stiffness and arthralgia, and she developed synovitis of the PIP joints. ESR was persistently elevated and peaked at 101. She was given pulsed methylprednisolone on three consecutive days, which settled her symptoms. Three months later, she had developed hepatosplenomegaly, anti-dsDNA antibodies and anti-ribonuclear protein (RNP) antibodies, and the ANA titre had risen to 1:640. She had also developed anaemia, lymphopenia, and neutropenia. She was commenced on prednisone 20 mg daily, and methotrexate 10 mg weekly. Methotrexate made her feel unwell, so she stopped it after 12 weeks. Prednisone was tapered to 0 mg over 14 months. Six months after stopping prednisone, symptoms remained well controlled by nonsteroidal anti-inflammatory drugs alone.

A summary of all six cases is shown in Table 1.

Table 1. Summary of six cases

Case	Sex	Age	Exposure (months)	Clinical features	ESR	CRP	ANA titre	Other serology
1	F	18	9	Arthritis, malaise, fatigue, rash, hepatitis	49	10	1:1280	
2	F	19	21	Fever, arthralgia	38	24	1:320	
3	F	31	12	Fever, arthritis, lethargy, sensory neuropathy	58	62	1:80	
4	F	32	26	Fever, headache, arthritis	115	6	1:2560	
5	M	16	21	Arthritis, hepatitis	10	5	1:5120	p-ANCA positive, anti-histone antibodies positive
6	F	16	5	Arthritis, malar rash, hepatitis, hepatosplenomegaly	101	2	1:2560	dsDNA positive, p-ANCA positive
Average		**22**	**15.7**		**62**	**18.2**		

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Discussion

Since 1945, many drugs have been reported as having the potential to cause lupus-like illness. Several features of drug-induced illness that differ from idiopathic SLE have been recognised.[4] Males and females are equally affected in drug-induced lupus, whereas idiopathic SLE affects nine times more females than males. Drug-induced disease occurs up to six times more frequently in Caucasians than blacks, whereas idiopathic SLE is common in blacks. The age of onset is older in drug-induced disease, reflecting the age at which people are exposed to causative drugs. Although fever, arthralgia, serositis and ANA occur at least as frequently in drug-induced disease as idiopathic SLE, haematological, renal and CNS involvement, and dsDNA are rare. Antihistone antibodies are found in up to 95% of drug-induced disease, but are not specific, being found also in 50–80% of idiopathic cases.[4]

MIL is similar to lupus-like disease caused by other drugs. The preponderance of young and female patients among those presenting with the condition, which contrasts with those presenting with other drug-induced causes of lupus-like syndromes, may simply reflect the population to which minocycline is prescribed. Hepatic involvement is more common in minocycline-induced disease. The first report of MIL appeared in 1992,[5] and at least 100 cases have now been reported in the literature. A systematic review of reported cases,[6] and two subsequently published case series,[7,8] have highlighted a number of features as outlined below and in Table 2.

Affected patients have usually been exposed to minocycline for long periods (mean 19–25 months), although length of exposure before symptom onset has varied from three days to six years. Patients are usually young (mean age 21–24 years) and female (at least 75% of cases). Acne vulgaris is the usual indication for minocycline, although the condition has been reported in a patient receiving minocycline for rheumatoid arthritis.[8]

Inflammatory arthralgia or frank arthritis is invariably present. Other features include lethargy, malaise, and fever. Hepatic involvement is common, as is dermatological involvement, with livedo reticularis, vasculitis, malar rash, erythema, nodular rash, mouth ulceration and alopecia all having been described. Lung disease,[9] pleurisy,[10] and peripheral neuropathy[8] have occurred. There have been no reports of renal or CNS involvement.

Laboratory findings usually include elevated inflammatory markers, a positive ANA, negative antibodies to dsDNA, and negative tests for antihistone antibodies, although exceptions to all of these findings have been described. Hepatic transaminases are elevated in approximately one third of cases.[8] P-ANCA, when measured, is frequently positive,[8,11] and this may have pathogenetic implications.[11] Anaemia, lymphopenia and hypergammaglobulinemia have less frequently been reported. The persistence of ANA well after resolution of symptoms and other laboratory abnormalities is common.

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Table 2. Features of idiopathic SLE, drug-induced lupus, and minocycline-induced lupus

	Idiopathic SLE	Drug-induced lupus	Minocycline-induced lupus
Female:male ratio	9:1	1:1	9:1
Age affected	young, middle-aged	older	young
Features:			
Arthralgia	common	common	common
Fever	common	common	common
Serositis	common	common	common
Hepatitis	uncommon	uncommon	common
Haematological disease	common	rare	rare
Renal disease	uncommon	rare	rare
CNS disease	uncommon	rare	rare
ANA	common	common	common
dsDNA	common	uncommon	uncommon
Antihistone antibodies	common	common	uncommon

The time to resolution of symptoms on stopping minocycline has been highly variable, from a few days to two years. A series of 20 patients quoted a mean time to resolution of 15.7 weeks.[7] No treatment other than withdrawal of minocycline is usually necessary, but corticosteroid or DMARD therapy has occasionally been required to aid resolution of symptoms.

The first four patients in our series are consistent with the majority of cases reported in the literature. They were young women who had been exposed to minocycline for between 9 and 26 months. They presented with abrupt onset of inflammatory polyarthralgia, malaise, elevated inflammatory markers, and positive ANA. Two had fever, one had sensory neurological symptoms, and one had markedly elevated hepatic transaminases. Symptoms resolved on cessation of minocycline, with resolution taking from a few days to a few weeks. Laboratory abnormalities also resolved, although ANA persisted in at least the two patients for whom follow-up tests were performed.

Diagnostic doubt may arise when there is a long delay between withdrawal of minocycline and resolution of symptoms, or if corticosteroids are required to treat symptoms. Both of these issues arose in the 16-year-old male in our series (Case 5). Rechallenge with minocycline may help in such difficult cases. Patients with MIL who are rechallenged with a single dose of minocycline develop recurrent symptoms associated with a rise in CRP within 12–72 hours of taking minocycline.[8]

As the number of reported cases has grown, the distinction between idiopathic SLE and MIL has become increasingly blurred and differentiation between the two conditions may be difficult. All of the features of idiopathic SLE (with the exception of renal and CNS involvement) have been described in minocycline-induced disease. Adding to this confusion, at least two cases in which idiopathic SLE has apparently been precipitated by minocycline have also been mentioned in the literature.[12] Idiopathic SLE often has a marked elevation of ESR in the presence of a normal CRP (unless serositis or coincident infection is present).[8] Most cases of MIL have elevated CRP, so elevated CRP may help differentiate the two conditions.[11]

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Case 6 in our series highlights these issues, with our patient initially being diagnosed with MIL, with the clinical features, p-ANCA and hepatic involvement supporting the diagnosis. However, she had stopped taking minocycline before symptoms became troublesome and, with the subsequent development of highly elevated ESR in the presence of normal CRP, hepatosplenomegaly, anaemia, lymphopenia, neutropenia, and positive dsDNA and RNP antibodies, it is probable that she in fact had idiopathic SLE. It may be that minocycline was the precipitant of SLE that would have occurred anyway. The fact that one of our cases had a brother with SLE also raises the possibility of minocycline acting as a precipitant in a genetically predisposed individual.

In the three years during which the above cases came to light there were only two cases of lupus caused by drugs other than minocycline seen by the Wellington Regional Rheumatology Unit. Although MIL is very rare in patients who are taking minocycline, the frequency with which the drug is prescribed may well mean that it is now the most common cause of drug-induced lupus. Scanty information exists in the literature about the risk to the individual of developing MIL. One study found an 8.5-fold risk of developing a lupus-like syndrome in current users of minocycline.[13] The same study stressed the low absolute risk of developing lupus-like symptoms, with a rate of 52.8 cases per 100 000 prescriptions. Other tetracycline antibiotics were associated with a much lower risk of developing a lupus-like syndrome, with current use of doxycycline, oxytetracycline, or tetracycline combined being associated with a 1.7-fold increased risk.[13]

It is important that clinicians are aware of the risk of patients on prolonged courses of minocycline developing a lupus-like syndrome, so that inappropriate investigation and treatment can be avoided.

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An uncommon clinical presentation of asbestos-related disease

Chris Walls, Margaret Wilsher and Bill Glass

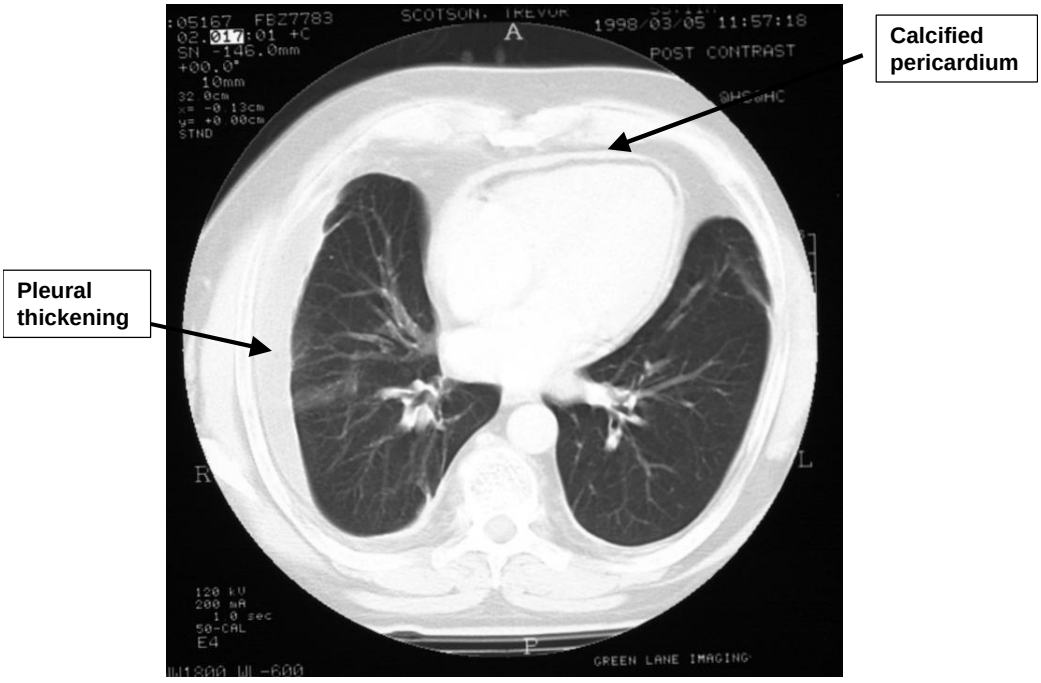
A 55-year-old European fitter and turner required admission to hospital with acute shortness of breath. The diagnoses of transient pericarditis and mild left ventricular impairment (echocardiogram) suggestive of a previous infero-postero-lateral myocardial infarct were made. There was no clinical or biochemical evidence of a recent infarct.

Chest X-ray demonstrated a large left pleural effusion, which on CT scan was loculated. Pleural plaques and significant pleural thickening, 14 mm on the right and 11 mm on the left side, were noted. A biopsy of the pleura was negative for malignant mesothelioma and did not show ferruginuous (asbestos) bodies (nor did a subsequent pericardial biopsy).

Lung function testing showed severely reduced total lung capacity of 3.95 litres (predicted 6.72) and a residual volume of 1.33 litres (predicted 2.3) consistent with restriction. A DLCO (diffusing capacity of the lung for carbon monoxide) was at the lower limit of normal (75% predicted).

The shortness of breath increased and a repeat CT scan demonstrated marked pericardial thickening and both pleural and pericardial calcification (Figure 1). Constrictive pericarditis was diagnosed.

Figure 1. CT scan displaying pleural thickening and pericardial calcification



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At pericardectomy the pericardium was noted to be significantly thickened and in some areas calcified, and the parietal pleura showed significant thickening. Post-operatively there was a good relief of symptoms.

The patient had worked for 22 years as a fitter and turner in various employers' maintenance departments, including working for more than eight years at Auckland's largest asbestos products manufacturing plant. His screening chest X-rays over this employment period deteriorated from normal (at the commencement of employment) to a report of 'pleural thickening, probably pleural fat collections', to 'pleural plaques' on an exit chest X-ray. There had been no leisure-time asbestos exposure.

An ACC claim was declined because constrictive pericarditis was not thought to be a complication of asbestos exposure, because of the uncertainty of the diagnosis (his original claim was for asbestosis), and the lack of asbestos bodies on pleural and pericardial biopsy.

Discussion

The patient suffered from diffuse pleural thickening identified by plain X-ray, CT scan, operative findings and histological diagnosis. Rudd describes pleural disease as 'a less common manifestation of exposure to asbestos than plaque formation. The incidence increases with increasing time after first exposure. Its occurrence is dose related although less clearly so than asbestosis or the malignant diseases.'[1]

The formation of asbestos bodies is dependent on the type and length of fibre and individual patient factors.[2–4] Indeed, Churg and Green state 'There are also limitations to examining asbestos bodies. Some patients and some sizes/types of fibre appear to form bodies poorly, thus this type of analysis may miss real exposure.'[4] Parkes notes that 'Low counts may be encountered in those known to have previous exposure.'[2] The presence (and degree of presence) or absence of bodies is subject to sampling error and technique.

Both Parkes[2] and Parker[3] observe that the presence of asbestos bodies is used to quantify the degree of exposure, unnecessary in this case. This patient's exposure had been quantified by his occupational history, the deterioration of screening chest X-rays while working at an asbestos manufacturing plant, and an abnormal CT scan of the lung.

Rudd also notes that 'exposure to asbestos occasionally causes benign pericardial effusion, thickening and calcification',[1] an observation supported by other reports.[5] Review of the hospital notes of this patient uncovered an amended pericardial biopsy report showing the presence of 'numerous ferruginous (asbestos) bodies, some of which have the finely beaded appearance suggestive of asbestos'.

This case presents two relatively uncommon but accepted consequences of asbestos exposure. The key to assessing the likelihood of causation in this and many occupational medicine cases is not histological sampling but an accurate exposure history and a proper interpretation of workplace biological monitoring (chest X-rays).

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Cyclosporin successfully treats red cell aplasia associated with myelodysplasia

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A 67-year-old Maori man was admitted with macrocytic anaemia and thrombocytopenia (Hb 53 g/l, platelets 40 x 10^9/l, reticulocytes <10 x 10^9/l, left shifted neutrophils) to Middlemore Hospital in November 2000. Bone marrow biopsy revealed myelodysplasia (MDS) with red cell hypoplasia. Cytogenetic analysis showed a normal male karyotype. Over the next nine months, he received approximately 3 units of red cells every 10–14 days. Cross matching was difficult because of a positive direct antiglobulin test and the development of a red cell allo-antibody (anti-K) in April 2001. His serum ferritin reached 2689 µg/l.

A repeat bone marrow in August 2001 was similar to that at presentation, without evidence of acute transformation. A course of prednisone did not improve erythropoiesis and was poorly tolerated because of NIDDM. Cyclosporin (Neoral; Novartis) was then trialled for three months. He became transfusion independent after three months, achieving a maximum Hb of 118 g/l, reticulocytes 62, and his platelets improved to 137 x 10^9/l. An incidental clinical benefit was an improvement in left shoulder joint pain. The anti-K antibody also became undetectable on routine testing. The patient resumed full-time employment.

In March 2002, the Exceptional Circumstances Committee approved a subsidy for ongoing cyclosporin therapy. The patient remained transfusion independent for the next nine months. The cost of cyclosporin therapy was $10 160 /year, in comparison to $24 115 for the transfusions (includes day admissions, intravenous equipment, pre-medications, cross matching, and the individual blood units (87 @ $159/unit)).

This case demonstrates that transfusions to support patients with chronic blood disorders can be expensive. The cost of blood has increased in recent years with the introduction of nucleic acid testing for viral screening and universal leucodepletion of donor blood. Donor numbers have also fallen with the introduction of policies to make donor blood even safer, such as those aimed at reducing the potential risk of variant CJD. Also, iron chelation therapy (desferrioxamine) at a dose of 1.4–4 g daily for a 70 kg adult and at a cost of $13 500 – $38 563 /year, is necessary for patients with good prognostic or non-malignant chronic blood disorders (such as β thalassaemia major) to avoid organ damage and prolong survival.

Although MDS is a relatively common condition the association with red cell aplasia is very rare, with only 20 cases reported in the last five years.[1,2] We now also have a second patient with MDS and associated red cell aplasia who has just become transfusion independent after receiving cyclosporin.

In selected patients with rare haematological disorders, transfusion-sparing therapies may be cost effective (as well as improving the quality of life) and should be considered. These include agents not (yet) registered for rare conditions such as

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erythropoietin[3] (recently reduced in price but only registered for anaemia of renal failure), cyclosporin,[2] thalidomide,[4] or Mabthera.[5] Also, from the perspective of the voluntary blood donor, blood should only be used when there are no other alternatives.

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ARSENIC AND CANCER.—The following is from the *Hospital*, and it is of considerable interest: "Notwithstanding the attempts made by some of his surgical friends to throw ridicule upon his hypothesis, Mr. Jonathan Hutchinson sticks to the idea that the gradually increasing dissemination of arsenic, which results from the artificiality of modern life, may have some casual relation to the gradually increasing prevalence of cancer which is stated to have taken place during recent years in progressive countries. In the *Polyclinic*, of which he is the editor, an article appears, under the heading 'Arsenic and Cancer,' which says, 'The suggestion that arsenic has played a part, and possibly not an unimportant one, in the recent increase of cancer finds suggestive illustrations on all sides. Dr. Solomon Smith writes to us to ask attention to the fact that soot contains arsenic, and that in this way its well-known influence in producing cancer may now be explained. Should this be accepted, a paragraph in an article on cancer in the new volume of the "Encyclopædia Britannica" will read almost like a prophecy.' After discussing the influence of vocation upon the incidence of cancer, Dr. Shadwell concludes by saying that nothing is proved excepting the one fact that chimney-sweeps are far more liable to it than others. He adds, The soot is supposed to act as an irritant; but, if so, why are potters and coal-miners, who also work in irritating materials, so very low in the cancer scale? No doubt the case of the chimney-sweep contains one of the keys to the problems of cancer causation, but it has not been found yet. Now, possibly, in the suggestion as to arsenic the key has been found." The suggestion at present made as regards arsenic is, it says, that whether taken medicinally or dietically, or inhaled as dust, or applied externally to the skin, it has the effect, often without producing other symptoms of derangement, of predisposing the tissues to cancerous modes of growth. This, of course, falls very far short of what some of the daily papers, which have commented upon Mr. Hutchinson's remarks, have attributed to him.

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A hairy device

Figure 1. In vitro image of an embolisation coil used to occlude actively bleeding arteries or to devascularise pathological vascular beds such as arteriovenous malformations and aneurysms. The coils are loaded in a linear configuration into a percutaneously placed angiographic catheter and delivered under radiological control, reforming the spiral shape when exiting the delivery catheter. The Dacron hairs increase thrombogenicity.

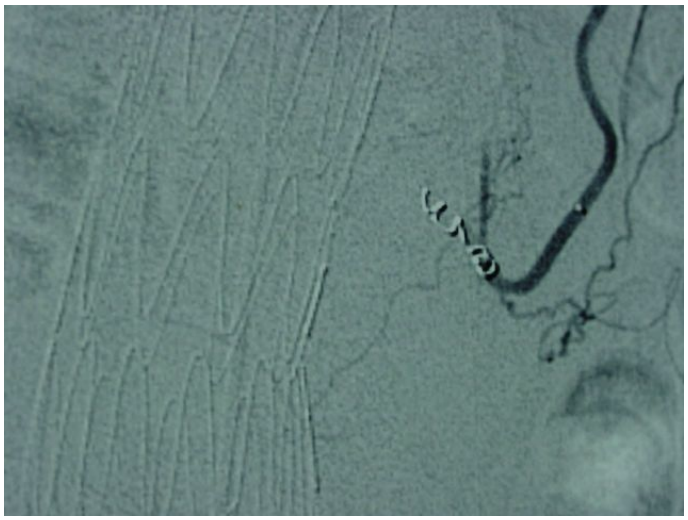

Figure 2. A coil occluding the inferior mesenteric artery placed via the superior mesenteric artery to prevent retrograde filling of an abdominal aortic aneurysm previously treated with an endoluminal prosthesis.

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Insider to lead World Health Organization

A relatively unknown insider, Jong Wook Lee, has been tapped as the next director-general of the World Health Organization (WHO). The South Korean tuberculosis expert has worked at WHO for nearly 20 years, most recently as head of WHO's Stop TB antituberculosis programme.

The 28 January vote by the organization's Executive Board at WHO's Geneva, Switzerland, headquarters was close: Lee received 17 votes to 15 for runner-up Peter Piot, head of UNAIDS. Three other finalists – Pascoal Manuel Mocumbi, prime minister of Mozambique; Ismail Sallam, Egypt's former health minister; and Mexico's health minister Julio Frenk – were eliminated in a first round of voting.

Lee has said he will work to decentralize WHO and strengthen its country and regional offices. The WHO General Assembly is expected to approve Lee's nomination at its meeting in May. He will take over from current Director-General Gro Harlem Brundtland at the end of June.

Science 2003;299:639

Arkansas bans selling of clean urine to beat drug testing

The state of Arkansas has passed a bill that bans the sale of urine. Representative Jay Martin lobbied for and won passage of a bill to make it illegal to sell or use "clean urine" in order to pass a drug or alcohol test.

People found guilty of trafficking in urine are subject to three months' imprisonment and a fine of up to $500 (£300; €470).

Urine tests are widely used throughout the United States in pre-employment physical examinations. People who fail urine tests may be denied employment. Also, many employees are subjected to spot urine tests. Occasionally patients may seek clean urine in order to falsify their medical condition or hide illicit drug use from their practitioners. Amateur and professional athletes are also subjected to periodic urine tests for amphetamines and steroids.

A burgeoning business in uncontaminated urine samples has arisen to provide urine for people who are at risk of failing urine drug tests. Some of the companies sell pretested human urine, while others sell a urine substitute that tests as clean urine.

BMJ 2003;326:300

Interferons in relapsing remitting multiple sclerosis: a systematic review

Recombinant interferons have been approved by many national regulatory agencies for treatment of relapsing remitting multiple sclerosis, but widespread discussion continues about their true effectiveness, benefits, side-effects, and costs.

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In this paper from Milan, the authors reviewed all published, randomised, placebo-controlled trials of recombinant interferons undertaken in patients with relapsing remitting multiple sclerosis between 1993 and 2002. The primary aim was to find out whether recombinant interferons reduced the number of patients who had clinical exacerbations and disease progression, compared with placebo.

The seven trials that met the criteria included 1215 randomised patients: data from 667 (55%) were available for analysis at 1 year's and from 919 (76%) at 2 years' follow-up.

Recombinant interferons slightly reduce the number of patients who have exacerbations during first year of treatment. Their clinical effect beyond 1 year is uncertain and new trials are needed to assess their long-term effectiveness and side-effects.

Lancet 2003;361:545–52

New Zealand waiting lists not a unique problem

The credibility of government claims to be cutting waiting times in health service hospitals was put in doubt by a report last week from the audit commission showing widespread error in official waiting list records.

In a check of 41 NHS trusts, the commission found that three had fiddled the figures and 19 made mistakes in information that will be used to assess whether ministers have met targets for reducing waiting times.

One hospital's figures were declared impossible to assess because its information technology was inadequate. And 15 were found to have systemic weaknesses that increased the risk of errors. The commission also disclosed that it had left two NHS trusts out of its spot check after strategic health authorities began investigating allegations of waiting list manipulation.

James Strachan, the commission chairman, said: "This report shows widespread inaccuracy in waiting list figures – some deliberate but much due to ineffective management or inadequate systems."

Guardian Weekly, 13–19 March 2003

Second cancer case halts gene-therapy trials

The world of gene therapy was shaken last year when a child treated in a French trial developed leukaemia. Researchers had pinned their hopes on this being an unfortunate one-off. Now those hopes have been dashed with the emergence of a second, almost identical case that could jeopardise the future of gene therapy.

The latest case centres on a three-year-old boy treated in a gene-therapy trial led by Alain Fischer at the Necker Hospital for Sick Children in Paris. Just under three years ago, the child was cured of severe combined immunodeficiency disease (SCID), a condition that disrupts the development of the immune system. But researchers revealed last week that the boy was diagnosed with leukaemia just days before Christmas.

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The news last August that a child in Fischer's trial had developed cancer left nations divided over their regulatory response. This time there was greater accord. Britain has stopped the world's only active SCID trial, and the US Food and Drug Administration (FDA) has suspended more than two dozen similar gene-therapy trials in a variety of diseases – trials it had allowed to continue after August's incident.

The setback is all the more serious because it arises in a trial that was widely viewed as gene therapy's only true success. Fischer has so far cured nine boys – including the two who now have leukaemia – out of 11 patients.

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The lost generation

Generations ago, medical practitioners with ‘specialist’ medical skills were grateful for an appointment to an ‘honorary’ position in New Zealand public hospitals. The introduction of free public hospital treatment in 1939 created a more formal, salaried specialist structure in our hospitals, though the term ‘honorary’ did persist for some time.[1] Nearly all non-academic specialist posts were ‘part-time visiting’ positions and these provided not only specialist care for public patients but also facilitated professional development. In addition, there were opportunities for private professional practice. For many years part-time visiting staff were stratified into ‘junior’ and ‘senior’ status, the latter improving the individual’s position within the hospital and providing leadership opportunities, salary advantages and also exclusion from the duty roster. Most public hospital commitments continued for the professional life (usually until retirement at 65 years of age) of the individuals, with advantages to both the hospital and community.

Some public hospitals, such as the National Women’s Hospital, developed more prestigious positions based on their national and international reputations for clinical excellence, teaching and research. Appointments to the part-time visiting staff of such hospitals were highly competitive, often requiring lengthy consultant ‘apprenticeships’ at less prestigious public institutions. Today there is no competition for consultant posts in the hospital. In recent years almost the entire generation of part-time visiting obstetric and gynaecological specialists at the National Women’s Hospital in the 45–60 year age group (10 names spring to mind) has left the hospital. These people have either voluntarily resigned or have been forced to leave because of differences with management or because working conditions have become unacceptable. In some instances valued consultants have been forced to leave their public hospital positions because management have perceived their private practice to be in competition with the public sector. None has left solely for commercial reasons. They join an increasing group of specialists who from the outset of their professional careers opt to work exclusively in the private sector. The individuals leaving the public sector in the 45–60 year age group are in most instances doing so at the peak of their professional lives. They are all capable of providing a wealth of low-cost clinical experience and leadership in a major teaching hospital. This has all been lost, and the hospital and community (which largely paid for their education) are the poorer for it. In addition, an irreplaceable amount of institutional knowledge is lost with them.

The dichotomy that exists between clinicians (whose priority is optimal patient care) and managers (whose priority is budget containment) inevitably leads to conflict. The employment of lower-cost, less-experienced specialists is clearly appealing to management.

A significant change experienced by those who elect to remain in the public hospital relates to leadership. Leadership emerges in those with certain personal qualities and with increasing experience. Political change has led to the incorrect perception that many experienced individuals with leadership qualities are a threat to management. Potential leaders (often in the 45–60 year age group) have been marginalised and/or

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eliminated and in their place management have frequently appointed young, relatively inexperienced clinical directors and leaders with the object of rubber-stamping the constantly changing policies of itinerant generic managers. (NWH has had 10 managers in little over a decade). Another evolutionary feature in the public hospital is the erosion of loyalty and respect to the institution. Fortunately, the majority of specialists working in New Zealand public hospitals today are of high calibre. Sadly, however, a trend has emerged in which experienced clinicians in their middle years, who should be providing experience and leadership, are leaving public hospitals because of the 'system' when previously they would have continued working in the public sector until retirement. The implications for the future, in particular with regards to patient care, the education of students and postgraduate training of doctors, do not bear contemplation.

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Attention-Deficit/Hyperactivity Disorder

Screening for Attention-Deficit/Hyperactivity Disorder (ADHD) can be particularly useful when trying to rule out a common condition that can present with a variety of symptom profiles. Diagnosing ADHD can be difficult if it is a comorbid condition and if the symptoms are primarily inattentive.

I have designed a questionnaire (Figure 1), which is a direct copy of the criteria (Section A) from DSM-IV.[1] The DSM-IV criteria for ADHD were not designed to be used as a questionnaire, for example by parents and teachers. However, the criteria are easily understood by lay persons. The use of such a questionnaire can assist with diagnosis.

In New Zealand, the DSM-IV criteria are printed on the back of the form used to seek approval numbers for the prescribing of stimulants. It is a requirement that these criteria are present before applying for an approval number.[2]

I have included in the questionnaire comment if the patient had symptoms that were significant in the past but are not necessarily significant currently. This information is relevant when the subject has commenced treatment or is an adolescent or adult and, for example, no longer fidgets, squirms, or 'often leaves seat'.

Although the DSM-IV definition of ADHD has achieved wide acceptance,[3] DSM-V will need to address the following issues:

- Criteria A(2) (a) 'often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)' and (e) 'is often 'on the go' or acts as if 'driven by a motor'' are essentially the same symptom.
- Criteria A(1) (a) 'often fails to give close attention to details or makes careless mistakes in school work, work, or other activities' and (b) 'often has difficulties sustaining attention in tasks or play activities' again measure very similar parameters.
- Also, if a patient has five of the symptoms of inattention and five of hyperactivity and impulsivity, according to DSM-IV they will not qualify for diagnosis of ADHD and this can a) have significant implications for seeking approval for prescribing of stimulants, and b) lead to a child not qualifying for appropriate help from specialist education services or welfare agencies. However, if ten of the symptoms of ADHD are present it would be unusual not to make a clinical diagnosis of ADHD.

In everyday practice, clinicians do not adhere rigidly to basing diagnoses on diagnostic criteria alone, and they use clinical judgement.

Finally, my experience would suggest that ADHD can occur exclusively during the course of a Pervasive Developmental Disorder, which is cited as an exclusion criterion in DSM-IV.

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Figure 1. ADHD questionnaire developed from DSM-IV

QUESTIONNAIRE Re: Name {*Client*} _____ Date of Birth: _____

Today's Date: _____Completed by: _____

Symptoms of inattention that have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

	NO	YES	Any comments, eg, at what age symptoms were significant if not significant now
Often fails to give close attention to details or makes careless mistakes in school work, work, or other activities			
Often has difficulty sustaining attention in tasks or play activities			
Often does not seem to listen when spoken to directly			
Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)			
Often has difficulty organising tasks and activities			
Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)			
Often loses things necessary for tasks or activities (eg, toys, school assignments, pencils, books or tools)			
Is often easily distracted by extraneous stimuli			
Is often forgetful in daily activities			

Symptoms of hyperactivity-impulsivity that have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:

	NO	YES	Any comments, eg, at what age symptoms were significant if not significant now
Often fidgets with hands or feet or squirms in seat			
Often leaves seat in classroom or in other situations in which remaining seated is expected			
Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults may be limited to subjective feelings of restlessness)			
Often has difficulty playing or engaging in leisure activities quietly			
Is often 'on the go' or often acts as if 'driven by a motor'			
Often talks excessively			
Often blurts out answers before questions have been completed			
Often has difficulty awaiting turn			
Often interrupts or intrudes on others (eg, butting into conversations or games)			

I first noticed some signs of the above at the age of _____

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HbA1c standardisation issues: should New Zealand follow the DCCT or the IFCC position?

The Diabetes Control and Complications Trial (DCCT) established that improved glycaemic control (assessed by HbA1c) could prevent or retard the progression of microvascular complications in Type 1 diabetes.[1] The United Kingdom Prospective Diabetes Study[2] (UKPDS) showed similar findings in Type 2 diabetes using the same HbA1c standardisation as DCCT so that its results were comparable. Diabetes physicians prefer to be able to relate their patients' HbA1c results to those in these landmark trials.[3]

Many factors, however, have contributed to poor standardisation of HbA1c measurement including poor definition of the analyte, the fact that non-glycated material contributes to the HbA1c peak, and poor calibration.

In 1996, the American Association of Clinical Chemists (AACC), in collaboration with the American Diabetes Association, established the National Glycohaemoglobin Standardisation Programme (NGSP). This programme adopted the HPLC reference method used in the DCCT (Bio-Rex 70) as the Designated Comparison Method to enable manufacturers to establish traceability to DCCT through a national reference laboratory (NRL).

The NGSP has been successful in improving comparability of HbA1c testing in the USA,[4] although to a standard assay that may not reflect 'analytically pure' HbA1c. Over 90% of laboratories in the USA, and many worldwide, now meet standards of 'DCCT traceability' through this programme.

In recent years, the International Federation of Clinical Chemistry (IFCC) has developed a reference method (HPLC-CE or, based on mass spectrometry, HPLC-MS) with precise definition of the analyte and a network of reference laboratories.

A key issue, however, is that the IFCC method of measuring HbA1c yields normal (non-diabetic) values that are significantly lower[5] than those derived by the NGSP, DCCT and UKPDS. Thus, the non-diabetic reference range is about 3–5% rather than 4–6%. 'Good glycaemic control' defined by the IFCC method is 5%, and control requiring treatment alteration >6% (compared with 7% and 8% respectively as defined by DCCT).

Given the above considerations, there are three options:

1. Keep current DCCT traceable methodology.
2. Change all assay results to values anchored to the IFCC reference method.
3. Switch from the current HPLC to the new MS-based assay, but develop a reliable 'master equation' that transforms the new assay results into numbers equivalent to those considered to be 'DCCT traceable'. There would thus be no requirement for an adjustment in interpretation.

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IFCC standardisation of HbA1c measurement may confer significant advantages, although would be disruptive if it meant that new reference ranges had to be learned and guidelines for diabetes management adjusted accordingly.

A European Union, in vitro diagnostics directive has stipulated that results of diagnostic systems must be traceable to a (IFCC) reference measurement by the end of 2003. Some countries may move to report exclusively IFCC values (Sweden, Germany), whereas other European countries may report both IFCC- and DCCT-aligned HbA1c results.

A decision will need to be made in New Zealand (and Australia) whether to continue to report DCCT-aligned HbA1c results or move to IFCC standardisation, and whether to adopt a master equation to convert the results. There should ideally be a consensus between clinicians and the laboratory.

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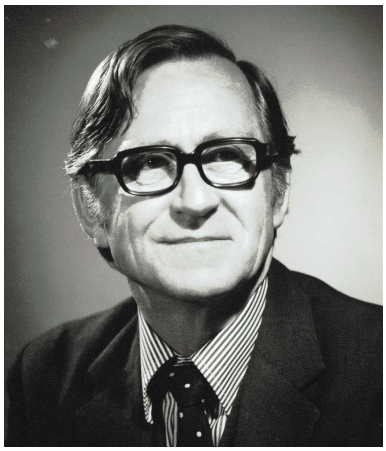
John Bird Lovell-Smith

John Bird Lovell-Smith, a distinguished general practitioner, historian and author, died in his 80th year in October 2002.



John was a true Cantabrian, his ancestors having arrived at Lyttleton aboard the *William Miles*, which had sailed from Bristol in 1861 as part of the fleet of 'the first five ships'. He took great pride in the knowledge that Kate Sheppard, suffragette and temperance advocate was his step-grandmother even if he did not let all of her beliefs permeate his life.

Educated at Saint Andrew's College, he completed Medical Intermediate at Canterbury University College before proceeding to Medical School at the University of Otago.

At Saint Andrew's he was a prefect, member of the 1st XV, Senior Athletic Champion and pipe major of the College's pipe band. While tackling Medical Intermediate he indulged his thespian talents with some success, touring with a Shakespearean production. Despite the encouragement and advice of Ngaio Marsh, a family friend, parental advice proved influential (if less encouraging) and he thereafter dedicated himself to his medical studies.

On graduation John took a house surgeon posting at Masterton Hospital. At the end of that sojourn he entered general practice in Tokoroa and Mangakino. After three years in the Waikato, he moved to Auckland in 1955 and established himself in solo practice in Epsom. It was there that I first met John, when he gave me my first opportunity to indulge in real general practice. I acted as his locum tenens, allowing John and his wife Nan to have a holiday and, as was the common custom at the time, my wife Lorraine and I moved into the Lovell-Smith home. Lorraine had the more arduous task – as well as caring for me and our two small children she looked after the home, which included the five Lovell-Smith progeny. I looked after the practice and, from my access to his records and the remarks of his patients, I quickly formed the view that John was the epitome of all that was best in general practice. There never arose any cause for me to change that opinion.

In 1968 John was appointed as the first Medical Secretary of the Medical Association of New Zealand (as the New Zealand Medical Association was known from the time of its separation from the British Medical Association in 1967 until 1974) and continued in that role until 1971. The position was a full-time appointment and he was responsible for liaison with divisions, editing *News and Views*, and the Association's public relations. It involved him giving up his Epsom practice and moving to Wellington.

His appointment was a result of his conviction that a united and strong profession was the best safeguard for the best development of health services in New Zealand. He

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already had an intimate knowledge of the history of the Association and his book, first published in 1966, *The New Zealand Doctor and the Welfare State* is still essential reading for anyone interested in medical history and politics. In writing it John had spent time with the legendary JPS Jamieson and gained first-hand knowledge of the events surrounding the introduction of social security to New Zealand in 1943. Many of the Minhinnick cartoons of that period that enliven the book retain their relevance today.

Following his time in Wellington, John returned to Auckland and joined Dr Stuart Brown and his colleagues in their Remuera group practice. He worked there until his retirement in May 1994, apart from taking a brief leave period, in 1976, when he had an appointment as a visiting professor at the Kent State University, Ohio.

John was a tireless worker on behalf of his colleagues and served both the NZMA and the Royal New Zealand College of General Practitioners as an office bearer. At various times he was President of the Auckland Division of the NZMA and Chairman and Provost of the Auckland Faculty of the RNZCGP. He was elected a Fellow of the RNZCGP in 1977 and Fellow of the NZMA in 1981. He was also elected a Fellow of the Royal College of General Practitioners in 1981. Among other posts held, he was President of the Auckland Clinical Society, member of the Auckland Hospital Board and a trustee of the New Zealand Blood Foundation. He continued to contribute throughout his life and at the time of his death was still a trustee of the Auckland Medical Benevolent Fund.

One of John's major contributions to medical politics, however, was not only unwitting but most serendipitous. During the dispute between the profession and the Minister of Health in 1985, a group of us, at the suggestion of Dr M Satyanand (another stalwart of the profession recently deceased), consulted the barrister Mr Paul Temm QC. Paul, after listening carefully to our story and deciding the Minister had a case to answer by way of a judicial review of his actions, said, with scrupulous attention to the ethics of his profession, "Well, now you will have to find a solicitor." Since John had recently retired from the Executive of the Auckland Division of the NZMA, our automatic response was to ask his daughter Jane, now Judge Lovell-Smith, to act on our behalf. Jane suspected we had a different reason for approaching her but thankfully she agreed to assist us and was instrumental in achieving the successful outcome that was a landmark for general practice.

On reflection, it all seems singularly appropriate. Despite his professional achievements, John's greatest love was for his family and his considerable pride in them was well justified.

After his family and profession came trout fishing (at Taupo and an art acquired in the company of his friends and colleagues Donald Faull, Bill Johnstone and Tony Hunter, all of whom predeceased him), then reading, car rallying and, later, bowls.

The final tribute paid to him was by his friend and former colleague Stuart Brown, who in delivering his eulogy quoted Wordsworth: "...that best portion of a good man's life, his little, nameless, unremembered, acts of kindness and of love."

John is survived by his wife Nan, their children Jane, Penelope, Elizabeth, Bill and Hew, and nine grandchildren.

We are grateful to Dr Tom Marshall, who wrote this obituary with assistance from Rosemary Dawson and Stuart Brown

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ABC of clinical haematology, 2nd edition

Drew Provan (ed). Published by BMJ Books 2003. ISBN 0-7279-1676-9. Contains 88 pages. GBP 17.95

The second edition of this text follows six years on from the successful formula of its predecessor, which was originally published in instalments in the BMJ and is still available without charge on the web site (www.bmj.com). It provides an overview of haematology for medical students and non-specialists. I have used many chapters from the first edition to support my teaching of medical students at Christchurch. Each chapter is self-contained, heavily illustrated and easy to read. The majority of contributors are distinguished UK faculty members – some others have been added as earlier specialist registrar authors have moved on.

Clearly some material has been updated – for example antibody therapy for lymphoma, and imatinib treatment for chronic myeloid leukaemia. There has understandably been less progress in the last few years in iron deficiency anaemia. It was interesting to compare the final chapter of each of the editions. According to one of the tables appearing in both, the future of haematology is identical now to how it was seen before, except in the case of thrombopoietin (which was a huge disappointment and has been replaced in the new edition with monoclonal antibodies). But whereas gene therapy of haemophilia had excellent prospects according to the first edition, the second summarises phase 1 trials, and a description of microarray technology replaces a discussion of PCR utility. Each chapter is now followed by a brief bibliography for further reading, which is a welcome development.

Fortunately, the key teaching points in haematology remain the same now as then and are elegantly communicated in the new edition. I see the book's principal competitor as Hoffbrand and Petit's *Essential Haematology* – also recently updated. The *ABC* is easier and the Essentials are more extensive and of greater value to the FRACP candidate. I use both publications and the new edition of the *ABC* is timely.

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Evidence-based cardiology, 2nd edition

Salim Yusuf, John A Cairns, A John Camm, Ernest L Fallen, Bernard J Gersh (eds). Published by BMJ Books 2003. ISBN 0-7279-1699-8. Contains 992 page. GBP 90

The proliferation of clinical trial data in cardiovascular medicine has enabled practitioners to base more of their clinical decisions on a solid foundation of evidence. Ready access to this information is difficult for the individual clinician. In addition, many areas of cardiovascular medicine have not been subject to large randomized controlled trials and evaluating the evidence in these areas is often more difficult than in others. A publication that aims to provide comprehensive coverage of the best evidence for the diagnosis and management of cardiovascular disorders has an obvious appeal. *Evidence-based Cardiology*, by pulling together a large number of authors who are experts in their particular fields, aims to fulfil this role.

Reactions to the concept of evidence-based medicine vary but, undoubtedly, if this book is read in a critical fashion it provides an important summary of the clinical research underlying much of the decision making in cardiovascular medicine. It is a strength of the book that the authors in general do attempt to pull the evidence together and provide opinions and conclusions.

Four sections cover clinical epidemiology, prevention of cardiovascular disease, specific cardiovascular disorders, and specific clinical cases and scenarios. Coverage includes such wide-ranging topics as health economics and the fetal origins of coronary disease. This is not a textbook of cardiovascular medicine in the standard sense and in that regard not all topics are covered. This, of course, may well be appropriate for those areas in which an evidence-based approach is not possible, however it does seem somewhat arbitrary to have a section on pericardial disease but not on problems such as aortic dissection or pulmonary hypertension.

The rapidly changing nature of medical practice has a heavy impact on a textbook of this nature. The chapter on postmenopausal hormone replacement therapy is a case in point with an addendum covering the results of the Women's Health Initiative study that was terminated prematurely in July 2002. In an effort to address the rapid accumulation of new information a CD-ROM is included, which gives access to a web site where updates will be available. In addition, a version for the personal digital assistant will be available.

The audience for this important book should be wide given the role of cardiovascular medicine in the practice of medicine in general. It would be particularly useful to those undertaking advanced training in cardiology.

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