

Welcome to the ninth issue of the New Zealand Medical Student Journal (NZMSJ). It is now over five years since our first issue was published, and our continued success is a testament to the unique qualities of New Zealand medical students. One such quality is an inspiring 'can-do' attitude – in fact, to our knowledge we are one of only two entirely student-led journals in the world to publish original peer-reviewed research. We are delighted to continue to be able to provide a forum for this country's passionate medical students to publish their own original research and express their views on important issues.

New Zealand medical students are currently the object of several government-based schemes such as Voluntary Bonding and a significant increase in medical students' numbers over the coming years. We would like to take this opportunity to encourage your comments and opinions on these important topics because it is only through discussion and awareness that we can play a part in improving the health care system in New Zealand. In addition to addressing issues specific to our country, we are enthusiastic about publishing articles on global health and have regularly done so in the past. The 18th International Physicians for the Prevention of Nuclear War (IPPNW) World Congress was held last year in Delhi, India and in this issue you will find a full report by medical student attendees Rachael Cowie, Andrew Wainwright and Rosemary Wyber.

Medical students are often faced with situations that they may not necessarily feel prepared for. Especially at the start of the clinical years, students are striving to increase their biomedical knowledge of disease as well as become proficient in the many technical aspects of medical care. However, alongside these challenges are ethical issues that many students will never have had to previously deal with in their lives. Moral grey areas are everywhere in Medicine but there is no simple way for us, as medical students, to learn how to decide what is the 'right thing to do'. One important aspect in developing ethical knowledge is to write about difficult issues and read widely on what others have to say. In this issue of NZMSJ, the ethical considerations around end of life decisions are explored in J. Charmaine Chan's thought-provoking article, "To treat, or not to treat?".

We would like to thank Professor Peter Crampton, Dean of the Wellington School of Medicine, for not only his kind sponsorship of this issue's Dean's Writing Prize, but also his input into the selection of the winning article: "Sarcopenic Obesity with Polypharmacy is Associated with Gait and Balance Disturbances in Older Adults", by Lauren Tarawhiti who has completed her BPhEd in Clinical Exercise Prescription from the University of Otago's School of Physical Education.

We are very proud to be able to celebrate the hard work of New Zealand medical students. As well as keeping up with a demanding academic degree programme, many students also find time to conduct original research, and we are excited to be able to publish this work and give it the recognition it deserves. Congratulations must go to all authors represented in this issue: being published is an admirable achievement that we hope you all feel proud of. We certainly look forward to receiving such excellent submissions in the future.

The NZMSJ Executive.

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Bridging the Gap: Strategies to promote the recruitment and retention of Pacific Islanders into the health professions

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given the difficulties involved in their recruitment into the health systems of many countries. New Zealand is no exception and the problem of increasing the participation of Maori and Pacific people in the health and disability workforce is exercising the minds of government and educational institutions alike.⁷

Pacific Islanders make up 6.9% of the New Zealand population, a proportion that is predicted to increase rapidly.⁸ At present, however, only 1.3% of doctors, 2.8% of nurses, 0.5% of dentists, 0.2% of pharmacists, 0.7% of physiotherapists and 1.3% of medical laboratory scientists are Pacific Islanders.⁹ If these numbers could be increased then some of the health disparities noted in New Zealand between Pacific people and other groups might be reduced.¹⁰

There is currently no system to collect comprehensive data about Pacific students enrolled in all tertiary health professional programmes in New Zealand. However, a survey of Otago and Auckland medical students in 2001 revealed that 4.3% were of Pacific descent.¹¹ More recently, a review conducted in 2006 of Pacific students enrolled at the University of Otago showed that 25 were enrolled for medicine (2% of all medical students), 5 for dentistry (1.8%), 18 for pharmacy (4.8%), 4 for physiotherapy (1%) and 3 for medical laboratory science (3.1%).¹²

Why are these numbers so much lower than equivalent numbers in the population? What, if anything, are the barriers to recruitment of Pacific people into the health professions? Four major factors, structural, systemic, organizational and individual, were identified in 2008 as barriers to the recruitment of Maori into the health and disability workforce.⁷ Does a similar set of barriers exist for Pacific people? Do the motivators for career choice for Pacific students in particular differ from those of other health science students in general?¹³

Aims of this study

The purpose of this study was to identify factors that might hinder and/or contribute towards recruitment of Pacific people into the health professions in New Zealand. The investigation was confined for logistical reasons to Pacific Island students enrolled in the health professional programmes at the University of Otago and the University of Auckland.

METHOD

An anonymised, self-completed questionnaire was developed and piloted on non-Pacific students with some minor changes being made prior to administration to the target group. The questionnaire requested demographic information, reasons affecting career choice, barriers and support systems and other associated factors. Ethical approval for the survey was obtained from the University of Otago Ethics Committee.

Erratum

Following from the article published by him in Issue 8 of the Journal, Dr Warwick Bagg (Senior Lecturer, University of Auckland) would like to acknowledge the many University of Auckland and Northland stakeholders who participated in the design and implementation of the Northland Regional-Rural Programme, Pūkawakawa.

Unfortunately due to limitations of the publishing software, macrons that should have been printed were omitted.

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ABSTRACT

Aims: To describe the characteristics of Pacific students enrolled in health professional courses at the University of Otago and the University of Auckland, and to identify factors which influence their career choices.

Methods: An online survey was designed and offered to Pacific Island students enrolled in health professional courses at the University of Otago and the University of Auckland. The questionnaire requested demographic information, motivation for choosing a career in health, barriers and support systems utilised by Pacific students.

Results: The majority (68%) of the survey respondents gained entry after a first year health sciences course. Half of the survey respondents were born in New Zealand; and 28% were born in one of the Pacific Islands. Approximately two thirds of students were bilingual and half had attended a high-decile ranking secondary school in New Zealand. Although most of their parents had some post-secondary education, very few were health professionals. The majority of the respondents stated they wished to work to improve the health of the New Zealand Pacific community and assist in developing the health infrastructure of Pacific Island nations.

Conclusions: Differences between the study and general health professional student populations were identified, as were differences between the Pacific student population and general New Zealand Pacific population, thus indicating strategies that might be employed to increase recruitment of Pacific people into the health professions.

INTRODUCTION

When people seek health care they will, whenever possible, seek assistance from those professionals with whom they can identify most readily. This is especially the case for those patients who belong to a minority group in any given population, whether these are Native, African or Hispanic Americans living in the United States¹⁻⁴ or Maori and Pacific people living in New Zealand.^{5, 6} However, such professionals may be hard to find

All Pacific students enrolled in health professional courses at the University of Otago and University of Auckland were identified using databases maintained by Pacific student organizations within the two universities. Other networks such as the Pasifika Medical Association (PMA) mailing list, and the University Pacific Island Centers were also utilized. Pacific Island students in this study included any students who were of Polynesian, Melanesian or Micronesian descent including Fijian Indians.

The survey, which was conducted over four months from November 2006 to March 2007, was posted to all eligible students with frequent reminders being sent via e-mail. The questionnaire was also made available on line using the survey design package, Survey Monkey; (www.surveymonkey.com).

RESULTS

Sixty students completed the questionnaire, 38 (63%) from the University of Otago and 23 (37%) from the University of Auckland. The response rate could not be determined, unfortunately, because the number of Pacific students enrolled in health professional courses was not available from one of the institutions.

Demographic Characteristics

The average age of respondents was 22, ranging from 18 – 28 years, with equal numbers of male and female. Half of the respondents were born in New Zealand, with most of those born overseas coming from the Pacific islands (n=17, 28%) mainly from Fiji. The majority (n=53, 88%) were New Zealand citizens or permanent residents, single (n=56, 93%) and bilingual (n=43, 74%).

Table 1: Demographic characteristics of Pacific health professional students

Demographic Characteristics	Percent of Respondents (n=60)
Ethnicity	
Samoan	25
NZ European	22
Fijian Indian	21
Tongan	12
Fijian	8
Cook Island Maori	4
Solomon Islander	2
Niuean	1
Other	5
Country of Birth	
New Zealand	50
Fiji	28
Australia	5
Samoa	5
Solomon Islands	3
Tonga	3
East Timor	2
Tuvalu	2
Vanuatu	2
Other languages spoken	
Hindi/Fiji Hindi dialect	29
Samoan	17
Tongan	9
Fijian	5
Pidgen English/ Tok Pisin	3
Citizenship	
New Zealand Citizen/ Permanent Resident	88
International	12

Most respondents (62%) were studying medicine with the second largest group (20%) enrolled in pharmacy. The remainder was distributed equally among dentistry, medical laboratory science, nursing and physiotherapy.

Schooling and family background

Most (71%) respondents had attended a state (public/government funded) secondary school either in NZ and/or overseas (the majority of the latter in the Pacific islands) and studied the recommended subject combination for health sciences of English, chemistry, biology, physics and mathematics in their final two years of school.

A school's decile indicates the extent to which it draws its students from low socio-economic communities, with decile 1 schools having the highest proportion of students from low-socioeconomic communities and decile 10 the highest proportion of students from high-socioeconomic communities.

No information was obtained from the overseas schooled participants about the 'quality' of their secondary education but figures were obtained from the New Zealand educated students for the decile rating of their schools. These are presented in Table 2.

Table 2: Decile Ranking of Secondary Schools attended by Pacific students studying in New Zealand. 14

School Decile Ranking	Number	Percent
1 - 3	7	17.5
4 - 7	11	27.5
8 - 10	22	55
Total	40	100

Few participants came from large families, with most (n=45, 75%) having 1-3 (generally older) siblings, the majority of whom were also engaged in tertiary education.

Participants' parents were generally well educated, with only 38 (25%) having no formal post-secondary qualifications and 22 (15%) having a postgraduate qualification. All fathers were employed and had not changed their occupation during participants' schooling years. Most (n= 36, 62%) were employed as clerks, in service roles and as sales people or other white-collar workplaces.

Only half of the participants' mothers were in the workforce, however, despite their academic qualifications, working as health professionals, other professionals or as clerks in service roles and as sales people.

Health professional programmes

Most respondents (41) entered their chosen health professional programme via a common health sciences first year course, 11 entered as graduates, 3 as allied health professionals and 5 via other means such as the Certificate in Health Sciences for MAPAS students, the final year of high school or after two or more years of university study.

They had been prompted to consider a career in a health profession by exposure to a number of different influences, such as people who were already working as health professionals including family members. The encouragement of friends was also important, as were the images and stories conveyed in films, books and other media. Table 4

Table 4: Main Factor prompting student interest in course

Factor	Percent
Family members in health professions	18%
Inspired by health professional	14%
Friends	13%
Movie/book/other media	9%
High school teacher	8%
Careers advisor / school counsellor	6%
University advertising	5%
University staff	4%
Careers expo / Fono	4%
High school visits by university students	3%
Other	15%

When asked why they wanted to work in a health profession, the main reasons they gave were altruistic; they wanted to have a job where they could interact with and care for people, especially Pacific people because they were aware of the shortage of Pacific health practitioners. They were also interested in the sciences.

Table 5: Reasons for choosing a health career

Reason	Very Important	Quite Important	Not Important
I like to interact with people	39	17	2
I want a job where I can care for/help people	37	21	1
I have an interest in science	28	25	5
There is a shortage of Pacific health practitioners in the community	26	22	8
I wanted to work in the community	22	31	5
I want a job where I can apply science to everyday life	17	22	16
I was encouraged by a role model to consider a career in health	14	14	23
I was inspired by a health practitioner	12	16	24
My parents/family wanted me to enter the health field	9	18	26
I want a high salary	8	29	19
I want a career in health research	6	15	34
I wish to have a job with a high status	5	18	29
I want to carry on a family tradition	2	9	40
My friends are studying in the health field	2	9	41
I was attracted to the course by the institution's advertising	1	7	43
I had high grades and didn't know what else to do	1	7	42

Obstacles and assistance

The two main barriers to successful enrollment encountered by Pacific students were: high academic requirements and subsequent financial pressures, being cited as important by 70% and 75% of students respectively. Other barriers encountered by some (but not all) included the lack of Pacific role models and thus community encouragement for their intentions. Moving away from friends and family was also a problem for some (45%), depending on their home location and that of their chosen programme.

Comments made by individual students indicated that some had encountered problems with the bureaucracy of school to university transfer. They felt they had not been able to obtain sufficient information from either school or university advisors about health sciences programmes, special initiatives such as the Maori and Pacific Admissions Scheme (MAPAS) scheme at the University of Auckland and the University of Otago's sub-category for admission into Medical School for New Zealand Resident Pacific Islander of Polynesian or Melanesian descent or the availability of scholarships in general. There were perceived cultural barriers too, that Pacific students did not 'do' medicine or science, for example. Many students experienced difficulties when dealing for the first time with the organisation of "bank accounts, IRD numbers and accommodation from overseas" or the more pleasant but equally problematic concerns of coping with the distractions provided by the social life at university.

Both the University of Otago and the University of Auckland provide a

range of support services and assistance networks to Pacific students. Not all students used these. However, those who did, spoke highly of their experiences, appreciating the study groups and mentoring programmes as well as the professional support provided by Otago's Pacific Island Centre and MAPAS staff as well as professional contacts and inspiration provided by Pasifika Medical Association conferences.

Table 6. Utilization of support services or networks by students

Support Service	Used Often	Used Sometimes	Used Not at all
Pacific Island Centre (Otago)	9	19	19
Mentoring Programmes	18	21	11
Student Support organizations – PIHPSA (Otago), MAPAS student group (Auckland)	21	18	10
Professional Support organization – Pasifika Medical Association (PMA)	9	21	20
Other services	4	9	13

Future goals and career aspirations

All students indicated that they aspired to do well in their chosen professions. Some wanted to continue with postgraduate study in order to specialise.

[I want to become] "a paediatrician", an "oncologist", a "psychiatrist"

Others wanted to work in New Zealand areas where there are high numbers of Pacific people.

[I want to] become a "well-respected and approachable physiotherapist in my home community in South Auckland"; "to complete my training as a midwife and work...in South Auckland"; "return to work at Middlemore Hospital in South Auckland."

Others want to return to their islands.

[I want to] "return to Samoa as a pharmacist"; "gain work experience and work in Tonga"; "return to work as a pharmacist in Fiji"

Some want to become involved in decision making by getting involved with district health boards, working with their communities to identify and provide healthcare needs and "assist in the development of future Pacific health professionals".

They appreciate the importance of their current status and future roles in the community.

"Since it is projected that, in the next few years, New Zealand will become predominantly brown, I believe my generation of Pacific students has a huge responsibility in becoming leaders and role models of tomorrow".

DISCUSSION

The information obtained from respondents in this study should be interpreted with caution because it has been obtained from a relatively small number of respondents. Given the low numbers of Pacific students enrolled in New Zealand's health professional programmes, however, the responses of even these few do provide an indication of the background and motivation of those who are enrolled, all of which can provide pointers to some of the ways in which greater numbers of Pacific students may be recruited.

Some of the demographic characteristics of respondents were similar to those of health professional students in general. They were mainly young, male and female in similar numbers, had attended schools in middle to high socioeconomic status neighbourhoods and had come from families who were reasonably well educated and securely employed. They were both science and people orientated, their free comments indicating a strong interest in the science subjects being studied and a strong desire to do good by their home communities when qualified. In this they were

thus comparable with the pharmacy students who identified altruism as their primary career motivator; closely followed by an interest in science¹³ although the pharmacy students' appreciation of good employment prospects was not mentioned specifically by these Pacific students.

In other respects, the sample studied differed from the general health professional student population. Most (75%) of the New Zealand medical students surveyed in 2001, for example, had at least one parent who had a tertiary qualification, 17% of whom were practicing health professionals. More than 25% of these medical students came from homes in which the annual income exceeded \$100,000.¹¹ Only a few of the Pacific students in the present survey, however, had these advantages which, given that parental education and employment play a major part in career choices,^{11, 15} may be one of the explanations for the low number of Pacific students in these programmes.

Other external factors that influence students' choice of careers is access to good education at secondary school and the encouragement of appropriate role models. Although most respondents in this study had attended schools with a high decile (high socioeconomic community) rating, Pacific students in the population as a whole are disproportionately enrolled in low decile (low socioeconomic community) schools.¹⁵ Moreover, the least popular subjects studied by Pacific school students are the biological and physical sciences, the essential prerequisites to a career in health sciences.^{14, 16} Only a few respondents to this survey reported that they had been encouraged by high school teaching or guidance staff to consider a career in health; many had, however, been inspired by stories in the media, both factual and fictional.

Various strategies that might be employed to increase recruitment of Maori students into the health have been identified.⁷ The information obtained in the present study – despite its limitations – indicates that the use of similar strategies might also increase the recruitment of Pacific students.

While the tertiary providers of health professional programmes can do little to reduce socioeconomic disparities between Pacific people and others in the population, they could perhaps do more within their existing systems to encourage such people into their health programmes. More focused targeting of younger school children, especially in areas of high concentration of Pacific people, such as parts of South Auckland, might encourage more to study the subjects they would need for entry into health science programmes. This would require even greater cooperation than currently occurs between university liaison personnel and school staff, perhaps aided by the presence of some actively practising and recognisable role models as well as articulate and enthusiastic tertiary Pacific students

Both the University of Otago and the University of Auckland currently offer programmes that bridge the gap between high school and health science studies at their institutions. These programmes have been designed to help those who may have been poorly prepared academically at secondary level and thus ease their transition into the even greater demands of tertiary study. Only a few study participants had taken one of these programmes. Similarly, the mentoring support offered by both Otago and Auckland, although identified as very valuable, was not taken up by all students, despite being freely offered and widely advertised. If more students, especially those whose families are overseas, could be encouraged to seek and accept this form of support, they might have fewer problems settling into both New Zealand and university life.

Most of the students who participated in this survey were ambitious, many wanting to pursue specialisation after graduation. Almost all, however, had as their focus the intention to work with their own people, to help improve health outcomes. As a result they could well become the role models for others to emulate in the future – provided that some of the barriers that hinder recruitment into the professions are lowered.

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ARTICLE : REVIEW

New Zealand medical and dental students must be immunised against Hepatitis B, but how effective is the vaccine?

A systematic review of the efficacy of the Hepatitis B Vaccine among health care workers.

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ABSTRACT

A review of the relevant literature investigating the clinical use of hepatitis B vaccine. In the pre-vaccination era, transmission of hepatitis B in medical settings was a public health issue, especially in high-risk areas, such as haemodialysis units and oncology wards. All findings indicate that the vaccine is efficacious and safe to administer. Hepatitis B vaccination programmes can help reduce the incidence of hepatitis B infection in the population, irrespective of the individual's relative risk. With such a programme, the incidence of hospital-acquired hepatitis B infections could be profoundly reduced.

Keywords: Hepatitis B Vaccine, Chronic Hepatitis B, Health Care Workers, Medical Student, New Zealand.

Abbreviations: Chronic Hepatitis B (CHB), Health-Care Worker (HCW), Hepatitis B Virus (HBV), Hepatitis B Virus surface antigen (HBsAg), Hepatitis B Virus core antigen (HBcAg), Hepatitis B Virus early antigen (HBeAg).

INTRODUCTION

Hepatitis is inflammation of the liver. Hepatitis can be attributed to several infectious and non-infectious causes, hepatitis B virus (HBV), being one of the infectious causes. HBV can be transmitted via contact with bodily fluids; for example, transfusion of infected blood, sexual contact and mother-to-foetus transmission. Furthermore, HBV has a higher risk of being transmitted through needle-stick injuries (estimated 1.9-40%) than most of other blood borne pathogens.¹ For instance, hepatitis C virus has an estimated 2.7-10% risk of transmission through needle-stick injuries, whereas HIV has an estimated risk of 0.20-0.44%.¹ Thus, health-care workers (HCW) can be considered as a high risk group of being infected with hepatitis B. It is estimated that the cumulative prevalence of past/present HBV infections among surgeons is 10-18% worldwide.² Most cases of hepatitis B in adults are self-limiting, and patients do not require any medical intervention. However, a small percentage of people go on to develop chronic hepatitis B (CHB), particularly those with cellular immune impairment. CHB is a

more serious condition, which may lead to liver cancer (also known as hepatocellular carcinoma), liver cirrhosis or liver failure. CHB is a particularly common outcome from HBV infection in newborn infants and it also has increased risk, although decreasing, after acute hepatitis B in early childhood. This is because the pattern of antigen appearance in the blood and the virus' incubation period is different in those patients than in adult patients.

Adult patients who contract HBV (fig. 1) have one or more virus-related proteins in their blood at any one time:

Hepatitis B Virus surface antigen (HBsAg): is expressed on the main surface protein of the virus. It starts to appear in patients' blood after the virus' incubation period (typically 6-20 weeks). It is a diagnostic marker of a current HBV infection. It starts disappearing from the blood as patients' symptoms fade away. HBsAg is the antigen that is able to stimulate protective serological immunity.

Hepatitis B Virus core antigen (HBcAg): does not appear in blood, since it is encapsulated by virus' main protein. However, HBcAg appears to stimulate protection, against subsequent HBV infections, at the T cell level. Antibodies to HBcAg (abbreviated HBcAb) appear in the blood after the incubation period. It lasts in patients' blood forever; and thus, it is a good marker of past Hepatitis B infection.

Hepatitis B Virus early antigen (HBeAg): appears to be derived from virus production in infected liver cells. It is a good indicator of patient's infectivity, since it typically correlates with high viral load in the blood (viraemia).

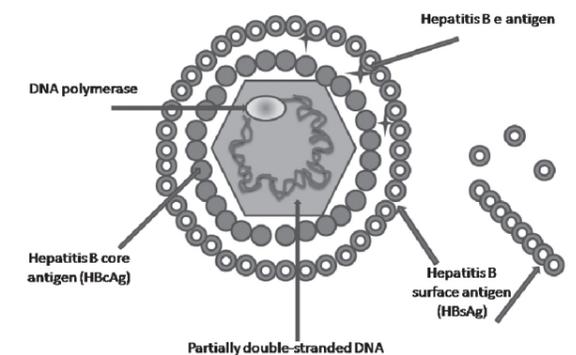


Figure 1. A simplified drawing of the HBV particle and antigens.³