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This Issue in the Journal

Student debt amongst junior doctors in New Zealand; part 1: quantity, distribution, and psychosocial impact
J Moore, J Gale, K Dew, G Davie

Widespread concern has been shown by medical groups about the impact of student debt on junior doctors. This paper presents the results of a national survey of all house officers at the end of their PGY1 year. Demographics, level of debt, student support received, repayment since graduation, and psychosocial and financial impact of debt is described. Findings from the survey results include indications of increased levels of stress for junior doctors and a delay in childbearing.

Student debt amongst junior doctors in New Zealand; part 2: effects on intentions and workforce
J Moore, J Gale, K Dew, D Simmers

In this companion paper to part 1, the impact of student debt on the intentions of junior doctors at the end of their PGY1 year is described in terms of location of practice and intended specialty choice. We also evaluate the relative importance of incentives to remain practicing in New Zealand. The survey shows that a majority of junior doctors had considered leaving the country as a result of student loan debt, and for many respondents, student debt had influenced their choice of intended specialty. Of particular concern for general practice was the low number of respondents intending to enter that specialty.

Procedural skills of first-year postgraduate doctors at Auckland District Health Board, New Zealand
A Old, G Naden, S Child

This study surveyed first year doctors at Auckland District Health Board about their perceived confidence with a range of clinical skills, including those skills contained in the Medical Council of New Zealand's (MCNZ) Indicative List of Skills. Significant discrepancies were noted between the skills expected of recent medical graduates (as indicated by the MCNZ) and those attained. With the international climate moving toward greater regulation in the early postgraduate years, is it time for New Zealand to adopt more rigorous, competency-based assessment?
Career choices of New Zealand junior doctors
A Zarkovic, S Child, G Naden

The aim of this paper is to present the result of a survey outlining the career preferences of junior doctors and factors that influence this decision process. We found that most junior doctors don’t choose a specialty they wish to pursue until their second postgraduate year. The most popular career choice, based mostly on interest in a specialty, was general medicine. The majority of doctors were planning to work overseas, mostly to travel and to further their professional training.

Perceptions of migrant doctors joining the New Zealand medical workforce
S Lillis, I St George, R Upsdell

New Zealand employs many doctors who trained overseas and passed the entrance examinations to work in New Zealand. This research investigated their experiences of integrating into the New Zealand medical culture. The findings indicate that these doctors experience significant difficulties going through the examination process and commencing work in New Zealand. These difficulties result from bureaucratic barriers, cultural differences, the expense of immigration, and the complexity of the New Zealand health system. A more educationally integrated approach to the induction of immigrant doctors may promote more successful integration.
Update on a pandemic: junior doctor debt in New Zealand

Richard Pole

Four and a half years ago, I wrote an editorial for this journal discussing original research that surveyed medical student debt at New Zealand medical schools. In this issue of the Journal, I have the dubious honour of editorialising further research that surveys student debt amongst New Zealand junior doctors.

In 2001, I likened the relatively new phenomenon of medical student debt to a novel disease-process taking hold in New Zealand. Four years on, the new breed of medical graduates is exhibiting the sequelae of infection with this disease. The survey reveals that first-year house officers have an average debt of $65,000; with 10% owing more than $100,000. In addition, those graduates with higher debt levels are more stressed by their loan, and experience more difficulty gaining additional finance from (for example) commercial banks. Those with higher debts are also more likely to find their student loan debt influencing intentions to have children. These are the palpable and unpleasant personal costs of lumbering medical students with the cost of their education.

The second paper from the survey reveals that 80% of respondents intend to spend the bulk of their careers in New Zealand. This statistic almost sounds positive until one realises that the reciprocal is also true: 20% of our graduates intend to emigrate. Surely this is an unacceptable rate of attrition. The survey also documents that doctors with higher debt are more likely to consider their debt level and the financial opportunities available to them, when they decide whether or not to leave New Zealand. The same is true when doctors contemplate choice of specialty.

This survey therefore vindicates the fearful forecasts made years earlier. Our medical graduates are indeed lumbered by the cost of paying for their education, and the greater the millstone the greater the effect on their decisions about the future.

By documenting these findings, the survey also inadvertently underlines its own importance as an information gathering tool, providing much needed data to back-up anecdotal evidence. Consideration must be given to undertaking similar surveys on a regular basis so that the shape and direction of our graduating medical classes can be monitored in perpetuity. The Medical Council of New Zealand’s annual workforce survey would be the ideal vehicle to continue such monitoring. I hope the Council gives due consideration to fulfilling this role.

Of further concern is the apparent mismatch between what our graduates ‘want to be’ and what we ‘need them to be’. A quarter of respondents to this survey want to be surgeons, and only 10% want to be general practitioners. In previous studies of medical students, this mismatch in career intentions was tempered by the fact that medical students’ career intentions are subject to the passage of time and accumulation of experiences before they manifest as actual decisions about career pathways. The respondents in this survey, however, are first-year house officers, some of whom will already be registered trainees on the Basic Surgical Training program, so a mismatch at this stage is that much more concerning. The specific lack of interest
in general practice as a career has been previously documented and is perhaps the most out of kilter—foreshadowing an impending general practitioner workforce crisis.

Clearly the development of the medical workforce is an incredibly complicated and multi-faceted scenario. Many factors are involved in shaping individuals’ career choices, and many of these factors will not be reversible. What these two papers clearly document, however, is that within the morass of competing influences there is a component—medical student debt—that has at least some influence on individuals’ preferences, and is reversible.

The present Government will point to several steps undertaken recently that will hopefully have some effect in attenuating the accumulation of medical student debt. These steps include the inflation of the trainee intern grant from $16,000 to $26,000 per annum for final year students; the institution of Step-Up Scholarships that are available to those students who already qualify for the student allowance, and provide a significant subsidy to tuition fees; and the yet to be implemented policy of making all student loans interest free (whilst resident in New Zealand).

Though it is important to acknowledge these policies as progress, and to acknowledge that the full impact of these policies will not be reflected in present data, there are also policy failures to take into account. Reduction, or at least stabilisation, of medical student fees is clearly a fundamental tenet in any policy to address medical student debt. Unfortunately, tuition fees at both medical schools increased 10% in each of the last 2 years—this situation was made possible by the universities successfully applying for exemptions from the Government’s fee-capping rules. As usual, positive change is incremental, and it is a case of two steps forward, one step backwards. The reality for the average medical student graduating last November is that they will have benefited from the increase to the trainee intern grant, but probably did not qualify for a Step-Up Scholarship, and were stung by the hike in tuition fees.

An example of how not to do things is close at hand. Across the Tasman in Australia we have seen the introduction and subsequent expansion of domestic full-fee-paying medical students. Australian public universities are now taking, alongside publicly subsidised medical students, a cohort of exclusively privately funded students, who are required to pay the A$200,000 tuition fee for their degree. Clearly, students graduating with that kind of student debt will be forced to act according to financial, not philanthropic, incentives. This two-tiered system also mounts a strong challenge to the principle of equal access to education. There will clearly be students who qualify for unfunded places on the basis of academic merit, but will be unable to attend due to personal financial constraints. Their places will be taken by people further down the list who have the financial wherewithal to undertake the massive investment in their education. This is not a system we should contemplate for New Zealand.

A further burgeoning medical workforce problem not elucidated by the current survey is the advent of a prolific locum house-officer market in New Zealand. Junior doctors are invited to “live the lifestyle” in locum agency advertising promising “top rates”. The accompanying photo depicts a group of scantily-clad young people cavorting on a beach—not a stethoscope in sight!

At this stage, an assessment of the influence the locum doctor market in New Zealand is purely speculative. Clearly, locum arrangements do allow hospitals to fill vacancies
at short notice with experienced doctors. For the doctors themselves the pay is very competitive (especially it would seem for those with large student debt), and the flexibility is obviously an attraction for some individuals. Having a large proportion of the junior doctor workforce engaged in such employment practice is probably inefficient, however, as they are expensive for DHBs, and most locum doctors are not engaged in a vocational training pathway. Furthermore, when one hears of contracted junior doctors using annual leave or rostered days off to locum in other parts of the country, one has to question their commitment to work-life balance and maintaining safe practice.

The challenge is to provide permanent (though flexible) and well-remunerated training positions for house surgeons and registrars in our hospitals and communities. The importance of a healthy work-life balance for this new generation of doctors should not be overlooked. And finally, as the papers published in this issue of the Journal attest, any steps taken to lower medical graduate debt will help doctors stay in New Zealand and make decisions about their future that align with our needs as a nation.

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References:


6. Full page advert placed by Kiwis STAT Medical Recruitment on back page of University of Otago magazine, Issue 12, October 2005.
The skills of our New Zealand junior doctors—what are these skills and how do they get them?

Mike Ardagh

In this issue of the Journal, Andrew Old, Gill Naden, and Stephen Child present data suggesting first-year postgraduate doctors at Auckland District Health Board do not have the skills expected of them. Are they right? Are first-year postgraduate doctors deficient in their skills, or do we expect too much of them?

Although their paper has limitations, which they concede, most would agree they are correct stating that first-year postgraduate doctors do not have the skills expected of them. Furthermore, as their well-referenced discussion attests, this observation is being made throughout the Western World. Indeed, further evidence from New Zealand, recently published, suggests that the resuscitation skills of our new graduates are below that expected. Of concern, some of these new graduates were in positions in New Zealand hospitals where they were the only doctor responding to patients in need of resuscitation.

So, are our new graduates deficient or do we expect too much or them? Perhaps, as Old, Naden, and Child suggest, both are contributing. If this is so, then two further questions arise. First, how do we define what skills are expected of our new graduates? And, second, how do we ensure they achieve these expectations?

Skill acquisition is a continuum, with steps variously described—but usually including an initial gaining of appropriate knowledge of the skill; and including its context, purpose, indications, and so on. Steps of psychomotor mastering of the skill then follow. Often (although perhaps less than in the past) these steps consist of seeing it done in a real clinical context, doing it with or without supervision, and then helping junior colleagues through the same experience—the infamous ‘see one, do one, teach one’ approach.

Most recognise that using the patient as the substrate in this somewhat serendipitous, poorly structured, and variably supervised approach is bad medicine. Instead, we should add the steps of ‘seeing’ and ‘doing’ in a simulated context, with mastery in this environment before attempts begin on patients. Then, with decreasing supervision and greater independence, the skill is practised in the clinical environment, culminating in independent mastery and a genuine ability to be a teacher. To complete this process, formal credentialling of the doctor should be recognised as essential, with the implication that those who are not credentialled in the skill should not be doing it.

In the context of a continuum, the indicative skills list published by the Medical Council of New Zealand (MCNZ) cannot be considered to be a curriculum for the first postgraduate year (indeed the handbook in which the list is published explains that many will not be acquired until after the first year), but instead it might suffice as a list of the sort of armamentarium of skills junior doctors may carry as they go to perform their duties. The acquisition of this armamentarium, with each of its
components following a continuum of mastery, extends through the undergraduate medical curriculum and beyond the first postgraduate year.

Old, Naden, and Child recommend that MCNZ revise the list of skills expected of new doctors. Any such revision should include:

- The level of mastery expected (know the skill, mastered in the skills lab, credentialled to do it with patients under supervision, credentialled for independent performance, and so on);
- When (in the continuum) each stage of mastery is expected to be acquired;
- How the continuum of skills acquisition is integrated across at least three different education jurisdictions (undergraduate, first two postgraduate years, and vocational training); and
- How junior doctors and their patients are protected from expectations exceeding ability.

Many may respond to this suggestion by saying that the deficiency of skills of junior doctors is a recent phenomenon and is a consequence of senior medical students and junior doctors not seeing enough patients, and, in particular, not seeing them early and taking a significant role in their management.

There may be some truth in this, although those with both insight and sound recollection would recognise that there has always been at least a covert deficiency of skills. However, it is true that skills labs and protected teaching time cannot replace real clinical experience. This is true for at least a couple of reasons.

First, expert performance of a skill requires an expert appreciation of how it fits into the context of a patient’s care. For example, endotracheal intubation in a resuscitation requires an appreciation of when it is needed, when it shouldn’t be done, what are the characteristics of this patient which might influence likelihood of success, what else needs to be done to make it happen, what the patient wants, what might happen as a complication of the procedure, how these might be dealt with, what happens afterwards, and so on. (This more complete acquisition of the skill might not be attained, however, if acquisition is a consequence of training on a manikin and then as part of an elective general anaesthetic list.)

Second, real clinical experience is important as perhaps the most important skills the junior doctor should have in their armamentarium are interpretation and decision-making skills.

Let’s take endotracheal intubation again as an example. This is a skill that:

- A reasonably evolved primate can be trained to do;
- Is usually obviously needed when it is needed; and
- If needed, help is usually mobilised quickly to perform it.

As far as can be ascertained, newly graduated doctors have never had to explain themselves to a coroner for not being able to intubate a patient, get a drip in, or suture a wound. However, there are many instances of junior doctors having to explain why they did not recognise the early signs of significant illness and did not make the decisions required to protect the patient from harm.
While it is usually apparent when an intravenous cannula is not being successfully inserted, it is less apparent to the junior doctor when their interpretation or decision-making skills are letting them down. These skills are less reliably acquired by the structured continuum suggested above. Instead, they are traditionally (and probably best) acquired by seeing patients with undifferentiated presentations: exercising interpretation of signs, symptoms and investigations; and exercising decision-making regarding further investigations, treatment, referral, or discharge. All this while under direct supervision and with real-time feedback.

Unfortunately, undergraduate clinical education is still largely reliant on ward-based exposure to a selected group of differentiated patients where the sort of experience suggested above is uncommon. Furthermore, our newly graduated doctors seldom see patients in their early undifferentiated state. Even when they do have a chance to use their interpretation and decision-making skills, formative feedback often is divorced from the experience due to service demands of the more senior members of the team, or due to rostering constraints fragmenting the relationships of the junior doctors with their potential mentors.

So it is probably true that first-year postgraduate doctors do not have the skills expected of them, and it is probably true that this is a consequence of both skills deficiency and of expectations which are too high. But does it matter? The most obvious and most concerning consequence is that patients will suffer. A second likely consequence is impaired efficiency in the performance of the task.

So, closing the gap between ability and expectations should improve patient safety and efficiency. However there are likely to be other, perhaps less tangible, consequences. Indeed, for the junior doctors, any degree of awareness of the gap between their abilities and the expectations of them must provoke anxiety and impair confidence. Finally, if this gap is not declared to the patient, then deception taints the doctor-patient relationship. Therefore, having junior doctors who do not have the skills expected of them is unsafe, inefficient, destructive, and unethical.

So how do we ensure our newly graduated doctor has the appropriate armamentarium of skills?

- First, the list of skills and the level of mastery of them should be defined. Furthermore, the list needs to be integrated through medical undergraduate and postgraduate education. In this country, the MCNZ, and specifically its education committee, is the body most appropriate to do this.

- Second, resources need to be allocated for the early stages of acquisition of skills (skills labs, equipment, people and time) as well as the structure for acquisition and credentialling. This should be a priority for the two medical schools (Auckland and Otago) and our District Health Boards.

- Third, medical students and junior doctors need experience of patient management, and particularly of undifferentiated patients, so that they can exercise interpretation and decision-making skills. However, they need this experience under supervision, so that they and their patients are protected, and with real-time feedback so that the experience is genuinely formative. This is achievable by taking advantage of the rich educational potential of emergency
departments, and the enthusiasm of our many young emergency medicine specialists.

For students and newly graduated doctors to access this type of experience requires commitment from the medical schools, MCNZ, and District Health Boards.

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References:


Student debt amongst junior doctors in New Zealand; part 1: quantity, distribution, and psychosocial impact

James Moore, Jesse Gale, Kevin Dew, Gabrielle Davie

Abstract:

Aims To quantify student debt owed by first-year house officers at graduation, and to describe the effects of student debt on their lives.

Methods A questionnaire was sent to all 296 New Zealand-graduate first-year house officers practicing in New Zealand. The survey included questions on demographics, level of debt, student support received, repayment since graduation, psychosocial and financial impact of debt, and career intentions.

Results The response rate was 53%. Ninety-two percent of respondents had some form of student debt, with 85% having a government student loan. The average total debt from all sources (excluding mortgages) at graduation was NZ$65,206. Seventy-five percent of respondents owed more than $50,000 and 13% had owed more than $100,000. Eighty-eight percent of respondents reported increased levels of stress as a result of their student loan, with 31% reporting that they worried about their student loan ‘often’ or ‘always’. Eighty-three percent reported that their student loan had made it more difficult to save for their future, such as for a house deposit or for their retirement, and 42% stated that their student loan debt had influenced their decision whether to have children (or more children).

Conclusion Student debt has a major negative impact on the lives of house officers in New Zealand. These data provide a baseline for studying how changes in medical education affect junior doctors.

The New Zealand Government Student Loan Scheme (GSLS) was owed over NZ$7 billion in 2004. Aspects of the MB ChB compared to other degrees, such as length of training and the high cost of tuition fees (currently $11,000 per year), mean that medical students and junior doctors are amongst the most affected by student debt. Given the potential for student debt to impact upon workforce development, it is important to understand its effects. To date, the extent to which medical student debt affects junior doctors in New Zealand has not been quantified in a peer-reviewed study.

The GSLS allows medical students to borrow tuition fees (currently $60,330 for the Otago MB ChB), up to $150 per week for living expenses (a total of up to $36,000 over 6 years), and $1000 per year in additional course costs ($6000 over 6 years). They are also able to borrow a variable amount from banks and other private lenders. Student allowances are available (at tapering rates) to those whose combined parental income is less than $62,000 (for students under 25 years old). Graduate-entry medical students have the additional cost of the student debt accumulated during their first degree. Thus it is possible for medical students to owe more than $100,000 at graduation.
In equivalent US dollars, medical tuition fees in New Zealand are 40% higher than in Australian universities, and would be considered high by USA and Canadian standards.1

A survey of 179 medical students at the Christchurch School of Medicine in 2001 found that medical students estimated they would owe on average $60,000 to $70,000 at the completion of their medical training.2,3 It was also found that medical student debt was likely to have significant effects on the New Zealand workforce over the coming years.4 Furthermore, beginning careers with large debts is likely to impact on doctors’ lives, health, and career intentions.

These previous studies have been limited to students’ self-projected estimates of their debt at graduation. Retrospective data on debt, collected after the fact, provide a more accurate picture of the situation facing young doctors. Furthermore, medical student debt may have changed since 2001. Otago graduates of 2001 paid approximately $4100 less in fees than students graduating in 2003 (and tuition fees have increased by another 20% since 2003).

Thus a comprehensive survey of doctors’ student debt, and the effects on their lives was undertaken. This study aimed to examine the demographics, level of debt, student support received, and debt repayments of New Zealand-graduate house officers in the final stages of their provisional registration year in New Zealand. It also aimed to reveal the psychosocial and financial effects that student debt had had on these doctors’ lives. The career intentions of these doctors and the effect of debt on the medical workforce is available in the companion paper issued in the same issue of the NZMJ.

Method

A questionnaire was designed based on the same questions as the Wellbeing, Intentions, Debt and Experiences (WIDE) survey of New Zealand medical students in 2001.2,3 Additional questions explored whether respondents had made voluntary repayments, and asked quantitatively and qualitatively about how student debt had impacted on their lives. The questionnaire collected information on demographics, levels of debt, student support, debt repayments, psychosocial and financial effects of debt, and career intentions. The survey included closed questions and open-ended questions (i.e. unlike closed questions, those requiring more than a ‘yes’ or ‘no’ answer) to provide an opportunity for respondents to elaborate on their experiences.

All New Zealand-graduate first-year house officers were identified through the New Zealand Medical Register, and questionnaires were posted to participants by the Medical Council of New Zealand to maintain confidentiality. House officers received the questionnaire with a covering letter explaining the intention of the study, and the way in which the data would be used. Participants were invited to go in the draw for a $500 cash prize by completing their contact details on a separate form, which was separated from the questionnaire on its receipt. A second copy of the survey, along with a covering letter was sent to non-responders after 6 weeks.

All survey responses were entered electronically into Microsoft Access database software by one of the authors, and statistical analysis was completed using SPSS statistical software. Ethnicity data was recorded using the Statistics New Zealand prioritisation standard. Where participants recorded multiple ethnicities, the ethnicity entered into the database depended on the following priority order: New Zealand Maori, Pacific Island (either Samoan, Cook Island, Tongan, Niuean), Chinese, Indian, Other ethnic group, Pakeha (New Zealand European).

This paper refers to two types of debt: GSLS debt refers only to the debt owed to the Government Student Loans Scheme at the time of graduation from medical school. Total debt refers to debt from all sources (including GSLS, private commercial debts, credit card debt, overdrafts, family loans, and other loans) at the time of graduation from medical school. Any mortgage debt was excluded from the
total debt figure, as it created extreme skew in the data, and also to protect the anonymity of individual respondents.

For the open-ended question, *describe the impact of your student loan on your financial decisions*, responses were coded and sorted into themes.

**Results**

There were 158 responses to the 296 surveys distributed (a response rate of 53%).

**Demographics**—The median age of respondents was 25 (with a range of 28 years). Table 1 shows the demographic characteristics of respondents compared to the WIDE survey sample, and medical school demographic data.

**Table 1. Comparison of demographic data from this survey, WIDE survey, and medical schools**

<table>
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<th>(%)</th>
<th>WIDE (%)</th>
<th>Medical school data (%)</th>
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<tr>
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<tr>
<td>Otago</td>
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</tbody>
</table>

*WIDE=Wellbeing, Intentions, Debt and Experiences (Survey); †Also termed Pakeha; ‡Includes those who identified Indian subcontinent ethnicity; ††Data on 2003 medical graduates from Faculty Offices, University of Auckland and University of Otago.

**Student debt at graduation**—Total debt at graduation is shown in Figure 1. At graduation, 92% of respondents had some form of student debt with 85% of respondents owing money to the GSLS scheme, and 68% of respondents having borrowed money from other private commercial organisations or family to pay for their education.

The mean GSLS debt for those who had a GSLS loan was $60,644. At graduation, mean total debt across all respondents was $65,206; 75% of respondents had total debt of greater than $50,000, and 25% of respondents had a total debt at graduation of greater than $88,875. Twenty respondents (13%) had total debts at graduation of greater than $100,000.
There were no statistically significant differences in total debt between females (mean $65,460) and males ($63,851; p=0.8), or between universities (Auckland $63,502; Otago $66,396; p=0.36). Marital status did not predict debt (ANOVA; p=0.5).

Table 2 shows some variations in the mean debt levels by reported ethnicity, although they were of only borderline statistical significance (p=0.05; ANOVA) and post-hoc analysis was not informative.

Table 2. Mean total debt by ethnicity (n=158)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>% of respondents</th>
<th>Mean total debt</th>
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</thead>
<tbody>
<tr>
<td>Asian</td>
<td>16</td>
<td>$48,180</td>
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<tr>
<td>Maori</td>
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<td>$81,250</td>
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<tr>
<td>NZ European/Pakeha</td>
<td>65</td>
<td>$68,682</td>
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<td>$66,000</td>
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<tr>
<td>Pacific Islander</td>
<td>6</td>
<td>$64,889</td>
</tr>
</tbody>
</table>

Student support—Forty-six percent of respondents received either a full or partial student allowance at some point while studying. These respondents received an average of $144 per week, for an average of 3.75 years. Twenty percent of respondents received a student allowance for the entire time they were at medical school. The length of time respondents received a student allowance did not predict total debt at graduation (ANOVA; p=0.8).
During medical school, 59% of respondents had a part-time job. These respondents worked for an average of 3.4 years, for an average of 9.7 hours per week. There was no difference in the mean total debt at graduation for those who had a part-time job ($67,332) and those who did not have a part-time job ($61,708; p=0.3). Summer holiday work was undertaken by 91% of the respondents, for an average of 4.5 summers, for an average of 38.6 hours per week during summer.

In response to an open question on how they might have improved their financial situation in retrospect, 51% of respondents stated they had no options available to reduce their debt; however, some students specifically mentioned their inability to work more part-time hours due to course commitments.

Table 3 shows the financial support received by respondents from their parents while at medical school.

Table 3 Parental support compared to students’ mean total debt (n=158)

<table>
<thead>
<tr>
<th>Support from parents</th>
<th>% of respondents</th>
<th>Mean total debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>No support</td>
<td>15</td>
<td>$74,223</td>
</tr>
<tr>
<td>Pay some fees</td>
<td>29</td>
<td>$59,884</td>
</tr>
<tr>
<td>Pay all fees</td>
<td>13</td>
<td>$26,583</td>
</tr>
<tr>
<td>Pay some living costs</td>
<td>59</td>
<td>$68,992</td>
</tr>
<tr>
<td>Pay all living costs</td>
<td>20</td>
<td>$47,383</td>
</tr>
</tbody>
</table>

Effects of student debt—Eighty-eight percent of respondents reported increased levels of stress because of their student loan. Table 4 shows how levels of total debt related to how often doctors felt stressed by their student loan. Eleven percent of those who had sought additional finance (for example, banks loans, credit cards) had experienced difficulty in gaining approval for this finance, because of the level of their student loan. Those students who had experienced difficulty gaining additional finance had a higher total debt ($88,462) than those who did not ($68,964; p<0.01).

Student loans had made it difficult to save for the future for 83% of respondents, including saving for a house deposit or retirement fund. When asked to describe the impact of their student loan on their financial decisions, themes emerged, which are shown in Table 5. Forty-two percent of respondents stated that their student loan debt had influenced their decision to have children, (or more children) and these respondents owed significantly more than those who stated that their loans did not affect their intentions to have children (p<0.001).

Table 4. Frequency of stress with mean total debt (n=158)

<table>
<thead>
<tr>
<th>Frequency of stress</th>
<th>% of respondents</th>
<th>Mean total debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>6</td>
<td>$54,786</td>
</tr>
<tr>
<td>Rarely</td>
<td>13</td>
<td>$64,438</td>
</tr>
<tr>
<td>Sometimes</td>
<td>50</td>
<td>$69,209</td>
</tr>
<tr>
<td>Often</td>
<td>24</td>
<td>$82,186</td>
</tr>
<tr>
<td>Always</td>
<td>7</td>
<td>$82,833</td>
</tr>
</tbody>
</table>

Spearman’s rho=0.300, p=0.001.
Table 5. Themes in response to an open question on how student loan impacted on financial decisions (n=158)

<table>
<thead>
<tr>
<th>Impact of loan on:</th>
<th>% of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saving for house/inability to get a mortgage</td>
<td>47</td>
</tr>
<tr>
<td>Ability to save for retirement/contribute to superannuation scheme</td>
<td>13</td>
</tr>
<tr>
<td>Lifestyle choices</td>
<td>13</td>
</tr>
<tr>
<td>Ability to save for future</td>
<td>13</td>
</tr>
<tr>
<td>Ability to invest income</td>
<td>10</td>
</tr>
<tr>
<td>Family life/children</td>
<td>5</td>
</tr>
</tbody>
</table>

Repayments—The mean reduction in debt was $13,005 between the respondents’ total debt at graduation compared to after approximately 1 year of working. The mean total debt at the time of the survey was $50,501 (of which $45,160 was, on average, owed to the GSL scheme).

Sixty-six percent of respondents stated that they had made voluntary GSLS loan repayments, on top of the 10% that is automatically withdrawn from their wages. Predictably, the group that made voluntary repayments had a larger reduction in debt during their first year of work ($20,445) than those who did not ($6,735; p<0.001). Interestingly, those doctors who made voluntary repayments during their first year of working had a lower mean GSLS debt to begin with at graduation than those who did not ($54,756 compared to $70,714; p<0.001). Doctors with dependent children were also less likely to make voluntary repayments (65% of respondents without dependents, compared to 25% of respondents with dependents; p=0.04)

Discussion

This study is the first peer-reviewed nationwide survey of the effect of student debt on the lives and experiences of junior doctors in New Zealand. Moreover, this information is critical to understanding the connection between education funding and our future doctors.

It is important to consider selection biases that can arise from a response rate of 53%. It is possible that those who did not choose to respond to the survey may have had different debts to those who did. Our sample had proportionally fewer Maori respondents than the 2001 WIDE survey, and fewer Maori than the medical graduates of 2003 (with a response rate of only 32% amongst Maori).

The relatively low numbers of Maori respondents mean that it was difficult to draw firm conclusions on Maori doctors’ debt, though it appeared to be higher than other ethnic groups. This may warrant further study. There was also an under-representation of Asian respondents in our survey, however this may partially be explained by some students classifying themselves under the ‘Other’ category. The response rate amongst New Zealand European people was 66%, and amongst Pacific Island people was 80%. There were also more New Zealand citizens and fewer permanent residents, respectively, than the WIDE respondents.

Eighty-five percent of respondents graduated with a government student loan, and 92% had some form of student debt at graduation. This is higher than the 78% reported by Gill et al in 2001. In American research, 83.2% of graduating medical
students in the United States in 1996-1997 had educational debt. It is probable that there was response bias in our study, as doctors with student debt may be more motivated to respond, however it is impossible to confirm or quantify this.

The mean level of GSLS debt at $60,591 for respondents in this study is significantly higher than the mean GSLS balance of $14,242 for all GSLS borrowers in New Zealand, and thus puts the average respondent for this study in the top 1.4% of all student loan borrowers in New Zealand. Inland Revenue statistics also demonstrate that only 0.08% of borrowers had loan balances of greater than $100,000. However in this survey, 4.4% of respondents had GSLS balances exceeding $100,000, and 13% owed more than $100,000 in total from all sources (excluding mortgage debt). This level of debt is very concerning. Indeed, the prospect of high student debt may act as a disincentive for people from lower socioeconomic groups to enter medicine—this would counter the goal of having medical graduates represent a diversity of backgrounds and experiences.

Forty-six percent of respondents received a student allowance at some point while at medical school. However, only 20% of respondents received an allowance for the entire duration of their medical degree. The length of time respondents received a student allowance did not predict total debt at graduation. This is likely to be due to the fact that costs associated with the medical course are heavily weighted towards tuition fees, compared to other courses. Although the need for many students to borrow from the Government to cover their basic costs of living may add a significant amount to their debt, our data did not show a significant difference between those who received an allowance and those who did not.

One explanation for this may be that many of those who did not receive an allowance may have received assistance for living costs from other sources, or by working part time. Almost 60% of respondents also held a part-time job for an average of 3.4 years while attending medical school, although this was not associated with their debt at graduation either. This suggests that those who worked part time may have done so out of necessity for day-to-day living costs. The vast majority of respondents worked over the summer holidays.

The financial circumstances of future graduates can be expected to worsen, as medical school fees have increased by 20% after the graduation of these respondents. On the other hand, Government also introduced Step-Up Scholarships in 2003, which dramatically reduce fees for those new students who are eligible for a Government student allowance. Nevertheless, given that only 20–46% of our respondents would have been eligible for an allowance, the majority of students will not qualify. The benefits of Step-Up Scholarships will not manifest in the medical workforce until at least 2008.

The current mean total debt for medical graduates of $65,206 is a large amount of money to owe when starting one’s first job. The length of the medical degree also means that this is the age at which many young doctors are making long-term decisions about their future, including career intentions and families.

Student debt appeared to have a significant effect on the lives of the respondents: 88% percent of those with student loans stated that they had experienced increased levels of stress as a result. Indeed, almost one-third of respondents stated that they felt stressed about their loan either “often” or “always”, and 50% were stressed...
“sometimes”. This is important because the house officer years already contain considerable work-related stress: from inexperience, learning/training requirements, and long working hours. Student debt appears to be compounding the levels of stress in this group.

Eleven percent of respondents had experienced difficulty in gaining additional finance because of their student loan, and this 11% had significantly higher mean debt. This suggests that banks and financial institutions are considering the level of student debt when deciding whether to approve finance for junior doctors. The great majority of recipients (83%) had difficulty saving for homes and retirement because of their loan. Both home ownership and retirement savings have been highlighted by the Government as key issues facing New Zealand. The effects of student debt on these important financial milestones may remain hidden for many years.

Doctors’ debts also affected their decisions regarding families. Student loans were delaying childbearing, and encouraging doctors to have fewer children. Numerous comments indicated that the stress and financial burden of debt created a living environment in which doctors were not prepared to raise children.

In summary, the average medical graduate’s debt was shown to be at the 98th percentile of all student debt, with major negative impacts on the lives of junior doctors. These effects of medical student debt can only be expected to worsen, as tuition fees and living costs continue to rise.

The New Zealand Government is to be commended for some of its recent initiatives, including raising the trainee intern allowance and introducing Step-Up Scholarships. The prospect of an interest write-off for graduates choosing to stay in New Zealand, which is due to be introduced in April 2006, is also likely to have a positive impact on the current situation.

To summarise, this study provides baseline data against which the effects of recent Government initiatives, and ongoing fee increases can be measured. Our results indicate that tuition fee reduction should be the priority intervention to relieve doctors’ debts. (The implications of student debt for the medical workforce is described in the companion paper in this issue of the NZMJ entitled Student debt amongst junior doctors—part 2: effects on intentions and workforce.)

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**References:**


Student debt amongst junior doctors in New Zealand; part 2: effects on intentions and workforce

James Moore, Jesse Gale, Kevin Dew, Don Simmers

Abstract

Aims To assess the effects of student debt on the intentions of first-year house officers in relation to location of practice and vocation, and to evaluate the relative importance of incentives to remain practising in New Zealand (NZ).

Methods A questionnaire sent to all 296 New Zealand-graduate first-year house officers practicing in New Zealand.

Results The response rate was 53%. Eighty percent of respondents intended to practice in New Zealand for the bulk of their careers; however, 65% of respondents intended to leave New Zealand within 3 years of graduating. The most important factors influencing the decision to leave NZ were overseas travel, financial opportunities, and job/training opportunities. Fifty-five percent of respondents had considered leaving the country, specifically because of the student loan debt. The most important factors influencing vocational intentions were interest, lifestyle, and intellectual challenge. Forty-three percent of respondents stated that their student debt had influenced their intended specialty, and only 9% of respondents indicated their intention to pursue a career in general practice. The highest rated incentives for staying in New Zealand were increased salaries, employer contributions towards student loans, and training opportunities within New Zealand.

Conclusion Student debt influences both emigration and specialty choice intentions of junior doctors in New Zealand. This effect is an unintended but important consequence of our current tertiary education system in New Zealand. These results paint a worrying picture for the junior doctor and general practitioner workforce in New Zealand’s future.

New Zealand faces worsening problems in its medical workforce. A recent forecast of population ageing indicated that the number and type of medical services currently delivered will be insufficient by 2011. Of particular concern is the general practitioner (GP) workforce, which is ageing and declined by 8% between 2000–2002. Other areas of concern include psychiatry, pathology, general medicine; and the medical workforce in rural and provincial areas, where even mainstream specialties struggle with recruitment.

New Zealand has the highest proportion of overseas-trained doctors in the OECD; they comprise more than one-third of the active workforce in 2002 and 50% of GPs in rural areas. While overseas-trained doctors are currently vital in our medical workforce, it can be argued that developed nations such as New Zealand have a moral obligation to train their own doctors, in order to reduce the emigration of doctors from poorer countries (which have greater need for those doctors) into New Zealand. It also
seems reasonable to assume that doctors trained in New Zealand would be better prepared to practice in the unique cultural environment of this country.

New Zealand medical school graduates remain the major source of doctors in New Zealand. New Zealand medical schools graduate approximately 285 New Zealand citizen/resident doctors each year (to increase to 320 in 2008). However, the last 15 years has seen the introduction of high tuition fees (currently approximately NZ$60,000 for an MB ChB) as central funding has not kept pace with increasing costs of delivery. These fees have resulted in large personal debts for graduates—our companion paper in this issue of the NZMJ entitled Student debt amongst junior doctors in New Zealand: part 1: quantity, distribution, and psychosocial impact lists the average graduating debt as $65,206. It is important to understand how these large financial costs impact upon the decisions of graduates and the medical workforce.

In 2001, a survey of New Zealand medical students found that 82% intended to leave New Zealand shortly after graduation, with 40% citing student debt as a factor in their decision. Moreover, the level of debt correlated positively with students’ intentions to emigrate. Only 16% of respondents placed general practice as their most preferred speciality. There was a trend toward respondents with larger debts excluding general practice as a career. Specifically, these respondents had a mean debt $7,137 greater than those who were considering general practice.

Indeed, a survey of Auckland medical students in 2001 found that 25.8% expected to practice mainly or only overseas and that only 13.8% of students expressed an interest in general practice as a career, compared to 77% for hospital practice. That survey also found that those students with higher debts were more likely to indicate an intention to emigrate after graduation.

A survey of medical students in Canada in 2002 suggested that increasing levels of student debt resulted in more students taking finance into consideration when choosing their specialty and practice location. Research among Resident doctors in the United States in 2001 also showed a relationship between speciality choice and level of debt, with those in surgical residencies having significantly greater total debt than those in primary care residencies.

Thus there is evidence that student debt affects the medical workforce, but the only New Zealand data are of medical students’ intentions. For the first time, this study aimed to measure the effect of debt on New Zealand junior doctors’ career intentions.

**Methods**

The survey was based on the same questions as the 2001 Wellbeing, Intentions, Debt and Intentions (WIDE) questionnaire, and was delivered to every first-year doctor registered with the Medical Council of New Zealand at the end of 2004. The survey covered a range of topics including respondent demographics, level of debt, psychosocial and financial impact of debt, and the impact of debt on career intentions. The design, delivery, and analysis of this questionnaire survey are described in the companion paper (part 1).

The present study used Likert scales of agreement (1=strongly disagree, 5=strongly agree), and both open and closed questions to explore respondents’ career intentions regarding country of practice, intended speciality choice, and likelihood of working in rural areas. Associations between student debt and ordinal Likert scale responses were measured using Spearman’s rank correlation coefficients.

Some respondents did not answer specific questions, therefore percentages may not add to 100%. Total debt refers to the total debt at graduation from all sources (excluding mortgage debt).
Results

A total of 158 out of 296 questionnaire recipients responded (53%). Their demographic characteristics are described in the previous paper.

Location of practice—Eighty percent of respondents indicated that they intended to spend the bulk of their careers in New Zealand. The intention to emigrate away from New Zealand was not associated with the total debt of respondents (ANOVA; p=0.5), with a large group of undecided respondents (11%) owing the most. Sixty-five percent of respondents indicated that they intended to go overseas within 3 years of graduating. Only 3.8% intended to never leave New Zealand to practice, and 22.2% remained undecided.

Table 1 shows how respondents rated the importance of various factors on their decision whether to leave New Zealand, using a Likert scale of 1–5.

The importance of debt and financial opportunities in influencing the decision to go overseas were correlated with respondents’ total debt (Level of debt $r=0.538, p<0.001; Financial opportunities $r=0.352, p<0.001). That is, doctors with higher debt were more likely to consider these factors as important in deciding whether to leave New Zealand.

Table 2. Importance of factors influencing decision whether to leave New Zealand (NZ), correlated to total debt

<table>
<thead>
<tr>
<th>Reason for leaving NZ</th>
<th>No influence 1 (%)</th>
<th>2 (%)</th>
<th>3 (%)</th>
<th>4 (%)</th>
<th>Strong influence 5 (%)</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of debt**</td>
<td>21.5</td>
<td>12</td>
<td>18.4</td>
<td>17.7</td>
<td>24.7</td>
<td>3.1</td>
</tr>
<tr>
<td>Research*</td>
<td>32.9</td>
<td>17.7</td>
<td>20.3</td>
<td>19.6</td>
<td>5.1</td>
<td>2.4</td>
</tr>
<tr>
<td>Financial opportunities**</td>
<td>3.8</td>
<td>13.3</td>
<td>17.7</td>
<td>31.6</td>
<td>31.0</td>
<td>3.8</td>
</tr>
<tr>
<td>Family</td>
<td>19.6</td>
<td>13.9</td>
<td>21.5</td>
<td>19.6</td>
<td>21.5</td>
<td>3.1</td>
</tr>
<tr>
<td>Returning to home country</td>
<td>59.5</td>
<td>8.2</td>
<td>10.8</td>
<td>6.3</td>
<td>8.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Job/training opportunities*</td>
<td>7.0</td>
<td>8.2</td>
<td>20.3</td>
<td>32.9</td>
<td>28.5</td>
<td>3.7</td>
</tr>
<tr>
<td>Overseas travel</td>
<td>5.1</td>
<td>5.7</td>
<td>15.2</td>
<td>29.7</td>
<td>41.1</td>
<td>4.0</td>
</tr>
<tr>
<td>Working conditions</td>
<td>12.0</td>
<td>20.9</td>
<td>24.1</td>
<td>17.7</td>
<td>20.9</td>
<td>3.2</td>
</tr>
</tbody>
</table>

*Correlation to total debt significant at 0.05 level; **Correlation to total debt significant at 0.01 level.

In response to a yes/no question, 55% of respondents (mean total debt $79,904) stated that they had considered leaving New Zealand specifically because of their student loan debt, and their debt was significantly higher than those who had not considered leaving New Zealand (mean total debt $59,771; p<0.001).

Career intentions—In response to a yes/no question, 43% of respondents with a student loan stated that their student debt had influenced their intended specialty, and these respondents had a significantly higher total debt ($65,281 compared to $57,120; p=0.03).
Table 2 shows the intended specialty intentions of respondents alongside the proportion of the New Zealand workforce in 2002 (from Medical Council of New Zealand), and the first-choice responses from the 2001 WIDE survey of Christchurch medical students.7

Table 3. Intended specialty of junior doctors

<table>
<thead>
<tr>
<th>Speciality</th>
<th>% of respondents</th>
<th>2001 WIDE survey of medical students7 (%)</th>
<th>New Zealand workforce in 2002 (%)6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgery (all subspecialties)</td>
<td>24</td>
<td>22</td>
<td>11</td>
</tr>
<tr>
<td>Internal medicine (all subspecialties)</td>
<td>19</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>Anaesthesia/intensive care medicine</td>
<td>13</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>General practice</td>
<td>9</td>
<td>16</td>
<td>41</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>8</td>
<td>10</td>
<td>3</td>
</tr>
<tr>
<td>Radiology</td>
<td>5</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Career outside medicine</td>
<td>4</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Obstetrics &amp; gynaecology</td>
<td>4</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>4</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Emergency medicine</td>
<td>2</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Pathology</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Public health</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Management</td>
<td>0.6</td>
<td>0</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Research</td>
<td>0.6</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>Academic/teaching</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 3 shows how respondents rated the importance of various factors on their career intentions. The importance of debt, and financial opportunities in determining career intentions was correlated with respondents’ total debts (level of debt r=0.304; p<0.001; Financial opportunities r=0.189; p=0.02). That is, respondents owing more found debt and financial considerations had a larger influence over their choice of specialty. However, level of debt was not a strong influence over specialty choice for most respondents, as indicated by the median rating. The strongest influences over specialty choice were interest, lifestyle, family, and intellectual challenge, respectively.

Table 4. Importance of factors influencing career choice, correlated to total debt

<table>
<thead>
<tr>
<th>Factor influencing career choice</th>
<th>No influence 1 (%)</th>
<th>2 (%)</th>
<th>3 (%)</th>
<th>4 (%)</th>
<th>Strong influence 5 (%)</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family (current &amp; planned)</td>
<td>5.1</td>
<td>5.7</td>
<td>16.5</td>
<td>37.3</td>
<td>34.8</td>
<td>3.92</td>
</tr>
<tr>
<td>Level of debt**</td>
<td>36.1</td>
<td>15.8</td>
<td>15.8</td>
<td>21.5</td>
<td>9.5</td>
<td>2.52</td>
</tr>
<tr>
<td>Financial opportunities*</td>
<td>6.3</td>
<td>15.2</td>
<td>32.9</td>
<td>31.6</td>
<td>13.3</td>
<td>3.31</td>
</tr>
<tr>
<td>Intellectual challenge</td>
<td>1.3</td>
<td>4.4</td>
<td>18.4</td>
<td>41.1</td>
<td>34.8</td>
<td>4.04</td>
</tr>
<tr>
<td>Prestige</td>
<td>36.7</td>
<td>22.8</td>
<td>23.4</td>
<td>11.4</td>
<td>5.1</td>
<td>2.25</td>
</tr>
<tr>
<td>Lifestyle</td>
<td>2.5</td>
<td>4.4</td>
<td>12.7</td>
<td>35.4</td>
<td>44.9</td>
<td>4.16</td>
</tr>
<tr>
<td>Interest</td>
<td>0.6</td>
<td>0</td>
<td>3.8</td>
<td>27.8</td>
<td>67.7</td>
<td>4.62</td>
</tr>
</tbody>
</table>

*Correlation to total debt significant at 0.05 level; **Correlation to total debt significant at 0.01 level.
Table 4 shows how respondents rated potential incentives for them to stay in New Zealand. Respondents considered increased salaries, employer repayments towards student loans, training opportunities in New Zealand, and shorter working hours as the most important incentives to staying in New Zealand. Again, those with higher debts were more likely to find increased salaries and employer contributions towards student loans as important incentives.

**Table 5. Importance of incentives to stay in New Zealand, correlated with debt**

<table>
<thead>
<tr>
<th>Incentive</th>
<th>1 (%)</th>
<th>2 (%)</th>
<th>3 (%)</th>
<th>4 (%)</th>
<th>5 (%)</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased salaries**</td>
<td>1.9</td>
<td>7.0</td>
<td>19.6</td>
<td>32.3</td>
<td>39.2</td>
<td>4.00</td>
</tr>
<tr>
<td>Employer contributions towards student loan**</td>
<td>12.7</td>
<td>5.7</td>
<td>13.3</td>
<td>19.0</td>
<td>45.6</td>
<td>3.82</td>
</tr>
<tr>
<td>Shorter working hours</td>
<td>3.2</td>
<td>9.5</td>
<td>22.2</td>
<td>29.1</td>
<td>35.4</td>
<td>3.85</td>
</tr>
<tr>
<td>Training opportunities*</td>
<td>1.3</td>
<td>6.3</td>
<td>23.4</td>
<td>39.2</td>
<td>29.1</td>
<td>3.89</td>
</tr>
<tr>
<td>Increased spending on healthcare</td>
<td>9.5</td>
<td>22.2</td>
<td>37.3</td>
<td>17.7</td>
<td>12.7</td>
<td>3.02</td>
</tr>
<tr>
<td>Bonded training‡</td>
<td>16.5</td>
<td>17.7</td>
<td>24.7</td>
<td>18.4</td>
<td>20.9</td>
<td>3.10</td>
</tr>
<tr>
<td>Increased morale in hospitals</td>
<td>3.8</td>
<td>8.9</td>
<td>32.3</td>
<td>33.5</td>
<td>20.9</td>
<td>3.59</td>
</tr>
</tbody>
</table>

‡Bonded training would be a scholarship towards fees etc in exchange for a guarantee of work for a set number of years in a particular hospital after graduation; *Correlation with total debt significant at 0.05 level; **Correlation with total debt significant at 0.01 level.

**Figure 2. Intention of junior doctors to practice in rural New Zealand (n=158)**

**Rural intentions**—As illustrated in Figure 1, the majority of respondents stated that they definitely would not, or were unlikely to practice in rural New Zealand during
their career. Total debt was not associated with the intention to practice in rural New Zealand (ANOVA p=0.3).

**Discussion**

These results demonstrate that student debt had a strong influence over the decisions of the first-year house officers (PGY1s) in New Zealand. These influences are likely to affect the medical workforce, as the majority considered emigration due to their debt, and a substantial number claimed debt affected their specialty choice. These findings have implications for medical workforce development, and the tertiary education sector.

It is notable that only 9% of applicants indicated that general practice was their preferred specialty, when considering GPs currently make up over 40% of the medical workforce in New Zealand. With primary care as a central focus in current government health policy, and the GP workforce already declining, this result is potentially alarming. It was also notable that psychiatry and public health were the only areas besides general practice in which a smaller proportion of respondents intended to work than currently do so amongst the New Zealand medical workforce.

Twenty percent of respondents did not intend to practice in New Zealand for the majority of their career. Between 1998 and 2002, the percentage of medical graduates remaining practicing in the New Zealand medical workforce after 3 years has ranged from 69 to 78%. The comparable figure from the present study (35% intending to remain in New Zealand beyond their third year) would represent a large increase in emigration. Historically, doctors have emigrated to gain experience and specialist training, but the present results indicate that debt is now a factor in this decision, particularly for those with the bigger debts. In constrast, debt as a driver of medical emigration did not exist 20 years ago.

This new motive for doctors to leave New Zealand may represent a change in professional motivation. Indeed, the sense of obligation felt by many past graduates may have been undermined by personal debts, and a focus on repayment. While doctors have tended to return from travel in the past, those who travel to repay (or escape) debts of $100,000 may not.

Forty-three percent of respondents with student loans stated that their student loan debt had influenced their choice of specialty. This indicates that student debt may have long-term consequences for the structure of the medical workforce—this is an unintended and potentially detrimental consequence of the student loan scheme.

Intentions do not always equate to actions. However these doctors were surveyed at a time in their careers when they were beginning to make choices about their future specialties. A regular intentions survey of junior doctors in PGY1 and 2 would be a useful tool for monitoring trends in career intentions.

This paper describes associations between emigration from New Zealand, altered patterns of speciality choice, and student debt. This illustrates the unintended, yet potentially serious effect that student debt may be having on the public health system in New Zealand.

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References


Procedural skills of first-year postgraduate doctors at Auckland District Health Board, New Zealand

Andrew Old, Gill Naden, Stephen Child

Abstract

Aims To determine whether the current skills list for postgraduate year 1 (PGY1) training in New Zealand is appropriate and an accurate reflection of the experience gained in this year.

Methods PGY1 doctors at Auckland District Health Board were surveyed about their experience with 86 skills at the beginning and at the end of their first postgraduate year; 28 of these skills were from the Medical Council of New Zealand’s (MCNZ) ‘Indicative List of Skills’ for PGY1.

Results The response rate was 79% for the first survey and 66% for the follow-up. By the end of the PGY1 year, all doctors had performed 21% of the skills listed by the MCNZ, compared to 4% at the beginning of the year. Thirty-nine percent of the skills defined as important to achieve during PGY1 by the MCNZ had been performed by less than half our sample at the end of their PGY1 training.

Conclusions There is a significant discrepancy between the skills expected of graduates at the end of PGY1 (as indicated by the MCNZ) and those attained.

The Medical Council of New Zealand (MCNZ) is responsible, through its education committee and hospital-based intern supervisors, for the educational experience of doctors in their first postgraduate year (PGY1).

While there is currently no prescribed set of clinical skills that must be attained and accredited during this time, the MCNZ does publish an ‘Indicative List of Skills’ designed to, “ensure they [PGY1 doctors] achieve an appropriate breadth of experience during the year”.

In 2002, a Danish study asked pre-registration house officers (PRHOs), the equivalent of PGY1, to rate themselves in 210 practical clinical skills that had been identified previously using a Delphi technique. Using this method, an expert panel assessed a range of clinical skills and identified, by consensus, the expected level of competence of medical graduates at time of graduation. With a response rate in the survey of 80%, it was discovered that none of the PRHO respondents met the minimum level for all the skills, with only 8% meeting the minimum requirements for at least 90%. On average, the respondents met the minimum level of competence as defined by the expert panel for only 74% of the skills.

In this study, we surveyed a group of junior doctors at the beginning and the end of their first postgraduate year to gauge their experience with a pre-defined set of skills, paying particular attention to the sub-set contained in the “Indicative List of Skills” published by the MCNZ.
Methods

Study population—Auckland District Health Board (ADHB) is the largest public healthcare provider in New Zealand, providing regional services for approximately 415,000 people along with some national specialty services. There are more than 7500 staff including approximately 500 resident medical officers and nearly 3000 nurses. In November 2002, incoming postgraduate year 1 (PGY1) doctors about to start work at ADHB were surveyed at their orientation session and the survey was repeated at the end of their PGY1 year (November 2003).

Questionnaire—The survey comprised 134 questions relating to personal experience and expertise with various clinical skills, including procedural and communication skills (86 questions) as well as management of common conditions (48 questions). Participants were asked to rate their experience or confidence with each skill on a five or six-point scale (Table 1). A score of ‘3’ or more identified clinical experience with the skill and was defined as ‘sufficient performance’ for the purposes of comparison. Demographic data were collected and there were no personal identifiers on the questionnaires.

Table 1. Survey rating scale

<table>
<thead>
<tr>
<th>Clinical Skills</th>
<th>Management Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Never heard of procedure/skill</td>
<td>0 Never seen a patient with this condition</td>
</tr>
<tr>
<td>1 Know the principle</td>
<td>1 Have met a patient with this condition but not managed the condition</td>
</tr>
<tr>
<td>2 Observed, or done on a model</td>
<td>2 Have had a patient on our team with this condition but not managed it independently</td>
</tr>
<tr>
<td>3 Done with supervision/assistance</td>
<td>3 Have managed this condition independently</td>
</tr>
<tr>
<td>4 Have done independently</td>
<td>4 Feel very comfortable/experienced managing this condition</td>
</tr>
<tr>
<td>5 Very comfortable with this skill – mastered</td>
<td></td>
</tr>
</tbody>
</table>

Questions for the survey were drawn from the skill set used in the Danish study, and the MCNZ Indicative List of Skills. Only results from the questions relating to the MCNZ Indicative List of Skills are reported here.

Statistical methods—Results are reported as mean plus or minus standard deviation unless otherwise specified. Differences in MCNZ skill levels were compared using an unpaired t-test as there was no identifier available to match the pre-PGY1 and post-PGY1 questionnaires. All analysis was performed on SAS statistical software and a p-value less than 0.05 was considered statistically significant.

Results

Thirty-eight PGY1 house officers started at ADHB in November 2002. Of the 36 questionnaires distributed (two eligible participants did not attend orientation), 30 were completed and returned (79% overall response rate). Of the 30 doctors who originally completed the survey, 25 completed the repeat in November 2003, with 5 doctors lost to follow-up. Reasons for attrition included rotation away from ADHB and non-attendance at the scheduled feedback session.

Due to ambiguity in the rating scale, the 48 questions relating to management skills were unable to be meaningfully evaluated. The sub-set of skills (28) that relate to the indicative list of skills published by the MCNZ are reported. Table 2 summarises the characteristics of the study population.
### Table 2. Participant summary data (% of sample)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre – PGY1 Survey</th>
<th>Post – PGY1 Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of respondents</td>
<td>30</td>
<td>25</td>
</tr>
<tr>
<td>Age range (years)</td>
<td>22–30</td>
<td>23–31</td>
</tr>
<tr>
<td>Medical school</td>
<td></td>
<td></td>
</tr>
<tr>
<td>University of Auckland</td>
<td>60%</td>
<td>76%</td>
</tr>
<tr>
<td>University of Otago</td>
<td>40%</td>
<td>24%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>63%</td>
<td>60%</td>
</tr>
<tr>
<td>Male</td>
<td>37%</td>
<td>40%</td>
</tr>
</tbody>
</table>

### Table 3. MCNZ indicative list of skills

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Pre-PGY1</th>
<th>Post-PGY1</th>
<th>Difference</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean±SD</td>
<td>Mean±SD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insertion of an IV cannula</td>
<td>4.4±0.56</td>
<td>4.9±0.30</td>
<td>+0.5</td>
<td>0.001</td>
</tr>
<tr>
<td>Venepuncture</td>
<td>4.4±0.68</td>
<td>4.9±0.30</td>
<td>+0.5</td>
<td>0.005</td>
</tr>
<tr>
<td>Bladder catheterisation – male</td>
<td>3.8±0.77</td>
<td>4.6±0.60</td>
<td>+0.8</td>
<td>0.001</td>
</tr>
<tr>
<td>Arterial puncture</td>
<td>4.0±0.76</td>
<td>4.6±0.51</td>
<td>+0.6</td>
<td>0.007</td>
</tr>
<tr>
<td>Infiltration of local anaesthetic</td>
<td>3.4±0.89</td>
<td>4.1±1.15</td>
<td>+0.7</td>
<td>0.022</td>
</tr>
<tr>
<td>Simple wound suturing</td>
<td>3.7±0.98</td>
<td>4.1±0.85</td>
<td>+0.4</td>
<td>0.128</td>
</tr>
<tr>
<td>Assessment of level of consciousness (GCS)</td>
<td>3.1±0.92</td>
<td>4.1±0.51</td>
<td>+1.0</td>
<td>0.001</td>
</tr>
<tr>
<td>Intramuscular injection</td>
<td>3.6±0.90</td>
<td>3.8±1.17</td>
<td>+0.2</td>
<td>0.405</td>
</tr>
<tr>
<td>Speculum exam of vagina &amp; cervix</td>
<td>3.9±0.80</td>
<td>3.8±0.91</td>
<td>-0.1</td>
<td>0.543</td>
</tr>
<tr>
<td>Bimanual palpation of adnexae</td>
<td>3.7±0.78</td>
<td>3.6±0.89</td>
<td>-0.1</td>
<td>0.446</td>
</tr>
<tr>
<td>Cervical smear</td>
<td>3.6±0.89</td>
<td>3.4±1.16</td>
<td>-0.2</td>
<td>0.560</td>
</tr>
<tr>
<td>Removal of corneal foreign body</td>
<td>2.2±0.94</td>
<td>3.3±1.48</td>
<td>+1.1</td>
<td>0.005</td>
</tr>
<tr>
<td>Detection of fetal heart sounds</td>
<td>3.6±0.77</td>
<td>3.3±0.73</td>
<td>-0.3</td>
<td>0.229</td>
</tr>
<tr>
<td>Applying a bandage/strapping</td>
<td>3.0±1.00</td>
<td>3.2±1.18</td>
<td>+0.2</td>
<td>0.507</td>
</tr>
<tr>
<td>Applying plaster to a fracture</td>
<td>2.6±0.89</td>
<td>3.0±0.95</td>
<td>+0.4</td>
<td>0.165</td>
</tr>
<tr>
<td>Endotracheal intubation</td>
<td>2.9±0.50</td>
<td>3.0±0.60</td>
<td>+0.1</td>
<td>0.524</td>
</tr>
<tr>
<td>Bladder catheterisation – female</td>
<td>3.1±1.22</td>
<td>2.9±1.64</td>
<td>-0.2</td>
<td>0.571</td>
</tr>
<tr>
<td>Placing a nasogastric tube</td>
<td>2.4±1.10</td>
<td>2.8±1.44</td>
<td>+0.4</td>
<td>0.255</td>
</tr>
<tr>
<td>Drain an abscess</td>
<td>2.3±1.08</td>
<td>2.7±1.02</td>
<td>-0.4</td>
<td>0.189</td>
</tr>
<tr>
<td>Joint aspiration</td>
<td>2.0±0.85</td>
<td>2.6±1.24</td>
<td>+0.6</td>
<td>0.051</td>
</tr>
<tr>
<td>Chest drain insertion</td>
<td>1.8±0.75</td>
<td>2.5±0.81</td>
<td>+0.7</td>
<td>0.003</td>
</tr>
<tr>
<td>Nasal packing</td>
<td>1.7±0.84</td>
<td>2.4±1.12</td>
<td>+0.7</td>
<td>0.008</td>
</tr>
<tr>
<td>Closed reduction of a fracture</td>
<td>2.2±0.71</td>
<td>2.3±1.10</td>
<td>+0.1</td>
<td>0.737</td>
</tr>
<tr>
<td>Application of traction</td>
<td>1.9±0.82</td>
<td>2.2±0.99</td>
<td>+0.3</td>
<td>0.332</td>
</tr>
<tr>
<td>Reduction of a joint dislocation</td>
<td>2.1±0.73</td>
<td>2.2±0.98</td>
<td>+0.1</td>
<td>0.812</td>
</tr>
<tr>
<td>Application of a cervical collar</td>
<td>2.3±0.60</td>
<td>2.1±1.10</td>
<td>-0.2</td>
<td>0.494</td>
</tr>
<tr>
<td>Removal of foreign body from ear</td>
<td>2.1±0.88</td>
<td>2.1±1.00</td>
<td>-</td>
<td>0.873</td>
</tr>
<tr>
<td>Resuscitation of a newborn</td>
<td>2.2±0.89</td>
<td>1.8±0.68</td>
<td>-0.4</td>
<td>0.096</td>
</tr>
</tbody>
</table>

Results reported as mean± standard deviation. Scores range from 1.7 to 4.9 where a score of 3 or more indicates clinical experience with the procedure (refer to Table 1). GCS=Glasgow Coma Score.
Table 4. Percentage of participants who reported performing the named skill in clinical practice (identified as those rating the skill as 3 or greater, refer Table 1)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Pre-PGY1 n=30</th>
<th>Post-PGY1 n=25</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Emergency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application of a cervical collar</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Endotracheal intubation</td>
<td>83%</td>
<td>81%</td>
</tr>
<tr>
<td><strong>Surgery</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Simple wound suturing</td>
<td>90%</td>
<td>100%</td>
</tr>
<tr>
<td>Chest drain insertion</td>
<td>17%</td>
<td>43%</td>
</tr>
<tr>
<td>Drain an abscess</td>
<td>47%</td>
<td>57%</td>
</tr>
<tr>
<td><strong>Obstetrics and Gynaecology</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cervical smear</td>
<td>90%</td>
<td>86%</td>
</tr>
<tr>
<td>Resuscitation of a newborn</td>
<td>37%</td>
<td>14%</td>
</tr>
<tr>
<td>Speculum exam of vagina &amp; cervix</td>
<td>100%</td>
<td>95%</td>
</tr>
<tr>
<td>Bimanual palpation of adnexae</td>
<td>97%</td>
<td>85%</td>
</tr>
<tr>
<td>Detection of fetal heart sounds</td>
<td>93%</td>
<td>90%</td>
</tr>
<tr>
<td><strong>Musculoskeletal</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint aspiration</td>
<td>23%</td>
<td>43%</td>
</tr>
<tr>
<td>Applying a bandage/strapping</td>
<td>77%</td>
<td>81%</td>
</tr>
<tr>
<td>Closed reduction of a fracture</td>
<td>30%</td>
<td>43%</td>
</tr>
<tr>
<td>Applying plaster to a fracture</td>
<td>53%</td>
<td>81%</td>
</tr>
<tr>
<td>Reduction of a joint dislocation</td>
<td>33%</td>
<td>43%</td>
</tr>
<tr>
<td>Application of traction</td>
<td>21%</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arterial puncture</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Venepuncture</td>
<td>97%</td>
<td>100%</td>
</tr>
<tr>
<td>Insertion of an IV cannula</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Intramuscular injection</td>
<td>90%</td>
<td>90%</td>
</tr>
<tr>
<td>Infiltration of local anaesthetic</td>
<td>83%</td>
<td>90%</td>
</tr>
<tr>
<td>Assessment of level of consciousness (GCS)</td>
<td>77%</td>
<td>100%</td>
</tr>
<tr>
<td>Nasal packing</td>
<td>10%</td>
<td>43%</td>
</tr>
<tr>
<td>Placing a nasogastric tube</td>
<td>37%</td>
<td>43%</td>
</tr>
<tr>
<td>Bladder catheterisation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>93%</td>
<td>100%</td>
</tr>
<tr>
<td>Female</td>
<td>67%</td>
<td>43%</td>
</tr>
<tr>
<td>Removal of corneal foreign body</td>
<td>37%</td>
<td>65%</td>
</tr>
<tr>
<td>Removal of foreign body from ear</td>
<td>24%</td>
<td>24%</td>
</tr>
</tbody>
</table>

Increases in the perceived level of experience were observed in 19 (68%) of 28 skills from the MCNZ indicative list however only nine of these increases reached statistical significance (Table 3). There were decreases in the perceived level of experience in eight skills but none with statistical significance, and seven of these were skills
associated with Obstetrics and Gynaecology which are not offered during PGY1 at ADHB (Table 3).

By the end of the PGY1 year, 100% of doctors had performed in practice only 6 of 28 (21%) of the skills listed by the MCNZ, compared to 1 of 28 at the beginning of the year (Table 4).

The number of skills performed by at least 50% of the doctors did not change significantly over the year (16 at the beginning, 17 at the end). Put another way, 11 out of 28 skills (39%) defined as important to achieve during PGY1 by the MCNZ, had been performed in practice by less than half our sample at the end of their PGY1 year.

**Discussion**

Our study found that experience with most procedural skills deemed important by the Medical Council of New Zealand does not increase significantly during a doctor’s first postgraduate year working in a major tertiary hospital. In addition, there is a significant discrepancy between the skills expected of graduates at the end of PGY1 (as indicated by the MCNZ) and those attained. Furthermore, most of the skills expected of PGY1 doctors are present in the medical school curricula and it is interesting to note that of the 28 skills discussed, just one had been performed by all the respondents at the time of their graduation.

Obstetric & gynaecology runs are not currently offered at PGY1 level at ADHB, while paediatrics is only available to two people. This explains, in part, the relative lack of experience demonstrated in these disciplines and, despite skills from these disciplines being included in the MCNZ’s indicative list, general registration is still granted without this experience. Given that the survey asked about experience, as opposed to competence or confidence, the reported decline in experience with these skills can be ignored. This is supported by the lack of statistical significance associated with this decline.

Internationally, the historical trend has been to not prescribe minimum skill sets, although many comparable countries (that have previously issued ‘indicative’ lists similar to the MCNZ) are currently moving to greater regulation. In Australia, individual states have produced various suggested skill sets, while in the United Kingdom, the revision of the New Doctor sets out “outcomes” rather than “experience” that must be achieved prior to gaining full registration. In addition, the recently instituted, two-year “Foundation Programme” in the United Kingdom lists 41 key competencies that will be assessed during the programme.

The general theme of our results (i.e. that PGY1 doctors generally do not meet defined core competencies) is supported by the international literature with conclusions like “newly qualified doctors do not feel prepared for PRHO duties and objectively are not competent in basic clinical skills”, and “students…skills are deficient at the time of graduation” being commonplace.

A South African study which tested 58 recent graduates in a seven station OSCE found that average scores across all 7 stations was just 67.5% and that the candidates were “unduly optimistic” about their competence. In a UK study, Smith et al found knowledge of acute care to be “unsatisfactory” amongst recent graduates and called on medical schools to “urgently incorporate training about common aspects of generic
acute care in their curricula”. Another study from the UK that tested PRHOs against a 17 station OSCE of core clinical skills, concluded that “PRHOs may have deficiencies in basic clinical skills at the time they enter the medical register”. Furthermore, a larger study of 122 medical students and 84 PRHOs (that asked about experience with 8 core skills) found that most of the skills had only been performed a few times at qualification and less than half of the PRHOs questioned could recall further postgraduate training in any of them.

What is encouraging, however, are findings such as those of a 1999 study that found that early postgraduate trainees in a Sydney teaching hospital did in fact acquire high levels of confidence and experience in most skill areas after 2 years of training noting that “the first postgraduate year is particularly significant for the development of clinical skills”. It is important to note, however, that experience and confidence have been found not to equate to observed competence.

Our study is limited by the small sample size and by the unfortunate attrition of five participants between the two surveys. Furthermore, our study looked at self-perceptions of experience which, as outline above, have been previously shown to bear little correlation to observed competence.

Notwithstanding the small absolute numbers, our study does represent the experience of the majority of PGY1 medical staff at ADHB with 79% (30 out of 38) completing the original survey and 66% (25 of 38) the follow-up. Experience with most skills surveyed did not increase during the first postgraduate year, and a significant proportion (11 of 28) of the skills identified by the MCNZ had been performed by less than half the respondents.

Taking our findings in the context of the international literature raises a number of questions. Are the skills being tested an accurate reflection of the role of the PGY1 doctor? If so, why are they not being achieved and should adequate competence with some or all of these skills be required to be demonstrated before General Registration is granted? If not, are there deficiencies with the PGY1 experience, or is the list of skills inappropriate?

We would contend that the answer is likely to be a combination of the above. Regarding the appropriateness of the lists, some authors have argued that the most important skills a doctor can possess are the tools to identify seriously ill patients, something the traditionally prescribed skill sets tend to ignore. Furthermore, some skills, such as cannulation and phlebotomy, are being increasingly taken over by other health professionals, thus decreasing the exposure of new medical graduates. Finally, there are some important skills, such as endotracheal intubation, that a PGY1 doctor is unlikely to perform, but which are important nonetheless.

As previously mentioned, the MCNZ “Indicative List of Skills” is not prescriptive and General Registration is granted on the basis of satisfactory completion of four, 3-month rotations in a New Zealand hospital. The lack of a prescribed standard of what constitutes acceptable procedural experience poses difficulties for those responsible for skills education programmes at both undergraduate and graduate level, those consultants charged with supervision and assessment, as well as for new graduate doctors themselves.
Given the discrepancy observed between the reported experience of PGY1 house officers at ADHB and the indicative list of skills published by the MCNZ, the growing body of medical literature that echo these findings, and the moves toward greater regulation in comparable Western countries, these authors propose the establishment of an internationally agreed, assessed curriculum for PGY1 that would need to be satisfactorily completed prior to gaining general registration.

Furthermore, given the changing medicolegal environment and the increasing demand for public accountability, a more systematic approach to ensure junior doctors are adequately trained to provide safe, competent care is fast becoming a necessity. Such a programme would require the introduction of more formal, competence-based education into the PGY1 year and a necessary shift in focus from the service dominated working model that exists currently. Proposed suggestions for achieving this include: limiting the number of patients house officers manage at one time; relieving junior doctors of “non-educational chores”; improving educational content; and easing “emotional stresses”.

Various models exist for the standardising of such assessments, but two that are commonly discussed in the literature are the use of standardised patients and a method of clinical skills assessment developed by the American Board of Internal Medicine known as the mini-CEX. In addition to the use of the mini-CEX, the UK Foundation Programme is employing three other assessment techniques: ‘Direct Observation of Procedural Skills’ (DOPS), ‘Case-based Discussion’ (CbD), and ‘Multi-Source Feedback’ (MSF), a form of 360 degree feedback. It is beyond the scope of this paper to comment on the relative merits of each of these methods, but it is worth considering that the institution of any internationally agreed, assessed curriculum would also require agreement on appropriate methods of testing.

Other options that have been suggested to be beneficial in improving graduate doctors’ skills are an extended, specific orientation period, and greater integration between undergraduate and graduate education programmes. In New Zealand, a strength of our system is the trainee intern year which provides some degree of integration between medical school and pre-vocational training, although there is a need for greater collaboration on appropriate skills, and methods of teaching and assessment, between medical schools, PGY1 & 2 programme providers, and vocational colleges.

In New Zealand, the ‘Indicative List of Skills’ published by the MCNZ is currently the most authoritative guide to the expected competencies of recently graduated doctors. This paper has highlighted significant discrepancies between the skills listed and those attained, and we call on the MCNZ to review this list, in consultation with all stakeholders and in light of international developments, both to improve the guidance given to new graduate doctors and their educators, and to ensure that the skills are appropriate prior to any move to greater prescription of competencies in this country.

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References:


Career choices of New Zealand junior doctors

Andrea Zarkovic, Stephen Child, Gill Naden

Abstract

Aims To report career preferences of New Zealand junior doctors, determine what factors influenced their choice, and determine at what stage of their career that choice was made.

Methods A structured questionnaire with anonymous replies was sent to final year medical students as well as to junior doctors in their first to fourth postgraduate year. Questions were based around choice of future career, timing, and certainty of this choice and the factors influencing it.

Results Of the 400 questionnaires distributed, 256 (64%; 95%CI: 59–69%) were returned. The most popular career choice was medicine (44%; 95%CI: 38–50%), followed by surgery (34%; 95%CI: 29–40%), general practice (30%; 95%CI: 25–36%), paediatrics (29%; 95%CI: 24–35%), and obstetrics & gynaecology (20%; 95%CI: 16–25%). The choice of a career was mostly based on interest in that specialty. Most (70%; 95%CI: 64–75%) final year medical students; and 52% (95%CI: 41–63%), 45% (95%CI: 33–60), and 17% (95%CI: 9–33%) of doctors in postgraduate year 1, 2, and 2+ respectively; had not made a definite career choice. Sixty-nine percent (95%CI: 63–75%) of respondents stated that they plan to work overseas, mostly to travel (70%; 95%CI: 63–77%) and to further their professional training (58%; 95%CI: 59–73%).

Conclusions Career aspirations of New Zealand junior doctors were similar to those reported by overseas studies. Adequate guidance throughout medical training and opportunity to gather work-experience over several specialties should be encouraged.
In this cross-sectional overview, we surveyed final medical year students, early postgraduate junior doctors, and registrars in Auckland to determine their intended career path and those factors that primarily affected their decision process.

Methods

A seven-question survey was distributed between March 2003 and May 2003 by direct mail to junior doctors’ work address at hospitals covered by Auckland District Health Board, Waitemata District Health Board, and Counties Manukau District Health Board. Each doctor in postgraduate year (PGY) 1–4 received three copies of the questionnaire and an accompanying letter asking them to fill out one copy of the questionnaire for themselves. This letter also asked their registrar and final year student to fill out the other copies of the questionnaire.

In addition, questionnaires were directly distributed at the major teaching sessions and career information evenings involving junior doctors. The questionnaire was also available on the intra-hospital website (intranet) and a small advertising campaign was conducted.

All questionnaires were anonymous, although respondents were asked their training level and gender. All questionnaires were received and collated by the principle author. Ethics approval was not requested for the study but the questionnaire followed extensive consultation with key stakeholder groups.

Results

Response rate—Of the 400 questionnaires distributed, 271 were returned. Fifteen responses were excluded from analysis for being incorrectly filled out. As shown in Table 1, of the possible 240 PGY 1-4 doctors in the Auckland region, 160 responses were received. This suggests that we sampled more than 60% (95% CI: 54–66) of the doctors in this area.

Table 1. Responses to the questionnaire

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final year students</td>
<td>56</td>
<td>21.9</td>
</tr>
<tr>
<td>PGY 1</td>
<td>71</td>
<td>27.7</td>
</tr>
<tr>
<td>PGY 2</td>
<td>50</td>
<td>19.5</td>
</tr>
<tr>
<td>PGY 2+</td>
<td>39</td>
<td>15.2</td>
</tr>
<tr>
<td>Registrars</td>
<td>40</td>
<td>15.6</td>
</tr>
<tr>
<td>Male*</td>
<td>74</td>
<td>28.9</td>
</tr>
<tr>
<td>Female*</td>
<td>70</td>
<td>27.3</td>
</tr>
<tr>
<td>Total</td>
<td>256</td>
<td></td>
</tr>
</tbody>
</table>

*Note that percentages of male and female doctors do not add up to 100% because some doctors failed to specify their gender as requested in the questionnaire; PGY=postgraduate year.

Career choices—Table 2 illustrates the career preferences and level of certainty for each of the major vocational groups. Decisions regarding surgery appear the most “concrete.”

Table 3 showed the favourable responses for major specialties, and compares these between male and female doctors. Results suggest that internal medicine and its related specialties are the most preferred career choice whereas a career in obstetrics & gynaecology is the most undesired. No major gender differences were found, although more female doctors appear to be interested in paediatrics and obstetrics & gynaecology. Of 256 responders, 18 expressed interest in anaesthesics and 11 in radiology; 8 were interested in psychiatry and pathology each.
Ophthalmology and sexual health were favoured by four respondents each, and three doctors wanted to pursue emergency medicine. Two favourable responses were obtained for radiation oncology, research, and management, respectively. One person expressed interest for each of the following specialties: occupational health, microbiology, orthopaedics, intensive care, neurosurgery, public health, sports medicine, and urology.

Table 2. Certainty of career preferences of junior doctors for five major specialties

<table>
<thead>
<tr>
<th>Variable</th>
<th>Definitely not interested</th>
<th>Probably not interested</th>
<th>Unsure</th>
<th>Possibly interested</th>
<th>Definitely interested</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>GP</td>
<td>67</td>
<td>26.2</td>
<td>68</td>
<td>26.6</td>
<td>32</td>
</tr>
<tr>
<td>Surgery</td>
<td>89</td>
<td>34.8</td>
<td>54</td>
<td>21.1</td>
<td>14</td>
</tr>
<tr>
<td>Medicine</td>
<td>38</td>
<td>14.8</td>
<td>33</td>
<td>12.7</td>
<td>49</td>
</tr>
<tr>
<td>Paediatrics</td>
<td>68</td>
<td>26.6</td>
<td>54</td>
<td>21.1</td>
<td>42</td>
</tr>
<tr>
<td>O&amp;G</td>
<td>101</td>
<td>39.5</td>
<td>52</td>
<td>20.3</td>
<td>32</td>
</tr>
</tbody>
</table>

GP=general practice, O&G=obstetrics and gynaecology.

Table 3. Numbers (percentages) of respondents who expressed probable or definite interest in mainstream specialties

<table>
<thead>
<tr>
<th>Variable</th>
<th>Male</th>
<th>Female</th>
<th>Total*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>GP</td>
<td>21</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Surgery</td>
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<td>Medicine</td>
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<tr>
<td>Paediatrics</td>
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<td>74</td>
</tr>
<tr>
<td>O&amp;G</td>
<td>6</td>
<td>24</td>
<td>51</td>
</tr>
</tbody>
</table>

*Note that the numbers of male and female doctors don’t add up to total numbers because some respondents did not specify their gender as requested in the questionnaire; GP=general practice; O&G=obstetrics and gynaecology.

Factors affecting choices—Figure 1 indicates those factors that most affected career choice. Interest in a specialty appears to be most important regardless of career choice. There is some variation between other factors.

Figure 2 records those factors that most influenced the choice of a career. This result appears to favour the influence of prior experience, but results were fairly evenly spread.
Figure 1. Relative importance of factors influencing the choice of different specialties

Figure 2. Factors that influence career decisions of junior doctors

Timing of career choice—Out of all respondents, 45% (95%CI: 39–51%) believed they had already made a career choice. The majority of final year students (70%; 95%CI: 64–75%) had not made a definite career decision, and just over half of PGY 1 doctors (52%; 95%CI: 41–63%) were still undecided. After the first
postgraduate year, the number of doctors still undecided on their career path gradually declined, with 45% (95% CI: 33–60%) of PGY 2, 17% (95% CI 9–33) of PGY 2+, and 12% (95%CI: 6–26%) of registrars reporting no definite career choice.

The most common reason—reported by 68% (95%CI: 62–73%) of respondents—for not yet making a career choice was the wish to gain more exposure to a wider range of medical specialties before making a decision. Indeed, almost a third of respondents (29%; 95%CI: 24—35%) stated that they liked many specialties and were finding it difficult to make a choice. About 25% (95%CI: 21–32) stated that part of the reason for not making a definitive decision was because they were considering leaving medicine.

Of the 141 doctors who had chosen their career path, 44 (31%; 95%CI: 24–39%) doctors appear to have done so while still in medical school; 23 (16%; 95%CI: 11–23) in their first postgraduate year; and the rest in their second and subsequent postgraduate years.

**Overseas expectations**—Of the 256 responders, 177 (69.1%; 95% CI: 63–75%) stated that they plan to work outside of New Zealand whereas 60 (23.4%; 95%CI: 19–29%) stated that they would not work overseas. The rest (5.9%; 95%CI: 4–9%) were still undecided. It should be noted, however, that the question did not distinguish long-term work preferences from a short experience overseas.

Interest in travel (70%; 95%CI: 63–76%) and professional training (58%; 95%CI: 51–65%) were the most common reasons listed for going overseas. None of the respondents listed financial gain as a sole reason for leaving New Zealand, but 36% (95%CI: 25–49%) of junior doctors listed it as part of the reason. About 20% (95%CI: 15–26%) of respondents wanted to work overseas for family reasons.

**Discussion**

The most popular career choice amongst junior doctors was internal medicine, although their career path was usually not chosen until the second postgraduate year.

Many studies have been published internationally regarding career choices of medical students and early postgraduate doctors. The changing nature of healthcare delivery, societal values, and medical school selection suggest that factors influencing career choices among medical professionals vary rapidly over time and between healthcare systems.

Although extensive literature exists internationally on career choices of junior doctors, we believe our study is only the third study specifically looking at New Zealand doctors. Although only the Auckland area was sampled, it is likely that the results are fairly representative of New Zealand as a whole. Indeed, in the previous Otago Medical School-based studies, the authors surveyed the future career intentions of medical students in New Zealand.

Results of those studies are very similar to our study—ranking internal medicine, surgery, and general practice as the preferred career intentions of medical students. It should be noted, however, that those studies listed financial reasons as the most important reason to leave New Zealand secondary to the high levels of student debt. Our study revealed fewer financial motives for overseas career aspirations.
This may be explained by the improving financial rewards given to hospital doctors in New Zealand over the past 3 years as well as the reduced financial concerns felt by doctors who are more advanced in their career path.

All studies, including our study, suffer from the subjective nature of such surveys as well as the change in attitudes of this flexible workforce. Indeed, Lambert et al showed that (overall) 74% of respondents retained their Year 1 career choice by Year 3, thus indicating approximately a quarter of doctors changed their minds regarding career choices in their early postgraduate years.

In a previous paper by the same group, it is interesting to note that 18 years after their selection, 58.9%, 78.2%, and 86.6% of doctors’ career choices matched career aspirations held at years 1, 3, and 5 postgraduation respectively. These results would suggest that the career aspirations and choices of medical students, and indeed those in their first 3 years postgraduation, are extremely flexible, with approximately one-quarter to one-half of those students ultimately ending up in different careers. About a third of the respondents from our study who appeared to have made their career decisions did so while still in medical school. Based on other studies, it is likely that a considerable proportion of these choices will change over time.

Taken together with the length of medical training, this would indicate that extrapolation of data from all career choice surveys must be done with extreme caution before making major changes to healthcare delivery. Similarly, however, the results would suggest the need for continued flexibility in career pathways for junior doctors as well as better career guidance at all stages of a medical career.

This study suggests that internal medicine and its related sub-specialties are the most popular choice of junior doctors in New Zealand, followed by surgery, paediatrics, and general practice. When reviewing the vocational register from the Medical Council of New Zealand, the preferences for vocational specialties by junior doctors rank in a similar order to the number of vocational specialists registered by the council. In other words, the greatest number of junior doctors wished to do those specialties which had the greatest number of jobs available in New Zealand.

Despite the uncertainty of career choices made by junior doctors at this level (as listed in the above comments), it is still of interest to note that doctors are either ‘strongly favourable’ or ‘unfavourable’ with regards to surgical career choices whereas responses for other specialties show less polarity. This result, taken together with the studies of Gelfand et al and Ranta et al would suggest a perceived image of surgery as a vocation that either does or does not have a strong career match with individual junior doctors. This might imply that if a recruitment problem existed with regards to surgery, then what must first be tested, is the perception of junior doctors for this vocation and the accuracy of this perception.

The earlier New Zealand medical student studies support the high degree of financial concern (mainly in regards to student debt acquired at medical schools). In our study, the junior doctors’ stated interest in a specialty was of greatest importance in career selection, and financial matters appeared to have little impact. Again, these results are consistent with those in overseas studies.
All studies support the conclusion that lifestyle factors are significantly important in vocational choice. Unfortunately, we could not find any previous relevant New Zealand data to investigate whether there has been a relative increase in the influence of lifestyle choice, as may be expected through changing societal values.

Workforce planning for the future needs to include those factors that influenced career choice the most. It would appear fairly evenly split between having “individual role models” or having either a “personal experience of working in a specialty”, or “reports from others working in a specialty.” This would support the suggestion that recruitment to specific vocations must ensure not only early training experience but also work experience prior to training within a specialty. These results also correlate well with the findings that showed high importance of having an individual mentor in assisting with vocational career selection.

At present, New Zealand offers clinical rotations of 3 months in the early postgraduate years, which limits the exposure to specialties to four per year. Internationally, the length of early postgraduate clinical work experience is quite variable, varying from 2-week experiences in some North American hospitals to 6-month exposure in United Kingdom hospitals. The results from our study strongly suggest that most junior doctors are still undecided about their career paths when they leave medical school. Moreover, most doctors felt that clinical exposure to a wide range of specialties is essential in aiding the decision process. Therefore, a current system that includes shorter rotations for the first few postgraduate years appear to be ideal for career selection.

Conclusions

In summary, this New Zealand survey has reiterated international results regarding career selection choices of junior doctors. Adequate career guidance should be provided to evolving healthcare professionals throughout all levels of training. Caution should be practised by all healthcare planners wishing to reduce flexibility for length of training inherent in current systems.

While a large number of doctors remain undecided or change their mind about career choices in their early postgraduate years, most are still attracted to the high volume specialties and remain focussed on their academic interest in a specialty and pursuit of a rewarding career.

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References:


Perceptions of migrant doctors joining the New Zealand medical workforce

Steven Lillis, Ian St George, Ruth Upsdell

Abstract

New Zealand, like many first World countries, has become increasingly dependent on overseas-trained doctors (OTDs). This qualitative study identifies and explores issues of concern to OTDs when first integrating into the New Zealand medical system through the New Zealand Registration Examination (NZREX) pathway. The data were collected using semistructured interviews and focus groups involving 10 OTDs who were working in a New Zealand hospital. The study identified four key issues: work issues which included difficulty finding employment and difficulty integrating into their work role; a bridging programme which improved the ability of OTDs to gain knowledge and experience of the New Zealand medical working environment; financial difficulties which were a major impediment to attaining registration and a career pathway in New Zealand; and bureaucratic barriers (including examinations and information availability), which were seen as necessary but unsympathetic processes in gaining registration. Sociocultural educational theory provides a useful framework for understanding the difficulties faced by OTDs integrating into a New Zealand medical workforce.

Shortage of doctors is an international problem.1,2 This shortage also affects New Zealand which now relies on overseas trained doctors (OTD) to maintain numbers.3 In 2003, OTDs comprised 34% of the medical workforce including temporary registrants.4 These doctors came from 82 countries and therefore from a wide variety of cultural and educational backgrounds. Many have experienced difficulties integrating into the New Zealand medical environment, but there has been little formal research examining the reasons.

A subgroup of OTDs comprise those whose primary qualifications were not recognised in New Zealand. This study aimed to identify and explore the major issues of concern for OTDs who were required to pass the New Zealand Registration Examination (NZREX) when first integrating into the New Zealand medical system. Greater understanding of the difficulties that these OTDs face is the first step to improving their initial integration into a new medical system, with the goal of ensuring they practise safe and effective medicine in New Zealand.

Method

The study received ethical approval and data collection occurred between December 2004 and February 2005. The study design was purely qualitative.

The criteria for participation in this study were that participants:

- Had trained overseas;
- Had recently passed United States Medical Licensing Examination (USMLE) Parts 1 and 2;
- Had passed the New Zealand Registration examination (NZREX); and
- Were currently working in a New Zealand hospital.
Both semistructured interviews and focus groups were conducted according to standard guidelines. Ten doctors were involved in interviews: four groups with two people and two interviews with a single person. Five of the participants were from Eastern European countries, four from Asian countries, and one from the Middle East.

The interviews were recorded and transcripts made. The comments made by the participants were coded, with comments about common topics grouped together under one code. The codes were then organised under common themes. Data were analysed with Nvivo software as an aid to improving consistency in coding.

**Results**

Four key themes were raised as influencing successful integration into the New Zealand medical system:

- Work issues;
- Bridging programme;
- Financial difficulties; and
- Bureaucratic barriers which included examinations and related information.

**Work issues**

Work-related issues tended to fall into two main categories: problems finding employment and problems first integrating into their employment role.

**Problems finding employment**—Even though they had satisfied the entry requirements, it was difficult for OTDs to find medical employment:

I applied everywhere…and they all replied ‘no jobs, no vacancies’

…everyone was willing to go anywhere in NZ just to get a placement, just to get a job

There was a significant delay between passing exams and receiving a job offer. Some of those unable to find work, moved offshore, particularly to Australia. Others considered work outside medicine.

I know quite a lot of friends of mine who had passed NZREX who couldn’t get a job and they left the country and they all went to Australia and they are all working there

Because of the delay in finding employment, information and skill honed for the NZREX was losing its edge:

…every single day that I didn’t work it was like I was losing some information that I gathered for the exam

There were vacancies in the hospitals but the positions were not being offered to the OTDs.

I knew that there were vacancies definitely, [but] they didn’t want to give them to us

Participants questioned the ability of particular recruitment agencies to assess OTDs adequately. For example, one agency assessed OTDs using a 2-week trial placement at a hospital. This was felt to be an inadequate period to assess the ability of a job candidate. A fairer system would be a central agency that allocated work in all hospitals in the country, that allocation being based on the length of time an OTD had been waiting for employment.
The lack of appropriate work sometimes resulted in employment beyond the respondents’ level of expertise—situations where OTDs felt pressured to accept additional duties or not secure another run placement:

…like on having long days and additional duties, I could really say no, but…I have to make a good impression, so I have to do it, even if it is quite difficult, even if it is quite frustrating for me

Problems first integrating into their employment role—Participants noted discrepancies (between the culture of medicine in their country of origin compared to New Zealand) in many aspects of the working life of the hospital. A cultural adjustment had to take place.

There is a very informal approach towards your superior like I would have never dared to call my professor by his first name or the last name its always sir or madam. Whereas here…even the nurses or the orderly can call a doctor by their first name, so it was a big cultural shock for me

There are so many levels of this feeling of inferiority that I can talk about. I think that the biggest problem is being an immigrant, that is the biggest feeling of inferiority to the culture and to the ways of how they do things

Participants found a significant discrepancy between the information provided and that actually required to function in a hospital. These difficulties involved three key areas:

• General internal workings of the hospital, such as referrals, paperwork, using a computer;
• Practical procedures such as lumber punctures; and
• Health system information specific to New Zealand (ACC for example).

From the first minutes it’s difficult, how to write the notes, how to organise yourself, how to write a referral, how to deal with the…maybe just simple things, but for the one who has just started work in New Zealand, it is a huge, big problem and can stop work

What equipment we use here are different from what I was using for a lumbar puncture before. I’ve never seen that

Hospitals expected the OTDs to be able to function with a high degree of independence and competence as soon as they started work. Perhaps the current orientation programmes are inadequate. Perhaps there are insufficient support networks in the hospitals to assist OTDs in gaining sufficient information to work effectively.

I guess it adds up to the frustration because I was expecting at least that for my probationary year…I would be] supervised and given support whilst starting

The difficulties in integrating into a New Zealand hospital also impacted on relationships with colleagues:

…problem is with colleagues, because they want everything fast, quick, they are annoyed if you ask twice
These difficulties were not only personal but affected their ability to deliver patient care.

I’m just not being able to give the quality that I want to give in terms of patient care, but the thing is, it is my limitation, it is what I can do humanly in terms of no-one is there to teach me, to at least guide me

Another barrier was the use of abbreviated, colloquial, or slang words in the hospital and the expectation that OTDs would understand:

…sometimes colleagues, doctors, nurses, whatever, are not patient enough you know. We are OTDs, different culture, different language, different slangs, we know the formal English but not the slangs, some people do not consider these things and get angry and upset

Participants suggested a “buddy” system, partnering a newly employed OTD with a more experienced member of the hospital staff for a period.

Because they don’t give us any support at the beginning, this process of being incompetent extends to 6 weeks, to 7 weeks

They felt they had little difficulty in communicating with patients irrespective of cultural differences or ethnic origin of the patient. However, better information about different cultural and ethnic groups would have been helpful to their clinical practice.

**Bridging programme**

Those who had attended the bridging programme believed it played an important role in helping them pass NZREX, and also working in a New Zealand hospital.

It was useful to help me to pass clinical exam…also it was useful to get familiar with New Zealand health system so that was easier for me to start to work, I don’t know or I can’t imagine how people did it without the bridging programme

The programme did not, however, provide them with all the information required to work in a New Zealand hospital.

For sure the bridging programme helped me so much, but when I started to work it was completely…the first day was shocking for me

The personal development part of the programme was particularly beneficial, especially communication skills, taking a history, and the concepts of patient centred medicine as emphasised in New Zealand. It was useful in teaching the skills to be culturally appropriate:

…they prepared us how to deal with the different cultures especially Maori culture

The bridging program, now defunct, was a government-funded education program designed to assist OTDs to gain knowledge of the New Zealand medical system and prepare for NZREX.

**Financial difficulties**

Financial difficulties affected the process of registration—the price of textbooks, the inability to work, the cost of the exams themselves, and the associated costs such as flights and accommodation.

I knew beforehand that I had to pass all those exams so I expected not to work for a couple of years. But it gets you out of the workforce and you are not earning any money during that time and that’s difficult if you don’t have any other income, partner or whoever
...well on a single income you just couldn’t get all the resources...we couldn’t afford for me to sit those examinations

**Bureaucratic barriers**

**Examinations**—Participants found the NZREX assessment process difficult, from a lack of information about what was required to pass the exams, having to relearn dormant information after specialising overseas, and a lack of current experience in practical tasks.

They felt the USMLE exam required unnecessary information, such as the organisation of the American health system, and clinical information that would be of little value in New Zealand. They suggested that instead of having to sit exams, they might be assessed in the specialty they had been practising in and wanted to continue.

**Information**—Participants clearly perceived an overall lack of information and places to access information throughout the process of gaining registration, finding employment, and integrating into the workforce. There was a lack of information specific to the New Zealand health system and about what was expected to pass the exams—matters such as the cervical screening programme and strategies for dealing with asthma. The recommended textbooks did not provide this information:

...how to prepare for the exam, the exam is not only knowledge, everyone has a knowledge...but how to deal with the exam, what does he (the examiner) want?

A key activity involved talking with other people who had previously sat the exams and finding out about their experiences.

...most of the information that I got were mostly from colleagues experiences, we were gathering feedback for the examination, feedback for what to study for certain subjects

Many attributed their success in exams to the bridging programme and studying in groups with people they had met through the bridging programme. Other strategies included: obtaining bridging programme notes, studying from the recommended textbooks, information obtained from official websites, and information provided from the Overseas Doctors Association (ODA).

...they sort of tried to go through cases and topics and those things that were well attended to, it was quite popular”.

Obtaining an observer’s post (a limited possibility) or having done an internship at a New Zealand hospital, were helpful.

There was insufficient information about job opportunities.

...after passing NZREX I didn’t know what to do, so I was talking to a colleague and he said oh you will need to go to NCTN (Northern Clinical Training Network) and apply…I wonder why they didn’t tell us at the bridging programme

Participants would have liked information about further educational opportunities.

...the difficulties that I have at the moment is sort of getting into paediatrics is really to understand the system and to know what’s available and what community services are available for me to access and I don’t know where to get the information from

A possible improvement would be to gather information about what OTDs needed to know and provide specific education around that.
Discussion

Sociocultural educational theory may help explain the difficulties faced by OTDs when attempting to join the New Zealand workforce. Such theories emphasise the interdependence of individual and social processes in learning, and recognise that higher cognitive functioning is a representation of social relationships. 8

Vygotsky described what he called the zone of proximal development; the zone in which individuals learn more with assistance (a social interaction) than can be achieved alone. 10 Research has already demonstrated the success of the bridging program in developing skill and awareness of cultural components in communication as well as legal and ethical issues unique to New Zealand. 11 A further concept in sociocultural educational theory is that of semantic artifacts. In medicine, semantic artifacts are the “tools of the trade”; the stethoscope, the ECG, the ophthalmoscope, the scalpel or a lumbar puncture kit.

Communities of practice, such as medicine, can be defined by their having mutual engagement, joint enterprise, and a shared repertoire. Implicit in these definitions is shared knowledge concerning the history, the culture, and the language of the community. Familiarity with, and competence using identified semiotic mediators (the nuances of medical language), semantic artifacts, a shared knowledge base and knowledge structure are critical requirements of those in the community. Also of fundamental importance are the behaviours and values expected from them. Implicit in these mechanisms are both teaching and assessment (such as NZREX) as methods of facilitating learning, assessing the suitability of new members and inducting new members into the community of medical practice.

Situated learning, according to Lave and Wenger, represents learning as a function of the activity, context and culture in which it takes place, so that social interaction becomes a critical component of the learning process. 12 Situated learning requires that knowledge is in context, is specific and has relevance to the needs of the learner. Knowledge becomes something that is dynamically constructed as we experience and interpret what is happening to us. Learning becomes an integral part of engaging socially.

Lave and Wenger thus argue that learners are newcomers to a community of practice. They participate with the agreement of the community in the activities of the community but in a very restricted way - for instance the clinical observer roles and highly supervised house officer runs for those who are successful in NZREX. Participation gradually becomes involved with the more complex parts of that community as learning results from watching and talking with other members of the community. As learners develop expertise in the activities of the community, they move towards full participation in the community and eventually become the experts. New Zealand now has consultants who came through the NZREX pathway, practising and teaching in its hospitals. Furthermore, some of these consultants are invited and often accept to be examiners at NZREX examinations and thus assist in defining the community of practice.
There is little published work directly concerning the experience of doctors going through the process of recredentialling. However, insight into the issues from the perspective of the outsider can be gained from other research, such as a study of overseas trained teachers wishing to work in Canada and having to go through a re-credentialling process. The credentialling organisation was contextualised by the authors as a gate-keeping institution with the task of replicating the accepted social norms of teachers in a community of practice—an apt comparison to medical credentialling and licensing bodies.

The authors concluded that outsiders may develop what can best be termed survival strategies to cope with exceptionally difficult personal circumstances. There were high financial and emotional costs in undertaking the recredentialling process. Engaging with an authoritarian bureaucracy was, for some, a humiliating experience that negated their own perception of their professional standing. Workplace experience undertaken as part of the recredentialling process was valuable and added to, rather than replaced, existing knowledge.

The difficulties faced by new teachers in that study are echoed in the circumstances that face immigrant doctors who are required to go through a relicensure process. Language barriers, unlearning, relearning, and new learning cause significant problems to these medical migrants, as do differing styles of practice and differing emphases on the doctor’s position and status in society. The systems migrant doctors are required to negotiate may lack transparency and may be both arbitrary and poorly informed.

A major source of frustration for OTDs seems to be the tacit assumptions about their acceptability to a medical community of practice in a different country. They expect they will be part of that community and yet, when they try to join, are regarded as outsiders. Even worse, many are regarded as simply service providers to fill a busy hospital roster.

Conclusions

Migration and successful integration into a new medical system is difficult for doctors. Conceptualising the medical profession as a community of practice provides a theoretical understanding of what is essentially an educational and social process—migrating to New Zealand, passing a licensure examination, and working as a registered medical practitioner.

This study identified four key issues influencing the initial integration of OTDs whose primary qualification was not recognised in New Zealand into the New Zealand medical system:

- Work issues;
- Bridging programme;
- Financial difficulties; and
- Bureaucratic barriers which include examinations and information.

Some of these difficulties are being investigated and addressed via the current ‘ready for work’ pilot scheme.
New Zealand is facing a medical workforce crisis, and the smooth integration of competent overseas-trained doctors into our workforce is in our best interest. We suggest the position of OTDs would be improved by:

- Acknowledging the process of attaining registration and integrating into the medical workforce as one of joining a medical community;
- Recognition of the differences in medical cultures that exist around the World and the difficulty OTDs may have in understanding and learning their adopted medical culture;
- Creating a “one-stop-shop” to provide all relevant information about registration requirements, employment opportunities after registration, and further career options;
- Ensuring the examination process is transparent in terms of pass rates, content, and methods of examining;
- Maintaining an equivalent of the “bridging programme”;
- Ensuring that work positions are available to OTDs and that these positions are commensurate with their experience;
- Ensuring the transition into hospital medicine is carefully regulated and appropriate support is offered;
- The informal communication networks that exist amongst OTDs are recognised and incorporated into an overall strategy aimed at successful integration into the workforce.

Limitations of the study: This was a small sample, which recorded only the views of OTDs who had completed the examinations and were currently working. We did not consider the views of OTDs who were still in the process of gaining registration, who had been unsuccessful in gaining registration, or who were not required to pass the NZREX.

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References:


A massive pulsatile chest wall mass

Norzeihan Jan Bappu, Budhaditya Chakraborty, Akshay BisoI, Ganapathy Subramaniam, Sandeep Chauhan, Panangipalli Venugopal, Pankaj Mankad

A 40-year-old gentleman presented with a prominent right anterior chest wall mass of insidious onset over 18-months. Initially, the swelling was approximately 2.5 × 2.5 cm, but progressed to attain a size of 20 × 15 cm over the designated period. There were associated complaints of continuous dull, aching chest pain of moderate intensity, dyspnœa, and episodic palpitations.

The swelling was pulsatile with normal overlying skin, without any evidence of local inflammation or compression of surrounding structures. There was prominent suprasternal and carotid pulsations, wide pulse pressure, and a soft early diastolic grade-3 murmur in the right parasternal region with peripheral region of severe aortic regurgitation. Hill sign, Corrigan sign, and Duroziez’s murmur were noted.

CT angiography revealed a dilated ascending aorta root of 4.7 cm with a saccular aneurysm arising from the right anterolateral wall penetrating into the right pleural cavity with displacement of the 4th rib downwards to enter the submuscular plane (Figure 1).

Figure 1. Dilated ascending root, saccular aneurysm of 4.7 cm with intimal tear, originating from the right anterolateral wall
We carried out an elective operation entailing the replacement of the aortic valve and the dilated aortic root with evacuation of the aneurysmal sac. Transection of the diseased segment from aortic annulus to distal ascending aorta with the native aortic valve and sparing of the right and left coronary buttons was achieved (Figure 2).

A Bentall procedure using a prosthetic valved woven Dacron conduit (27 St Jude’s Medical) was sutured in place with implantation of the coronary buttons using the standard cardiopulmonary bypass, moderate hypothermia of 28°C, and ostial cold blood cardioplegia. The remnant aneurysmal sac in the right pleural cavity was left undisturbed after evacuation of formed thrombi intraluminally.

The immediate postoperative course in the ICU was unremarkable for 48 hours, and the patient was subsequently transferred to the ward, to be discharged on day 7 postoperatively.

**Figure 2. The aneurysmal sac eroding the right pleural cavity**
Discussion

Defining the natural aetiology of the aneurysm in this case was controversial given the unequivocal intraoperative and histological findings of diffuse atherosclerotic changes of the ascending aorta. Aneurysms of the ascending aorta most often result from the process of cystic medial degeneration with appearance of smooth muscle cell necrosis and elastic fibre degeneration. The postoperative venereal disease research laboratory (VDRL) result came back positive, and the diagnosis of syphilitic aneurysm was then confirmed with a more specific test for anti-*Treponema pallidum* antibodies: the microhaemagglutination-*Treponema pallidum* (MHA-TP) assay.

Although the aetiology, syphilis, did not change our operative management for aortic aneurysm, this unprecedented discovery necessitates more campaigns for sexual health awareness amongst the public, which would ultimately evade an almost fatal sequelae, as seen in our patient.

Clinical pearls:

- Presentation of a chest wall mass should alert many possible differential diagnoses, which subsequently alter the clinical management of the case.
- Never, ever, excise a mass; although if it looks like a deceivingly ‘simple abscess’, always carry out the essential investigative aids such as chest X-ray and a more specific CT or MRI imaging.
- Aneurysms in the ascending aortic arch, are referred as ‘aneurysm of signs’ as they attain great size with insidiously few symptoms, but always consider this as a top differential diagnosis of local mass effect.
- Atherosclerosis is the most common pathologic condition of aortic aneurysm, but do not rule out other possibilities, although it is as rare as syphilis!
- Although optimal timing of surgical repair remains uncertain, surgery should be an early modality. Indications include rapid rate of expansion, associated aortic regurgitation, and presence of aneurysm-related symptoms.

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References:


Weight loss, cholestasis, and a large pericardial effusion in a young woman

Mohammed Majeed, Gabor Tarjan, Shane Borkowsky

Sarcoidosis is a systemic granulomatous disorder of unknown aetiology. Typically, patients present with bilateral hilar adenopathy, pulmonary infiltrates, and eye or skin lesions. Large pericardial effusions and cholestasis secondary to interlobular ductopaenia are both rare manifestations of the disease, with the combined reported cases being less than 60. This is a case report of a young woman who had these two features as the presenting manifestation of her disease.

Case report

A 33-year-old African American woman was investigated, in the outpatient clinic, for weight loss and liver function abnormalities.

Her aspartate aminotransferase (AST) was 56 IU/L, alanine aminotransferase (ALT) 40 IU/L, alkaline phosphatase 743 IU/L, and gamma glutamyl transpeptidase (GGT) 314 IU/L. Viral hepatitis screen and autoimmune profile, including anti-mitochondrial antibody (AMA), were negative. Computed tomographic (CT) scan of the abdomen showed moderate pericardial effusion with clear lungs.

Magnetic resonance imaging (MRI) of the abdomen showed retroperitoneal lymphadenopathy, hepatosplenomegaly with multiple nodules of low signal intensity (Figure 1). Because of the concern for an infiltrative process, a liver biopsy was done, which showed diffuse acute cholangiolitis and moderate steatosis.

A repeat CT chest scan, done because of continuing symptoms, showed small right pleural effusion with the pericardial effusion increasing in size.

Figure 1. MRI scan of the abdomen shown hypodense nodules (arrows) in both the liver and the spleen
Numerous pulmonary nodules were noted for the first time and thought to represent metastatic disease. Bilateral hilar, paratracheal, and precarinal lymphadenopathy were noted. The patient was admitted to the hospital. On physical exam, her vitals were normal with no paradoxical pulse, her lungs were clear, and she had hepatomegaly. On repeat tests, her liver enzymes were still abnormal. Her electrocardiogram (ECG) showed low voltage and electrical alternans. A chest X-ray showed cardiomegaly with clear lungs (Figure 2).

**Figure 2. Chest X-ray on presentation showing cardiomegaly**

An echocardiogram showed a moderate size pericardial effusion. There was borderline evidence for early haemodynamic compromise. A pericardial drain was placed, which revealed a serosanguinous exudative fluid. The fluid culture was negative for acid-fast bacilli and fungi. Cytology showed reactive mesothelial cells.

She had a CT guided biopsy of one of the liver nodules, which showed non-caseating granulomas. The biopsy was also notable for the absence of medium-sized bile ducts (ductopaenia). Cultures were negative for mycobacteria. A transbronchial biopsy showed non-caseating granulomas. Cultures were negative for both mycobacteria and fungi. On the basis of these biopsy results, the patient was diagnosed with sarcoidosis. On her last follow-up, she did improve without treatment and she started to gain weight.
Discussion

Sarcoidosis is a systemic granulomatous disorder of unknown aetiology.¹ Symptomatic cardiac involvement is estimated to be around 5%, while subclinical involvement reaches 20–30% of postmortem studies.² Involvement of the pericardium was thought to be a low frequency event, with an incidence of less than 3% in autopsy studies.³ However, in more recent studies, which employed echocardiography as a diagnostic tool, pericardial effusions were detected in approximately 20% of cases.⁴ The effusions tended to be small.⁵

Massive effusion secondary to sarcoidosis is rare. We found 12 cases reported in the literature.⁶–⁸ Females predominate, with 9 of the 12 cases being women. All had massive cardiomegaly on chest X-ray. In 9 of the 12 cases, the diagnosis was either previously established or the patient had features suggestive of sarcoidosis; 11 of the 12 patients required a drainage procedure for the effusion. The effusion tends to be serosanguinous and exudative. Patients received steroids with variable success.

In hepatic sarcoidosis, the majority of patients have no symptoms referable to the liver.⁹ When symptomatic, patients could have weight loss, fever, and malaise, with histological features of granulomatous hepatitis. The least common presentation of hepatic sarcoidosis is chronic cholestasis, which histologically resembles primary biliary cirrhosis.

The CT finding of hepatic sarcoidosis includes hepatomegaly, splenomegaly, or both. Nodular appearance is rare, representing only 5–15% of cases.¹⁰

The most striking histological feature in our patient was the interlobular ductopaenia. Of the 31 patients reported in the literature who had ductopaenia secondary to sarcoidosis, the majority were black men.⁹ Seven of the 16 patients died within 3 to 26 years after the diagnosis was established. Corticosteroids were used in a few and resulted in some improvement in alkaline phosphatase levels and symptoms. When a repeat liver biopsy was performed, no improvement in the ductopaenia was noted.

We believe this is the first reported case of sarcoidosis in which both rare features were present in the same patient. In all the previous cases, the patients presented with either a large pericardial effusion or cholestasis secondary to interlobular ductopaenia, but not both findings.

There was a delay in establishing the diagnosis in our patient. Indeed, it was only after the second liver biopsy established the presence of non-caseating granulomas that the diagnosis of sarcoidosis was considered, which then lead to transbronchial biopsy that helped to confirm the diagnosis. The reason for the delay is understandable as the presentation was unique; the absence of granulomas on the first liver biopsy is uncommon, and there was a high concern for malignancy due to the nodular appearance of the liver and spleen on imaging. In addition, both presenting features preceded the appearance of pulmonary involvement.

Thus, we report here a patient with sarcoidosis who presented with the combined rare features of the disease, large pericardial effusion and cholestasis with the histological feature of intrahepatic interlobular ductopaenia. Both features preceded pulmonary involvement. In a multi-systems disease process, sarcoidosis should be included in the differential diagnosis even if pulmonary disease is not apparent.
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References:

Patients with overactive bladders deserve better

Bernie Brenner, Michael Rice

Abstract
Tolterodine is an effective agent used to treat symptoms of overactive bladder. It is well tolerated and its selectivity for the bladder results in less side effects overall compared to many other agents.

Many patients in New Zealand with symptoms of overactive bladder do not have access to tolterodine due to restrictions on its funding by PHARMAC. Alternative treatments are not as well tolerated and are less clinically useful. This leaves many patients vulnerable to significant compromise of their quality of life.

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**Drug**

Detrusitol®

**Generic name**

Tolterodine

**Indication**

Detrusitol® is used to treat symptoms of overactive bladder including urinary urgency, frequency and/or urge incontinence.

**Recommended dose**

2mg b.i.d or 1mg b.i.d for patients with impaired renal or liver function

**Clinical efficacy**

Tolterodine is a competitive specific muscarinic antagonist used for effective control of overactive bladder

**Background**

For patients with mild symptoms of overactive bladder, measures such as avoidance of tea, coffee, and alcohol, together with bladder training, may suffice in managing the condition. However for the majority of patients, other measures will be required. Options have included pharmacological therapy, behavioural therapy, electrical stimulation, and surgery.

Pharmacological therapy has provided the most successful management for patients with symptoms of overactive bladder. Drugs that have been used traditionally include anticholinergics, antispasmodics, calcium channel antagonists, and certain antidepressants.

Although these agents may markedly improve symptoms of overactive bladder, unfortunately all are associated with adverse effects, which in many cases are intolerable and often lead to discontinuation of therapy. Anticholinergic effects include dry mouth, blurred vision, tachycardia,
drowsiness, and constipation.

The antispasmodic/anticholinergic agent oxybutynin has been the most widely used agent in New Zealand. The most significant adverse effect is dry mouth and lingering bad taste. Terodiline, a calcium channel antagonist, was withdrawn from the UK market when it was found to induce ventricular tachyarrhythmias. The antidepressant imipramine causes anticholinergic adverse events.

Tolterodine, a newer generation anticholinergic agent, achieves effective control for overactive bladder with significantly less adverse effects. It has greater selectivity for the bladder, and has a much lesser effect on salivary glands. The incidence of dry mouth is therefore correspondingly reduced. No adverse ECG changes have been reported, and (notably) no particular tolerability problems have emerged in elderly patients.

Research

In 1997, a meta analysis by Appel reported that, although tolerodine and oxybutynin are equivalent in their effectiveness, tolerodine is tolerated significantly better than oxybutynin and causes less adverse events—including dry mouth, dose reductions, and patient withdrawals.1

A subsequent randomised controlled trial by Abrams et al confirmed that (in patients with urodynamically confirmed bladder overactivity) tolerodine is better tolerated than oxybutynin and is of comparable clinical efficacy.2

In 1998, a decision analysis by Kobelt et al reported that treatment of overactive bladder with Tolterodine is cost effective.4

Current situation

Tolterodine is not widely used in New Zealand, despite being of proven efficacy, recommended for use, and commonly used internationally. Use in New Zealand is primarily restricted due to lack of PHARMAC subsidy. Instead, the Pharmaceutical Schedule7 includes oxybutynin despite its substantially worse side-effect profile, thus leading to poor compliance and reduced clinical utility.
Discussion

In patients with overactive bladder, all aspects of quality of life can be affected including social, occupational, physical, domestic, sexual, and physical activities. Associated costs can be substantial.

PHARMAC reports on its official government website that it takes into account “the health needs of all eligible people within New Zealand” as well as “the clinical benefits and risks of pharmaceuticals” when making decisions about community pharmaceuticals.

However, on deciding to omit tolterodine from the pharmaceutical schedule in this instance it would seem that PHARMAC has failed to honour its own guiding principles.

Apart from fiscal responsibility, which of course must influence decision making, it is also important and essential to consider clinical utility and tolerability of pharmaceuticals as well as benefit to quality of life.

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References:

Declining birth rate in “the Britain of the South”

This extract is taken from the Presidential Address delivered by Dr. Morton Anderson before the Annual Meeting of the New Zealand Branch of the British Medical Association in Christchurch, and published in the New Zealand Medical Journal 1906, Volume 5 (19), p1–8

Another association has sprung into existence within the last two years, and shows signs of great vitality; I refer to the Dental Association. This body is now calling serious public attention to the decay of children’s teeth, and the diseases and defects likely to be engendered by this cause. We can safely leave this subject in their hands, and congratulate the association on its early activity.

It may be said, therefore, that there is a general movement progressing in the way of improved sanitation and prevention of disease on the one hand, and in the direction of athleticism and the physical culture of both sexes on the other; and when we take these circumstances into consideration, and remember also the advantages we in New Zealand possess in our temperate, if somewhat erratic, climate, in the relative cheapness and abundance of good food, in the amount of elbow-room or uncrowded condition of most of our towns, and in the excellence of our educational systems, both primary and advanced, I think we must recognise that we are living under most favoured conditions; that “Mens sana in corpore sano” should be the universal rule here; that our population should be healthy, prosperous, and prolific; and that we possess every natural advantage to enable us in time to earn for the colony the appellation which is sometimes used, “the Britain of the South.”

That the physique of our colonists is on the whole exceptionally good I think few will deny, nor can they be regarded otherwise than favourably from the intellectual or educational standpoint. We are naturally behind older communities in regard to the arts, but, even in these, good progress is being made.

Our population therefore should increase rapidly, not simply by immigration, but the natural increase should be high. But this is just where the high expectations raised by our favoured conditions are not fulfilled; we have a comparatively low and gradually decreasing birth-rate. True, we are not the only country where the same condition obtains, and where quite as much attention has been given to physical development and sanitation as here.

It would seem that, amongst others, Great Britain and most of her English-speaking colonies are more or less affected the same way. On the other hand, we must not forget that there are countries where the natural increase is in a much greater ratio than our own, and which are in the van of progress—notably Germany, and our ally Japan.

It would seem, therefore, that neither physical nor intellectual training can be set down as the cause of this decline; and, if we may judge by what occurs with the lower animals, healthy climatic conditions and surroundings are not the cause either.
The British Empire is one of which all Britons are justly proud, but if the Empire is to be maintained, we must rely, not simply on our navy or army, or on both, nor yet upon physique, but on numbers also.
Gallstone ileus

Timothy Eglinton, Christopher Wakeman

An 84-year-old woman presented with a 4-week history of intermittent diarrhoea, and subsequently developed crampy abdominal pain and vomiting. She had a history of a previous appendicectomy and oophorectomy. A plain abdominal X-ray suggested a small bowel obstruction but it did not show air in the biliary tree (Figure 1).

An abdominal CT scan (Figure 2) revealed distended small bowel proximal to a 3-cm intraluminal density (white arrow), with collapsed small bowel distal to this. There was also a gallstone and gas (black arrow) present in the gallbladder.

The findings were highly suggestive of gallstone ileus.

Figure 1. Plain abdominal X-ray showing small bowel obstruction

Figure 2 Abdominal CT scan (coronal reconstruction) showing intraluminal density in small bowel (white arrow) and gas in the gallbladder (black arrow)
Gallstone ileus was confirmed at subsequent laparotomy where a gallstone (Figure 3) was found impacted in the terminal ileum. Enterolithotomy was performed and the gallbladder was not removed.

**Figure 3. Gallstone removed from the terminal ileum at laparotomy**

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**Discussion**

Gallstone ileus is rare. It accounts for 3% of all cases of small bowel obstruction, but comprises up to 25% of cases in elderly females without previous surgery. Cholecystitis leads to cholecystoenteric fistula with passage of the gallstone into the duodenum or, less often, the colon. The gallstone may either pass in the faeces, or cause obstruction at the mid terminal ileum or, less commonly, the sigmoid colon. Clinical presentation is typical of a bowel obstruction, although it may have an intermittent course.

Diagnosis can be made on plain X-rays demonstrating dilated small bowel, an obstructing calculus, and (in approximately one-third of cases) gas in the biliary tree. Management is enterolithotomy to relieve the obstruction. Cholecystectomy is often omitted at the initial procedure due to dense adhesions and the risk of postoperative enteric or biliary leakage.

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Shake-up for drug companies

No, not more about Vioxx. Patent expiry is the topic. According to IMS Health, a Connecticut-based pharmaceutical consultancy, five major drugs lose their patents this year. They are Merck’s Zocor (simvastatin), Pfizer’s antidepressant Zoloft (sertraline), Bristol-Myers Squibb’s Pravachol (pravastatin), Sanofi Aventis’s sleeping pill Stilnox (zolpidem), and GlaxoSmithKline’s Zofran (ondansetron). And then there will the generics. At least two, if not three, of these changes will impact upon New Zealand (via PHARMAC). In particular, the expensive and useful antiemetic ondansetron will be of particular interest.

The end of patents for lucrative products has always been a headache for the drug industry and 2006 will be no exception. However, there is another side to the coin.

Adjuvant chemotherapy for stage III colon cancer

In an abstract in a recent issue of the NZMJ (29/7/05; http://www.nzma.org.nz/journal/118-1219/1595/), we reported on some good news about breast cancer—viz—after surgery, six months of adjuvant anthracycline-based regimen reduced the annual mortality rate from the disease by 38% in women less than 50 years of age, and by 20% in women less than 50–69 years.

So what about the state of play in colon cancer? In 1990, the National Institutes of Health Consensus Conference in USA recommended that patients with stage III colon cancer receive adjuvant chemotherapy because survival was improved in clinical trials in patients who received a 5-fluorouracil-based regimen. Since then, such adjuvant chemotherapy use increased from 39% in 1991 to 64% in 2002 in the US and elsewhere, including New Zealand. And the benefit—in this report, an improved 5-year survival from almost 8% in 1991 to more than 16% in 1997 compared with surgery alone. So six months of 5-fluorouracil and folinic acid is well worth it, for some.

Heart failure, candesartan, placebo, and compliance

Chronic heart failure (CHF) is a major health problem in the Western world. A recent report on a double-blind, randomised, controlled clinical trial, comparing the effects of angiotensin receptor blocker candesartan with placebo in 7599 patients with CHF, is, therefore, not without interest. As expected, candesartan is a useful addition to other treatments. However, the really interesting result is that good adherence to medication—what we usually call compliance—is associated with a lower risk of death than poor adherence in patients with CHF, irrespective of assigned treatment.

This point being made by the fact that those compliant patients in the placebo arm did better than the non-compliant patients in the candesartan arm and nearly as well as
compliant patients taking candesartan. Makes sense—medications only work if you take them.


**Continuous positive airway pressure (CPAP) for central sleep apnea and heart failure**

CPAP is of proven value in the management of exacerbation of COPD (chronic obstructive airways disease) in appropriate circumstances. Some also advocate its use in central sleep apnea which is said to be present in approximately 25 to 40 percent of patients with chronic heart failure. Obviously periodic breathing and increasing drowsiness would arouse suspicion and consideration of such treatment.

A recently published randomised trial reports on the benefits that may be expected. Apparently “CPAP attenuated central sleep apnea, improved nocturnal oxygenation, increased the ejection fraction, lowered norepinephrine levels, and increased the distance walked in six minutes.” Good—but unfortunately it did not affect survival, which is disappointing.


**Drug resistant malaria**

Two important papers in a recent *Lancet* (3/12/05) featured malaria—the emerging problem—the rising tide of resistance to affordable antimalarial drugs has caused a sharp rise in mortality due to malaria in Africa.

And a possible solution, artemisinin, a drug developed from a Chinese plant. The drawback—unless it is used in combination with other antimalarials—viz artemisinin combination therapy (ACT), it may also lose its effectiveness. Hence the intervention of the World Health Organisation. Lee Jong-wook, the WHO’s director-general has taken the initiative and said “It is critical that artemisinins be used correctly. We request pharmaceutical companies to immediately stop marketing single drug artemisinin tablets and instead market artemisinin combination therapies only.”

So what happened then?—the drug firms reacted angrily to this announcement which, as far as they were concerned, came out of the blue. Herwig Jansen, president of the Belgian company Dafra said “it is not the function of WHO to insist on these things. This has to be worked out together with the academic experts and the industry.”

I believe that most of us would think that this was just the sort of function that is fundamental for WHO.

PHARMAC responds on tolterodine for overactive bladder

In this issue of the Journal, Drs Bernie Brenner and Michael Rice (http://www.nzma.org.nz/journal/119-1229/1846) discuss the funding of tolterodine (Detrusitol®) for overactive bladder.

In 1999 Pharmacia & Upjohn—now Pfizer Pharmaceuticals Group—submitted a proposal for the listing of tolterodine on the Pharmaceutical Schedule for patients who are intolerant or non-responsive to a course of oxybutynin.

The application was considered twice by the Pharmacology and Therapeutics Advisory Committee (PTAC) that same year. After initially recommending the application be declined, PTAC eventually recommended that tolterodine be listed but with a low priority. PTAC considered that the price asked for tolterodine was too high for the limited additional benefit in tolerability over oxybutynin.

In general, applications with low priority PTAC recommendations are treated with less urgency than higher priority recommendations. PHARMAC and the supplier were unable to reach agreement over the listing of tolterodine. Pfizer did not respond to a letter from PHARMAC sent in July 2003 signalling an intention to recommend that the application be declined.

PHARMAC subsequently declined the application in January 2005.* A decision to decline an application does not necessarily prevent further contractual arrangements at a later date; it does however clearly indicate to suppliers that PHARMAC is no longer progressing the application at this stage.

* PHARMAC had considered it neither necessary nor appropriate to consult more widely on whether to decline the application, given the very few enquiries regarding funding and the application being considered by the supplier to be commercially confidential. PHARMAC had received around six patient enquiries regarding the funding status of this product in the last six months of 2004. This included four Community Exceptional Circumstances applications that year. Tolterodone would have had a large budgetary impact if listed ($5.0 million by year five), especially had patients switched from oxybutynin to tolterodine.

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Conflicts of interest: Peter Moodie declares no conflicts.
PHARMAC’s response on clopidogrel

We agree with Harvey White and Chris Ellis (http://www.nzma.org.nz/journal/119-1228/1808/1) that clopidogrel would be effective and, relative to other potential investments, cost-effective for some—but not all—of the patients that the authors advocate funding for. There are also issues of scope—that is, the affordability (and opportunity costs) of providing clopidogrel to the 30,000 patients that they advocate, as it would mean not funding many other investments.

In essence, the article by Drs White and Ellis has little to do with the effectiveness or cost-effectiveness of clopidogrel, but is rather a selective summary of PHARMAC’s commercial negotiations with Sanofi-Aventis. PHARMAC has been, and still is, in commercial negotiations with this pharmaceutical supplier, and will not comment publicly on the details of these negotiations. Despite the detailed information, the authors have not disclosed any conflicts of interest relating to Sanofi-Aventis.

Drs White and Ellis make a number of claims regarding PHARMAC’s processes. Most of these points have been raised in previous articles in the Journal’s Special Series (of which there are now ten), which PHARMAC has responded to already.2–11

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Conflicts of interest: Neither Peter Moodie nor Sean Dougherty declare any conflicts.

References:


Medical Council of New Zealand: propaganda or progress?

A bulging envelope recently came through my letter-box. When I opened it, out fell no less than 32 pages of printed material from the Medical Council of New Zealand. All this, sent to about 11,000 people, gives us a figure of 352,000 pages of propaganda sent by way of bombardment to a numbed and defenceless workforce.

Propaganda? Or merely junk mail? When I read how hard the people on the Council work, how much good they feel they do, how much money they have to spend to do it, and how much faith they have in what they are doing, then I’m willing to call it propaganda. The Medical Council is just too good to be true.

The doctors find themselves in the uncomfortable position of being under the thumb of the Medical Council, but the Council itself, a statutory body, is under the control of the Government, and it has to do what it is told to do under an increasing weight of legislation.

Two results follow. The Council cannot question Government, and it has to gouge more and more money out of the doctors in order to do things they neither want nor need.

The past 10 years have been a decade of shame for the medical profession. The Primary Health Organisations are a nonsense the doctors did not resist, but nothing has been more damaging to good general practice than the loss of GP obstetrics, a topic on which the Medical Council is silent. Lacking leadership, the GPs showed no fight, and the obstetricians gave them no support or encouragement whatsoever. Indeed, the suspicion exists that at least some of them were happy to see the last of the GP-obstetricians. They’re gone, and they won’t be back.

It is entirely proper that somebody assesses doctors coming from other countries before they can enter medical practice here, and somebody has to take care of practitioners when their health deteriorates or they yield to substance abuse. No-one can dispute the importance of disciplinary procedures, but the new environment has diminished the role of the Council, and it should be saving money now that the Health and Disciplinary Commissioner has arrived. Extending itself beyond these three functions; particularly in the fields of workforce information, continuing professional development (CPD), and so-called recertification; the Medical Council is now wasting time and money.

Peer review doesn’t work. At any level of ability, you’ve either got it or you haven’t got it, and most of us have enough sense to order our affairs and our activities without jeopardising the safety of the public. Incredibly, most of us know how to look something up in a text-book, or where to seek help when we are in doubt. Doctors sort themselves out professionally and geographically without any help from the Medical Council, and the wary patient can usually sort out the doctors, not by ringing up the Council, but by making a local enquiry.

According to information supplied in my bulging envelope, Dr Ian St George has “confirmed the association between professional isolation and underperformance.”
Indicators of professional isolation, it appears, include part-time status. That observation places a question-mark over the heads of some people, since a large chunk of the work is now done by part-timers. A senior pharmacist recently complained to a colleague of mine that there were too many part-time doctors in his area, their knowledge of prescribing practices was weak, and they were creating, for him, extra work.

Dr St George cites several other indicators, such as geographical isolation, lack of relief, poor colleague relationships, locum status, and job dissatisfaction, about which the Council can do nothing. Instead, it offers us the childish (and mysterious) advice to “shoulder tap your colleagues and invite them back into your MOPS activities.”

What the Medical Council is doing well, and with no regard for the consequences, is inflating overheads expenses for everyone. All rising costs increase the gap between doctor and patient. We cannot prevent the Medical Council from proceeding on its meddlesome way, but if you want to know who pays for all this, I'll give you the answer.

You pay.

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Review of maternity services in New Zealand

In early 2005, the DHB-employed midwives received a pay increase of 33% (from $60,000 up to $80,000 per annum) as a base line before the penal and overtime rates and holidays which came into effect in 2004.

In June 2005, the Minister and Ministry of Health put out a consultation document proposing a 17% increase for independent lead maternity carer (LMC) midwives and a zero increase for GPs involved in maternity and abortion services but who were not LMCs.

In September 2004, Anthony Hill, Acting Deputy Director-General DHB Funding and Performance, wrote stating that there is a further planned price analysis project for the s88 Maternity Services Notice within the work program of the Funding and Performance Directorate of the Ministry in 2004/05.

In the Notification of Proposal to vary the prices of the s88 Maternity Services Notice issued on 22/ June 2005, the Ministry proposed price increases to the second and third trimester and LMC birth fees to reflect the volume of services delivered per pregnancy and to better reflect the greater complexity of the services.

There was no increase on the Assessment Prior to Termination and single episode pregnancy care, apparently because there had been no increase in either services required or implemented and/or the complexity of the consultations hadn’t changed since the last review in 2002 when a total increase of $6.19 million (incl GST) was made to the funding of Primary Maternity Services.

In November 2005, there were 2731 Midwives on the Register of Midwives in New Zealand who had a current Annual Practicing Certificate; of these, 78 gave an overseas address, which leaves 2653 practicing midwives. To maintain a certificate to practice as a midwife the single core competency that would be assumed by the general public is that the practitioner is delivering babies. On that basic assumption with approximately 57,000 babies born in 2005, the average midwife with an Annual Practicing Certificate, living in New Zealand, would therefore be involved in the delivery of 21.5 babies a year! If a 20% Caesarean section rate is assumed, then the average midwife actually delivers only 17.2 babies a year.

With an average of $2135 per delivery for a LMC (including $775–$1000 for the actual birth) the average independent midwife can expect to earn $44,835 for 21 births a year. (The average labour delivery according to the Cartwright Report of 1992 took 8.5 hours. One hopes that has not gone up in New Zealand with the changes in the last 20 years!)

With a 3% breech rate, according to a standard obstetric text in 1979, the average midwife with an APC can expect to be involved in 2–3 breech deliveries every 5 years if most were not delivered by Caesarean section.

According to the Health Ministers report of 1989 that heralded in the Nurses Amendment Act of 1990, doctors and midwives did the same thing and should be paid the same. Thus prescribing competence can be obtained with a 3-year degree
course and seeing 40 patients a year. The GP in Wellington in the 60s who delivered 400 babies in a year had more experience in one year than the average midwife in 2005 with an APC will get in 20 years. The Register of Midwives gives no indication of whether a midwife on the register is actually delivering babies, but if they are not, shouldn’t the APC and the Register recognise and publish that fact?

Given the above (somewhat simplistic) analysis of the Midwifery Register, workload, responsibilities, and payments, does the Minister of Health believe the Health Practitioners Competency Assurance Act does assure competency, or is it inclusive of incompetency? What information would a scientist want his daughter/wife to know about birthing options in New Zealand and what holding an Annual Practicing Certificate actually does imply?

In the case of the practitioner delivering 400 babies in the 1960s all of those deliveries would have been attended by two birthing attendants. Is that still the case? Did the recent two breach deaths highlighted by the Wellington Coroner, have the combined wisdom of two experienced practitioners present? Where did the increased complexity and increased servicing come from that the Ministry felt needed to be recompensed for LMCs?

Given that birth is a totally natural process (that has occurred for tens of thousands of years in the human race) is the medicalisation of the midwifery profession in New Zealand a good thing, a contributer to the presumed complexity of the job today, and a barrier to midwives doing what they are good at (that is, management and attendance at normal deliveries that do not need medical intervention)? Is it pregnancy, labour, and birth that has become more complex or is it the medicalisation of the midwives and the bureaucracy of the State, constantly demanding more accountability and productivity. (Whatever that is in the health field!)

Is the Minister’s current enquiry going to reassure the breeding public of New Zealand or be yet another waste of time stymied by political agendas?

Bill Douglas
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Can schools contribute to mosquito surveillance? A New Zealand pilot study

Improvements in mosquito surveillance systems may be necessary in countries subject to changing mosquito distributions from anthropogenic land-use change, climate change, and introduction of exotic mosquito larvae and adults (e.g. in imported car tyres or aircraft). We report on a pilot study that used a novel source for mosquito collection—primary schools. This work was part of a larger study that developed a school-based health promotion project around mosquito-borne disease risks in New Zealand.

Methods—An initial part of the project involved the development of a health promotion resource for use in primary schools. The design of this resource was partly based on a booklet called “Flytrack” that was developed for schools to help monitor the spread of an agricultural pest, the Australian green blowfly (Lucilia cuprina). The new mosquito resource developed (“Mosicatch”), included booklets for students and teachers that were designed to contribute to four learning objectives of the national “New Zealand Schools Curriculum”. Of relevance from a surveillance perspective were the components of the resource that included: identifying larvae and adult mosquitoes, information about their habitat, building ovitraps and collecting specimens, and how to post these off to a central location (i.e. the Wellington School of Medicine and Health Sciences [WSMHS]). A total of 348 schools selected on the basis of their geographical distribution were emailed or posted invitations. The response rate indicating interest was only 14% and so a more intensive promotion in the Wellington region was employed. It achieved a higher 77% response rate (17/22 schools). Altogether, a total of 72 resource kits were sent out to these primary schools in the summer seasons of 2002 and 2003.

Results—A total of 16 schools that received the resource kit implemented the “Mosicatch Health Promotion Project” as part of their schools’ science curriculum. These were from around New Zealand (in 11 out of a total of 75 districts nationally). Of these schools, nearly all (n=15), sent mosquito samples during the first terms of 2002 and 2003 (summer in New Zealand) to the national collection site (WSMHS). A total of 135 samples containing mosquitoes (both larvae and adults) were received and specimens commonly arrived alive and in water-filled specimen jars provided in the resource kit. The majority of samples arrived in good condition and species identification could be established for all but one of the samples. Overall, a total of five species were identified, two exotics Culex quinquefasciatus Say and Ochlerotatus notoscriptus Skuse (which are able to transmit diseases in other countries2-5), and three endemics (Culex pervigilans Bergroth, Ochlerotatus antipodeus Edwards, and Opifex Fuscus Hutton). The majority of schools only collected a single species in a sample, however two schools provided three species. Only a minority of samples contained other insects such as crane-flies (tipulids).

Discussion—This pilot study identified that the participating schools were able to successfully use the resource kit provided to collect local mosquitoes and post them to a central agency. As far as we can ascertain, this approach to mosquito surveillance
has never been attempted before (though schools in some countries have specific educational interventions around mosquito control\(^6\)–\(^8\)). Anecdotal reports from teachers involved in this project indicated that the resource materials and equipment worked well and that the students enjoyed the educational experience. The only problem reported from the school not providing specimens was that the ovitraps that the students had set up were damaged by vandalism and they failed to collect any mosquitoes by other methods specified. Site visits by one of us [AS] to three participating schools also indicated that ovitraps had been set up and that there was apparent student enthusiasm in the project.

The “Mosicatch Health Promotion Project” did not become routine for the schools involved as this was only a pilot programme and it did not have long-term funding support. Nevertheless, this experience suggests that such a programme could potentially be piloted on a larger and longer-term scale. Having well-developed resource material and learning objectives that are integrated with the science curriculum appeared to be important. Also regular telephone or email contact between the relevant teachers and surveillance system personnel may help ensure their long-term participation.

A potential advantage of integrating schools into a routine system for mosquito surveillance is their widespread distribution (especially primary schools). The running cost of such a system may also be fairly minimal if resource kits can be mass-produced or use low-cost materials. A more focused surveillance system might just use schools near potential entry points for exotic species (e.g. near air and shipping ports). It could also provide modest rewards to minimise such “sentinel schools” dropping out of the programme. Ultimately, however, any surveillance system using schools to collect mosquitoes needs to be compared to other systems that utilise adult volunteers or trained environmental health professionals.

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**References:**


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

The Scholarship is $16,800 per annum for one year commencing April 2006.

Further details are available from:

Faculty Manager, Faculty of Medicine
University of Otago Medical School
P O Box 913
Dunedin

Email: medical.faculty@stonebow.otago.ac.nz

Applications close on 1 March 2006.
The Computerworld Excellence Awards has launched its 2006 programme calling for entries from IT teams in the health sector that are achieving outstanding results through their smart use of technology. The Excellence in the Use of IT in Health category specifically focuses on the benefits technology is bringing within the highly-specialised health arena.

Last year’s winner, Healthpoint.co.nz, is a website that directs specialists, GPs and patients to the areas they are interested in. The company recognised that patients often don’t know what to expect when they have been referred to a specialist by a GP – and developed an innovative technical solution to a human problem. Healthpoint.co.nz has been proactive in partnering with health organisations and has been successful in making certain its database of ailments, hospitals and medical professionals is complete, consistent, easy to browse and read and up-to-date. Healthpoint.co.nz narrowly beat the Ophthalmology Department of Christchurch Hospital for their computerised scanning version of the Farnsworth-Munsell 100-hue colour vision test, which reduced test times from around an hour to only four minutes.

Heading into their ninth year, the awards honour the outstanding achievements of the users of technology and is a highly sought after accolade amongst IT professionals. Other categories for the 2006 programme include an individual award (CIO of the Year), plus team awards in areas such as education, small business and Government.

In addition, for the third year running the Awards will not only recognise, but reward, innovative IT applications and solutions implemented within Not-for-Profit organisations. Often these groups work with extremely limited budgets and resources, however, what they achieve with IT can have a vast, positive impact on the wider community. Proudly sponsored by Westpac, the category winner will be rewarded with a $10,000 cash prize donation.

Each category is judged by an independent panel of three judges, with some of the country’s most prominent IT and business leaders involved, adding credibility to the achievement. Entries are open now until Friday 17 March 2006. Submissions may be made via the appropriate submission template(s) any time after registration is confirmed until 13 April 2006.

For a full category listing, eligibility details and entry process information, please go to www.idg.net.nz/cwea, or contact Claire Baker on 09 375 6050 or email Claire_Baker@idg.co.nz

For further information, contact:

Claire Baker, IDG Project Manager, IDG Communications Ltd, P O Box 6813, Wellesley Street, Auckland.
DDI: 09 375 6050; Mobile: 021 536 815; Fax: 09 377 4604
National Heart Foundation: 2006 Grant Applications

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GRAHAM AITKEN NUFFIELD TRUST

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For further information please consult the Deans of the Schools of Medicine, or write to:
Professor A D Campbell, Graham Aitken Nuffield Trust, C/- Chemistry Department, University of Otago, P O Box 56, Dunedin.

Applications must be submitted to Professor Campbell by 31 March 2006
The 17th Hospice NZ Palliative Care and NZ Pain Society Conference: Making a Difference

The 17th Hospice NZ Palliative Care and NZ Pain Society Conference: Making a Difference will be held in October 2006 in Dunedin, New Zealand. The conference is scheduled for October 26–28, 2006.

For more details, contact:

- Barry Woodland (Event Project Manager) at Conference Innovators, phone +64 (0)3 379 0390 or email: barry@conference.co.nz

To register your interest in presenting, contact:

- David Jones, New Zealand Pain Society, at davidjones@healthotago.co.nz, or
- Simon Allan (Hospice NZ Clinical Medical Adviser, Arohanui Hospice Medical Director, and Palmerston North Hospital Regional Cancer Treatment Service Clinical Director) at Simon.Allan@midcentral.co.nz
Medical Benevolent Fund

NZMA Members, and families of deceased Members, may apply for aid when in situations of financial hardship or distress.

Applications should be directed through the NZMA:

Central Office
P O Box 156
Wellington
Tel: 0800 656161
Pocket Guide to ECGs (2nd edition)


This book is designed as a pocket guide to ECGs for medical students, hospital residents, nursing staff, and general practitioners. The book uses an empiric approach to the interpretation of basic ECGs and common abnormalities. There is also a section on pacemakers and ECGs.

The book is a useful pocket guide to ECGs and can be recommended to the target audience. However those who seek a deeper understanding of ECGs, particularly the genesis of the surface ECG and more advanced interpretation, would be advised to buy a more authoritative and comprehensive text.

The book claims to contain 80 examples of common abnormal and normal ECGs; however as many of these are repeated (sometimes with three examples of the same ECG), there are by my count approximately only 50 different 12-lead ECGs in the book.

Ian Crozier
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