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This Issue in the Journal

Satisfaction with life and depression among medical students in Auckland, New Zealand
Chinthaka B Samaranayake, Antonio T Fernando

The researchers looked at the rates of satisfaction of life, depression and anxiety among different student groups in The University of Auckland (medicine versus combined nursing, architecture, health sciences students). About 600 of 780 eligible students participated. Contrary to many other studies, medical students, despite the stressors of medical school, appear to have higher satisfaction with life and similar if not better rates of depression and anxiety compared to other student groups. Female university students surveyed had significantly higher rates of depression and anxiety compared to male students. However, the study design, which was a simple survey, is not strong enough to make a very strong conclusion.

Workload in a provincial New Zealand vascular surgery service
Simon van Rij, Michael Fancourt, Damien Mosquera

The Taranaki region is provided with a high quality vascular surgery service. Centralisation of vascular care to larger centres has occurred overseas and this model may be considered for New Zealand in the future. This study highlights that a peripheral vascular surgery service provides much more then just major operations and includes radiology, wound care, outpatient assessment.

Resource usage and outcomes in a facilitated discharge service in Christchurch, New Zealand
Oliver H Menzies, H Carl Hanger

This study investigated a service that has been put in place to support the discharge of frail older people from The Princess Margaret Hospital. It looked at why patients were referred, what was done for them, and what the outcomes of the program were. Only 12% of the frail patients supported by this service needed to go into rest-home care at 90 days.

Heater probe thermocoagulation for high-risk patients who show rebleeding from peptic ulcers
Yu-Hsi Hsieh, Hwai-Jeng Lin

We studied whether heater probe therapy is effective for patients showing rebleeding from peptic ulcers. We analysed the outcomes of 191 patients who showed rebleeding after initial endoscopic haemostasis and received endoscopic therapy with heater probe thermocoagulation. 158 patients of the 191 patients (82.7%) achieved ultimate
haemostasis (stopping the bleeding). We conclude that heater probe thermocoagulation is effective as the first choice for management of patients showing rebleeding after initial endoscopic therapy.

**Clinical Science Investigation (CSI) Canterbury: surgical gown length and blood inside gumboots**

Mike Clarke, David Lewis

Blood and body fluid can be the source of potentially serious infections such as HIV and Hepatitis. Surgeons and the team in the operating theatre take “universal precautions” to minimise the risk of exposure to body fluids. Theatre gowns need to be long enough to prevent exposure but we identified that, in many instances, theatre gowns may not afford adequate protection.
New Zealand doctors and the pharmaceutical industry—
time to cut the cord?

David B Menkes

As outlined by Wyber and colleagues in this issue of the NZMJ, New Zealand doctors have a complex, at times ambivalent, relationship with drug companies. On the one hand, we benefit from a remarkable range of products essential to modern healthcare; thanks to the purchasing power and negotiation skills of PHARMAC these are available at relatively low cost in comparison to other developed countries.

Apart from bringing drugs to market, other activities of the industry benefit us and public health less clearly. These other activities deserve scrutiny, and range from the overtly promotional (product detailing, provision of samples) through sponsored education (journal clubs, grand rounds, CME) to other, more ‘collegial’ activities (clinical and research support, literature searches) with no obvious link to product sales.

Over the past 20 years, both industry strategies and doctors’ debates about engagement have evolved. A changed ‘playing field’ has resulted in part from revelations that various companies have manipulated research outcomes, ghost-written journal articles, and influenced treatment guidelines with the (sometimes unwitting) collusion of doctors, including eminent academics. At the same time, evidence has accumulated that exposure to promotional information from pharmaceutical companies is associated with both increased cost and poorer quality of prescribing.

Advances in the social sciences have helped to explain how even subtle, apparently non-promotional contacts still effectively influence medical behaviour, due in part to doctors’ rather optimistic views of themselves as rational prescribers, invulnerable to advertising and other persuasion. These same attitudes may also underlie resistance to current proposals to exclude drug reps from hospital and other clinical settings; nonetheless, a number of teaching hospitals and professional colleges, particularly in the USA, have now taken bold steps to do just that, strengthened by a comprehensive report from the Institute of Medicine.

Just as water flows downhill, commercial pressure inevitably finds the path of least resistance; the pharmaceutical industry is of course no exception. Facing intense competition and challenged by restrictions to their access to hospital doctors, companies now also woo nurses, who influence prescribing and other purchasing in various ways. Similarly, companies are keen to foster contacts with medical students; as shown in a large American survey, students are commonly exposed to sponsored lunches and ‘education’.

Like their seniors, students generally feel entitled to “freebies” (food and small gifts), and see themselves as unlikely to be influenced by biased information. Moreover, a recent systematic review found that undergraduate contact appears to promote...
positive attitudes toward industry and to diminish scepticism about such interactions.\textsuperscript{11}

In this context, the current issue’s Perspective by Wyber and colleagues is timely, as NZ medical schools and teaching hospitals need to effectively address the issues raised by student-industry interaction. University and district health board conflict of interest policies are germane but non-specific, while compliance with Otago’s concise 2010 guideline (\url{http://micn.otago.ac.nz/wp-content/uploads/micn/2008/03/Guidelines-Industry-Support-for-Ed-Activities-2010.pdf}) is uncertain and likely to vary across its many teaching sites. In accord with an Australian survey,\textsuperscript{12} Wyber et al are right to stress our students’ need for more teaching in clinical pharmacology and specifically about drug promotion.\textsuperscript{13}

In view of dubious benefits and clear evidence of harm, it is time to address doctors’ and medical students’ exposure to pharmaceutical marketing in the workplace. Codes of conduct, including declarations of conflicts and limits on gift value, are problematic and liable to abuse; a simple prohibition of sponsored education within clinical teaching areas would be easier to implement, monitor, and enforce. Put simply, the industry cannot (and should not) be relied upon to provide education for doctors and nurses. This will, of course, leave gaps in many CME programmes and other teaching sessions across NZ that have come to rely on industry largesse.

A gradual phase out of commercially sponsored education is both desirable and attainable; we are fortunate in this country to have generous CME allowances for hospital doctors, a fraction of which could be diverted to support quality in-house CME and visiting speakers. Likewise, our own specialist expertise, assisted by drug information pharmacists, could be used to assess and disseminate information about new products, indications, and warnings. As the Perspective by Wyber et al shows, it is vital that senior doctors provide good role models for our students and junior colleagues. Local experience shows that phasing out industry presence and ‘free’ food at educational meetings can gain broad support without compromising attendance.\textsuperscript{14}

The evidence indicates that pharmaceutical promotion poses avoidable risks to evidence-based practice\textsuperscript{4,15} and that commercially sponsored education needs to be phased out and replaced with viable alternatives, as above. The question then arises: are there other relationships with industry that should be retained or encouraged? Research collaboration, if appropriately managed and subject to stringent ethical standards, may fall into this category.

Clinical trials conducted in NZ have the potential to inform and develop practice in our unique setting, and with a push from government are set to expand over the next decade.\textsuperscript{16} Despite calls to disentangle research from industry,\textsuperscript{17} many drug trials will doubtless continue to be commercially funded, and it remains important to clarify how to protect results from bias and to ensure useful outcomes for NZ public health.

Active involvement of our own clinicians and academics in the conception, design, execution, and analysis of trials should be encouraged, with due attention to the distortions that may beset commercially sponsored work.\textsuperscript{3,18} For doctors involved in such research, disclosure of competing interests remains a vital, if imperfect, tool to promote transparency and minimise bias.\textsuperscript{19}

\textbf{Competing interests:} The author is a member of Healthy Skepticism (\url{www.healthyskepticism.org}).
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The medicalisation of medical students

Tim J Wilkinson

It has almost turned into folklore that medical students become convinced they have whatever dreadful illness they happen to be studying at that time. Yet, there is a more serious side to this phenomenon: when doctors become convinced that medical students are sick when in fact they’re just students. Like much of medicine, it can be hard to get this right.

There are two powerful counteracting forces at work in this medicalisation of medical students. On the one hand there is the problem where students may be tempted to seek corridor consultations with the risk of the ensuing over-investigation, jumping to conclusions, and failure to take the usual steps to reach a diagnosis.

Diagnostic error can easily occur in consultations when medical students are patients, as they can when practising doctors are patients. The more these doctors-as-patients can be treated just like any other patients, the less likely it is for these problems to occur. This is why we try to teach our medical students and doctors how important it is for every doctor to have their own General Practitioner and how corridor consultations breach all kinds of boundaries.

The other powerful force at work however is how good we can all be at denial. Doctors may be less likely to seek help, more likely to self-diagnose and more likely to suffer the adverse consequences as result. It’s tricky being a patient as a health professional. It’s tricky being a patient as a medical student too. It may be even trickier not being a patient.

Doctors wear many “hats”. We are familiar with the usual hats of professional life versus personal life. Can we keep these separate, are we ever off duty, do patients have priority over family? Sometimes doctors are asked to be judges—is this patient telling the truth? Does he deserve a sickness benefit? Is she safe to drive? These are conflicts in roles that we often face.

Put medical education in the mix, and it can get even more complicated. Here doctors have to be teachers, judges, mentors, role models, and examiners. It would be surprising if sometimes we failed to keep these roles completely separate from each other. Did this student not do so well on my assessment because my teaching wasn’t up to scratch? Or was it just that the student didn’t put in the work? Another of the challenges we face therefore can be when we think their learning isn’t up to scratch because they’re sick.

Did she fall asleep in that tutorial because I was boring, because she’s burning the candle at both ends or because she has sleep apnoea? Was that other student lacking motivation because he found my area of medical practice less interesting or is he depressed? It can be so easy to merge our roles and suddenly find we want to “diagnose” our students’ illnesses.
This is not helped by learning that medical students find some aspects of their course to be distressing,\textsuperscript{1} nor by learning that problems with progressing in a course can be a marker of illness.\textsuperscript{2} But are medical students more prone to depression than other students; are they more likely to be stressed? This is where evidence can sometimes help.

The paper by Samaranayake and Fernando in this issue of the \textit{NZMJ} has relevance to some of these dilemmas.\textsuperscript{3} In their paper, the authors surveyed Auckland students from medicine, nursing, health science and architecture to determine the prevalence of anxiety, depression and satisfaction with life. Contrary to what many may claim, it would seem that medical students aren’t more stressed than other students, aren’t more likely to be depressed and actually are happier with their lot. It’s refreshing news. Capable students who have got where they want to be, are doing a course that interests them and have a reasonably certain career structure ahead of them after graduation mostly seem quite happy with life.

There are however some cautions to be taken alongside this conclusion. The medical students who were surveyed were only in their third year. There’s still time in years 4–6 for it all to go downhill. However, a similar study has been conducted in Australia\textsuperscript{4} finding a similar result. In that survey students from all 6 years of an undergraduate medical course were compared with students from Psychology, Law and Mechanical Engineering courses. The non-health discipline students were significantly more distressed than the health discipline students. Distress levels were statistically equivalent across all 6 years of the medical degree.

The other caution to be taken is that, in Samaranayake and Fernando’s study, there was quite a high prevalence of depressive symptoms—16.9\%. Although this was less than the 23.6\% in the non-medical students, this could still mean that their depression is being under-diagnosed and, to a pharmaceutical company's delight, possibly even undertreated. Like a lot of medicine, it can be hard to get this right too.

The good news is that those of us involved in teaching students needn’t feel the burden of getting that bit right. Diagnosing illness in medical students should be left to the students’ doctors, not their teachers. Of course, we can be alert to alarming symptoms, should help point students in the direction of help and can encourage them to have their concerns addressed.

But medicalising medical students shouldn’t be part of a teacher’s job. Respecting boundaries begins at home.

\textbf{Competing interests:} None.

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\textbf{References:}


Satisfaction with life and depression among medical students in Auckland, New Zealand

Chinthaka B Samaranayake, Antonio T Fernando

Abstract

Aim The aim of this study was to assess the satisfaction with life among undergraduate medical and other students in Auckland and identify associations with depression and anxiety disorders.

Methods The study was conducted at The University of Auckland, New Zealand in 2008 and 2009. The sample population was derived from five undergraduate classes in four courses (medicine (two classes), nursing, health science and architecture). A battery of questionnaires including the Satisfaction with Life Scale (SWLS), Patient Health Questionnaire (PHQ) for depression and Generalised Anxiety Disorder Questionnaire (GAD) were administered to the cohort. Subgroup analysis between medical and other students were also carried out.

Results A total of 778 students were eligible, and 594 (76.4%) students (255 medical, 208 health science, 36 nursing and 95 architecture) completed the questionnaire. The median age was 20 years (range 17-45) and women represented 67.2% (n=399) of the total group. The mean SWLS score for the total group was 24.9 (SD 6.4), with medical students on average having higher satisfaction with life compared to other students. The rate of depression (PHQ ≥ 10) and anxiety (GAD score ≥ 8) among medical students was 16.9% (95% CI 12.2-21.5) and 13.7% (95%CI 9.5-18.0) respectively. Female students had higher rates of depression and anxiety compared to males. A statistically significant moderate correlation between SWLS score and PHQ score [r = -0.37 (p<0.001)] and SWLS score and GAD score [r = - 0.23 (p<0.001)] were also observed.

Conclusions Medical students are more satisfied with life compared to other students. A significant proportion of students surveyed in this study have clinically significant depression and anxiety. Promoting positive wellbeing and improving satisfaction with life may enhance the quality of life as well as the social and academic performance of university students.

Satisfaction with life is an important contributor to the quality of life and subjective wellbeing.¹ ² Even though it is a broad and non-specific subjective perception, life satisfaction is a predictor of mortality³ as well as psychiatric morbidity.⁴ Furthermore, life dissatisfaction has a significant effect on the long-term risk of suicide in the general adult population.⁴ Subjective wellbeing also impacts on a person’s ability to function and thus predicts subsequent work disability among healthy adults.⁵ University students are increasingly recognised as a population group experiencing stressors that can contribute to psychological disorders.⁶ The academic demands and lifestyle choices, easy access to alcohol and other substances⁷ as well as minimal adult supervision are some of the contributing factors.
Medical students in particular are a subgroup of students with a significant level of stressors during undergraduate training. The aim of this study was to assess the satisfaction with life among undergraduate medical and other students in Auckland and identify associations with depression and anxiety disorders.

**Method**

The study was conducted at The University of Auckland, New Zealand in 2008 and 2009. The surveyed medical students were from two third year classes (2008 and 2009 cohort). This was the final preclinical year in the programme and the students were starting to get clinical exposure through their weekly visits to the wards.

A sample of other undergraduate students was also surveyed from nursing, health science and architecture courses in 2009. These students were also in the third year in their respective courses, which was the final year for the nursing and health science students and the final basic training year for the architecture students in their two tiered programme. There were no exclusion criteria for participation in the study.

The five item Satisfaction with Life Scale (SWLS) developed by Diener et al was used to measure the participants’ life satisfaction. Other questionnaires including the Patient Health Questionnaire (PHQ) for depression and Generalised Anxiety Disorder Questionnaire (GAD) were administered to the whole class of the selected course year groups at the beginning of a lecture with prior consent of the lecturers and participants. Ethical approval for this study was granted by the Northern Regional Ethics Committee (NTX/07/05/038).

Demographic details and the scores for the above questionnaires were recorded for the responded students. Subgroup analyses between medical and other students were also carried out. The unpaired t-test was used for comparing subgroups. Proportions between groups were compared using the chi-squared test. Pearson correlation was used to quantify associations between SWLS, PHQ and GAD scores. The 95% confidence intervals (95% CI) were calculated for prevalence rates. The reported differences were significant at p value <0.05. The analyses were carried out using Statistical Package for the Social Sciences 2010 (SPSS for Windows, release 19.0.0, IBM Corporation, Somers, NY, USA).

**Results**

**Description of study sample**—A total of 778 students were eligible, and 594 (76.4%) students (255 (80.7%) medical, 208 (77.6%) health science, 36 (50.0%) nursing and 95 (77.9%) architecture) completed the questionnaires. The median age was 20 years (range 17-45) and women represented 67.2% (n=399) of the total group. A statistically significant difference (p<0.0001) was observed in the gender between medical and other students, which was caused by the disproportionate number of female students in health science (81.7%) and nursing (91.7%) classes. A significant difference in the rate of New Zealand-European students between medical and other students was observed as a result of the health science class having a low number of students of that ethnicity (26.9%). Other characteristics were similar in the two sub groups.

Table 1 summarises the demographic details of the participants.
Table 1. Demographic details of the participants

<table>
<thead>
<tr>
<th>Variables</th>
<th>Medical students n = 255</th>
<th>Other students n = 339</th>
<th>Total group n = 594</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age [Median (range)] in years</td>
<td>20 (18-36)</td>
<td>20 (17-45)</td>
<td>20 (17-45)</td>
</tr>
<tr>
<td>Women % (n)</td>
<td>51.8 (132)</td>
<td>78.8 (267)*</td>
<td>67.2 (399)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NZ European % (n)</td>
<td>45.1 (115)</td>
<td>36.0 (122)*</td>
<td>39.9 (237)</td>
</tr>
<tr>
<td>NZ Māori % (n)</td>
<td>5.9 (15)</td>
<td>9.4 (32)</td>
<td>7.9 (47)</td>
</tr>
<tr>
<td>Pacific Island % (n)</td>
<td>4.7 (12)</td>
<td>5.3 (18)</td>
<td>5.1 (30)</td>
</tr>
<tr>
<td>Asian % (n)</td>
<td>39.6 (101)</td>
<td>44.0 (149)</td>
<td>42.1 (250)</td>
</tr>
<tr>
<td>Other % (n)</td>
<td>4.7 (12)</td>
<td>5.3 (18)</td>
<td>5.1 (30)</td>
</tr>
</tbody>
</table>

* Statistically significant difference between medical students and other students group (p<0.05).

**Satisfaction with life, depression and anxiety**—The mean SWLS score for the total group was 24.9 (SD 6.4). Table 2 summarises the mean scores for the three questionnaires and table 3 provides a breakdown of the SWLS categories for medical and other students. In the total surveyed sample, the rates of depression and anxiety were 20.7% (95%CI 17.4-24.0) and 20.0% (95%CI 16.8-23.3) respectively.

Medical students had an average SWLS score of 26.4 (SD 6.4), which is within the range for being satisfied with life (see Table 3). The rate of depression (PHQ score ≥ 10) among medical students was 16.9% (95% CI 12.2-21.5). Significant anxiety symptoms (GAD score ≥ 8) were present in 13.7% (95%CI 9.5-18.0) of medical students.

In subgroup analysis, medical students on average had a higher level of satisfaction with life. Medical students overall had a lower rate of depression compared to others (16.9% vs 23.6%; p=0.045). The rate of anxiety was also less in medical students than other students (13.7% and 24.8%; p=0.001).

In gender groups analysis, there was no difference in the SWLS scores between female and male students, however females had a significantly higher rate of depression (23.6% vs 14.9% in males; p=0.01) and anxiety (22.8% vs 14.4% in males; p=0.02). There was no difference between the rate of depression among female medical students compared to other female students (20.4% vs 25.1%; p=0.15).

Table 2. Average scores for total group, medical students and other students

<table>
<thead>
<tr>
<th>Scale</th>
<th>Medical students n = 255</th>
<th>Other students n = 399</th>
<th>Total group n = 594</th>
</tr>
</thead>
<tbody>
<tr>
<td>SWLS mean (SD)</td>
<td>26.4 (6.4)</td>
<td>23.8 (6.2)*</td>
<td>24.9 (6.4)</td>
</tr>
<tr>
<td>PHQ mean (SD)</td>
<td>5.6 (4.2)</td>
<td>7.0 (4.9)*</td>
<td>6.4 (4.7)</td>
</tr>
<tr>
<td>GAD mean (SD)</td>
<td>4.1 (3.8)</td>
<td>5.2 (4.7)*</td>
<td>4.8 (4.4)</td>
</tr>
</tbody>
</table>

SWLS = Satisfaction with Life Scale.
PHQ = Patient Health Questionnaire for depression.
GAD = Generalised Anxiety Disorder Questionnaire.
SD = Standard deviation.

* Statistically significant difference between medical and other students (p<0.05).
Table 3. Rates of satisfaction with life categories in medical and other students

<table>
<thead>
<tr>
<th>SWLS Categories (score)</th>
<th>Medical students (%)</th>
<th>Other students (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely satisfied (35-31)</td>
<td>27.8%</td>
<td>11.2%*</td>
</tr>
<tr>
<td>Satisfied (26-30)</td>
<td>36.5%</td>
<td>33.6%</td>
</tr>
<tr>
<td>Slightly satisfied (21-25)</td>
<td>16.5%</td>
<td>29.8%*</td>
</tr>
<tr>
<td>Neutral (20)</td>
<td>3.9%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Slightly dissatisfied (15-19)</td>
<td>12.2%</td>
<td>10.9%</td>
</tr>
<tr>
<td>Dissatisfied (10-14)</td>
<td>2.4%</td>
<td>7.4%*</td>
</tr>
<tr>
<td>Extremely dissatisfied (5-9)</td>
<td>0.8%</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

SWLS = Satisfaction with Life Scale.
* Statistically significant difference between medical and other students (p<0.05).

Regression analysis revealed a statistically significant moderate correlation between SWLS score and PHQ score \([r = -0.37 \ (p<0.001)]\) and SWLS score and GAD score \([r = -0.23 \ (p<0.001)]\). Cronbach’s alpha coefficient for the five parts of the SWLS was 0.89, indicating good reliability and internal consistency of the SWLS scores.

Discussion

This study aimed to assess the satisfaction with life among undergraduate medical students and identify associations between depression and anxiety. The study also compared the satisfaction with life among medical and other students. In the sampled University of Auckland population, 15.4% of medical and 19.5% of other students reported dissatisfaction with life. These students were more likely to have depression and/or anxiety compared to students who reported to be neutral or satisfied with life. A significant proportion of students were also found to be having clinically significant depression and anxiety symptoms.

An interesting finding of this study is that medical students had a higher mean SWLS scores compared to other students surveyed. One possible explanation for this is the greater career and job certainty in medical students.

The survey was carried out during the 2007-2010 financial crisis, where job opportunities were limited for many university graduates including health science and architecture graduates; majority of the non-medical students in this study were doing these two courses.

The uncertainty of getting into a limited entry course after the undergraduate degree may have also contributed to the lower SWLS scores in health science students. Alternatively, higher life satisfaction among medical students may be caused by the fact that they are already accepted into their desired programme. Another explanation is that the selection process of students into the medical programme from the premedical courses (including health sciences) results in selection of students with better mental health and coping strategies.

The results also suggest that poor mental wellbeing is common to all tertiary students rather than limited to medical students alone. This is in line with other researchers and was highlighted by a recent study of tertiary students in Adelaide, Australia which
found that students from non-health disciplines were significantly more distressed than health disciplines\textsuperscript{13}.

The overall rate of depression among medical students was lower than other students in our survey. However this is most likely to be due to the significantly lower number of female students in the medical students group compared to the other students surveyed. There was no difference in the rate of depression among female medical students compared to other female students. The rate of depression among female students overall was significantly higher than the male students and this is in accordance with the rates from the general population\textsuperscript{14}.

A strength of this study is that it was conducted in a large group of students at a similar stage of their undergraduate courses allowing comparison between subgroups. The high response rate (76.4\%) was achieved by administering the questionnaire at the start of lectures and the study investigators being present to encourage students to complete the questionnaire.

The inclusion of a large sample of medical students allowed comparison between medical and other students. The lack of random selection and wider sampling of students is a shortcoming and prevents the authors from making strong conclusion on the mental health among medical students compared to other university students as a whole; however resources of the project were limited.

Acute stressors (such as upcoming assignments, tests or exams) may have contributed to some of the reported SWLS scores. Re-administering the questionnaire to the same group of students at different times of the year to use the individual students as their own control would have eliminated the impact of acute stressors on the scores.

The SWLS scores in The University of Auckland sample are very similar to other literature on undergraduate students.\textsuperscript{1} A study of American college students found a mean SWLS score of 23.7 (SD 6.4).\textsuperscript{15} The association between SWLS scores and depression in medical students was assessed by Swami et al, and the results (r = -0.38) are very similar to our study.\textsuperscript{16}

The rates of depression and anxiety in our sample are similar to the New Zealand population rates for the 16 to 24 years age group (20.7\% and 23.9\% for mood and anxiety disorders respectively)\textsuperscript{17} and other literature on university students.\textsuperscript{18}

In conclusion, dissatisfaction with life is associated with depression and anxiety. One possible way of reducing the depressive and anxiety symptoms in university students is to promote positive wellbeing and improve satisfaction with life. The results further emphasise the evidence required for developing frameworks for identifying and prioritising interventions for students who are suffering from mood disorders and dissatisfaction with life.

**Competing interests:** None.

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References:

Workload in a provincial New Zealand vascular surgery service

Simon van Rij, Michael Fancourt, Damien Mosquera

Abstract

Aim There is increasing evidence that centralising complex surgical procedures improves mortality rates. The focus on mortality as the primary outcome measure overlooks every other aspect of a local surgical service that could be lost by centralisation. The aim of this audit was to assess the total vascular service provided in a provincial vascular surgical unit.

Method This was a 12-month prospective audit of the vascular surgical service in Taranaki. All outpatient and inpatient vascular consultations and procedures carried out by a surgeon or interventional radiologist were identified.

Results There were 181 inpatient admissions of which 121 (67%) were elective and 60 (33%) acute. There were 41 (29%) non-operative admissions, while 140 (71%) required an operation as an inpatient. There were 967 total bed days for vascular patients with an average stay of 5 days (4-6 95% CI). There were 588 vascular outpatient consultations for 396 patients. There were 201 (34%) new patient visits and 387 (66%) follow up appointments.

Conclusion Although the number of operations performed per population per year in Taranaki over the audit period was consistent with other reports, the number of major vascular cases did not meet suggested annual thresholds for minimising mortality. Despite this there was no evidence of increased mortality in any group. There was a large amount of non operative work which is not considered when focus is exclusively on mortality.

Centralisation of complex surgical procedures has the potential to improve patient outcomes, particularly mortality rate.1 Surgeon experience, support staff, infrastructure and recognition of complications may all be important factors in this regard.2,3 Vascular surgery is a specialty where centralisation could be beneficial due to its complex procedures and multi-disciplinary requirements especially with regard to interventional radiology.4 A shift has already begun with countries such as Sweden showing improvements in mortality with centralisation of vascular care.5 In England, where the health system is similar to New Zealand, centralisation of vascular care is gradually taking place.6 By only viewing care from the important, but narrow perspective of mortality rates, providers ignore or override patient wishes to have treatment locally.7 Centralisation may actually lead to reduced access to specialist services and disadvantage the very population it is meant to benefit.8 A local surgical specialty service provides many benefits additional to the availability of complex operations.
There are no New Zealand studies looking at centralisation of vascular surgical services and it is not clear whether previously published overseas models would be valid in New Zealand. New Zealand possesses its own unique geography and access to health services, in particular a widely spread rural population.  

Centralising some services may put excessive strain on major regional hospitals already struggling to cope with existing workloads. Centralised hubs may have to absorb not only surgical procedures but also consultations, imaging and other interventions. A realistic assessment of current workloads is required to quantify the resources that would be required before any meaningful investigation of centralisation could occur. Retrospective analysis of electronic records leads to underreporting of events and misses data that cannot be recorded on a computer.  

Collecting prospective, pre-specified data provides a more accurate assessment of the actual service. 

The aim of this prospective audit was to assess the total vascular service provided in a provincial vascular surgical unit.

Method

Taranaki is a province on the west coast of the North Island of New Zealand. It is 3 hours by road to the next largest hospital and approximately 40–50 minutes flight by fixed wing aircraft to Hamilton or Auckland. 

Taranaki base hospital is a 250-bed secondary hospital that serves a population of approximately 106000 people. It has an intensive care unit supervised by a specialist anaesthetic intensivist and renal support services. We conducted a prospective clinical audit of the vascular service provided by Taranaki District Health Board (TDHB) between Dec 2008 and November 2009. 

All of the vascular services are based in the regional capital, New Plymouth. There are four general surgeons and one vascular surgeon serving the population. One of the general surgeons has an interest in vascular surgery while the vascular surgeon also provides general surgery care. 

Proformas for the collection of data were decided before the commencement of the study after discussion with the surgeons involved in the study and other members of the department. All outpatient and inpatient vascular patients along with all vascular operations and procedures carried out by a surgeon or interventional radiologist were identified to provide an assessment of the vascular service. 

An inpatient form was completed by the house surgeon or registrar for all patients admitted under the vascular surgeon or those with a primary vascular complaint admitted under a general surgeon. Data included patient demographics, diagnosis, procedure, time in hospital, ICU requirements, complications and follow up on discharge. 

Similarly all patients presenting to either the vascular surgery clinic or with a vascular complaint to the general surgery outpatient clinic were identified and data was recorded by the attending doctor. This form contained patient demographics, referral source, outcome from clinic and the diagnosis category. The data from all forms was recorded in a Microsoft Access database and then analysed with Microsoft Excel. 

To ensure that every patient was identified the forms were cross checked with the hospital electronic discharge records of all the general surgeons over the time period of the study. The theatre logbook was also cross checked to ensure that no procedures were omitted. 

The audit did not include data from ulcer clinics run by specialist nurses or the non-interventional vascular imaging undertaken by radiology.

Results

Over the 12 months there were 588 vascular outpatient appointments with 396 individual patients seen. There were 201 (34%) new patient visits and 387 (66%) follow up appointments. Using broad diagnosis categories as shown in Figure 1 the
most common reasons for seeing patients were leg ulcers (178), and patients with ischaemic or claudication symptoms (124).

Figure 1. Outpatient visits grouped by diagnosis category (n=588)

Some patients required more than one outpatient appointment over the year. 333 (84%) of the patients were seen only once during this time period but over forty patients were seen three or more times in the outpatient clinic. Generally these patients either had chronic ulcers or wound complications that required close monitoring.

As shown from the procedure data, only 8 aneurysm repairs were carried out in New Plymouth during the audit period but over 80 outpatient referrals for this complaint were seen. Figure 2 shows the outcomes for outpatients seen because of an aneurysm. Over 50% of these patients were having ongoing vascular imaging and another 14 were actively being followed up. With no endovascular aneurysm repair (EVAR) carried out in Taranaki a number of patients were referred for consideration of this treatment in Waikato. In total six patients during this time period underwent EVAR in Waikato.

Figure 2. Outcomes for outpatient visits for aneurysm complaint (total =83)
Figure 3 shows that 85 patients were booked from the outpatient clinic for a procedure and the breakdown by diagnosis category. In the ulcer category the procedures booked included angiograms, bypass surgery and amputations.

The procedures booked from outpatient clinic do not match exactly with all the procedures performed in Figure 4. This is due to the acute procedures performed and also those inpatients that were referred directly that admission for carotid endarterectomy.
Over the 12-month period there were 181 inpatient admissions of which 121 (67%) were elective and 60 (33%) acute. There were 41 (29%) non-operative admissions, while 140 (71%) required an operation as an inpatient.

The average age of the patients admitted was 68 years (66-70 95% CI) with 40% of the patients male, 60% female; 53% of all patients admitted were over the age of 70. Most of those who did not require an operation were either unfit for an operation, did not require an operation, or had a condition such as a chronic ulcer which required inpatient management.

Figure 4 shows the breakdown of the procedures performed over the audit period. The graph shows the high number of interventional angiography procedures that were performed and approximately 10 cases each of abdominal aortic aneurysm (AAA) repair, carotid endarterectomy (CEA) and bypass surgery. The “other” category here included acute embolectomies, cases of repair of vascular trauma and one case of stenting of a subclavian artery stenosis.
Of the 181 inpatient admissions, 41 (23%) required admission to the high dependency unit (HDU) or intensive care unit (ICU). The only patients requiring ICU level care were aneurysm repair patients and one patient who had a major vascular injury post angiography.

There were 967 bed days for vascular patients over the audit period with an average stay of 5 days (4–6 95%CI). Figure 5 shows the average stay by procedure. It highlights that major operations had a more prolonged stay in hospital. Major amputations had the longest average stay and this was often due to the initial failure of conservative management or less invasive procedures. The length of stay did not include time spent on the rehabilitation ward.
Complications were recorded for all inpatients and included re-operation rates, requirement for increased level of care and unplanned readmission. Nineteen patients required more than one operation during a single admission with eighteen of these being unplanned re-operation (13% of all operative admissions). Nine of those patients had initial angioplasty which failed requiring either bypass surgery or an amputation. Another five patients had a minor amputation that after ongoing management required further amputation.

Of the other four patients who had unplanned re-operation:

- One patient required re-operation to evacuate a wound haematoma post carotid endarterectomy.
- One patient required a major amputation after acute bypass surgery with a patent graft still present at 30 days after initial operation.
- Two patients required operations for wound complications after unplanned readmission.

In total there were eight unplanned readmissions after surgical intervention during the audit period.

These were all wound or stump related complications. One patient after elective AAA repair required ongoing ICU care and intubation for 4 days due to blood loss and hypotension but subsequently made a full recovery. There were three deaths two of which were post-operative patients following urgent above knee amputations who died from circulatory failure. One of these patients was a Jehovah’s witness.
Discussion

In Taranaki over a 1-year period approximately 200 vascular operations were performed. Although the number of operations performed relative to the Taranaki population was consistent with other reports, the number of major vascular cases did not meet some suggested annual thresholds for minimising mortality. Despite this there was no evidence of increased mortality in any group. There was a large volume of non operative vascular work.

There are few audits looking at the total vascular service provided by a hospital. Ashraf et al investigated the change in vascular workload at the Royal Berkshire Hospital serving a population of 500,000 from 1989 to 2003. The outcomes investigated included the number of admissions, number of procedures and number of new outpatient referrals during a 3-month period over five different years.

Comparing the numbers from the Taranaki audit with this study shows that the services do seem to be similar in terms of admission numbers and operation rate per population. One key difference is the high number of varicose vein admissions, operations and referrals that were seen in the Royal Berkshire hospital population. This current audit is the first of its kind published in the New Zealand literature. It highlights the need for careful planning for the future of health services in New Zealand and to ensure that the rural population does not suffer from lack of access to specialised surgery.

A previous report from Taranaki over a 10 year period reported risk adjusted mortality rates that were comparable or better than predicted by an established model. The unplanned re-operation rate of 13% is similar to previously published audits. Pooled data has suggested that 43 aortic aneurysm repairs and 72 carotid endarterectomy procedures need to be performed annually to minimise patient mortality.

Clearly Taranaki does not reach these levels nor do many other centres in New Zealand. This data comes from Europe and the USA and has not been validated in New Zealand where mortality from aortic aneurysm is lower than in many of those countries where this data has come from.

Even in England over 60% of hospitals with vascular surgery services perform less then 20 AAA repairs per year. With this in mind Karthikesalingam et al have argued that there may not be a simple volume threshold level at which a centre should or should not perform these vascular operations due to the number of factors that contribute to mortality.

Finlayson et al showed that most patients have a strong preference to be treated in their local hospital even if this meant an increase in procedure mortality rate. The elderly population were found to accept the highest mortality rate if it meant they could remain locally. With over 50% of the patients seen in Taranaki being over the age of 70 it would be likely that many of these patients would have strong preferences to stay locally.

Using index procedures as the only guide to future resource requirements hides a huge amount of non-operative work that is required to support a surgical service. 29 percent of the admissions to Taranaki base hospital did not require an operation. The average
bed stay for patients was over 5 days with extended hospital stays for those having major operations. This highlights the heavy load of ongoing specialised care required on the ward for vascular patients.

Almost 600 outpatient clinic appointments were made during the audit period. Of this group 40 patients were seen over three times in the clinic. A large number of patients required on-going vascular imaging which was coordinated through the outpatient clinic.

HDU/ICU access was required for many of the patients undergoing major vascular operations and this would not change if the service was transferred to a larger centre. This access to HDU/ICU beds has been recognised as a potential barrier to centralisation of care. A large centre may have the operating time and vascular surgery staff available but may not be able to perform a procedure due to the limited access to ICU.

This audit aimed to assess the resources required by a peripheral vascular unit. One weakness of this audit is that it is a single vascular surgeon’s practice in Taranaki which may differ from other peripheral centres in New Zealand. The same vascular patient in a large centre may be managed differently in a peripheral centre. This may be due to the increased resources and technologies available in a larger centre. The resources identified by this audit to provide a vascular service to a peripheral population may be different if administered from a larger centre.

This was a prospective audit of all vascular events and will be a close representation of the actual workload. Even though great efforts were made to ensure complete event capture it is likely there has been a slight underreporting mainly in the area of consultations both inpatient and outpatient. In addition the study did not include any information on pre-operative vascular access imaging, ultrasound, CT angiography and MR angiography. Private patients were not included.

Centralising some services may put excessive strain on major regional hospitals already struggling to cope with existing workloads. Centralised hubs would have to manage all aspects of a vascular service, some of which can not easily be measured.

Accessibility might suffer in many areas by the absence of a local specialist. Outpatient consultations, inpatient cross referrals, the ability to discuss patients with colleagues on an ad hoc basis, availability to consult on emergency cases and support for local specialty initiatives such as leg ulcer clinics or aneurysm screening are all areas that might be lost.

This current study has shown the extensive vascular service provided in Taranaki. It has also highlighted areas of service that often go unreported but that would need to be considered to allow meaningful planning if centralisation was ever considered. Future planners would need to consider all of these areas to ensure equity of patient access.

Competing interests: None.

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References:


Resource usage and outcomes in a facilitated discharge service in Christchurch, New Zealand

Oliver H Menzies, H Carl Hanger

Abstract

Aim To describe the type and level of support provided by a facilitated discharge team to frail older patients discharging from a 113-bed elderly rehabilitation hospital and the outcomes achieved.

Method Prospective data detailing reasons for referral, services provided and retrospective data on outcomes, were obtained to 90 days post discharge on visits to new patients during 21/2/08 to 15/7/08.

Results Seventy-four patients (mean age 82, 58% female) were included. The mean duration of intervention was 19 days with the most common reasons for referral being poor mobility/falls risk, poor cognition, hygiene concerns. The average number of contacts was 6.5. Patients with the highest number of contacts were those referred with patient anxiety/low confidence (7.4), and family concern (8.4). The most common interventions were family contact and management of carer stress, liaison with medical staff. Unplanned readmission (within 90 days) occurred in 32% whereas 12% and 8% were in residential care or had died respectively.

Conclusion Managing the transition from hospital to home for older people requires a large range of interventions, particularly in this highly selected group. Unplanned readmission occurred in a third of this very frail elderly group, yet only 12% needed residential care, suggesting the reasons for readmission could be resolved. Patient or family anxiety resulted in more follow-up visits to patients, and inpatient teams should be mindful of this when planning discharges.

Returning home after a stay in hospital can sometimes be a difficult process for both hospital staff and patients. During an admission, and particularly for patients with longer stays, changes in physical and psychological functioning, as well as social supports may occur which alter the ability of patients to transition home successfully. The older person themselves, their family and also staff may all have their concerns about the potential success of the return home. Various different interventions, both home and hospital based, have been used to maximise the success of discharge. One such intervention is a facilitated or supported discharge (FD) team.

Studies have looked at particular patient groups, including those with hip fractures, stroke, and heart failure. However there has been variable success of the discharge interventions. A 2007 meta-review noted that “Based on 15 high quality systematic reviews, there is some evidence that some interventions, particularly those with educational components and those which combine pre-discharge and post-discharge interventions, may have a positive impact”. Evidence of benefit for (early) supported discharge programmes for stroke patients is established. There are sound reasons
why FD for frail older people should be effective, but evidence supporting FD is mixed in this group.\textsuperscript{3–5,10}

The Princess Margaret Hospital (TPMH) is a 113-bed rehabilitation teaching hospital in Christchurch, New Zealand. A Facilitated Discharge (FD) Service was set up in 2000, initially with the aim of improving discharge processes (including earlier discharge from hospital and greater supports during the transition), preventing early re-admission, and reducing the length of stay in hospital for patients over 65 years of age. The project also aimed to improve communication between primary providers and hospitals. Due to a variety of factors (including changes of staff and funding), the aims of this FD service changed to supporting the transition of frail older patients from our specialist unit to home. In practice, this has meant those very frail patients whose discharge is perceived as “dodgy” or precarious\textsuperscript{6} by the inpatient teams at TPMH.

In this outreach FD service, a multidisciplinary team of individuals, mainly nurses, provides comprehensive and coordinated services in the patients home, during the transition to home phase (usually the first 3 weeks). Initially there was funding for part time physiotherapist (PT) and occupational therapist (OT) as well as a nurse. In recent years, the FD has consisted of just nurses and an OT. Expertise from other disciplines such as PT, dieticians and social work were accessed from the wider community team as required. Referral for the service is initiated by inpatient clinical teams for patients undergoing rehabilitation in which there was a question of whether their discharge home would be safe or durable. Patient details and reasons for referral are provided to the service from the inpatient team. Ideally the FD service visited the patient on the ward prior to discharge.

Initially this was a combined service—it included stroke rehabilitation patients as well as general.

The stroke service was later split off into a separate service.\textsuperscript{7} The data discussed in this study pertain only to non-stroke patients.

The aims of this study were to describe the type and level of support provided by an outreach Facilitated Discharge Team to frail older patients discharging from a 113-bed elderly rehabilitation hospital together with some of the outcomes achieved.

**Methods**

The research comprised two parts:

- Prospective data detailing reasons for referral and services provided to patients in the community.
- Retrospective data on outcomes, obtained for up to 90 days post discharge on visits to new patients carried out during the study period.

The study period was 21/2/08 to 15/7/08.

Prospective data was obtained by a survey form which was completed by each of the FD team on each visit to a patient during the survey period. The survey form collected the services which were provided by the FD Team, and who provided them.

Retrospective data was obtained by review of patient’s notes for reasons for referral. The reasons for referral were recorded on the standard referral form to the FD team. The reasons for referral were as given by the inpatient-based multidisciplinary team (MDT).

A database on patient contacts held at TPMH supplied additional visit information on the number of visits, dates, and types of services provided for each patient. Domiciliary status post discharge and
Readmission rates were determined from computerised patient management databases at both Christchurch Public Hospital and TPMH. The FIM™ instrument is routinely used for all patients on discharge from TPMH to quantify the functional abilities of patients.

Data was entered into a spreadsheet using Microsoft® Excel™. Data analysis was carried out.

**Results**

88 new patients were seen by the FD service during the study interval. Fourteen patients were excluded (Table 1), leaving 74 included for analysis.

**Table 1. Reasons for exclusion of patients from study**

<table>
<thead>
<tr>
<th>Reasons for exclusion</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke patients</td>
<td>5</td>
</tr>
<tr>
<td>Wrongly identified – no inpatient stay, or incorrectly coded</td>
<td>7</td>
</tr>
<tr>
<td>Psychiatric patient</td>
<td>1</td>
</tr>
<tr>
<td>Discharged directly to residential care</td>
<td>1</td>
</tr>
</tbody>
</table>

The average age was 82.4 years (31 Male, 43 Females). The average FIM™ score for this cohort was 93, compared with 103 for all other community discharges from TPMH during the time of this study.

There were 486 patient contact episodes. The types of patient contact episodes, and what percentage they made up of the total contact episodes were:

- Home visit (61%). All home visits were post discharge, many patients requiring more than one.
- Telephone contact (34%).
- Inpatient contact before discharge (5%)—this was mainly to establish rapport with the patient before discharge home.

The mean number of contacts with each patient was 6.5. The mean time to first contact after referral was 2.2 days. The mean time to contact after discharge was 2.3 days. The mean duration of intervention (first visit to last) was 19 days, with a range 1–59 days.

**Table 2. Reason for referral as identified by referring inpatient multidisciplinary team**

<table>
<thead>
<tr>
<th>Reason category</th>
<th>N*</th>
<th>Individual referral reasons categorised to this reason category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor Mobility/Falls risk</td>
<td>17</td>
<td>Falls risk, increased alcohol use, decreased mobility</td>
</tr>
<tr>
<td>Poor cognition</td>
<td>13</td>
<td>Decreased cognition, poor problem solving</td>
</tr>
<tr>
<td>Hygiene Concerns</td>
<td>11</td>
<td>Difficulty with hygiene, incontinence</td>
</tr>
<tr>
<td>Patient Anxiety/Low confidence</td>
<td>5</td>
<td>Patient anxiety about discharge</td>
</tr>
<tr>
<td>Family concern</td>
<td>5</td>
<td>Support to family, family concern regarding safety</td>
</tr>
<tr>
<td>Other – multiple reasons</td>
<td>23</td>
<td>Meds check or monitoring, ensure services commenced, carer stress and/or ability to cope with patient, BSL monitoring, decreased endurance, limited social supports</td>
</tr>
<tr>
<td>Uncertain</td>
<td>19</td>
<td>Documentation not available or found</td>
</tr>
</tbody>
</table>

*Note: Total of 94 as more than 1 referral reason could be specified for a single patient.*
Was there a particular reason for referral which resulted in a higher resource use?—There was a trend at 90% confidence level (Figure 1) to higher resource use (i.e. more visits or telephone contact) for patients who were referred for the reasons of patient anxiety or low confidence, and family concern. There was a trend to lower resource use when the referral reason was poor mobility or falls risk.

Figure 1. Resource usage (patient contacts) for different referral reasons (CI=confidence interval)

Likelihood of unplanned readmission within 90 days post discharge—The frequency of re-admission to either Christchurch Hospital or the Princess Margaret Hospital within 90 days of discharge was 32% (24 out of 74 patients). This is higher than other patients discharged from TPMH to home (24.6%)\(^9\), but this figure includes both planned and unplanned readmissions).

Of the 24 that were readmitted there was a trend to higher readmission rates amongst those patients in which there was family concern (Figure 2).
Figure 2. Likelihood of readmission within 90 days post discharge

Change in domicile and death—The number of patients that changed from home to residential care at 30 days was 4 out of 74 (5%) and at 90 days was 9 out of 74 (12%). The number of patients who died (this research excludes palliative care patients) was 2 (3%), and 6 (8%) at 30 and 90 days respectively. One of the patients who died by 90 days had been in residential care at 30 days.

Was there a particular reason category that resulted in a higher rate of change of domiciliary status or death?—Despite greater resource use and/or higher risk of readmission, there were no deaths or admissions to residential care in either patients who were referred because of patient anxiety or low confidence, or referred because of family concern (Figure 3).
Figure 3. Frequency of change of domiciliary status or death by 90 days

Bars indicate 90% CI
n=15 patients

Note: The percentage of patients dying or entering residential care at 90 days was 20%.

Interventions supplied—The interventions supplied were part of the smaller prospective survey component of the study, and so have smaller numbers (33). They are mainly nursing interventions, with limited allied health input (Table 3). Assessment of risk / monitoring of Instrumental Activities of Daily Living was considered a universal intervention.

Table 3. Interventions supplied to patients in their homes

<table>
<thead>
<tr>
<th>Intervention category</th>
<th>Patients receiving</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family contact, education, management of carer stress</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>Doctor liaison regarding management</td>
<td>91%</td>
<td>General Practitioner or hospital doctor</td>
</tr>
<tr>
<td>Review of medication management</td>
<td>88%</td>
<td>Diabetes, pain, compliance, administration check, ensuring correct medications</td>
</tr>
<tr>
<td>Service coordination, facilitate change in domiciliary status</td>
<td>82%</td>
<td></td>
</tr>
<tr>
<td>Management of bowels or urine</td>
<td>70%</td>
<td>Constipation, Urinary Tract Infection, Indwelling Urinary Catheters, stomas (filling service provision gap)</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
<td>Management of anxiety or depression, pressure areas</td>
</tr>
</tbody>
</table>
Discussion

There were a large variety of different interventions supplied to patients in their own homes. Poor mobility or falls risk and poor cognition were the most common single reasons for referral to the FD service. Patient anxiety / low confidence, and family concern referral reasons had a trend to needing more resources than the average (14% and 29% higher respectively). However, poor mobility or falls risk had a trend to using fewer resources than the average (17% lower).

There was a relatively high unplanned re-admission rate (32%), but the chance of death or residential care was relatively low. FIM™ data indicated that the group in this study were the most frail of an already frail group of patients. Despite this frailty, 80% of patients were alive and in their own homes at 90 days.

If there was family concern, there was a 60% likelihood of readmission within 90 days. Family concern had the highest likelihood of readmission at 90 days. This therefore may be a useful predictor of readmission at the time of discharge.

Interestingly, if there was family concern, this high readmission rate did not subsequently result in either death or admission to residential care. It would appear that these concerns were able to be addressed to enable a more successful subsequent discharge.

Comparisons to other studies—There are a number of studies that have taken different approaches to early discharge. Various terms are used to describe similar interventions. One such approach is ‘hospital at home’. This is a service that provides active treatment by healthcare professionals in a patient’s home for a condition that would otherwise require inpatient care.

A Cochrane review that summarises recent studies, but also includes stroke patients, was published in 2009. This review found that for older people with a mix of conditions there was a significantly increased risk of readmission for those allocated to hospital at home compared with standard inpatient care; Hazard Ratio (HR) 1.57 at 3 months, readmission rate 22%. However, significantly fewer were in residential care at one-year follow-up—relative risk 0.69.

A 2005 study in Auckland, New Zealand, which was included in the above review noted significantly higher levels of satisfaction in the hospital at home group, but increased costs. The readmission rate in this study was 31% at 90 days. The FIM™ for this group was 99.5 on entry to the intervention. This compares to our study with a slightly higher readmission rate (32%), but lower FIM™ (93).

A 2003 study by Lim et al in Victoria found that a post acute coordinator (assisting in developing a discharge plan and being involved in post-acute service provision) improved quality of life, and reduced bed utilisation. The unplanned readmission rate within 6 months post discharge was 25%. In comparison to this study, our study showed a higher rate of readmission. This may be because we focused on the most frail of a frail group of patients. The average age of patients in our study was 6 years older than those in the Australian study.
It is difficult to compare our study with others because of the differences in the composition of the post-discharge team and other local factors. Our discharge support program did contain an educational component, but was mainly focused on post-discharge care. Also, this study was not a comparative study between post-discharge care or none, it’s aim rather was to describe the outcomes from our interventions.

This study used a measure of average number of contacts to quantify the level of input supplied to a patient. This is a crude measure, and encompassed all types of contacts—home visits, telephone contact, and inpatient contact before discharge from hospital. Total time spent in contact may have been a more useful measure, however, the time spent on individual contacts was not recorded.

Future research investigating family concern about discharge would be useful, as this was the main factor that showed a trend to significance in the chance of a patient being readmitted. The referral data did not contain sufficient information to make meaningful conclusions about the types of family concerns expressed, and ways to address these. It would also be useful to examine the reasons for readmission in this particular group, to see if there are common problems that could be addressed further prior to discharge.

Conclusions

This study is useful to inform the inpatient discharging team of the possible outcome of a referral to a facilitated discharge team. There was a trend for more resource use if a patient or their family was concerned about discharge. However if the family were concerned, although this had a trend to more admissions to hospital, this did not seem to translate into more admissions to residential care.

Geriatric inpatient teams should be reminded by this study that patient and family concerns about discharge are important. In light of this, effort should be made to clarify and address family concerns prior to discharge.

It would be useful for future studies to look at family concern and what could be done to alleviate this, and if this reduced the number of readmissions.

Competing interests: None.

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Heater probe thermocoagulation for high-risk patients who show rebleeding from peptic ulcers

Yu-Hsi Hsieh, Hwai-Jeng Lin

Abstract

Aim To investigate whether heater probe therapy is effective for patients showing rebleeding from peptic ulcers.

Methods We retrospectively reviewed the case profiles in our previous studies on endoscopic therapy for high-risk patients with peptic ulcer bleeding in the past two decades. We analysed the outcomes of 191 patients who showed rebleeding after initial endoscopic haemostasis and received endoscopic therapy with heater probe thermocoagulation.

Results A total of 191 patients showing rebleeding received heater probe thermocoagulation. After re-therapy, 158 patients (82.7%) achieved ultimate haemostasis. Twenty-five of the 33 patients who failed to achieve haemostasis received surgical intervention. Ten patients (5.2%) died within 1 month after re-therapy.

Conclusion Heater probe thermocoagulation can be used as the first choice for management of patients showing rebleeding after initial endoscopic therapy.

Bleeding peptic ulcers remain a serious medical problem and are associated with significant morbidity and mortality. Endoscopic therapy significantly reduces the possibility of further bleeding, the need for surgery, and the rate of mortality in patients with bleeding peptic ulcers and this technique is now recommended as the first haemostatic modality for these patients.\(^1,2\)

Although a high initial haemostatic rate can be obtained with endoscopic therapy, rebleeding occurs in 10% to 30% of these patients.\(^2-5\) Rebleeding has been confirmed as the most important prognostic factor in these patients.\(^6,7\) Thus, if rebleeding is prevented, the mortality rate will reduce accordingly.

The ideal therapy for patients showing rebleeding has not been identified to date. Endoscopic retreatment, arterial embolisation, and surgery have been attempted with variable success rates.\(^3,5,8,9\) Endoscopic retreatment seems to be more easy to perform and more cost-effective than the other two therapies.

In this study, we retrospectively analysed 191 rebleeders who showed rebleeding after initial endoscopic haemostasis and received endoscopic re-therapy with heater probe thermocoagulation.\(^10-19\)

Methods

We retrospectively reviewed the case profiles of our previous studies on endoscopic therapy for high-risk patients with peptic ulcer bleeding in the past two decades. All these studies were approved by the Clinical Research Committee of the Veterans General Hospital, Taipei, Taiwan.
Patients underwent endoscopic therapy if a peptic ulcer with active bleeding or a nonbleeding visible vessel (NBVV) was observed within 12 h of hospital admission. Patients with an NBVV had to show one of the following signs of recent bleeding: “coffee grounds” or blood in the stomach or duodenum; shock; or initial Hb <10 g/L. The possibility of endoscopic therapy was discussed with patients and/or their relatives and written informed consent was obtained before the trial.

Patients were excluded from the study if they were pregnant, did not give written informed consent, or had a bleeding tendency (platelet count <50 × 10⁹/L, serum prothrombin <30% of normal, or were taking anticoagulations), uremia, or bleeding gastric cancer.

For the enrolled patients, heater probe thermocoagulation, endoscopic injection with diluted epinephrine (1:10000), pure alcohol (99.8%), 3% saline solution, or 50% glucose/water, multipolar electrocoagulation, and haemoclips placement were used according to the protocols employed in respective studies.¹⁰⁻¹⁹

Patients’ vital signs were checked every hour for the first 12 h, every 2 h for the second 12 h, and every 4 h for the following 24 h until they became stable, then four times daily. The haemoglobin level and hematocrit were checked at least once daily, and a blood transfusion was given if the haemoglobin level decreased to lower than 90 g/L or if the patient’s vital signs deteriorated. The attending physicians or surgeons were made aware of the exact endoscopic finding and treatment given each case.

Active bleeding was defined as a continuous blood flow spurting or oozing from the ulcer base. An NBVV at endoscopy was defined as a discrete protuberance at the ulcer base that was resistant to washing and was often associated with the freshest clot in the ulcer base. Shock was defined as systolic blood pressure lower than 100 mmHg and a pulse rate of more than 100/minute accompanied by cold sweats, paleness, and oliguria. Initial haemostasis was defined as no visible haemorrhage lasting for 5 minutes after endoscopic therapy. Ultimate haemostasis was defined as no rebleeding within 30 days after endoscopic therapy. Rebleeding was suspected if unstable vital signs, continuous tarry, bloody stools, or a drop in the haemoglobin level of more than 20 g/L within 24 h was observed during hospitalisation.

For patients with suspected rebleeding, an emergency endoscopy was performed immediately. Rebleeding was diagnosed if we found blood in the stomach 24 h after therapy or if a fresh blood clot or bleeding in the ulcer base was found. For ethical reasons, we discussed treatment regimens with the patients who showed rebleeding.

Therapeutic options included a second haemoclip placement, injection, heat probe thermocoagulation, electrocoagulation, embolisation, or surgery. One biopsy specimen from the gastric antrum was obtained for a rapid urease test. Patients who had a positive urease test received a 1-week course of esomeprazole (40 mg twice daily), clarithromycin (500 mg twice daily), and amoxicillin (1 g twice daily) after discharge. Rockall score was recorded for each patient in this study.²⁰

At study entry, the following data were recorded: age, sex, the location of the ulcer (oesophagus, stomach, duodenum, or gastrojejunal anastomosis), ulcer size, the appearance of gastric contents (clear, coffee grounds, and blood), stigmata of bleeding (spurting, oozing, and NBVV), volume of blood transfusion, presence of shock, initial haemoglobin, nonsteroidal anti-inflammatory drug ingestion, cigarette smoking, wine drinking, and comorbid illness.

The primary end points were haemostatic efficacy and recurrent bleeding after a second therapy within 30 days. At day 30, volume of blood transfused, number of surgeries performed, hospital stay and the mortality rates were assessed.

Results

In the past two decades, we have conducted numerous studies concerning peptic ulcer bleeding.¹⁰⁻¹⁹ A total of 1663 patients of high-risk peptic ulcer bleeding received various endoscopic therapies (injection with diluted epinephrine, normal saline, 3% saline, 50% glucose/water, pure alcohol, heater probe thermocoagulation, multipolar electrocoagulation, and haemoclip placement). Among them, 288 patients (17.3%)
After having discussed the options with the patients or their family members, we treated 191 of these patients with heater probe thermocoagulation. The male to female ratio was 164:27. Age was 65.7±1.08 years (mean±SEM). The initial haemoglobin was 9.1±0.2 g/dL (mean±SEM). The ulcer size was 1.0±0.11 cm (mean±SEM). The gastric contents were clear in 10 patients, coffee grounds in 80 patients and blood clots in 101 patients.

The location of bleeders was as follows: duodenal bulb, 76 patients (39.8%); antrum, 22 patients (11.5%); gastric body, 65 patients (34%); anastomotic site, 13 patients (6.8%); and fundus, 15 patients (7.9%). The ulcer bases showed spurring haemorrhage in 55 patients (28.8%), oozing haemorrhage in 57 patients (29.8%) and NBVV in 79 patients (41.4%). At presentation, shock was observed in 90 patients (47.1%). Comorbid illness occurred in 139 patients (72.8%). The Rockall score was 6.42±0.51 (mean±SEM).

After re-therapy, 158 patients (82.7%) achieved ultimate haemostasis. Total volume of blood transfusion was 2777±173 ml (mean±SEM). The hospital stay was 6.62±0.35 days (mean±SEM).

Thirty-three patients showed continued bleeding after heater probe thermocoagulation. Twenty-five of them (25/191, 13.1%) received surgical intervention, two died of postoperative complication. Three of them received multipolar electrocoagulation and achieved ultimate haemostasis. Five others received supportive management because of poor underlying illness and died thereafter. There was no case with perforation after re-treatment.

Eight patients died of unrelated illness (hepatoma, two cases; aspiration pneumonia, four cases, renal abscess, one case, and cerebrovascular accident, one case). Thus, 10 patients (5.2%) died within 1 month after re-therapy.

**Discussions**

In this study, we enrolled 191 patients who showed rebleeding after initial endoscopic therapy. They received a back-up therapy with heater probe thermocoagulation in the past 20 years. Ultimate haemostasis was achieved in 158 patients (82.7%), thereby, proving that heater probe thermocoagulation is an effective rescue therapy for patients who show rebleeding after initial endoscopic therapy. Our result is better than that reported by other authors.\(^{21}\)

Who is prone to rebleeding after initial endoscopic therapy? Elmunzer et al reviewed 10 prospective studies that evaluated predictive factors for endoscopic failure.\(^{20}\) The authors based their findings on the frequency of rebleeding and the statistical strength of various factors, and they found haemodynamic instability, active bleeding, large ulcer size, and posterior duodenal location appear to be the most important predictors for rebleeding. Large ulcers located over the posterior wall of duodenum or lesser curvature of the high body are likely to erode into large artery complexes, thereby limiting the efficacy of endoscopic therapy.

For patients who rebleed after initial endoscopic therapy, the choice between a second endoscopic attempt and immediate surgery is a matter of debate.\(^{22}\) Such patients are often elderly with comorbid illnesses and they are likely to benefit if a second
successful endoscopic therapy is obtained. A recent consensus recommends a second attempt at endoscopic therapy in the cases of rebleeding.\textsuperscript{23}

Repeat endoscopic therapy may incur the risk of gastrointestinal perforation the initial therapy due to accumulated tissue injury. Lau et al reported that two patients suffered from gastrointestinal perforation in their studies.\textsuperscript{21} We did not observe perforation in any patient after re-treatment.

Lau et al compared efficacies of endoscopic retreatment with surgery in patients in whom bleeding recurred after initial endoscopic therapy.\textsuperscript{21} In a 40-month period, 1169 patients with bleeding peptic ulcers were treated by epinephrine injection followed by thermocoagulation. Ninety-two rebleeders were randomised to endoscopic therapy (N=48) and to surgery (N=44) groups. Endoscopic retreatment was able to control bleeding in 35 (73\%) patients. With intention-to-treat analysis, the endoscopic retreatment and surgery groups did not differ in mortality at 30 days (10\% vs 18\%; p=0.37), hospital stay (median, 10 vs 11 days; p=0.59), or units of blood transfused (median, 8 vs 7 units; p=0.27). However, patients who underwent surgery were more likely to have complications (7 vs 16; p=0.03).

The role of surgery has changed in the past two decades, thereby, obviating the need for routing early surgical intervention in patients presenting with acute peptic ulcer bleeding.\textsuperscript{24} Surgery remains an effective therapy for treating selected patients with uncontrolled bleeding or patients who may not tolerate recurrent or worsening bleeding.\textsuperscript{25} Unfortunately, surgery is also associated with a mortality rate as high as 20–40\%.\textsuperscript{9,26} For most patients with recurrent or persistent bleeding, a second attempt at endoscopic therapy is often effective with fewer complication than surgery and is the recommended management.\textsuperscript{22,23,27}

Angiographic embolisation can be recommended as an alternative to surgery for patients in whom endoscopic therapy has failed.\textsuperscript{23,28} Gelatin sponges, polyvinyl alcohol, cyanoacrylic glues, and coils have been used to embolise the vessels feeding bleeding lesions.\textsuperscript{29} Primary rates of technical success range from 52\% to 98\% with rebleeding occurring in about 10\% to 20\% of the patients.\textsuperscript{23}

In the previous retrospective studies, angiographic embolisation has been compared with surgery in terms of rebleeding, morbidity and mortality. Ripoll et al enrolled 70 patients with refractory peptic ulcer bleeding: 31 patients underwent angiographic embolisation and 39 patients received surgery. There were no major differences in rebleeding (29\% vs 23\%) or mortality (26\% vs 21\%).\textsuperscript{30} Eriksson et al enrolled 40 patients receiving angiographic embolisation and 51 patients receiving surgery after failed endoscopic therapy. The 30-day mortality rate was lower in the angiographic embolisation group (3\% vs 14\%).\textsuperscript{28}

Some potential limitations in our study design need to be mentioned. First, this was a retrospective study, therefore, some information may be lacking. Second, this was a non-comparative study. Because of ethical reasons, we had to discuss therapeutic modalities for treating rebleeding with the patients and their family members before therapy. Third, an intravenous bolus followed by continuous infusion of proton pump inhibitor (PPI) therapy should be used to decrease rebleeding and mortality in patients with high-risk stigmata who have undergone successful endoscopic therapy.\textsuperscript{23}
High-dose intravenous PPI therapy (80 mg bolus plus 8 mg/h continuous infusion) reduced the possibility of rebleeding, the need for surgical intervention and the rate of mortality.\textsuperscript{23} Lower doses of PPI reduced rebleeding but yielded no evidence of an effect on mortality.\textsuperscript{23} We regret that in this retrospective study, we used cimetidine, and low- and high-dose PPIs after initial endoscopic therapy depending on the protocols.

In our study, 139 (72.8\%) patients had comorbid illnesses and 90 (47.1\%) patients were in shock at presentation. In spite of these facts, the success rate after re-therapy with heater probe thermocoagulation was good. In addition, this is the biggest study on re-therapy for patients showing rebleeding after initial haemostasis, and the results of this study should be accessible to all gastroenterologists.

In conclusion, heater probe thermocoagulation can be used as the primary therapy for patients showing rebleeding after initial endoscopic therapy.

Competing interests: None.

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Clinical Science Investigation (CSI) Canterbury: surgical gown length and blood inside gumboots

Mike Clarke, David Lewis

Abstract

Background A gap between the bottom of gowns and the top of gumboots (commonly known as wellingtons or rubber boots outside of New Zealand) makes it possible for blood splashes to enter surgeons’ gumboots and contact skin, putting them at risk of exposure to HBV, HCV and HIV. This study investigated the prevalence of blood splashes inside gumboots used by surgical staff at a single hospital.

Method Ninety-four pairs of gumboots (91 from male surgeons, 3 from female surgeons) from the hospital operating theatres were used in this study. Each pair of boots was visually inspected for internal contamination with blood. Possible stains were checked using urine dipsticks to confirm the presence of blood.

Results Of the 94 pairs of gumboots checked, 55 pairs (58.5%) had blood staining on the inside lining. Eighty percent of blood stains were larger than 20 mm². None of the female surgeons’ gumboots were contaminated compared to 60% of the males’ pairs.

Conclusion A large proportion of the gumboots used in operating theatres were contaminated internally with blood. The results of this study suggest that longer gowns should be available to health care workers in operating theatres to reduce internal contamination of gumboots and minimise the chance of exposure to body fluids.

Workplace safety is an increasingly important issue in New Zealand. Across all industries we have seen improvements in the personal safety of workers.¹ Surgeons and those working alongside them in operating theatres are constantly being potentially exposed to the small but tangible risk of infection through contact with infected blood.

The blood borne infections that currently present the most danger to surgeons are Hepatitis B and C and HIV. Numerous protective measures have been taken to minimise these dangers, including gloves, gowns, eyewear and footwear.

Since 1952, when Beck helped surgeons realise the inadequacies of the muslin gowns used at the time, there has been significant interest in the efficacy of surgical barriers.² The gowns currently used at our hospital are reusable gowns designed by Standard Textile Healthcare that may be used up to 81 times before disposal. They use a polyester ComPel® surgical barrier to protect the wearer from contact with blood. In theatre they are supplied in the sizes large and extra-large. Large gowns measure 120 cm from collar to hem with extra large measuring 140 cm.

The first incarnation of the gumboot (Wellington boot) was a calfskin boot worn by Arthur Wellesley, the 1st Duke of Wellington. The polyvinyl chloride (PVC) version...
that we are most familiar with today is commonly seen in surgical operating theatres throughout the world. Providing a strong and relatively impermeable cover for surgeon’s feet they seem like the ideal footwear from a safety viewpoint.

The ability of the garments mentioned above, to prevent transmission of infection, relies on the continuity of the barrier that they provide. By looking at the prevalence of blood inside surgeon’s gumboots this study aimed to investigate whether gowns currently worn by surgeons result in a breach of this protective clothing.

Method

The study was conducted at 06:00 on a Wednesday morning, a quiet time for surgery so as to ensure the largest possible sample of footwear was available. All gumboots present in the changing rooms of Christchurch Public Hospital were inspected internally for the presence of blood. Other types of theatre footwear were not studied. To be included gumboots had to be in the theatre changing rooms at the time and part of an obvious pair.

A total of 94 pairs of gumboots (91 from male surgeons and 3 from female surgeons) were inspected. The internal lining of each gumboot was carefully inspected visually for stains. Each identified stain was tested to confirm the presence or absence of blood. Testing was performed by dipping a Combur\textsuperscript{2} Test\textsuperscript{®} urine dipstick (Roche Diagnostics Limited, Charles Avenue, Burgess Hill, West Sussex, UK) in sterile water and then holding the dipstick against the stained area for 5 seconds. A change from yellow to green visible to the naked eye on the blood/haemoglobin indicator was recorded as a positive test. According to manufacturers specifications these dipsticks have a practical detection limit of 5 RBC/µL and accuracy > 90% when compared with a counting chamber.

If visible stains were confirmed to be blood by dipstick analysis then the gumboots were considered contaminated. The stains were further classified by size. Each stain was compared to a 20 mm\textsuperscript{2} piece of card and was designated as either small (<20 mm\textsuperscript{2}) or large (>20 mm\textsuperscript{2}).

Dimensions of gumboots were not recorded in this study.

Results

Ninety-four pairs of gumboots (91 from male surgeons, 3 from female surgeons) were checked for internal contamination. Of these a total of 55 pairs (58.5\%) had evidence of bloodstaining on the inside lining. Twenty percent of these were small stains of less than 20 mm\textsuperscript{2}, 80 \% were larger than this (see Table 1).

Table 1. Presence of blood in pairs of gumboots by size of stain and gender

<table>
<thead>
<tr>
<th>Variables</th>
<th>Not contaminated (%)</th>
<th>Small stain &lt;20 mm\textsuperscript{2}(%)</th>
<th>Large stain &gt;20 mm\textsuperscript{2}(%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male boots</td>
<td>36 (40)</td>
<td>11 (12)</td>
<td>44 (48)</td>
<td>91</td>
</tr>
<tr>
<td>Female boots</td>
<td>3 (100)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>39 (41)</td>
<td>11 (12)</td>
<td>44 (47)</td>
<td>94</td>
</tr>
</tbody>
</table>

Among the gumboots of male surgeons 55 (60\%) were contaminated on the inside with 80\% of these having “large” amounts of staining. The 3 pairs of gumboots from the female changing rooms checked did not have any visible stains.

Discussion

Ensuring the safety of individuals in any workplace should be a high priority. Although performing surgery is not considered a “high-risk” task, it does carry some
danger of transmitted infection. In this study it was found that of a sample of 94 pairs of gumboots in use at our hospital, 58.5% were contaminated internally by blood. The majority (80%) of these stains were larger than 20 mm$^2$. Of the total gumboots checked only 3 were retrieved from the female changing rooms and none of these were contaminated.

One previous study looked at contamination of operating theatre footwear by blood or other infectious material. The study investigated for blood on the outside of surgical footwear after the items had been cleaned; no studies have been published about contamination of the inside of theatre footwear. Blood or other infectious material was found on 44% of boots externally. The main conclusion from this study was that the manual cleaning of surgical footwear being performed at the time was unsatisfactory. At Christchurch Public Hospital manual cleaning of gumboots is performed by Operating Theatre Assistants and there is no internal cleaning of gumboots done.

Harris and Schecter in a review of the approach to patients with HIV suggested the use of a cystoscopy apron as a precaution to provide a higher level of protection from blood splash. They further suggested the use of rubber boots that would cover the feet and legs up to the level of the cystoscopy apron.

In the current study blood stains found within gumboots were classified as either small (<20 mm$^2$) or large (>20 mm$^2$). The choice of 20 mm$^2$ as the cutoff was arbitrary, however the purpose of making this distinction was to indicate that the majority of bloodstains were more significant than a few drops. This was deemed to be important as larger bloodstains would presumably present a greater risk of transmitting infection.

The risk of infection from the type of contact that occurs from blood entering gumboots is very difficult to quantify. The risk would depend on the prevalence of blood borne illnesses in the population, the amount of blood in the boots, the presence of broken skin at this site, as well as the immunisation status of surgeons.

In general, the risk of becoming HIV positive following occupational exposure to blood is low. Epidemiological studies from UK healthcare setting estimate the average risk for HIV transmission following percutaneous exposure to HIV-infected blood to be about 0.3%. With mucocutaneous exposure the risk drops to less than 0.1% and is considered to be nil following contact with intact skin.

Healthcare workers can be protected against hepatitis-B virus by immunisation. The vaccine provides protection in 85-95% of recipients, although this protection decreases to 70% by 60 years of age. Occupational exposure is rare, but the consequences can be serious. The risk of acquiring hepatitis-C virus has been estimated at 1.5–3% after contact with infected blood. There is currently no immunisation or post-exposure prophylaxis for hepatitis-C virus in New Zealand.

Viral markers of HBV, HCV and HIV remain in dried blood that has been at room temperature for up to 5 weeks. This would suggest that any risk of infection might be increased by the multiple exposures to a bloodstain that could occur over a period of weeks. Despite this evidence it is difficult to know how long the risk of transmission remains even though laboratory tests are able to detect the virus.
Whatever the prevalence of these illnesses in a population, any exposure to blood must be deemed as a possible risk and should be eliminated. For this reason the idea of universal precautions has been adopted throughout the world. A survey of health care workers in Nigeria found that less than two-thirds of all respondents regularly wore appropriate protective garments.9

Although the risks for transmission in New Zealand are likely to be significantly lower than in Nigeria it is important that universal precautions are adopted to minimise any risk that does exist. All blood should be considered to be infectious and handled in a manner consistent with this.

Since the realisation of the dangers of blood borne infections, there has been a great deal of interest in the permeability of surgical gowns.10 The inability of a gown to provide protection due to penetration by fluid material is known as strikethrough. It is unlikely that strikethrough is to blame for the blood that was found within gumboots in this study. The most likely cause would seem to be run off from gowns into the open neck of gumboots. Alternative methods or materials used for draping patients for surgery may help reduce run off of blood or other body fluids.

The practical aspects of providing longer gowns needs to be considered. Among surgeons there is variation in height. To provide gowns long enough to fully protect the wearer but also not so long as to touch the floor would require more variations in size. This would require more space in operating theatres, more frequent stocking of supplies and also a one off outlay to purchase new gowns. An alternative would be to stock disposable gowns of varying sizes.

An alternative to longer gowns might be longer gumboots or tighter fitting gumboots. This is probably less practical than wearing appropriate length gowns.

The major problem faced by this study is the inability to equate the presence of blood in gumboots with actual risks of infection. The detection of blood is being used as a surrogate marker for infection risk. Because detecting actual incidents of transmission of infection would require huge numbers and highly specific testing it is unrealistic in this setting.

This study was not able to identify the manner in which gumboots were contaminated. The hypothesis that longer gowns would reduce gumboot contamination rests on the theory that contamination occurs through run-off from gowns into gumboots. Although this seems the most likely cause it is not proven to be the case by this study.

This study could not show the number of exposures to blood that the inside of each gumboot had undergone. Presumably a single exposure would present less risk of a blood borne infectious agent being present than multiple exposures.

A further problem arose through not knowing the age of the gumboots, some uncontaminated boots may have been new or only used a few times. This may have led to underestimation of actual contamination rates. The small number of gumboots retrieved from the female change rooms also made any comparisons between genders speculative.

Although high rates of contamination were detected by this study it is difficult using current understanding to quantify the actual risks posed to surgeons through this type of contamination. The cost of providing longer gowns and a greater variety of sizes...
would need to be weighed against the risk of infection. Presumably, because the outcome of infection for a surgeon is so serious, any risk would seem too great. Therefore, it follows that if internal contamination of gumboots were considered to pose any risk then addressing the issue is essential.

Overall, the high percentage of boots that were contaminated by blood in this study suggests that the length of the gowns in common use is not suitable for offering adequate protection for surgeons.

On the basis of this finding the authors would recommend that the option of longer gowns be available to health care workers to ensure their comfort and safety. Ongoing audits of contamination could be done to assess the effectiveness of this measure.

Competing interests: None.

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Laparoscopic cholecystectomy through the umbilicus—minimal access surgery gets more minimal

Ian Lord, Blaithin Page, Magnus Thorn, Mark Thompson-Fawcett

Abstract

We present the first three reported cases of single incision (through the umbilicus) laparoscopic cholecystectomy in New Zealand. The mean operating time was 108 minutes and all patients were discharged 24 hours after the procedure; they were all satisfied with their procedure and were keen to recommend it. We also provide a review of the international literature on this relatively new technique in New Zealand.

Laparoscopic cholecystectomy was first described and performed by Professor Erich Muhe on 12 September 1985 in Germany.¹ This represented a major advancement in surgical technique where four or five much smaller incisions replaced the traditional Kocker’s incision.

The advantages of laparoscopic surgery are well described and include shorter inpatient stay, less postoperative pain, earlier mobilisation, earlier return to work and daily activities and improved cosmesis.² New techniques have evolved so a single small incision can be used, through which several instruments and the laparoscope, are passed.

A number of devices are available to facilitate entry at one site. This incision is invariably hidden in the umbilicus, prompting the use of the term “scarless surgery”. Initially one skin incision but multiple fascial incisions were used. Subsequently advances in product technology and design allowed one single skin and fascial incision to be made—e.g. gelPoint™.

Single incision laparoscopic cholecystectomy (SILC) surgery was first described in 1997 by Navarra et al.³ Variable nomenclature exists for this technique but all acronyms describe multiple ports inserted through one incision, often the umbilicus.⁴

To date this technique has been introduced to gynaecological,⁵ urological, bariatric,⁶,⁷ and general surgical disciplines.⁸ General surgical procedures including appendicectomy,⁹ splenectomy,¹⁰ and hernia repair¹¹ have all been treated successfully in this way. A surgical consortium in the United States has recently been established to coordinate and advance research and development of laparoendoscopic single site (LESS) surgery and to undertake it in a safe and responsible manner.¹²

The unique property of gelPoint is that it creates a platform for a larger outer working surface area thereby enhancing triangulation (Figure 1 and 2). The platform is for incisions in the abdomen ranging from 1.5 to 7 centimetres (cm) and is essentially based on the size of the organ to be removed. The physical properties of the gelSeal platform allow for multiple exchanges without loss of the pneumoperitoneum.

The disadvantages of SILC include a variable learning curve which often means, as a consequence a longer operating time. There may also be the need for certain new,
disposable and expensive instruments i.e. 30 degree 5 mm scope, reticulating dissectors and/or graspers. Using the Alexis gelPoint system and ports alone, the additional cost is small.

The next incremental step in improving the short-term cosmetic outcome of the procedure of laparoscopic cholecystectomy may be single incision laparoscopic cholecystectomy.

We report the first three cases of this procedure in New Zealand using the gelPoint system and review the current literature on single incision laparoscopic cholecystectomy.

**Patients and Methods**

**Patient 1**—A 58-year-old female and part time clerical worker, was listed for a laparoscopic cholecystectomy. Her symptoms were consistent with biliary colic and an ultrasound showed gallstones. Her liver function tests were normal. She had no significant past medical history of note and her medication consisted of paraderex, a non steroidal and paroxetine for chronic back pain. Her body mass index (BMI) was 38.1.

**Patient 2**—A self-employed 43-year-old male was on the pooled waiting list with a diagnosis of biliary colic. He had radiological evidence of gall stones and a normal common bile duct on ultrasound. His liver function tests were normal. He had no comorbidities and was not on any medication. His BMI was 29.6.

**Patient 3**—A 54-year-old female with symptoms suggestive of biliary colic and radiological confirmation of gallstones was on the pooled waiting list for laparoscopic cholecystectomy. Her liver function tests were within normal limits and her common bile duct was of normal calibre. Her comorbidities included hypertension and gout. She had undergone previous surgery in the form of a laminectomy and sympathectomy for Raynaud’s disease. She was taking simple analgesics for chronic hip pain. She was not employed but was on a welfare benefit following recent back surgery. Her BMI was recorded at 24.7.

**Surgical Methods**

General anaesthetic agents and intraoperative analgesia was standardised for all patients. Informed consent was given to all patients for a laparoscopic cholecystectomy including the use of a modified technique, since only a minor modification in technique was being used specific ethical approval was not sought. According to our normal practice an intraoperative cholangiogram was not performed as all patients had normal liver function tests and normal sized common bile duct prior to surgery.

All instruments used throughout the dissection were those present on a standard 4 port laparoscopic cholecystectomy tray routinely used in our hospital. The patients had 20 ml of 0.5% Marcaine with adrenaline infiltrated around the umbilicus prior to commencing the procedure. The umbilicus was everted and an incision was made in its centre for a maximum length of 2 cm. This allowed the sheath and peritoneum to be opened under direct vision and safe entry to the abdominal cavity.

The Alexis™ wound retractor was then inserted (Figure 1) and the gelPoint secured to it, with a 10 mm camera trocar and three 5 mm trocars already in position. The trocars were initially placed as instructed (Figure 2) to give an optimal working fulcrum and to avoid clashing of instruments.

The ports are inserted into the gel platform but not through the incision, this creates more space and range of movement at the critical point of the incision. If necessary the ports can be removed and repositioned throughout surgery without disturbing the pneumoperitoneum, or impairing working conditions.

The view was from the umbilicus rather than the epigastrium but the standard approach to dissection was maintained.

Once the gallbladder bed was found to be dry, the gelPoint was disconnected from the Alexis and the specimen was removed through the umbilical wound (Figure 3 and 4).
Results

The mean operating time was 108 minutes [range 70–130 (Table 1)]. All patients were discharged 24 hours post procedure with paracetamol and ibuprofen to be taken if required, this was found to be adequate analgesia for each of the three patients.

Each patient was telephoned on day-3 and day-10 post surgery and questioned regarding pain scores, activities of daily living and medication. The verbal rating pain scoring system was used where 1 is no pain and 10 represents the worst pain imaginable.
Pain scores were generally low and by day 10, little or no pain was recorded in all patients. This mild pain or discomfort was managed with paracetamol only. There were no signs or symptoms suggestive of surgical complications and all patients reported normal gastrointestinal function 72 hours after surgery.

Patient 3 required overnight catheterisation postoperatively for acute urinary retention. Finally, all patients were happy with their procedure and were keen to recommend it to a third party (Table 2).

Table 1. Pain scores and analgesic requirements

<table>
<thead>
<tr>
<th>Variables</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating time (minutes)</td>
<td>70</td>
<td>135</td>
<td>120</td>
</tr>
<tr>
<td>Blood loss</td>
<td>minimal</td>
<td>minimal</td>
<td>minimal</td>
</tr>
<tr>
<td>Pain scores day 1</td>
<td>6/10</td>
<td>2/10</td>
<td>3–5/10</td>
</tr>
<tr>
<td>Pain scores day 3</td>
<td>1–5/10</td>
<td>2/10</td>
<td>2–5/10</td>
</tr>
<tr>
<td>Pain scores day 10</td>
<td>0/10</td>
<td>1/10</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: General systemic concerns and patient satisfaction, as answered on day

<table>
<thead>
<tr>
<th>Variables</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jaundice</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Nausea</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Pyrexia</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Food intake</td>
<td>Commenced night of surgery</td>
<td>Commenced night of surgery</td>
<td>Commenced night of surgery but bloated until day 3</td>
</tr>
<tr>
<td>Patient satisfaction with procedure</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Recommend to third person</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Discussion

Although we initially used this technique in only three patients, our experience was that a laparoscopic cholecystectomy can be performed safely through one, small 2 cm skin and corresponding fascial incision.

Operating times were longer through this single incision approach than would be expected for a standard four port technique. As with any new surgical technique there is a learning curve involved whereby the surgeon develops their technique and improves the efficiency of their movements. Internal clashing of instruments sometimes ensued but this was not found to significantly inhibit dissection. With further experience it is likely that this problem would occur less frequently and operating times would reduce accordingly. This assumption is supported by a study by Rivas et al. Which found that their mean operating time fell from 73 minutes for their first 50 patients who underwent a single incision laparoscopic cholecystectomy, compared with the second 50 patents which took a mean operating time of 45 minutes.\(^1\)
There are approximately 50 published articles describing single incision laparoscopic cholecystectomy. However the majority of these studies describe one skin incision and several fascial incisions. Only a small proportion of studies focus on a single skin and fascial incision. 

Despite the relatively large number of studies of SILC, to our knowledge there is only one randomised controlled trial. The remainder of the articles consist of published retrospective studies from specialist academic centres. This reflects the early experience with a new technique. The retrospective studies contain small numbers and easily measured end points such as hospital stay, but subjective endpoints e.g., postoperative pain are not consistently recorded. Not all reports are favourable and some authors believe that SILC does not represent much of an advantage over standard four port technique, particularly in obese patients or those with complications of biliary disease.

In the randomised controlled trial by Tsimmoyannis et al, there was a significant reduction in lower abdominal and shoulder tip pain reported in the SILC group after 12 hours. At 24 hours post cholecystectomy the patients in the SILC group were noted to return to full daily activities.

Rivas et al showed that scaring from previous abdominal surgery was not a barrier to this technique. There was no conversion to either 4-port laparoscopic or traditional cholecystectomy in over 100 cases and the morbidity rate was very low. In a small proportion of cases the patients had a diagnosis of acute cholecystitis or gallstone pancreatitis.

Edwards et al retrospectively demonstrated the evolution of this surgical technique from dual incisions early on in the learning curve to a single fascial incision as the expertise of the surgeons grew. They used two transabdominal retraction sutures. These are sutures placed through the abdominal wall and tied extra corporeally to aid retraction of the fundus of the gall bladder. This adaptation, the need to convert and the complications they encountered led them to state that SILC is not necessarily safe and should initially be done only in thin patients with biliary colic. Cephalad retraction with sutures is limited and movement of the left hand is not as flexible as in the gold standard four port technique. They conclude that the view in single incision cholecystectomy is adequate but not necessarily optimal.

One hundred consecutive cases from a general surgical unit where cholecystectomy is invariably done as a day case were reviewed by Erbella et al. These authors used two fascial incisions 2 cm apart within the umbilicus as well as transabdominal sutures. Single incision multi port laparoscopic (SIMPL) cholecystectomy using existing available equipment was found to be safe in the day case setting. They reported only two cases having to be converted to a traditional four port technique and also reported a very low morbidity rate. However their use of a 5 mm scope and a roticulating dissector may not be considered part of traditional laparoscopic sets in all hospitals.

Romanelli reviewed 22 patients. These surgeons availed of several new devices from industry, SILS PORT™, TriPORT™ and the 12 mm Airseal trocar so that one skin and one fascial incision were made. One patient required conversion to the four port technique and one complication occurred. This was an early port site hernia which
required further surgery including a bowel resection. Early on in this study several 5mm fascial incisions close together were used. They also used transabdominal retraction sutures to place traction on the gallbladder. The use of retraction sutures is a departure from the standard technique. The newer devices such as gelPoint\textsuperscript{TM} negate the need for this, as several retractors can be passed through the port.

Chamberlain’s comprehensive review of the literature to 2009 concludes that the clinical data is too preliminary to draw any real meaningful conclusions. They conclude that there remain significant ethical, procedural and technological questions with respect to SILC that require answering.\textsuperscript{19}

A study by Varadarajulu et al comparing patients preference when given information about Natural Orifice Transabdominal Endoscopic Surgery (NOTES) Vs traditional four port technique laparoscopic cholecystectomy revealed that although little is known about patient preference, the majority of patients appear willing to undergo a more minimal surgery as long as the complication rate is similar. Those that preferred four port gold standard cholecystectomy stated that the lack of proven safety and efficacy and the unknown complication rate were reasons for not wishing to consider the newer procedure, and were not motivated by the expected advantages of reduction in acute postoperative pain and improved cosmesis.\textsuperscript{20}

For a new technique to translate into surgical practice, in general it must be safe, reproducible, and cost effective and above all represent an improvement in patient care. For it to enter into the everyday surgical repertoire it must also be accepted and driven by both surgeons and patients alike. It must be equivalent or better than the gold standard laparoscopic cholecystectomy. So far there is no evidence in the literature that this is the case as SILC is still in need of a large randomised controlled study to answer this and many other questions. Routine four port laparoscopic cholecystectomy which can be done with reusable instruments in the day case setting has a morbidity of 8\%,\textsuperscript{21} an average inpatient stay of less than 48 hours and an average return to work and daily activities within 2 weeks.\textsuperscript{22} SILC must at least match if not improve on these parameters.

One major disadvantage of SILC is in-line viewing of the operative field. This does away with triangulation. Triangulation has been emphasised as important for four port laparoscopic cholecystectomy. In line viewing means that if one is to follow traditional movements of laparoscopic dissection of Calot’s triangle—i.e. of using the right hand as a dissector and the left hand to manipulate Hartmann’s pouch, then during SILC surgery, camera movement can dislodge adjacent instruments and necessitate alteration of the dissecting hand. This is clearly concerning as dissection towards the midline is not favoured in laparoscopic cholecystectomy.

It is clear that the tradition of dissecting lateral to the gall bladder sulcus as described by Diamond et al and staying close to the gall bladder itself are safe and well founded.\textsuperscript{23} Due to restriction in movement and instrument clashing, SILC can potentially compromise basic well established principles of dissection that have been tried and tested in the traditional laparoscopic era. This is clearly a technical difficulty that some surgeons may not be able to overcome. Training, experience, skill and judgement of the operating surgeon, are needed to counteract these technical challenges. Above all, the safe basic principles of laparoscopic surgery that we strived to achieve in order to minimise serious complications should not be compromised.
Conversion to four point laparoscopic cholecystectomy from a SILC is considered correct surgical judgement and should not to be deemed a failure.

Merchant et al.\(^\text{24}\) describe a standard, reliable and reproducible technique that avoids instrument clashing. This involves the use of the gelPort system. They argue that the ability to reinsert ports without losing the pneumoperitoneum is a clear advantage. This is similar to what we found when using this system. The main complaint from their patient group was of disproportionate post surgical umbilical pain.

**Conclusion**

SILC can be safely undertaken with the gelPoint (gelSeal and Alexis) device with a moderate cost increase (less than NZ$500) cost and minimal deviation from standard operating protocol. The extra cost is likely to reduce when more procedures are being performed by this technique. The gains of SILC is likely to be beneficial in terms of cosmesis and slightly better recovery. This may facilitate day case surgery. It would require a large randomised controlled trial to demonstrate an advantage and establish morbidity. The viewpoint of patients’ and short- and long-term outcomes also need to be evaluated.

In the meantime its popularity is likely to be driven, or not, by patient preference. This was the case when laparoscopic cholecystectomy was introduced.

**Competing interests:** None.

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Relationships between medical students and drug companies in New Zealand
Rosemary Wyber, Nicholas Fancourt, Bradley Stone

Abstract
The relationships between doctors and drug companies have generated considerable global debate. Medical students are unique stakeholders in this discussion, although they are underrepresented in descriptive data. This article reviews international literature on the effects of drug company promotion, the effect on students, the New Zealand context and explores implications for New Zealand medical students. Creating an influence free environment to inform and involve students in the debate is a strong precursor to delivering gold standard patient care in the future.

The pharmaceutical industry and the medical profession are inexorably interrelated and interdependent. The ethics and economics of this relationship has been a subject of professional and public debate within New Zealand and internationally.1–3 Finding the right balance between educating health professionals on medical advances, compensating them for their time, presenting accurate information and limiting commercial bias is complex.

Of special relevance is the relationship between the pharmaceutical industry and medical students.4 Although students do not have prescribing rights they are at a formative stage of professional development. Attitudes and habits to prescribing, and to the drug industry itself, are developed through formal teaching, socialisation and role modelling at medical school.5,6 Thus, there is significant potential for influence over future prescribing behaviours.

This article examines international evidence for the influence of drug promotion on doctors and medical students. International evidence guides a discussion of drug promotion in the New Zealand context and possible policy implications.

Evidence about effects of drug promotion
Attempts to quantify the effects and outcomes of the relationship between doctors and drug companies have been published in a number of major medical journals. Some of these studies have suffered from criticisms of methodology and assumptions.7,8 Nevertheless, it is appropriate to consider this body of evidence as a foundation for forming evidence-based guidelines and opinions for medical students.

The landmark review article of this field considered literature on the behavioural impact of medical professional-industry interactions.9 The evidence indicated that interactions (such as meeting with pharmaceutical representatives, receiving gifts, receiving drug samples, industry paid meals, travel to conferences, listening to pharmaceutical speakers and CME sponsorship) all altered behaviour or attitudes of prescribers in favour of pharmaceutical companies.9 Studies since have shared similar findings, suggesting that interaction with drug companies alters prescribing habits.10,11
The effects of promotion can also occur without conscious recognition; house officers attending a pharmaceutical presentation prescribed more of the manufacturers drugs, regardless of whether they could consciously remember the name of the sponsor.12 The medical profession’s consistent lack of insight into the effects of drug company promotion has been widely criticised.13,14

There is strong evidence (predominantly of North American origin) that interaction with the pharmaceutical industry begins in medical school.5,6 One study documents that gift giving from drug companies begins as early as the first year in a preclinical medical course.15 There is some evidence that students, like doctors, can be influenced even when they no longer consciously recall the name of a given sponsor.16

The potential harm from drug promotion activities fall into three key domains: non rational prescribing; inflation of drug costs; and erosion of public trust. Promotion-associated changes in prescribing habits tend towards non-rational prescribing by promoting new drugs over cheaper and equally effective alternatives.9,17,18 Equally, the vast expense of promoting drugs to prescribers is funded by increased medication costs borne by either governments or individuals. Thus, patients and society are paying for targeted promotional incentives to doctors.2,19 Public trust in doctors can be undermined when clinical independence is perceived to be threatened by drug industry and profession interactions.20

There are also potential benefits from the relationship between doctors and pharmaceutical companies.21 In particular, the communication of information on new pharmaceuticals efficacy, side effects and contra-indications to doctors, by companies who have undertaken the research and development on these given products.7

Marketing bias is a documented concern;22 however drug companies have at least the potential to provide an unrivalled source of information about their products.23,24 As the economist Lichtenberg has established on multiple levels pharmaceutical use in the aggregate is beneficial and its ongoing innovation has led to significant increases in life expectancy and other real outcomes, including reduced hospitalisations and total medical costs.25 Patients, medical practitioners and pharmaceutical companies all have a vested interest in doctors’ understanding of novel therapeutic agents.

Drug company sponsorship provides significant funding for Continuing Medical Education (CME) activities. In the absence of this funding it is theoretically possible that the number of CME activities could decline or be less accessible for participants.23,26 However, this possibility is tempered by international concern about inherent bias in drug company sponsored CME activities.9

**Medical students and drug companies**

Medical students represent a unique niche market for drug company promotion activities and influence. Students cannot prescribe pharmaceutical products, which provides some limit to the effect of pharmaceutical promotion. Equally, their low status in medical hierarchy restricts their ability to endorse products or influence the prescribing of senior colleagues. Students are also exposed to a range of sources for drug information; formal teaching from pharmacology departments, senior clinicians and textbooks.
These legitimate sources have the potential to dilute bias in drug company promotion. Conversely, students may be more vulnerable to influences than graduates; they are inexperienced, eager to learn and at the bottom of a power imbalance. In addition, students bridge the gap between encultured professionals and the lay public. This provides learners with a unique perspective on issues of concern to both groups. As one author puts it, “A further significant harm is that accepting gifts potentially silences medical students as critics of the industry-profession relationships. This means that society loses the important contribution to reform provided by young people who have not yet accepted ‘normal’ professional behavior”.

Finally, students generally fall outside the remit of compulsory oversight from professional colleges and societies which increasingly have policies on pharmaceutical interactions. Many universities lack clear guidelines or structured curriculum on drug promotion issues.

There is good international evidence that medical students feel underprepared for interactions with industry and want additional formal education on the issue. Medical schools have a responsibility to teach professional ethics, and to ensure that this teaching is meaningful and applicable for students. The pharmaceutical industry exemplifies the kind of ethical dilemmas likely to confront and engage medical students.

There is strong academic consensus that formal ethics teaching in the pharmaceutical industry is vital in minimising harm. There is also evidence to suggest that education interventions change medical student attitudes to drug promotion.

Internationally, medical students’ associations have been some of the strongest advocates for improved education and discussion about their relationship with the pharmaceutical industry. In particular, the ‘pharma free’ campaign by the American Medical Student’s Association has been extensive and sustained over a number of years.

**Pharmaceutical promotion in the New Zealand context**

The vast majority of research into the effects of pharmaceutical promotion has occurred in the United States. Generalisability to the New Zealand setting may be limited by the prescribing constraints of the Pharmaceutical Management Agency (PHARMAC). The influence of PHARMAC constraints on drug promotion activities is unstudied but likely reduces promotional activities in comparison to the less regulated American market. An additional confounder is direct to consumer advertising (DTCA); New Zealand and the United States are the only developed countries where it is legal to use conventional media to market prescription drugs to the public.

An array of pharmaceutical company promotion activities do occur in New Zealand, albeit not to the extent detailed in North American literature. A 2005 report found that two thirds of New Zealand GPs saw drug sales representatives. Of these, half found that drug reps were of limited use as a prescribing resource but that drug companies were a key source of information about new drugs.

There is no formal data available on the interaction between New Zealand medical students and drug companies. In New Zealand some students attend regular sponsored
lunches in teaching hospitals and are exposed to ubiquitous print advertising. Until recently, the University of Otago had a graduation prize sponsored by a pharmaceutical company. Sponsorship of events is a particularly tempting for student associations with limited income.

The Auckland University Medical Student Association (AUMSA) ‘Capping Show’ has received a small amount of sponsorship from drug companies for many years. The inaugural ‘MECA’ Conference 2007, run in association with the Otago University Students Association was principally sponsored by Clinicians, a subsidiary of Douglas Pharmaceuticals.

**New Zealand regulation of drug promotion influence**

Voluntary self regulation by the pharmaceutical industry provides very limited protection for clinicians or patients. A Code of Conduct for the Registered Medicines Industry (RMI) in New Zealand exists. However, the corporate obligation of pharmaceutical companies may preclude vigorous self regulation.

A number of local institutional policies have been developed in an attempt to maximise the benefits of drug promotion whilst limiting harms. The Medical Council of New Zealand (MCNZ) ‘Good Medical Practice’ guide advises “Do not ask for or accept any inducement, gift, or hospitality that may affect, or be thought to affect, the way you prescribe for, treat or refer patients.” These sentiments are closely echoed in the New Zealand Medical Association’s Code of Ethics. A small number of New Zealand organisations have developed stricter policies on interacting with the pharmaceutical industry. The 2005 RCGPNZ annual conference limited the extent of funding from traditional pharmaceutical sources in attempt to decrease drug company influence. Likewise, a Christchurch Independent Practitioners Association provides CME to local GPs entirely from internal revenue, explicitly excluding drug companies.

The Christchurch School of Medicine and Health Sciences General Practice and Public Health Department has a longstanding policy of not accepting pharmaceutical funding for research projects, teaching or hospitality. A New Zealand psychiatry journal club also documented their rationale for forgoing pharmaceutical funding. These examples illustrate that although pharmaceutical industry sponsorship is present in New Zealand, a number of organisations and institutions have successfully challenged the practice.

Student organisations have also become increasingly engaged in policy development. The New Zealand Medical Students’ Association (NZMSA) debated seeking pharmaceutical funding for their conference in 2007. Eventually they established a policy outlining the strict requirements which would be necessary before pharmaceutical sponsorship could be sought. The issue was revisited in 2009 and the NZMSA executive voted to not to accept funding from pharmaceutical companies at any time in the future and to develop further policy. Similar debates by medical student organisations have occurred in Australia and internationally.

In 2008, the Australian Medical Student’s Association released detailed guidelines limiting the extent of pharmaceutical company interaction with medical students in a broad range of settings.
Conclusion

The use of pharmaceutical products produces overall benefit and has led to significant medical advancement. However, the relationship between producers, prescribers and consumers of these products is complex. This is particularly relevant for medical students as the newest members of the medical profession. In New Zealand, as elsewhere, there are significant potential ethical and financial harms from drug promotion, as well as potential benefits. Although promotional effects may be limited by PHARMAC, the pharmaceutical industry’s promotional tools are evident in local medical practice.

A small number of New Zealand organisations have reflected on their relationship with pharmaceutical companies. New Zealand medical students’ associations have been particularly proactive in articulating and attempting to address issues surrounding drug company promotion.

An ongoing, evidence-based, approach to drug company relationships should be widely pursued in New Zealand. In particular, medical schools should give this issue additional thought and embed debate in their curricula to inform practise and opinions of future doctors. This debate should occur in a protected environment with limited or no exposure to promotion.

Medical students should be encouraged in their attempts to find workable models which balance ethical, education and commercial demands. Identifying best practice between medical students, doctors and drug companies is critical for providing gold standard patient care.

Competing interests: None.

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Right-sided chest pain in Poland syndrome

Susan J Kim, Remo Morelli

Poland syndrome is a rare congenital abnormality with an estimated incidence of 1 in 20,000 to 30,000 live births. It involves unilateral hypoplasia of the major pectoralis muscle and brachysyndactyly of the ipsilateral upper extremity. The pathogenesis involves reduced blood flow to the subclavian and vertebral arteries during early fetal development. A 3-to-1 male predominance is typically seen and three-quarters of cases involve the right hemithorax and upper extremity.

The association of dextrocardia with left-sided Poland syndrome is very rare, with only 20 cases thus far described in the literature. A handful of those cases have involved rib defects and pain on the left side. Until now, there have been no reports of right-sided chest pain in the setting of left-sided Poland syndrome.

Case report

A 46-year-old Australian man with a “right-sided heart” presented to an outpatient clinic with a 5-year history of dull, constant right-sided chest pressure. He denied shortness of breath, palpitations, nausea, diaphoresis, or cough. He reported that the pain improved with aspirin and worsened with rotation of his torso.

The patient recalled that he was overdue at birth and associated his traumatic delivery with his anatomic anomalies. He was convinced that surgery had been performed on his left hand, which resulted in his short fingers.

He was told his heart was located on the right side of his chest. He was taking no medications, was unemployed, and suffering from anxiety. Both of his sisters had diabetes mellitus and many family members were obese; no family history of heart disease, dextrocardia or congenital disease.

On physical examination, his pulse was 100 beats per minute and blood pressure was 149/93 mmHg. He weighed 119.3 kg (body mass index 29) with an abdominal circumference of 102 cm. He had a hypoplastic left chest, with an absent nipple and pectoral muscle (Figure 1), brachydactyly of the left hand (Figure 2), and a hypoplastic left upper extremity.

His haemoglobin A1c was 10.9%, fasting total cholesterol 22.5 mg/L, triglycerides 28 mg/L, high-density lipoprotein 3.4 mg/L, and low-density lipoprotein 14.3 mg/L. A right-sided electrocardiogram revealed sinus tachycardia. A chest X-ray showed dextrocardia with a left-sided aortic knob and a left-sided gastric bubble (Figure 3). A stress echocardiogram showed normal right and left-sided chamber size and function, but the acquisition of the images was to the right of the midline.
Figure 1. Hypoplastic left chest, absent left nipple and absent left pectoral muscle

![Image of hypoplastic left chest, absent left nipple and absent left pectoral muscle]

Figure 2. Brachydactyly of the left hand

![Image of brachydactyly of the left hand]
The patient was informed of the diagnosis of Poland syndrome and was reassured that his chest pain was most likely musculoskeletal in origin. He was also informed that he had metabolic syndrome, which placed him at higher risk for cardiovascular disease. He subsequently improved on anti-inflammatory therapy, but was instructed to seek emergency care should his chest pain recur.

**Discussion**

This case illustrates the potential to miss a diagnosis of cardiac ischaemia in a patient with an anatomic anomaly who presents with atypical chest pain. Although less likely ischaemic chest pain, clinical suspicion of acute coronary syndrome in this patient was maintained as he had concurrent metabolic syndrome. Pooled data from 37 studies of more than 170,000 patients have shown that metabolic syndrome doubles the risk of coronary artery disease.\(^8\)

While there have been reports of left-sided chest pain in patients with left-sided Poland syndrome and associated dextrocardia,\(^1,4-7\) this is the first known case of right-sided musculoskeletal pain in this setting.

The patient in this case has dextroposition of the heart but an otherwise normal stress echocardiogram. In the setting of metabolic syndrome, however, ischemia should be considered in the differential diagnosis for right-sided chest pain with left-sided Poland syndrome, given the increased risk for cardiovascular disease.
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An unusual complication in a patient with Graves’ disease

Yasmeen Khalid, Raashda Sulaiman, Rasheed Zahir, Varadarajan Baskar, Harit N Buch

We report a case of Graves’ disease with an unusual complication of pericardial and pleural effusion with a possible underlying immunological mechanism.

Case report

A 68-year-old Caucasian lady presented with lethargy, weight loss and palpitations. She had tremors and was tachycardic; a provisional diagnosis of hyperthyroidism was made. The diagnosis was confirmed by thyroid function tests with fT4 72.0 pmol/L (reference range (RR): 12.0–22.0 pmol/L) and TSH <0.01 mU/L (RR: 0.27–4.20 mU/L).

Aetiology of hyperthyroidism was confirmed to be Graves’ disease with diffusely increased uptake on radio-nuclide scan and a high TSH-receptor antibody level of 13 U/L (normal <1.0 U/L).

She was commenced on 40 mg/day of carbimazole and 80 mg/day of propranolol. Ten days later she was admitted to hospital with shortness of breath and atrial fibrillation with a fast ventricular rate. She had a loud pericardial rub and raised jugular venous pressure.

Chest X-ray (Figure 1) showed cardiomegaly and mild left-sided pleural effusion. An urgent echocardiogram (Figure 2) confirmed moderately large global pericardial effusion with no features of cardiac tamponade and normal left ventricular systolic function. Blood film revealed polymorphonuclear leucocytosis of $20.5 \times 10^9$/L and inflammatory markers were raised with CRP 187 mg/L and ESR 75 mm/hr.

Figure 1. Chest X-ray

Figure 2. Echocardiogram
Anti-nuclear antibodies and anti-neutrophil cytoplasmic antibodies (ANCA) were negative and complement levels were normal. Pleural fluid was confirmed to be an exudate with pleural fluid to serum protein ratio of 1.4.

Pleural biopsy showed benign inflammatory changes. Ventricular rate was controlled with an increase in the dose of propranolol to 160 mg/day and as she remained clinically stable she was discharged home. Over the next 6 weeks stable euthyroidism was maintained with “block and replacement” therapy consisting of 40 mg carbimazole and 100 µg thyroxine (fT4 21.3 pmol/L, fT3 5.6 pmol/L, TSH 0.02 mU/L) and a repeat echocardiogram at this stage confirmed complete resolution of pericardial effusion and inflammatory markers returned to normal.

Six months later, she remains euthyroid on antithyroid medication with no serous membrane involvement.

Discussion

There are several possible explanations for pericardial and pleural effusions in this patient. Heart failure in patients with hyperthyroidism and atrial fibrillation can cause effusions although normal ventricular function on echocardiogram did not support this diagnosis. Primary or secondary malignancy, lymphoma and chronic infections like tuberculosis were excluded by pleural biopsy and her subsequent clinical course. Immune-mediated conditions like systemic lupus erythematosus is another potential explanation in a patient with autoimmune thyroid disease but this was excluded by the absence of clinical features and negative autoantibody screen.

Our patient developed serous membrane involvement 10 days after commencement of carbimazole which has been linked with systemic vasculitis. However there were no other clinical features to support systemic vasculitis, ANCA was negative and despite the continuation of carbimazole there was a resolution of serous effusion which makes this possibility unlikely.

We believe that pericardial and pleural effusions were secondary to immunological epiphenomenon related to Graves’ disease similar to the more common manifestations like ophthalmopathy and dermopathy. There was a strong temporal association between her presentation with Graves’ disease and the diagnosis of serous membrane effusions.

There are case reports in the literature which have described association of pleural and pericardial effusions with Graves’ hyperthyroidism. None of the patients required any treatment other than antithyroid drugs and after the initial aspiration in some cases there was no recurrence of the pericardial effusion.

Conclusion

Pleural and pericardial effusions are rare but recognised complications of Graves' disease and should be considered in patients who present with dyspnoea, chest pain or pericardial rub.
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A toper’s integument
Puthukuli N Mini, Thattungal M Anoop, Puthiyaveettil K Jabbar

Figure 1. Photograph showing extensive spider naevi in a 40-year-old male

What is the diagnosis?
**Answer**—*Chronic alcoholic liver disease.*

**Clinical**—A 40-year-old male with a chronic alcoholic intake presented with 4-month history of generalised rashes and slowly progressive abdominal distension. The rashes were predominantly over trunk and upper limbs. General examination revealed bilateral parotid enlargement; palmar erythema; grade two clubbing; and generalised diffuse erythematous macular rash over upper limbs, anterior aspect of chest and back of chest, with blanching to pressure suggestive of extensive spider naevi (Figure 1).

Gastrointestinal examination showed hepatosplenomegaly and ascites. Ultrasonography of abdomen showed hepatomegaly with increased echotexture of liver, ascites and splenomegaly. The portal vein was 14 mm in diameter. Upper gastrointestinal endoscopy revealed grade two oesophageal varices.

Liver function tests showed transaminitis. Viral marker was negative for hepatitis B and C viruses. A diagnosis of chronic alcoholic liver disease with portal hypertension was made.

The patient was treated conservatively with vitamin supplementation, diuretics, propranolol and oral norflox for prophylaxis of spontaneous bacterial peritonitis. Patient was discharged after a 1-week hospital stay.

**Discussion**—A spider nevus consists of a central arteriole with radiating thin-walled vessels. Increased plasma levels of oestrogen, vascular dilation, and neovascularisation are possible aetiologies. Numerous prominent spider naevi are strong clinical pointers to severe liver dysfunction in patients with alcoholic liver disease.

Usually no significant complications are associated with spider angiomas; however they are known to bleed profusely following minor trauma. They do not require any specific treatment as these lesions are known to fade and resolve spontaneously over time.

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Isotretinoin and abortion

In the article by Moodie et al the authors raise important issues for those young women who require treatment with isotretinoin for severe acne and their healthcare providers who prescribe this treatment.

However in the article there is no discussion on the legality of abortion in cases where there is a risk of fetal abnormality and some readers may assume that this is an accepted ground for abortion. It is not. In the Crimes Act sect 187A (aa) the law states that up to 20 weeks there must be "a substantial risk that the child, if born, would be so physically or mentally abnormal as to be seriously handicapped." After 20 weeks fetal abnormality is not a ground for abortion.

Prescribers must be aware of these limitations.

Margaret Sparrow
Retired Sexual Health Physician
Wellington

Reference:
Clarification on use of the term 'Dr' from the New Zealand Chiropractors' Association

One cannot help but wonder if the recent article by Andrew Gilbey and Jose Perezgonzalez from the School of Aviation, Massey University is not a further example of poorly researched commentary that, regrettably, the NZMJ is publishing in relation to the chiropractic ‘industry’ [sic].

Gilbey and Perezgonzalez assert that the New Zealand Chiropractors Association [NZCA] website allows for the use of the title ‘Dr’ without qualification.

“On their homepage, the NZCA assert that chiropractors are entitled to use the title Dr. However, as no mention is made that the title must be qualified, this information is misleading to practitioners as it is not consistent with the code of ethics.”

However the following extract, from the homepage of that same website, makes it quite clear.

“Please note: Chiropractors are primary health care providers and are entitled to use the title "Dr". Use of the honorary title doctor on this website refers to a Registered Chiropractor not a Registered Medical Practitioner unless specified.”

As a result, Gilbey and Perezgonzalez appear to have based this whole article on a fiction and mis-truth.

This then raises further concerns regarding the validity and objectivity of other statements made, including the reference to the chiropractic register. On the official register of chiropractors in New Zealand, the qualifications of each registrant are listed along with the ‘honorific’.

A simple cross reference and check between the list of registered chiropractors and those staff members of the New Zealand College would have allayed any fears that the authors had of chiropractors mis-representing themselves as medical practitioners, dentists, osteopaths, veterinarians or future Australian physiotherapists, who will have a Doctor of Physiotherapy degree from Melbourne University.

Your readers would be better served by discussion involving issues of inter-professional commonality and clinical complementarity, with the objective of improving patient outcomes. This misinformation is it seems little more than a veiled attempt to discredit the chiropractic profession.

Corrian Poelsma
President, NZCA

References:
From burnout to resilience: a general practice perspective

Background—In their recent viewpoint article in the NZMJ, Paterson and Adams\(^1\) highlighted the regulatory aspects of burnout in the medical profession. They suggest things that should be done to help; I would like to build on this by a suggestion of how change could be made, with a particular emphasis on my own speciality, general practice.

Although all medical specialities are prone to burnout, GPs, psychiatrists and those caring for patients with chronic and incurable conditions are reported to suffer most frequently,\(^2\) probably because of their continued involvement with patients to whom in place of cure, all they can offer is care.

Care, however, is a dangerous thing—as Curzer\(^3\) states, ‘caring people get burned’, because care involves an emotional attachment to patients, which leaves the doctor vulnerable to hurt, grief, betrayal, and guilt.

This tendency to care too much is deeply embedded in the character of many doctors; it was suggested by Johnson\(^4\) in 1991 that through caring for others some doctors are seeking the approval, even love, lacking in their upbringing.

Curzer\(^3\) suggests that in place of the emotionally risky ‘care,’ a better approach to medicine is ‘benevolence’—a general stance of wishing people well, but only appearing to care, acting caring, but keeping emotions restrained and caring for your patients no more than you would ‘the man on the street’.

Eric Cassell\(^5\) wrote in ‘Diagnosing Suffering: a Perspective’ that when exploring the deepest source of your patient’s distress, ‘remember, you are working. It is you, the doctor, doing and being this way, not the personal you’. Some doctors may manage this, but many struggle with the distinction.

The emotional attachment is not just to patients. It is to the profession, to yourself as a doctor, to personal excellence, your colleagues, to a system which often lets you down. Doctors who care about such things will also care about their loving and family relationships; it has been suggested that those who care deeply, also tend to restrict their social sphere to a few close friends, and trying to apply this level of care to a patient population is simply too much for their emotional resources.\(^3\)

Montgomery\(^6\) found a strong relationship between ‘work-family interference’ and burnout—a conclusion I found very validating, as one of things I find hardest as a rural GP is what I have called the ‘work-home interface,’ especially as it relates to after hours work. Being at work is good, being at home is better, and when they pull in opposite directions, problems start.

Most people suffering from burnout are not depressed, though today the terms are increasingly used as if interchangeable. Most health workers suffering from burnout will state that if certain troubling or stressful aspects of their work changed, they would be fine. However, chronic burnout will lead to a lowered sense of personal accomplishment and superiority—positive self-image in relation to others—which is
linked to depression. So institutional or system responsiveness is vital in addressing burnout.

However, the affected doctor must first acknowledge a problem, and seek help.

**Why do some burn out, whilst others thrive?**—There are well-defined character traits which predict doctors’ future risk of job dissatisfaction, burnout and psychological distress. These include introversion, conscientiousness, agreeableness, neuroticism, and low self-esteem; these traits have a positive correlation with high pure IQ, are well represented in entrants to medical school, and help their owners pass exams. Similarly, there are well-defined trait characteristics for resilience, including extraversion, gregariousness, positive self-regard, assertiveness, playfulness and ability to form interpersonal relationships. Unfortunately, these traits are associated with a high early exam failure rate.\(^8,9\)

However, this early academic ability becomes less closely correlated to professional achievement in postgraduate years, when the effects of intrinsic motivation and the personal meaning of the work begins to influence success.\(^10\) Are these the doctors who can enjoy the success of their professional lives?

The same characteristics, which make some doctors vulnerable to burnout and distress, are also ones, which may lead to them not having the support systems needed to mitigate stresses. As these doctors may be less outgoing and gregarious than others, they may rely heavily on family for their emotional support. Many doctors will state that their main support is their spouse or partner. This leaves them vulnerable if family discord or illness becomes a source of stress. Additionally, these doctors’ introversion, pride and sense of duty may prevent them from accessing what support may be available, turning instead to alcohol or drugs. Remember that admitting to ‘not coping’ is deeply shameful for most doctors, with a strongly ‘macho’ culture still prevailing in medicine.\(^11\)

How common is burnout in doctors? Solar et al\(^12\) found that 54% of English GPs, and F. Joseph Lee et al\(^13\) found 47% of Canadian family physicians reported high levels of emotional exhaustion. Personal accomplishment levels remained relatively high, reinforcing the stepwise progress of burnout to depression.

Interestingly, in the Canadian study it was reported that only 8.4% were frequently involved in charity or community work. As patterns of health care provision change, doctors may be becoming alienated from their communities, which can be a vital source of support. In rural communities, there is a positive correlation between ‘embedment’, job satisfaction and decision to stay,\(^14\) and this wider community involvement may be protective, despite the acknowledged stresses of rural practice. Viktor Frankl wrote in ‘Man’s Search for Meaning’\(^15\) that man could overcome neuroses by ‘forgetting himself and giving himself, overlooking himself and focusing outward’.

So we have a group of vulnerable doctors who are the ones least likely to seek help for burnout or psychological distress, but who also have many of he qualities—caring, conscientious, agreeable—we most value in modern general practice.
What can bolster their resilience?

- Self-awareness. It is essential to care for our patients, but we need to be aware of the impact this has on us as doctors and individuals. Our capacity for care is finite and must be carefully managed.

- Self-knowledge. Doctors should receive confidential psychometric testing early in their education or career, with skilled counselling, to learn about their potential vulnerabilities, and to consider for themselves how these may affect their career and life choices.

- Mastery. Uncertainty will never be removed from general practice. We will never know all we need to, and will make mistakes. So yes, mastery can mean keeping up to date, developing a special interest, but mostly it means understanding what we are doing and trying to achieve in medicine, the importance of our relationships and the process of caring and healing rather than the outcome. General practice should explore ways to facilitate ongoing meaningful education for doctors, with funded study and leave.

On a personal note, I recommend the ‘Nature of General Practice’ paper offered by Otago University Medical School. This article is distilled from an assignment I produced whilst completing this paper in 2010.

- A trusted, supportive group already formed and running to which the doctor can turn, or which can take a guardianship role to safeguard the doctors health if they become aware of problems, through their own contact or through concerns of others. Traditional peer groups may not provide this, as they are often simply learning groups, or there may be significant professional competition or judgment existing. What we need is a group which is a mix of clinical supervision, Balint, and men’s group (or ‘stitch and bitch!’) Trusted and safe enough for therapeutic self-disclosure and a source of unconditional support—in short, friends.

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Takaka

References:

15. Frankl VE. Man's search for meaning; an introduction to logotherapy. 1963; Boston, Beacon Press.
Off-label prescribing of atypical antipsychotic medications

We write to thank the Journal for the publication of our survey findings into the use of off-label atypical antipsychotic medications (AAPs) in Canterbury\(^1\) and the editorial comments provided by Glue and Gale.\(^2\)

The principal motivation in undertaking this research was to obtain preliminary data to determine the extent and characteristics of off-label prescribing of AAPs in the Canterbury region, to place this in the context of a flourishing trend in off-label prescribing in general\(^3,4\) and to invite readers to consider, reflect and debate on what factors determine their choice to prescribe medications off-label.

As noted by Glue and Gale\(^2\) the study has a number of methodological limitations which makes interpretation of the findings difficult. We accept this without reservation, but we believe that despite these limitations the survey provides useful information that warrants further consideration; almost all psychiatrists (96% of respondents) prescribed AAPs off-label and 58% did so at least once a week, and therefore off-label prescribing is an integral and common aspect of current clinical practice.

Off-label prescribing is also common among cardiac medications (antianginals, antiarrhythmics, and anticoagulants), anticonvulsants and antiasthmatics.\(^5\) It is well recognised in the literature that there has been a rapid growth in the use of AAPs over the past 10–15 years.\(^6\) Such rapid increase in AAP use is justified if the populations treated suffers from psychosis or psychotic related conditions, including bipolar disorders (‘near label’ use), there is a strong evidence base for its use, and the treatment is cost effective compared to other treatments; however a number of international studies have highlighted that the expanded use of AAPs has not occurred under these circumstances and it is unclear what has driven current prescribing practices.

Part of the rapid diffusion of AAPs has been achieved by large increases in the rate of use in certain sub-populations, most notably youths for whom long term data on safety and efficacy are still lacking, and due to persisting use of AAPs over long periods of time (they therefore do not appear to be predominantly used as brief interventions).\(^6-8\)

Information on side-effects can take some time to come to light; for example the common off-label use of AAPs for the management of behavioural problems associated with dementia has come under fire as evidence accumulated of increased death rates associated with antipsychotic treatment in the elderly,\(^9\) after the introduction of ‘black box warning’ in this population there has been a sharp drop in the rate of their use.\(^10\)

Sophisticated, far reaching and illegal marketing practices have been employed by pharmaceutical companies to promote off-label use of medications in the USA, and although so far there has been no published data on the extent to which this influences
prescribing practices in New Zealand, it would be naïve to assume that it has not played a role.\textsuperscript{11}

There is a lack of head to head trials comparing quetiapine with either zopiclone or benzodiazepines for insomnia.\textsuperscript{12} The National Institutes of Health statement regarding the treatment of insomnia does not recommend the use of antipsychotics (including quetiapine) for insomnia.\textsuperscript{13} We note that the use of atypical antipsychotics and quetiapine in particular for insomnia has occurred on the background of the usage of zopiclone having increased by 300\% over the last ten years.\textsuperscript{14}

The present situation is confusing and unsatisfactory, and prescribing trends in this area appear to be inconsistent with the current evidence base. Until there is more robust data into the efficacy and safety of AAP use in off-label conditions, particularly in the management of insomnia, anxiety and behavioural disturbance associated with dementia, we propose a more conservative and time limited approach to their use.

More considered discussion around general off-label prescribing in primary and specialised care settings is also welcome.

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Andrew McKean  
Senior Pharmacist  
Hillmorton Hospital, Christchurch

References:


Antimicrobial consumption data from New Zealand hospitals

In response to the article by Ticehurst and Thomas\(^1\) and the accompanying editorial,\(^2\) we describe the antimicrobial consumption data in our hospitals. The data were collected and are presented using internationally accepted methods\(^3\) for the adult admissions to Wellington and Kenepuru Hospitals in the calendar year ending October 2010. These sites have a total bed count of 350; 306 beds at Wellington Hospital (including 18 in ICU and 36 in Haematology / Oncology) and 44 beds at Kenepuru. Together the hospitals provide secondary care services to a population of 292,260\(^4\) and tertiary services to the wider region.

During the audit period there were 26,236 admissions, with 119,182 inpatient days (first and final day of stay counted as one). The average length of stay was 4.54 days. Antimicrobial defined daily doses (DDD) were established according to the 2010 version of the WHO ATC/DDD index, and central pharmacy supply information was used to estimate consumption.

Overall, Wellington and Kenepuru hospitals used 356.41 DDD per 100 admissions, and 78.46 DDD per 100 patient days,\(^5\) during the study period. We estimated consumption of 1.32 DDD per 1000 population, per day.\(^6\)

These figures are comparable to those from Auckland, and both Wellington and Auckland are well within the lowest-quartile of consumption when compared to 2010 Australian figures, which range from 63.3 to 156 DDD per 100 patient days. They also compare well with European counterparts: Denmark reported 78.13 DDD per 100 patient days in 2008.

Consumption by drug class is shown in Table 1.

There were marked differences between the data from Wellington and Auckland within the drug-classes, reflective of different local antimicrobial guidelines and practices. The DDD per 100 admissions by class, comparing Wellington and Auckland were: combinations of penicillins 35.58 vs 61.8; 2nd and 3rd generation cephalosporins 72.07 vs 29.2; carbapenems 12.04 vs 6.2; aminoglycosides 9.54 vs 19; fluoroquinolones 18.78 vs 9 and glycopeptides 5.95 vs 4.2.

It is important to understand antibiotic usage patterns in NZ hospitals, for both financial and ecological reasons. It is beyond the scope of this brief communication to relate antibiotic usage and resistance patterns, but it is interesting to note that there is a steady increase in the prevalence of antibiotic resistance in gram negative organisms (ESR report\(^7\)), which is reflected in our hospital laboratory data. We can expect an increase in the use of carbapenems as the prevalence of extended spectrum beta-lactamase-producing *Escherichia coli* and *Klebsiella* spp increase.
Table 1. Antimicrobial consumption by drug class

<table>
<thead>
<tr>
<th>Antimicrobial Class (ATC)</th>
<th>DDD/admission</th>
<th>DDD/100 inpatient days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetracycline (J01AA)</td>
<td>7.36</td>
<td>1.62</td>
</tr>
<tr>
<td>Penicillins with extended spectrum (J01CA)</td>
<td>37.13</td>
<td>8.17</td>
</tr>
<tr>
<td>Beta-lactamase sensitive penicillins (J01CE)</td>
<td>4.84</td>
<td>1.07</td>
</tr>
<tr>
<td>Beta-lactamase resistant penicillins (J01CF)</td>
<td>62.76</td>
<td>13.82</td>
</tr>
<tr>
<td>Combinations of penicillins (J01CR)</td>
<td>35.58</td>
<td>7.83</td>
</tr>
<tr>
<td>First generation of cephalosporins (J01DB)</td>
<td>15.53</td>
<td>3.42</td>
</tr>
<tr>
<td>Second generations of cephalosporin (J01DC)</td>
<td>64.08</td>
<td>14.11</td>
</tr>
<tr>
<td>Third generation of cephalosporin (J01DD)</td>
<td>7.99</td>
<td>1.76</td>
</tr>
<tr>
<td>Fourth generation cephalosporin (J01DE)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Monobactams (J01DF)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Carbapenems (J01DH)</td>
<td>12.04</td>
<td>2.65</td>
</tr>
<tr>
<td>Trimethoprim (J01EA)</td>
<td>4.60</td>
<td>1.01</td>
</tr>
<tr>
<td>Sulphonamides (J01EC)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Trimethoprim with sulphonamides (J01EE)</td>
<td>4.27</td>
<td>0.94</td>
</tr>
<tr>
<td>Macrolides (J01FA)</td>
<td>30.0</td>
<td>6.60</td>
</tr>
<tr>
<td>Lincosamide (J01FF)</td>
<td>5.55</td>
<td>1.22</td>
</tr>
<tr>
<td>Aminoglycosides (J01G)</td>
<td>9.54</td>
<td>2.10</td>
</tr>
<tr>
<td>Fluoroquinolones (J01MA)</td>
<td>18.78</td>
<td>4.13</td>
</tr>
<tr>
<td>Glycopeptides (J01XA)</td>
<td>5.95</td>
<td>1.31</td>
</tr>
<tr>
<td>Polymyxins (J01XB)</td>
<td>0.62</td>
<td>0.14</td>
</tr>
<tr>
<td>Fusidic acid (J01XC01)</td>
<td>0.39</td>
<td>0.09</td>
</tr>
<tr>
<td>Imidazoles (J01XD)</td>
<td>27.69</td>
<td>6.09</td>
</tr>
<tr>
<td>Nitrofurans (J01XE)</td>
<td>1.62</td>
<td>0.36</td>
</tr>
<tr>
<td>Other agents (J01XX08)</td>
<td>0.07</td>
<td>0.02</td>
</tr>
<tr>
<td>All agents (J01)</td>
<td><strong>356.41</strong></td>
<td><strong>78.46</strong></td>
</tr>
</tbody>
</table>

The data collected here explain the current state of antibiotic consumption in Capital and Coast DHB, and provide a platform from which to launch stewardship measures - perhaps lowering our use of carbapenems and fluoroquinolones to the admirably low levels of consumption achieved in Auckland. We hope that the publication of Auckland and Capital and Coast DHB hospital data will stimulate other hospitals to report their data. National reporting of data is a readily obtainable goal and local data are essential for establishing baseline consumption to drive hospital infection prevention and control programmes.

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Brijul Morar
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Tim Blackmore
ID Physician and Microbiologist, Wellington Hospital

Acknowledgements: We thank Dr Mark Thomas and Mr Rob Ticehurst of Auckland Hospital and Mr Neville Winsley of Wellington Hospital.

References:


4. 2010 Projection, Stats NZ.


A medical audit of practice management of diabetes in pregnancy at Gisborne Maternity Hospital's Obstetric Medical Service 2009–2011 (part 2)

Introduction—Diabetes mellitus is an increasingly prevalent condition in New Zealand (as in the rest of the world). Women on the East Coast of New Zealand's North Island are at high risk of developing gestational diabetes (GDM) especially because of elevated BMI and a past history of GDM.

The current recommendations for GDM at our hospital are that all patients are screened for diabetes between 24 and 28 weeks, some earlier depending on risk factors that are present. The aim is to identify potential foetal and maternal morbidity (hypertension, PET, Caesarean section rates, future diabetes, perinatal mortality/morbidity). The diagnosis of diabetes is made on the usual criteria which includes a blood glucose challenge (1 hour) with levels of >7.8 mmol/L, a 75 gm glucose tolerance test with fasting hyperglycaemia and a 2-hour postprandial level of >9 mmol/L.2

### Table 1. Audit of diabetes mellitus in pregnancy at Gisborne Hospital

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of pregnancies:</td>
<td>1505 (752 pa)</td>
<td>2832 (705 pa)</td>
</tr>
<tr>
<td>Gisborne Census 2006 pop</td>
<td>44496</td>
<td>45900</td>
</tr>
<tr>
<td>Percentage Māori (M)</td>
<td>44%</td>
<td>42%</td>
</tr>
<tr>
<td>Number of diabetics and prevalence</td>
<td>50 (3.3%) M 64%</td>
<td>59 (2.08%) M 58%</td>
</tr>
<tr>
<td>Maternal gestation at first visit:</td>
<td>29 women &gt;30 weeks</td>
<td>20 women &gt;30 weeks</td>
</tr>
<tr>
<td>Maternal age</td>
<td>42 women &gt;30 years</td>
<td>23 &gt;30 years</td>
</tr>
<tr>
<td>Age range in years:</td>
<td>range 19-43 years</td>
<td>range 8-41 yrs; mean 28 and average 29</td>
</tr>
<tr>
<td>Family history of diabetes</td>
<td>?</td>
<td>23 (46%)</td>
</tr>
<tr>
<td>Previous GDM</td>
<td>33 women (56%)</td>
<td>26 women (52%)</td>
</tr>
<tr>
<td>BMI kg/m2</td>
<td>34 &gt;30 (58%) 6&gt;40 (10%)</td>
<td>35&gt;30 (70%) M 7 11&gt;40 (22%) M 5</td>
</tr>
<tr>
<td>Type of diabetes mellitus</td>
<td>7 type 1 and 13 type 2</td>
<td>3 type 1 and 4 type 2</td>
</tr>
<tr>
<td>Hypertension</td>
<td>6 women (10%)</td>
<td>5 women (10%)</td>
</tr>
<tr>
<td>Treated with insulin in pregnancy</td>
<td>19 (32%)</td>
<td>13 (26%)</td>
</tr>
<tr>
<td>Treated with metformin</td>
<td>?</td>
<td>2</td>
</tr>
<tr>
<td>Compliance with treatment</td>
<td>poor in 5 (10%)</td>
<td>poor in 6 (10%)</td>
</tr>
<tr>
<td>Cigarette smoker</td>
<td>31 (52%) 65% Māori</td>
<td>13 (26%) all Māori</td>
</tr>
<tr>
<td>Pregnancy outcome C/section</td>
<td>28 (47%)</td>
<td>21 (42%) total 16 emergency</td>
</tr>
<tr>
<td>Baby birth weight &gt;4.0Kg</td>
<td>23 (38%)</td>
<td>7 (14%)</td>
</tr>
<tr>
<td>Postnatal follow-up GTT</td>
<td>None in 70%</td>
<td>None in 60%</td>
</tr>
</tbody>
</table>
The obstetric medical service at Gisborne Hospital consists of a Specialist Obstetrician, two Specialist Diabetic Nurses, the hospital Dietician, the Midwife Clinic Co-ordinator and a Specialist Physician. Patients are seen monthly at the clinic for assessment of weight, blood pressure, urine analysis and BM levels.

Weight loss is encouraged before rather than during pregnancy. If haemoglobin A1c is elevated prior to the appointment, the test is monitored more frequently—at least 4 to 6 weekly. Pregnancy outcome measures included finding of macrosomia, Caesarean section rate and foetal complication rate (see Table 1).

All patients were given notice of a postnatal follow-up glucose tolerance test (or at least a HbA1c with or without a fasting hyperglycaemia) at 6 weeks. If this is negative, the test is done again in 2 or 3 years time. Special note was taken of the presence of acanthosis nigricans (see Table 2).

<table>
<thead>
<tr>
<th>Total number</th>
<th>13 women (26%) (M 11 and PI 2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>&gt;30 years 8 women</td>
</tr>
<tr>
<td></td>
<td>&gt;40 years 5 women</td>
</tr>
<tr>
<td>Baby birth weight</td>
<td>2.79–3.9 kg 11 women</td>
</tr>
<tr>
<td></td>
<td>&gt;3.9 kg 2 women</td>
</tr>
<tr>
<td></td>
<td>5 women had previous GDM and one had PCOD</td>
</tr>
<tr>
<td></td>
<td>5 women were on insulin during pregnancy</td>
</tr>
<tr>
<td></td>
<td>5 had Caesarian section, 4 were emergencies</td>
</tr>
</tbody>
</table>

**Table 2. Presence of acanthosis nigricans**

Discussion—In the US, more than 23.6 million adults have diabetes (7.8%) and 57 million adults have pre-diabetes (blood sugars are higher than normal but not elevated enough to be diagnosed as diabetic). Pre-diabetes also raises the risk of Type II diabetes and heart disease (CDC Press Release Jan 2011). The US prevalence of GDM has gradually increased since 1989 from 1.9 to 4.2%. The incidence of GDM in South Auckland for women of European decent is 3% and this rises to 7.9% among Māori women and 8.1% among Pacific Island women.

In comparison, the current overall incidence of diabetes in pregnancy in Gisborne, given the ethnicity and high rates of obesity, remains still rather low at 3.3%. However, we can verify that nearly all the patients have had either a polycose challenge or a glucose tolerance test or both from results available at the hospital laboratory. The present cohort comprised 32 Māori women (M), 2 of Pacific Island origin (PI), one Chinese and 15 of European descent (E).

The aim of screening for GDM is to reduce maternal and foetal morbidity associated with increasing levels of maternal hyperglycaemia. Recurrence rate of GDM is estimated at 35–52% in subsequent pregnancies and as many as 20% of women with GDM will have an impaired glucose tolerance test during the early postpartum period and go on to develop type 2 diabetes. Women with GDM have a higher risk of cardiovascular disease at a younger age. It is reported that the strongest independent
risk factors for GDM were a positive past history of GDM and a maternal age of more than 40 years.  

The presence of diabetes in pregnancy increases the risk of the baby developing obesity (and subsequent diabetes) by threefold and this can occur 6 to 7 years after delivery. In this regard, postnatal follow up (with GTT) will allow early recognition of diabetes and help guide a more aggressive approach to dietary modification (food low in high GI content and fast-foods, fizzy/pop drinks) promoting weight loss combined with exercise, which may prove valuable to both the young mother and her child. Pre-conceptual guidance and counselling is also provided and midwives are encouraged to refer patients at risk much earlier in the gestational period.

Conclusions—The prevalence of diabetes in pregnancy in the Gisborne district remains surprisingly low at 3.3%. Patients with GDM are still being referred late in gestation despite high risk. There appears to be a high incidence of acanthosis nigricans (AN) which is associated with obesity, the metabolic syndrome and Insulin resistance. Though weight and maternal age are known risk factors, it would appear that patients with a previous history of GDM also have a high risk of developing type 2 diabetes.

Caesarian sections rates remain fairly high at 42% when 2009 NZ statistics show a rate of 25.1% and half were emergencies. Postnatal follow-up with GTT remains very disappointing. This greatly reduces the opportunity for early diagnosis, access to prenatal care and to help arrest the progression of morbidity, especially diabetes-associated disease in this group of young women. On the positive side, fewer pregnant women were smokers no doubt helped and encouraged by current public health measures. Prevalence of foetal macrosomia has also declined (in this small group) reflecting better glycaemic control.

The presence of acanthosis nigricans appears to be a valuable clinical sign in determining high risk. This is a skin disorder characterised by thickened hyperpigmented velvety plaques in the body flexures and neck and is more commonly associated with obesity and insulin resistance including Type II diabetes, the metabolic syndrome, polycystic ovarian disease and hypertension. The condition is 25% more common in African-Americans and can be regarded as a clinical surrogate of hyperinsulinism.

The metabolic syndrome present in some 34% of American adults increases the risk of the development of diabetes three to fivefold in 5 years. The baby born of a mother with GDM at term will have a risk of becoming an obese child at the age of 6 to 7 years.

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Beat Bowel Cancer Aotearoa response to GPs' opinions about the introduction of colorectal screening

On behalf of Beat Bowel Cancer Aotearoa, I am responding to the findings in a qualitative study by Gillian Abel and Lee Thompson—*What do specialists and GPs think about the introduction of colorectal screening?*—published in the 8 July 2011 issue of the *NZMJ*. This research provides useful insights into concerns of the 15 GPs and 11 specialists interviewed about screening for bowel cancer.

Worryingly, this study highlights the lack of clarity between the immunochemical faecal occult blood test (iFOBT) false positive rate of 3.4%, and the older guaiac faecal occult blood test (gFOBT) which has a lower sensitivity than iFOBT.

A concern was expressed by some GP participants that discussion with their patients surrounding bowel cancer screening will engender patient anxiety. However, such concern did not stop the use of mammographic screening for early breast cancer, nor screening for cervical cancer.

Patient anxiety over screening would not seem to outweigh the societal benefit of bowel cancer screening, especially in a country where each year more than 1250 people die from bowel cancer. An estimated 75% of those people may have survived if the disease had been detected earlier. Further, a recent systematic review has found that public anxiety is not increased as a consequence of screening.

It is important to note that iFOBT results in fewer false positives than does mammographic screening.

Also, screening for colon cancer affords a similar proportional benefit to breast screening. Given the greater numbers of New Zealanders affected by colorectal cancer, iFOBT has the potential to save the lives of more New Zealanders.

As a patient and family-led charity, Beat Bowel Cancer Aotearoa is concerned about the number of lives being lost as a consequence from bowel cancer. We appreciate the good intent underlying GPs’ desire to reduce ‘cancer anxiety’. However, we feel any such (empirically questionable) concern about ‘cancer anxiety’ pales alongside the anxiety generated for patients and their families when a late diagnosis of bowel cancer has been made and the patient’s prognosis is terminal.

Beat Bowel Cancer Aotearoa is committed to supporting the introduction of a Government-funded national screening programme. While we welcome the decision to hold a pilot programme in the Waitemata DHB (planned to start in late 2011), the decision about whether or not to introduce a national programme is not intended until after the pilot evaluation report is due for completion in 2016, and if the decision is to proceed, national implementation of the screening programme will therefore be a considerable period of time after that.
After decades of inactivity, New Zealand needs to wake up and take positive steps to improve our unflattering bowel cancer statistics.

Our charity calls for prompt action in several areas to raise awareness about bowel cancer and reduce the national mortality from this treatable and beatable disease in our 2015 Call to Action Document. One of these calls is for a national bowel cancer screening programme to be fully implemented by 2015.

It could be argued that because New Zealand has one of the highest rates of colorectal cancer in the world, that the death rate from colorectal cancer is three times the national road toll, and that 75% of colorectal cancer is curable if caught early, perhaps a higher level of anxiety is exactly what we need.

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On a New Method of Treating Cleft Palate: part 1

From article written by HP Pickerill, MD, MDS, published in NZMJ May 1912;11(42):125–130.

The Etiology of any condition is always important because upon its correct conception all rational treatment must be based. Unfortunately our knowledge of the causating factors of cleft palate are extremely meagre. We know that it is due to a non-fusion of the embronic internal nasal, palatal, and occasionally also the ethmo-vomerine plates.

Maternal impressions are popularly cited as a cause of the frequently associated condition of hare lip. In one case a mother was not surprised in the least at the presence of the hare lip—in fact she had expected it—for during the fourth month of pregnancy she had received a severe fright from seeing a boy with a badly-cut lip. The boy was found and examined shewed a scar in a similar position to the infants' cleft. Absolutely convincing, popularly. Unfortunately, however, for popular pathology the embronic plates concerned unite at the eighth to tenth week.

Acute illness on the part of the mother about latter time may account for the condition. Atavism certainly will not; for although many progenitors of man have cleft lips, none have cleft palates.

The embronic processes may be said not to unite either because of the arrest of development or because the width of the space to be bridged is too great for "the inherent tendency to growth" of the parts to overcome.

As a matter of fact I think both these causes operate either combined or separately—sometimes one, sometimes the other. Regarded thus, we can recognise two chief clinical varieties of complete congenital cleft palate. (1) Those in which the cleft is wide, maxillae wide and tissue of soft palate normal in amount. (2) Those in which the cleft is of medium width, maxillae narrow and tissue scanty.

Upon the recognition of these varieties depends I believe the selection of the correct form of treatment, for cleft palate is essentially a condition where is no "best" and should be no "favourite" of treatment.
A new way to screen for lung cancer in those at high risk

This paper from the National Cancer Institute in the USA notes that lung cancer remains the leading cause of death from cancer in the USA and probably the rest of the world. Previous trials of screening with chest X-ray with or without sputum cytology have not been successful. The authors point out that the advent of low-dose helical computed tomography (CT) altered the landscape of lung cancer screening, with studies indicating that low-dose CT detects many tumours at early stages.

Hence, this randomised trial which compared the results of three annual screenings with either low-dose CT (26,722 participants) or single-view posteroanterior chest radiography (26,732). The rate of adherence to screening was more than 90%. The rate of positive screening tests was 24.2% with low-dose CT and 6.9% with radiography over the three years of the trial. Subsequent follow-up revealed a 20% relative reduction in mortality from lung cancer in the low dose CT group. Also they point out that the radiation dose in the CT protocol is acceptable.

Good news for those in the CT group. However, we note that 96.4% of the positive screening results in the low-dose CT group and 94.5% in the radiography group were false positive results. This high rate is not unexpected but it does rather dampen the enthusiasm for screening.


Shorter courses of treatment with ceftriaxone for bacterial meningitis in children?

The usual recommended length of treatment of childhood bacterial meningitis in developed countries is 7 days of antibiotics for meningitis caused by Neisseria meningitidis, 10 days for Haemophilus influenzae type b, and 10–14 days for Streptococcus pneumoniae.

This randomised study from Malawi and other third world countries randomised 1004 patients to either 5 or 10 days of parenteral ceftriaxone. They concluded that 5 days was as good as 10 days provided that the patient was stable at 5 days. They note two relapses in the 5-day treatment group vs none in the 10-day group.

They conclude that the shorter treatment is safe in children beyond the neonatal age group. An important result in countries where hospital and drug resources are limited. An editorial commentary from Oxford, England praises the study but adds a cautionary note on the general applicability of the findings.

Do intravenous steroids improve the rate of recovery in patients with community acquired pneumonia (CAP)?

This report from the Netherlands notes that in CAP patients locally produced pulmonary cytokines are needed to control and eliminate the primary infection. However, organ dysfunction can result from a systemic inflammatory response. They speculate that steroid treatment might mitigate the latter effect and promote more rapid recovery and earlier discharge from hospital. So they randomly assigned adult patients with CAP to intravenous dexamethasone or placebo for the first four days of their antibiotic treatment. Immunosuppressed or intensive care patients and those already on steroids were excluded.

The dose of dexamethasone was 5 mg/day. 304 patients were randomised the median length of stay in hospital was 6.5 days in the dexamethasone group vs 7.5 days in the placebo group. In-hospital mortality was the same in both groups. We note that 44% of the dexamethasone group had hyperglycaemia compared with 23% of the control group. One of the dexamethasone subjects developed a gastric perforation.

So, length of stay reduced but “benefits of corticosteroids should be weighed against the potential disadvantages of these drugs”. Indeed.


Automated measurement of blood pressure in primary care patients with systolic hypertension

This paper reports on a trial concerning blood pressure measurement in 555 patients with systolic hypertension in 67 Canadian primary practices. The comparison was between routine manual measurement compared with measurements made with an automated BpTRU device. The latter readings being made in the absence of any medical or nursing staff. As expected the automated readings were lower and the researchers conclude that the automated readings are similar to the mean ambulatory recording which are the gold standard.

Editorial commentators agree with their findings but have reservations. They include the fact that better manual technique might have achieved equally good results. Indeed, in this study the subsequent readings in the manual group were lower. It is also known that manual recordings of the blood pressure in research projects are of greater accuracy, presumably because of better technique. So, however it is measured, measure it accurately.


Estimation of glomerular filtration rate in an intensive care population

As all clinicians know when they request a serum creatinine they also receive an estimated glomerular filtration rate (eGFR). The authors of this paper are concerned that the eGFR is insufficiently accurate for use in the management of seriously sick
patients in intensive care units. They have compared the results of the eGFR with the results achieved by the Cockcroft Gault (CG) formula and with the measured creatinine clearance in the intensive care unit.

They report on 237 observations in 47 subjects and conclude that using either eGFR or CG formulae to estimate renal function in ICU subjects with normal serum creatinine concentrations is inaccurate. The eGFR result can be improved by correcting it for the body surface area but as this involves measuring the patient’s height and weight it detracts from the value of the eGFR.

They recommend that the urinary creatinine clearance is the preferred method for GFR estimations in the intensive care unit.

Charles Warrington Howden

MB ChB (NZ) 1940, FRCPE 1951, FRACP 1952, Dip Child Health (Lond) 1951

Charles Howden was born on Auckland's North Shore in 1918, the third of four boys, and died 93 years later on 28 March 2011, just 3 months after his wife of 65 years, Vida (nee McLean).

Charles went to Takapuna Grammar School from the family home in Castor Bay and in 1935 to Otago University Medical School. He initially boarded at Knox College and graduated in 1940, the second year of the Second World War.

After a year as a house surgeon (he was one of five) at Waikato Hospital, in 1942, he and Vida were married but within 6 months Charles was posted as a Medical Officer to the RNZAF in the Pacific, to Fiji, then Bougainville and finally to the Admiralty Islands. Charles was principally involved in setting up and working in small hospitals.

Returning to civilian life in 1945 he spent a year as a medical registrar at Waikato Hospital, travelling home to Vida and their first child, in Auckland, on spare weekends. Charles then joined James (Jimmy) Mackereth in general practice in Matamata for 4 years. This was a rural, mainly young people's practice, with many new families as men were 'demobbed' from the Services.

Charles and Jimmy each delivered about 250 babies a year and Charles gave anaesthetics for Jimmy's surgery. In 1951 and 1952, Charles took time out to travel to the UK for postgraduate training where he obtained FRCPE in Edinburgh and the Diploma of Child Health in London.

Charles returned to Matamata initially and then, in 1956, bought a general practice in Milford, North Shore where he also continued his obstetric practice.

In 1961 he joined his long-time friend Ruthven Lang as an adult and paediatric infectious disease physician at Auckland Hospital, later adding adult general medicine to his professional responsibilities. He eventually withdrew entirely from general practice in 1970. In the Infectious Disease Unit at Auckland Hospital and with Keitha Farmer soon appointed to the paediatric side, he and his colleagues cared for patients...
with less common infectious diseases of the times, like typhoid fever, poliomyelitis, tetanus and leprosy.

Over the years they looked after thousands of children with acute gastroenteritis, the great majority of whom were shown in the 1970s to be infected with the newly discovered rotaviruses. In 1983, aged 65 years, Charles retired from Auckland Hospital, initially helping out for 18 months at Whakatane Hospital as a general physician and then in 1985 becoming involved in the recently formed Geriatric Unit at North Shore Hospital. He finally retired from medical practice in his early 70s.

There were sporting genes and sporting culture in Charles’ family. His paternal grandfather, Charles Ritchie Howden, was one of the founders of Balmacewan Golf Club in Dunedin and Charles played to a single-figure handicap throughout his long golfing career.

His maternal grandfather, James Jimmy Graham, was the first Commodore of the Devonport Yacht Club. Throughout his life and with their young family Charles and Vida owned boats from dinghies to 30-foot keelers, and the Waitemata Harbour and further afield was their aquatic playground. Charles loved Milford and Takapuna beaches and ran and more latterly walked along Takapuna most days.

Charles’s career spanned a now vanished medical era: it was possible to be a true generalist in medicine in his day. Charles worked in general practice doing obstetrics and anaesthetics as well as standard general practice and in hospital, general medicine and infectious diseases including paediatric infectious diseases.

There was an irony for Charles that in the twilight of his career, at a time when he was practising geriatrics, the NZ Society of Paediatrics awarded him life membership of their Society in honour of his contribution to paediatric infectious disease and child health.

Charles was a tall, dignified and quiet man around the wards of Auckland Hospital with a dry and understated sense of humour. He provided wise counsel to younger physicians in an environment of increasingly mechanistic and investigative hospital medical care—he was a good listener, he was holistic in his approach when that term barely existed in medicine, and he was invariably kind to his patients.

Charles is survived by his 5 children, 11 grandchildren and 2 great grandchildren.

Rod Ellis-Pegler, Auckland, compiled this obituary with the help of Charles's family.
William John (Jack) Watt

26 October 1918 – 2 August 2011

Jack Watt was born in Ashburton, New Zealand, on 26 October 1918, the eldest of the three children of Lesley and Gladys Watt.

His education was at Ashburton Primary school, followed by St Andrew’s College, Christchurch, and Timaru Boys High School, before he proceeded to the University of Otago in Dunedin where he graduated MB ChB in 1944. His house surgeon time was broken by service with the New Zealand Army Medical Corps in Egypt, Italy and Japan in the later stages of World War II.

On his return to Auckland he was one of the first anaesthetic registrars in that city in 1948, before proceeding to the United Kingdom where he gained further experience and took his two-part D.A. He later became a Fellow of the Faculty of Anaesthetists of the Royal College of Surgeons.

During this time he married Rosamund Rae. They returned to Auckland in 1952, Jack to be a full-time specialist anaesthetist at Green Lane Hospital where he spent much time with the cardiothoracic team and administered the anaesthetic for the first cardiopulmonary bypass operation in New Zealand in 1958.

On Dr Eric Anson’s retirement, Jack Watt became Auckland’s second Director of Anaesthetic Services in 1958, a post he held until retirement in 1983. There have been no further directors in Auckland. As one of our southern colleagues remarked “It took a committee to replace Jack Watt”. During this long period, many changes took place with advances in anaesthesia techniques and equipment. The strength of the department which initially served four major hospitals and some minor ones grew, training of increasing numbers of young doctors was instituted and promoted, so the Auckland hospitals became a major teaching centre for anaesthesia under Jack Watt’s leadership and active participation.

He was also much involved in the promotion and teaching of cardiopulmonary resuscitation both for St John Ambulance personnel and other groups. The training of Pacific Island anaesthetists was also largely promoted and effected by Dr Watt, over many years.
Besides his duties as Director of Anaesthesia, Jack served New Zealand’s anaesthetic fraternity well. In the Faculty of Anaesthetists, Royal Australasian College of Surgeons, he became a Fellow in 1961 and was elected to the Board of the Faculty in 1968. He served as Assessor 1973–74, was Vice Dean 1974–75 and Dean of the Faculty of Anaesthetists 1976–1978—the first New Zealander to achieve this high office, equivalent now to President of the Australian and New Zealand College of Anaesthetists. For his services, Jack was awarded the Faculty of Anaesthetists’ Medal in 1982.

Dr Watt was an early member of the New Zealand Society of Anaesthetists and became Secretary-Treasurer in 1953, was Vice President for 2 years and served as President in 1960 and 1961. Frequently he was a conference organiser and a willing speaker. Jack was made a Life Member of the Society in 1979 and was involved in setting up the Anson Memorial Foundation, being one of its early trustees.

In later years Jack Watt undertook a survey of anaesthetic services round the Pacific area for the World Health Organization and also reviewed training at the Anaesthesia Centre in Manila. For his services to anaesthesia and the St John Ambulance, Dr Watt was made an Officer of the Order of the British Empire (OBE) in 1981. His long involvement with the Order of St John saw him become a Knight of Grace.

Jack Watt was a skilled and practical anaesthetist, a leader, a talented teacher, a first class administrator, a diplomat, a tactful negotiator, a congenial colleague and a good friend to many of us. He had great patience and I only ever saw him cross, once!

Jack was one of New Zealand’s most eminent anaesthetists and while on the Board of the Faculty of Anaesthetists gave New Zealand a strong presence in what was predominantly an Australian-oriented body. His diplomacy and resolution have given New Zealand a lasting legacy in international anaesthesia.

Jack died on 2 August 2011 and will be greatly missed, but he leaves us with great memories. We extend our deepest sympathy to his widow Rosamund, their four daughters and their families.

Basil Hutchinson (Retired Anaesthetist, Auckland) wrote this obituary.
Teaching Psychiatry to Undergraduates

Tom Brown and John Eagles (eds). Published by The Royal College of Psychiatrists, May 2011. ISBN 9781904671992. Price: £35.00 (College members' price: £31.50)

Teaching undergraduate medical students is a common part of many psychiatrists’ and registrars’ regular duties. Frequently little attention is given to how to teach throughout training in psychiatry and other specialties.

This book provides an excellent resource for anyone involved in the teaching of psychiatry. The book arose out of the desire to attract undergraduates to psychiatry and the belief that good teachers and enhancing the quality of teaching would assist this aim.

The first few chapters focus on educational theories of learning which may limit its initial appeal to the occasional teacher. However the book also includes a range of topics covered from how-to guides for small group teaching and lectures through to the challenges of dealing with students in difficulty and promotion of good mental health in undergraduate teaching.

There are also excellent reviews of the developments in e-learning, cross-cultural teaching, and the challenge to integrate service-users in psychiatry education. The editors do well to balance practical advice for the busy psychiatrist with thought-provoking questions about the future of psychiatry in the medical curriculum.

While the book focuses primarily on psychiatry much of the content would be of interest to anyone who teaches undergraduate students and should be high on the recommended reading list for all beginning consultant psychiatrists.

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John Murtagh’s General Practice (5th edition)


It seems like yesterday when I very positively reviewed John Murtagh’s first edition of “General Practice”. This fifth edition is much of the same—but is so much more sophisticated, comprehensive, readable and all round better than the first.

This is a superb text for general practitioners, for GP registrars, and for medical students. It is down-to-earth, practical, and very adequately referenced. Of some 1500+ pages it provides a wealth of up-to-date information of common as well as esoteric diseases.

The book is evidence-based, has many clinical photographs, and in addition, has some coverage of complementary therapies. It is well laced with practice tips, as well as red and yellow “flags” to alert the reader of potential dangers.

Murtagh is a prolific author and his material all has direct application to general practice. He has a background as a rural general practitioner, became an academic GP, and he never lost sight of the wood for the trees, remaining in active clinical practice for the duration of his academic career. He held the Chair of General Practice at Monash University for many years, succeeding the late Neil Carson. He has coauthored this text with Dr Jill Rosenblatt to whom he is married.

I have absolutely no hesitation whatsoever in recommending this book, which in my opinion is the best available practical text for general practice. It should be on every GP's shelf!

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