THE NEW ZEALAND MEDICAL JOURNAL
Journal of the New Zealand Medical Association

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THE NEW ZEALAND MEDICAL JOURNAL
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This Issue of the Journal

Original Articles

Burnout in hospital-based medical consultants in the New Zealand public health system

Lois J Surgenor, Ruth L Spearing, Jacqueline Horn, Annette L Beautrais, Roger T Mulder, Peggy Chen

In a New Zealand public hospital setting where this study took place, the vast majority of medical consultants report feeling emotionally robust and highly engaged with their work. This positive bias in the health of this workforce rarely receives attention in the literature. However for the one-in-five consultants who experience high work-related burnout, working long hours and low job satisfaction appear to be factors that particularly contribute to this. Effective remedial interventions should target the minority group who have problems, and there are good arguments to suggest that these interventions should be at an organisational level rather than following the tradition of targeting interventions at an individual level.

Addressing stress-related impairment in doctors. A survey of providers' and doctors' experience of a funded counselling service in New Zealand

Wayne Cunningham, Tim Cookson

In 2006, the Medical Protection Society and the Medical Assurance Society in New Zealand commenced a jointly funded counselling service for stressed doctors. This survey reports the utilisation, acceptability, and utility of the service from the perspectives of the psychologist and psychiatrist providers, and the doctors who were its clients. The survey found that the service worked well, and helped doctors with many issues, especially related to workplace and home-life related stress, including but not limited to, the stress of receiving a complaint. It also helped diagnose some serious underlying conditions such as depression, bipolar disease, and prior sexual abuse. Because stress may diminish doctors' ability to care for patients, providing appropriate support for stressed doctors is one way of improving patient care and patient safety.

A surgical career for New Zealand junior doctors? Factors influencing this choice

Jason Du, Janarthanan Sathanathan, Gill Naden, Stephen Child

Career aspirations of New Zealand junior doctors were similar to findings reported overseas. To promote surgery amongst junior doctors and medical students, attention should be paid to the key factors which may influence career choice. By improving working conditions and have better surgical education (with good mentoring, team atmosphere, and opportunities for early exposure) will hopefully allow better recruitment and training of future surgeons.

Patient satisfaction in New Zealand
Gerard Zwier

Starting in 2000, District Health Boards (DHBs) around New Zealand have implemented a survey which monitors how inpatient and outpatients perceive the quality of their care. This paper shows how well they have followed the guidelines that were specifically developed for the survey and determines how valid and reliable the data is. Patient satisfaction is a factor of demographic variables such as age, sex, and ethnicity: older patients, male patients, and European rather than Māori or Asian patients are more likely to express satisfaction. This means that any analysis in which DHBs are compared needs to take into account the patient profile of the DHBs that are compared. Analysing the data we find that, contrary to what is reported in the popular press, nine out of ten patients are positive about the treatment they have received in hospital or as an outpatient. Six to eight percent of patients rate their treatment as "average" while only two to three percent are dissatisfied. The paper shows that outpatients are nowadays more satisfied with their care. It uses an example from one DHB to demonstrate that a move to new premises resulted in an increase in patient satisfaction with cleanliness.

Viewpoints

Consenting to medical treatment: legal requirements vs medical practice. Are healthcare providers exposing themselves to potential legal action?
Carol Peters

This paper discusses research conducted to determine the extent of healthcare providers' knowledge of the law relating to consent to medical treatment. Error rates were higher than expected and could potentially result in negative outcomes for healthcare providers and/or patients. Reasons for the high error rate are identified and recommendations to address the knowledge gap are made.

Predicting the past or risk management?
Graham Mellsop, Fiona Clapham-Howard, John Turbott

The Mental Health sector has been encouraged to use a variety of templated, risk assessment forms, as a contribution to reducing the risks of suicide, violence, or self-neglect. Partly because these forms are multiple and various, they have probably not achieved their initial aims. Indeed, they may have contributed to poorer clinical management of psychiatric service users due to distracting from the fundamental aim of a single, comprehensive clinical management plan for each service user. Incorporating the risk assessment into a standard, multi-axial, classificatory system such as the widely used DSM-4 could be a significant advance.

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Medicolegal knowledge in New Zealand

Ron Paterson

In this issue of the *NZMJ*, Carol Peters reports the results of her interesting survey of health practitioners' knowledge of the law relating to consent to medical treatment in New Zealand (http://www.nzma.org.nz/journal/122-1300/3734).

Her headline result, that only 1 of 19 "expected knowledge" questions (i.e. those survey questions that a legal advisor from the office of the Health and Disability Commissioner had identified in advance as ones that "should be answered correctly by all participants") was answered correctly by all 144 respondents, might prompt alarm about ignorance of the law. Indeed, since the response rate at the six surveyed district health boards is not revealed (but common sense suggests that those who chose to respond probably assumed they had reasonable knowledge about the relevant law) the true situation may be even grimmer.

That is not my take on the results. I was impressed that over two-thirds of respondents could correctly answer 16 of the 19 expected knowledge questions. I doubt whether law practitioners would score as well, and many health law students and even "medicolegal experts" might trip at a few of the hurdles posed by the questions. Medical practitioners (who comprised 37.5% of the respondents) may draw some comfort from knowing that they are not alone in finding it tricky to respond uniformly correctly in a medicolegal quiz.

It is illuminating to examine the three questions where most respondents fell down. Half the respondents incorrectly believed that an advance directive may be ignored if the patient is unconscious and following the advance directive would not be in the patient's best interests. It is certainly a mistake to believe that the patient's advance directive may simply be ignored in such circumstances. But, as Gillett has argued in a recent article,[1] a practitioner should take care before assuming that an unconscious patient intended the directive to apply to the life-threatening circumstances now faced. In the absence of clear evidence that the patient had anticipated these very circumstances, was adequately informed, and had not changed her mind, a cautious approach seems sensible, and is likely to be judged sympathetically in the event of future inquiries.

What of the competent adult who refuses to accept treatment? Must a health professional *always* respect such a refusal? It is not surprising that over 75% of respondents answered "yes". After all, section 11 of the New Zealand Bill of Rights Act 1990 affirms the right of every person to refuse medical treatment, and right 7(7) of the Code of Health and Disability Services Consumers' Rights gives every consumer "the right to refuse services". But the Bill of Rights may be overridden by another statute, and the Code is expressly subject to other enactments (i.e. statutes and regulations).[2] Thus, for example, public health powers of compulsory isolation and treatment may be exercised by a medical officer of health contrary to the wishes of a competent adult who refuses treatment.[3]

So the correct answer to the above question is "no", a health professional is not *always* required to respect the refusal of treatment of a competent adult. Nonetheless, the majority response is perfectly understandable.

One area that proved tricky in the survey, as in practice, is consent to treatment of adult intellectually disabled consumers. Impressively, 68% of respondents correctly recognised that if such a consumer understands an explanation of the pros and cons of stitching versus taping a wound, he is "legally able to decide what treatment he would prefer". This is consistent with the presumption of competence in the Code,[4] and the recognition that competence is not an "all-or-nothing" test, since even consumers with diminished competence may be able to make some decisions.[5]

A common trap is to assume that consent must be obtained from the person responsible for the care of an intellectually disabled consumer, even where the consumer understands and consents to the proposed treatment. Only 37.9% of respondents correctly identified that the valid consent of the disabled consumer is sufficient in such a case.

The fact that only 51.4% of respondents reported having received any training about consent to medical treatment is not necessarily cause for concern. It is arguable that the survey results reflect a good general understanding of the principles of informed consent. Rather than more intensive training about the detail of the law, it is probably of greater importance that practitioners know to seek help when necessary — from an experienced colleague, one's College or, in a very tricky situation, from a legal advisor and even a court.

I do not share Peters' enthusiasm for electronic legal databases as a solution to practitioner ignorance about the law. It is one thing to make the law more accessible, but another entirely to provide ready answers to practical problems. Law, like medicine, is not readily reducible to "cookbook" answers. Even High Court judges hesitate to express definitive statements of law about some common dilemmas in clinical practice. In the recent *Harman* case, Wild J described the legal position in New Zealand as "uncertain" in relation to a patient's ability to waive the right to know (i.e. to refuse to hear the detail necessary for informed consent) prior to major surgery.[6]

"Medical myths" about informed consent abound.[7] But practitioners are unlikely to encounter problems if they communicate openly and honestly with patients, and are sensitive to the individual patient's circumstances and their need for information. Thankfully, real life and clinical practice is an "openbook exam", and the option of seeking guidance will almost always be available. And in the unlikely event of a complaint, as noted by Gillett, "common sense and a sharp eye for the clinical reality" will guide the Commissioner.[8]

Competing interests: None known.

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1. Gillett G. Whose best interests? Advance directives and clinical discretion. Journal of Law and Medicine. 2009;16:751–8.
2. Clause 5 states: "Nothing in this Code … prevents a provider doing an act authorised by any enactment."
3. See the Health Act 1956, s 79, in relation to persons likely to spread infectious disease.
4. Right 7(2) states: "Every consumer must be presumed competent to make an informed choice and give informed consent, unless there are reasonable grounds for believing that the consumer is not competent."
5. Right 7(3) states: "Where a consumer has diminished competence, that consumer retains the right to make informed choices and give informed consent, to the extent appropriate to his or her level of competence."
6. Harman v Director of Proceedings (High Court, Auckland CIV 2007-404-003732, 12 March 2009, Wild J), para 85. The judge noted that under right 7(1) of the Code it is unlawful to proceed without informed consent (para 81), and that "the weight of authority seems to be that the surgeon should insist on the patient listening to sufficient detail, at least where major surgery carrying high risk is proposed" (para 85).
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Consent for case reports and medical images

Frank Frizelle

Medical images and case reports are considered by many to be interesting and educational. Most readers are clinicians so clinical-based problems are easy to engage. Many journals have a long history of including them such as the *New England Journal of Medicine* clinical problem solving or their previous "Case reports for Massachusetts General Hospital". Other journals have more recently returned to including them and, though usually not cited and thus may have a discouraging effect of a journals impact factor, they are recognised as being amongst the readers' favourite parts of journals (just behind obituaries).

The issue of consent for publication and the patients' right to privacy however needs to be married with this interest especially as most journals now use a web-based medium in part or whole.

The ICMJE (which the NZMJ is a member) Uniformed Requirements state in regard to this issue (http://www.icmje.org/#privacy):

> …Patients have a right to privacy that should not be violated without informed consent. Identifying information, including names, initials, or hospital numbers, should not be published in written descriptions, photographs, or pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) gives written informed consent for publication.
>
> Informed consent for this purpose requires that an identifiable patient be shown the manuscript to be published. Authors should disclose to these patients whether any potential identifiable material might be available via the Internet as well as in print after publication. Patient consent should be written and archived either with the journal, the authors, or both, as dictated by local regulations or laws. Applicable laws vary from locale to locale, and journals should establish their own policies with legal guidance.
>
> Nonessential identifying details should be omitted. Informed consent should be obtained if there is any doubt that anonymity can be maintained. For example, masking the eye region in photographs of patients is inadequate protection of anonymity. If identifying characteristics are altered to protect anonymity, such as in genetic pedigrees, authors should provide assurance, and editors should so note, that such alterations do not distort scientific meaning.

Societial expectations are constantly evolving in regard to privacy and consent issues (as are the ICMJE uniform requirements). Not surprisingly the expectations and needs of one generation of editors were not perceived the same by the previous generation. An example of this evolving problem is a journal putting back issues (archives) on the web, in that patients originally gave consent for publication in print and may now find their image and case report published on the web (and more easily accessible to a much wider audience than in print). Editors are still developing policy to address this particular issue.

Another issue that has developed is over what to do with the consent details. Journal editors (and others) feel having the patient's consent sent to the journal is an infringement of privacy as the journal editorial and production staff then are privy to the patient's details. As such the ICMJE has recommended that the consent be

retained by the author in the patient's records and the journals just to accept an author's written statement that consent has been gained.

An email recently received by the *NZMJ* from Dr Philip White (Amity Health Centre, Dunedin) raises another issue. It reads…

> The sources of medical images published in the *NZMJ* represent true global medicine. A look at those published this year to date takes us from New Zealand to the USA by way of Australia, Taiwan, Iran, Turkey, Italy, and the United Kingdom with a significant minority coming from New Zealand. The origins may not be significant but the medical image published in the issue dated 19 September 2008 entitled *Fatal tyre blast injuries including bowel evisceration and forearm amputation* [1] made me pause to consider.
>
> This contribution comes from the United Arab Emirates. If this particular injury had happened in Dunedin the headline in the *Otago Daily Times* may well have been very similar and many people would be aware of the identity of the person fatally injured. The *NZMJ* in its instructions to contributors requests that patient-identifying information is removed. It also advises that issues older than 6 months have free public access. Is it possible to completely remove patient-identifying information when many interesting images are of unique medical cases or result from unique events which may well have been reported in the local or not so local media?
>
> At about the same time as I was pondering the ethics of publishing pictures of the tyre blast injury I was sent an editorial from the *BMJ*[2,3] outlining their policy on publication. This stated that the policy had been that (with few exceptions) any patient-identifiable material had to be submitted with the patient's consent. Exceptions were allowed if the educational interest of publication was deemed important and consent was difficult to obtain. The editors subsequently reviewed guidance from the UK's Information Commissioner, who oversees the workings of the Data Protection Act, which stated that medical information about a living patient can be published only with the explicit consent of the patient.
>
> The editors came to the conclusion that the only way that they can publish information relating to individual patients without explicit consent was to truly anonymise it. I hope I have demonstrated above, that in many cases, medical images are impossible to anonymise either by virtue of the rarity of the condition, the identity of the medical team involved, or the public knowledge of the accident causing the condition.
>
> Might there be a relationship between the paucity of medical images submitted from New Zealand and our regard for the Health Information Privacy Code[4] which states that health information should only be disclosed if authorised by the individual concerned or his/her representative? In contrast to the UK, in this country this protection goes beyond the grave.
>
> I would ask the *NZMJ* to reconsider its policy regarding publication of medical images in order to prevent possible distress to the people in the images or their families, by requiring specific consent to publish in line with the BMJ who

provide a suitable consent form with translations into other languages in their instructions to authors.[5]

Dr G Philip White

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4. http://www.privacy.org.nz/assets/Files/Codes-of-Practice-materials/HIPC-1994-2008-revised-edition.pdf
5. http://resources.bmj.com/bmj/authors/checklists-forms/patient-consent-form

To clarify and summarise, the *NZMJ* policy regarding publication of medical images and case reports is as follows:

- The *NZMJ* does require consent from the patients for case reports and medical images.
- We do not require a patient consent form to be sent to us.
- We do require the corresponding author to confirm in writing that patient consent was obtained and we require that consent to be both for web publishing (online *NZMJ*) and print (in the case of subsequent publication in the hard copy *NZMJ Digest*).

The NZMJ policy is the same as the ICMJE policy which the editor of the *NZMJ* helped develop.

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Burnout in hospital-based medical consultants in the New Zealand public health system

Lois J Surgenor, Ruth L Spearing, Jacqueline Horn, Annette L Beautrais, Roger T Mulder, Peggy Chen

Abstract

Aim To assess the prevalence and severity of burnout in hospital-based medical consultants, and investigate associated demographic and professional characteristics.

Method Utilising standardised measures of burnout (Maslach Burnout Inventory) and job satisfaction (Job Satisfaction Scale) this cross-sectional study recruited 267 consultants working in a large tertiary hospital in Christchurch, New Zealand.

Results Seventy-one percent of all eligible participants were recruited. The prevalence of burnout in each of the three dimensions was as follows: High Emotional Exhaustion=29.7%; High Depersonalisation=24.4%; Low Personal Accomplishment=31.2%. One in five consultants was assessed as having high overall burnout. Considered against the psychometric norms for medical workers, significantly more consultants than expected reported low Emotional Exhaustion ($p<0.001$) and low Depersonalisation ($p<0.01$). Working longer hours ($p<0.01$), lower job satisfaction ($p<0.001$), and shorter time in the current job ($p<0.05$) independently increased the risk of high Emotional Exhaustion. Working longer hours ($p<0.05$) and lower job satisfaction ($p<.01$) independently increased the risk of high Depersonalisation. Longer time in the same job increased the risk of low Personal Accomplishment ($p<0.05$). Longer hours worked ($p<0.05$), shorter vocational experience as a consultant ($p<0.05$), and lower job satisfaction ($p<0.001$) independently increased the risk of high overall burnout.

Conclusion An unexpected proportion of consultants experience robust emotional well-being and healthy work engagement. However, for those experiencing high burnout, by severity or dimension, working long hours and low job satisfaction appear to be particularly contributory factors. Whilst remedial interventions should target the minority who experience significant burnout, studies using robust research designs are required to assess the meaningful clinical utility of these. The challenge remains to determine the optimal organisational practices to minimise burnout in this workforce.

Professional burnout is a prevalent problem in medical consultants[1] and has been described as "a well-entrenched professional norm".[2, p338] Although there is still ongoing debate about definitions of burnout, there is general consensus that the construct refers to a prolonged response to chronic emotional stressors on the job, and that it can be experienced on three distinct dimensions: high levels of emotional exhaustion, high levels of Depersonalisation/detachment, or low levels of personal accomplishment.

Depersonalisation (and the related cynicism or emotional numbing) may be protective, but emotional exhaustion is the most damaging aspect through its stronger

association with mental illness.[3] The consequences of burnout go beyond elevated prevalence of mental illness: evidence suggests that burnout has significant repercussions for patients and employers including poorer perceived and real patient care[2,4] along with higher staff turnover.[5]

In New Zealand it has been vigorously argued in academic, professional, and political quarters that health funding decisions and legal reforms over the past two decades have collectively decreased job satisfaction and increased doctor burnout.[6-8] When the relevant international empirical literature regarding burnout is marshalled, there is less consistent evidence for the contribution of contextual factors such as long working hours, type of work as a doctor, or even job satisfaction. Working longer hours has been associated with increased risk of experiencing particular dimensions of burnout in some studies[1, 9] but not others.[10]

Contrary to expectations, high job satisfaction has been found in doctors with particularly high burnout.[11] It has also been argued that certain vocational specialties are more vulnerable than others[12] though this is not a uniform finding. Studies investigating a single specialty often reach this conclusion but studies involving multiple vocational groups have found differences opposite to that expected For example,[13] found that cancer clinicians had a significantly lower prevalence of burnout than paediatricians and general practitioners.

Methodological problems abound in this literature and may account for the inconsistent findings. In a recent systematic review of the quantitative studies related to junior doctors published 1975-2005, only five (26%) publications met more than two of the Cochrane library guidelines for methodologically strong studies.[14] Recurring problems also replicated in studies relating to senior doctors include small samples[6], poor response rates [15], and varying methods to assess burnout (for example, non-use of standardised questionnaires[11]).

Employing a methodology to specifically counter such problems, this study investigates selected demographic and professional characteristics associated with the prevalence and severity of burnout in a cohort of consultants working in the New Zealand public health system.

Method

Participant recruitment—All hospital-based consultants employed in a large tertiary hospital setting (Christchurch, New Zealand) were identified through an existing profession-specific database. Potential participants were sent a postal survey during the summer of 2006-2007 inviting them to complete a questionnaire collating the following information: demographic characteristics (age, gender, and ethnicity); profession characteristics (primary vocational specialist scope, years qualified in scope); work characteristics (job status, primary work setting, hours worked in preceding week); and standardised psychometric measures of burnout and job satisfaction (see below). Mail and email prompts were sent to initial non-responders one month after the first mail-out.

Psychometric measures—Burnout was assessed using the 22-item Maslach Burnout Inventory (MBI-HSS).[16] Subscales include: Emotional Exhaustion (feelings of emotional overextension and exhaustion); Depersonalisation (unfeeling and impersonal response to one's service or care); Personal Accomplishment (feelings of competence and successful achievement in one's work). Those scoring in the top third (using the MBI-HSS normative cut-offs for medicine) of each scale (reversed for Personal Accomplishment) are considered to have high burnout in that dimension. Establishing those with high *overall* burnout can determined using the "exhaustion + 1" rule (high Emotional Exhaustion plus either high Depersonalisation or low Personal Accomplishment).[17]

Job satisfaction was assessed using the 12-item single-scale Job Satisfaction Scale as this has established internal consistency in New Zealand doctors.[18] It assesses facets such as financial rewards, job security, workload, work conditions and challenges, opportunities and autonomy.

Statistical analysis—The Chi-squared test was used for dichotomous variables, and the independent sample t-test was used for continuous variables. Binary logistic regression ('Forward Stepwise') was performed on statistically significant independent variables to estimate the unique contribution to (a) burnout dimensions and (b) burnout severity (dependent variables). An alpha level of 0.05 was used in all tests.

Power analysis determined that a sample size of n>60 would be required where a medium effect was expected.[19] Internal reliability of each psychometric measure was assessed by Cronbach's alpha coefficient. All analyses were completed using SPSS 13 (SPSS Inc, Chicago, Illinois, USA).

Results

Characteristics of the sample—The recruitment methodology resulted in 71% (n=267) of all eligible participants. Demographic, work setting, and professional experience characteristics of the sample are summarised in Table 1. Characteristic of this particular workforce in New Zealand, most were male, of New Zealand European ethnicity, and highly experienced in their vocational scope of practice and current job. Most (n=199) had worked more than 40 hours in the week preceding participation in the study, with 1 in 4 (n=58) reporting working 60 hours or more.

Table 1. Demographic and practice characteristics of participants (N=267)

Characteristic	Value
Mean (SD) age in years	48. (7.7)
Gender (% Male)	73
Ethnicity (%)	
New Zealand European	83.5
Other European	9.7
All others (e.g. Pacific Island, Indian, Chinese, multiple)	6.8
Primary identified vocational scope (%)	
Internal medicine	26
Psychiatry	18
Surgery	15
Anaesthesia	12
Obstetrics and Gynaecology	5
Diagnostic and Intervention Radiology	5
Other mixed vocational scopes	19
Primary place of practice (%)	
Tertiary Teaching Hospital	87
Community clinic affiliated with hospital	8
Other (for example, laboratory)	5
Employment status (%)	
Permanent contract	97
Locum contract	3
Mean (SD) years working as a consultant	17.0 (8.6)
Mean (SD) years working in current position	10.3 (8.0)
Mean (SD) hours worked in preceding week	47.4 (15.0)

Participants practised in 32 of the 36 specialist vocational scopes recognised by the Medical Council of New Zealand (MCNZ). Two groups with significantly

overlapping training and scope but with small participant numbers in each, were pooled in accordance with existing pooled descriptors used by MCNZ: "surgery" included all types of surgeons (general surgery, cardiothoracic surgery, plastic and reconstructive surgery etc) and "internal medicine" included all specialties diagnosing and treating complex medical problems (such as haematology, cardiology, endocrinology, infectious diseases). Where the sample size was small (<5% of participants) across disparate vocational or ethnic groups, these groups were combined into a single "other" category.

Prevalence of burnout—The prevalence and levels of the three burnout components are summarised in Table 2. Based on normative cutoffs for medicine, significantly more participants than expected from such norms reported low Emotional Exhaustion (χ^2=28.3, *df*=1, p<0.001) and low Depersonalisation (χ^2=11.7, *df*=1, p<0.01). At the clinically significant end of the continuum, across the individual dimensions, a quarter to a third of the participants reported high burnout. Using the "exhaustion +1" decision rule, one in five participants reported high overall burnout.

Table 2. Prevalence and level of burnout dimensions (Maslach Burnout Inventory-Human Services Survey) (n=267)

MBI Subscale	Low burnout %	Medium burnout %	High burnout %	Mean score (SD)	Normative mean score (SD)[1]
Emotional Exhaustion	48.1	22.2	29.7	21.3 (11.1)	22.2 (9.5)
Depersonalisation	50	25.6	24.4	6.5 (5.2)	7.1(5.2)
Personal Accomplishment	31.2	36.5	32.2	36.8 (6.2)	36.5 (7.4)

[1]MBI-HSS normative mean scores for medical workers.[16]

Table 3. Logistic regression (stepwise) of significant univariate variables associated with burnout measures

Variable	Odds Ratio	95% Confidence Intervals	P value
High Emotional Exhaustion (EE>26) (n = 79)			
Hours worked	1.03	(1.01–1.3)	.006
Job satisfaction	.276	(.165–.459)	.000
Years in current job	.959	(.920–.999)	.043
High Depersonalisation (DP>9) (n = 65)			
Hours worked	1.02	(1.00–1.05)	048
Job satisfaction	.43	(.270–.682)	.00
Low Personal Accomplishment (PA<34) (n = 86)			
Years in current job	1.04	(1.00–1.07)	.028
High overall burnout ("exhaustion +1") (n = 52)			
Hours worked	1.04	(1.00–1.06)	.01
Years of vocational scope experience	.945	(.909–.992)	.021
Job satisfaction	.372	(.220–.628)	.000

Predictors of high burnout dimensions—Logistic regression showed that longer working hours, lower job satisfaction, and shorter time in the same job all independently increased the odds of reaching threshold for high Emotional Exhaustion (see Table 3). While initial univariate analysis indicated that a range of variables were associated with experiencing high Depersonalisation, the subsequent logistic regression indicated that longer hours of work and lower job satisfaction alone made independent contributions to this state.

Longer time in the same job was the only variable that made a significant independent contribution to low Personal Accomplishment. Finally, regression analysis indicated that longer hours of work, shorter vocational experience, and lower job satisfaction all significantly and independently contributed to high overall burnout.

Gender, employment status, and vocational scope of practice were not significantly associated with any of the dependent (high burnout) variables.

Reliability (Cronbach's Alpha) calculated for each MBI-HSS subscale and the Job Satisfaction Survey was as follows: Emotional Exhaustion α=0.92; Depersonalisation α=0.75; Personal Accomplishment α=74; Job Satisfaction Survey α=0.79.

Discussion

Reassuringly, most consultants reported feeling emotionally robust, caring towards patients, and highly engaged with their work. This finding suggests that more consultants are emotionally healthy than not, but this positive skew rarely receives attention in the literature. In the face of complex and real professional pressures, it would seem that there still considerable "satisfaction in the trenches".[20,p.730] The reasons for this are likely to be multifactorial but may include perception of this setting as providing a particularly supportive work environment or the benefits of a relatively stable workforce compared with other parts of New Zealand.

Nonetheless, a significant minority of Consultants are experiencing work-related high burnout, and this study found recurring factors associated with these states. While it appears normative in this setting (as in other countries[21]), to work excessive hours, this was repeatedly associated with the risk of high burnout. This concurs with related research, albeit not as far as some with their claims that work hours is the "best demographic predictor of burnout".[1, pg 600] It would seem, nonetheless, that moves as simple as controlling work hours could reduce burnout risk, although this needs to be established in the New Zealand setting.

The finding that lowered job satisfaction contributes to burnout severity highlights the need to consider the protective role of good working relationships with managers and colleagues, along with having an interesting job in which there is some degree of autonomy. Job satisfaction is an important outcome in of itself, but additionally so through its association with burnout.

Longer time in the same job seems protective of emotional burnout, but works in the opposite direction in regard to personal accomplishment which seems to erode with time, although potentially consultants who are feeling ineffective and unaccomplished may be the very ones who take active steps to change their job. Hence it is possible

that the inverse relationship between longer time in the same job and one component of burnout is an outcome of burnout-induced attrition.

Loss and turnover of doctors is a serious problem in New Zealand, and strategies to improve stability in this specialist workforce may also need to acknowledge the feelings of ineffectiveness that increase the risk of leaving a job. Doctors may be leaving not simply because of financial incentives elsewhere, as is sometimes reported.[22] Rather, they may leave because they feel personally and professionally ineffective in their current job. But, for those who stay, it would seem that length of vocational experience as a Consultant is more protective of high burnout. There is evidence in support of this contention in a more limited study of New Zealand psychiatrists.[12]

The reasons for this will be varied but may include the development of greater tolerance for stressful clinical situations or diversification into leadership/teaching positions—both of which come with experience.

Strengths of this study included the large sample size, good response rate amongst those notorious as poor survey responders,[23] and employment of standardised measures with demonstrated internal consistency. Limitations include the possibility of bias amongst non-responders. This potential bias could be bidirectional: those who did not respond may have been uninterested because they had few problems. An alternative explanation is that they were too stressed or overworked to reply. There are also the inherent limitations of employing a cross-sectional design to study relationships that are known to be dynamic.

Despite the large size of this study, not all vocational scopes were well represented. Nothing short of a national survey would overcome this difficulty, and the single national registration body that does exist in New Zealand does offer the opportunity to develop this research further at this level. Accordingly, a wider national study seems advisable as this would also afford the opportunity to provide sufficient power to compare the less prevalent individual vocational scopes clustered in this study. Finally, participants were not asked to differentiate working hours relating to "normal" versus "on call" duties. This may have led to a conservative reporting of hours worked.

A robust dose-response relationship between burnout and suboptimal patient care practices has been demonstrated[4], and suggests that a legitimate focus should be on the one in five consultants who report high overall burnout. The actual relationship between high burnout and adverse events in New Zealand public hospitals is not known. Though it has been said that there are "few clear-cut signposts"[24] for intervention to reduce future adverse events, factors related to high burnout in doctors are an obvious target.

A series of practical and "organisational" solutions to reduce burnout and dissatisfaction in doctors has been suggested in this and other countries[6, 12]. These solutions include stress management courses, regular peer support, as well as explicit formal agreements to improve relationships between employer and employees.

The "Time for Quality" agreement [25] reached between the District Health Boards and the Association of Salaried Medical Specialists (ASMS) on 7 August 2008 is one very recent initiative specifically aimed at building collaborative relationships between

consultants and health managers. Although all these activities may have strong face validity, their utility remains largely untested through robust research designs. What are the active components in such interventions, and are interventions or initiatives designed to prevent high burnout equally effective at ameliorating these states once they have occurred?

What interventions are best for dissatisfied doctors as opposed to those with significant psychological symptoms?[26] Whilst such solutions have been labelled as organisational, in reality by and large, therapeutic interventions at the workplace continue to focus on managing the individual, despite this focus being viewed as relatively ineffectual.[27] Interventions at a truly organisational and employment level warrant closer scrutiny before meaningful improvements may be observed.

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Addressing stress related impairment in doctors. A survey of providers' and doctors' experience of a funded counselling service in New Zealand

Wayne Cunningham, Tim Cookson

Abstract

Aims In January 2006 the Medical Protection Society (MPS) and Medical Assurance Society (MAS) commenced a jointly funded counselling service for stressed doctors in New Zealand. Stressed and impaired doctors may impact negatively on patient care. This study aims to investigate the service's utilisation, acceptability, and utility, and to consider whether the service may improve the delivery of health services.

Method Psychologist or psychiatrist providers of the service between January 2006 and July 2008 were asked to anonymously complete a questionnaire about the service. They forwarded a questionnaire to their Dr-clients requesting demographic and other data, and ideas as to how the service might be improved.

Results 28 out of 41 providers submitted data on 39 out of 55 Dr-clients. 25 of the Dr-clients returned completed questionnaires. Most Dr-clients requiring 3 or fewer sessions suffered from work-related stress; those needing 10 or more sessions had diagnoses including depression, bipolar disease, prior sexual abuse, and personality disorders. Dr-clients valued confidentiality, choice, and independence of the provider, and funding of the service. They believed the service contributed to them remaining in or returning to work. Providers identified stress in both the work and home environment, noting that these overlapped. Respondents identified the need for greater publicity about the service.

Conclusion The MPS/MAS-funded counselling service is effective and well received, but there is insufficient awareness of its availability. Stress may result in impaired performance which can impact negatively on patient care, and the provision of counselling for stressed doctors can potentially improve the delivery of health services in New Zealand.

In January 2006 the Medical Protection Society (MPS) and Medical Assurance Society (MAS) commenced a jointly funded counselling service for stressed doctors in New Zealand. The basic framework of the service is that after initial contact (with an MPS medicolegal consultant), a doctor (referred to here as 'Dr-client') can receive funded counselling sessions with a psychologist or psychiatrist of their choice (referred to here as the 'provider'). Neither MPS nor MAS holds any record of the Dr-clients who have received assistance, so the service is totally confidential.

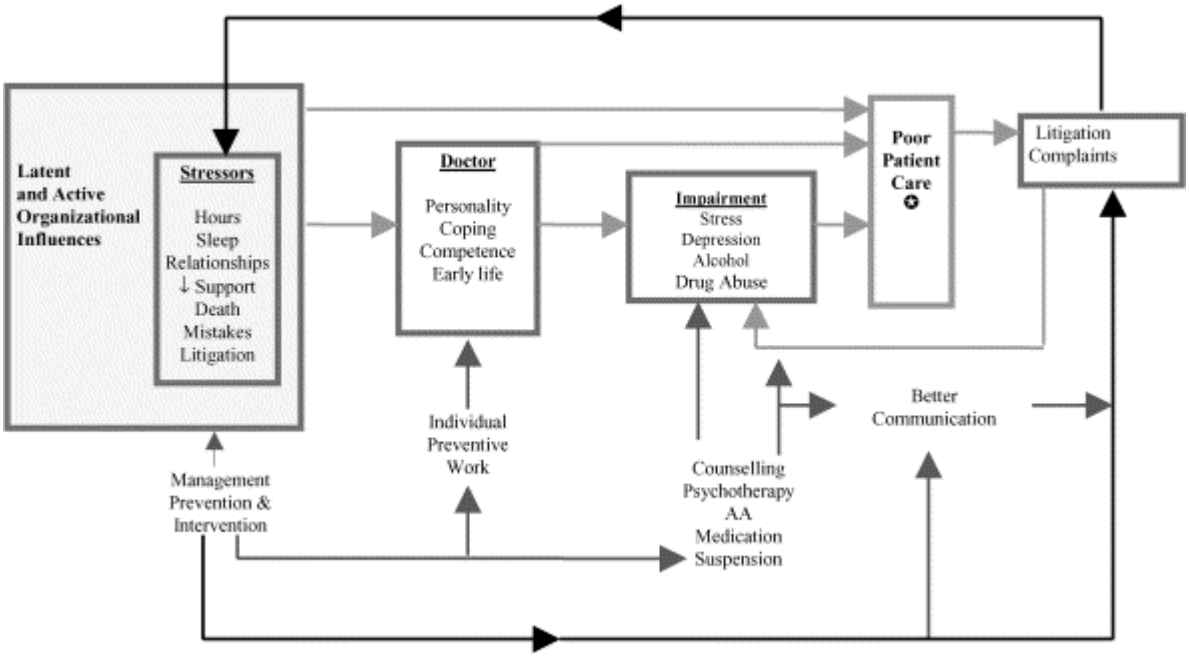
The prompt for initiating the service was research on the emotional impact of complaints on doctors.[1] This confirmed the anecdotal experience of the medicolegal consultants to MPS, and the barristers assisting MPS, that doctors in receipt of a complaint often suffered stress and required assistance. However, it is not only complaints that can stress doctors, and although contact with MPS is likely to be

medicolegally driven, the service recognises a need for doctors to be able to access counselling for any reason.

Although the principle aim of the service was to assist stressed doctors, it has potential to improve the delivery of patient care. Stressors, the person of the doctor (including their psychological make-up, coping ability and competence) and the degree of impairment of the doctor, all impact on doctors' performance. Performance can be thought of as what doctors actually deliver (what the doctor *does* do), whereas competence is more about doctors' potential (what doctors *can* do). There is compelling evidence that high levels of stress impair memory, concentration and attention, increase irritability, and reduce decision making ability, all of which may impair a doctor's performance.[2] Similar impairment is found in depression and alcohol abuse.

Using a systems perspective to look at how patient care may become compromised, Firth-Cozens has separated the organisational and individual factors that are involved. These and areas for intervention, are illustrated in Figure 1.[2]

Figure 1. A systems approach to the causes of poor patient care[2]



Although counselling is only one of a number of possible interventions in this systems model, it has the potential to positively impact patient care by reducing the degree of impairment carried by a doctor into a given patient encounter, especially if it is able to detect and help manage stress, depression or alcohol and drug abuse. The underlying assumption is that reduced impairment should improve doctors' performance and link to improved patient care.

Stress exists! However, stress is difficult to measure. One way of considering stress is by measuring psychological symptoms with the General Health Questionnaire (GHQ) using a score of greater than 3 to indicate important psychological symptoms, and a score of greater than 8 to indicate significant psychological distress.[3] Prevalence studies of stress in New Zealand doctors in 2000 and 2001have found rates of significant psychological symptoms of around 30% (GHQ score greater than 3), and indicate that around 10% of New Zealand general practitioners, physicians, and surgeons have symptoms consistent with significant psychological distress (GHQ score greater than 8).[4,5]

Virtually identical incidences were found in a survey of New Zealand hospital doctors published in 2004.[6] Psychological distress was found to be associated with levels of poor job satisfaction and work stress,[4,5] suggesting that the psychological symptoms measured by the GHQ are an indirect (but probably reasonable) measure of the existence and impact of stress. Furthermore, doctors appear to be generally more stressed than the background population.[7–9]

Studies also indicate that the workplace, the home-work interface, and tension balancing professional and personal lives contributes to stress in doctors. It seems that doctors practising in different disciplines in different countries may be affected similarly.

A recent study of female doctors in Japan found that work environment factors, particularly night duty, played an important role in modulating their distress.[10] A Norwegian study published in 2007 found that junior doctors may be particularly vulnerable to stress related to the work-home interface regardless of gender, mainly due to "a lack of adaptive reduction in work hours and an increased number of children".[11]

A 2005 Swiss survey of primary care practitioners found that workload and difficulties balancing professional and private life was implicated in the phenomenon of burnout. In that study, 32% of respondents completing the Maslach burnout inventory, scored highly for emotional exhaustion or depersonalisation/cynicism (indicating a moderate degree of burnout) and 4% had scores that indicated a high degree of burnout.[12]

To summarise, stress exists in the medical workforce both in New Zealand and overseas. Doctors are likely to be exposed to stressors in both their work and their home environments, and stress has the potential to reduce performance and impair patient care.

This study aimed to investigate the utilisation of the MPS/MAS counselling service, its acceptability to providers and their Dr-clients and to consider the service's utility and ways in which it might be modified and improved. It seeks to define some of the events (stressors) and consequences (types of impairment) that psychologists and psychiatrists who provide counselling services find in doctors who seek help in the New Zealand context.

Method

The 41 psychologist or psychiatrist providers of counselling services who had invoiced MPS/MAS from January 2006 to July 2008, were sent a letter of invitation and a questionnaire to complete about their own perception of the service and about aspects of each of their Dr-clients.

Providers were asked to make contact with their Dr-clients and forward them a separate letter of invitation and a questionnaire to be returned anonymously to the researchers. Neither the provider nor the Dr-client questionnaires requested any information that could identify the respondent, nor (in the case of the provider questionnaire) any details that could identify their Dr-client. No attempt was made to link the responses from the providers to those received from the doctors who had been in their care.

The questionnaires to both groups requested data that included gender, age, field of practice, the number of sessions either provided or attended, perception of benefit of the service to the Dr-client, perception of the degree of coercion of use of the service, and ideas as to how the service might be improved.

The providers were asked to indicate the events and consequences that led to the use of the service, any underlying psychological or psychiatric problems uncovered by the process, whether or not a complaint was involved, their perception of the likelihood of the Dr-client needing further assistance, and an indication of how many doctors they had treated *outside* of the MPS/MAS funded service over the study time period.

The Dr-client questionnaires requested an indication of the most valued features of the service, barriers delaying use of the service, and an indication of the extent to which using the service allowed them to remain in, or return to work. Dr-clients were not asked to divulge their underlying psychological or psychiatric problems.

Attitudes towards aspects of the service were indicated using 5-point Likert scales, and other information was gathered using free text responses that were transcribed and analysed by the researchers using line-by-line inductive analysis to identify emergent topics, themes, and sub-themes. Chi-squared tests of significance were used to determine the difference between the responses from the providers and the Dr-clients to the answers indicated on Likert scales.

Ethical approval was obtained from the National Ethics Advisory Committee.

Results

In 2006, there were 9547 registered doctors in New Zealand; their mean age was 44 years, 37% were female, and 40% were international medical graduates.[13]

41 providers invoiced MPS/MAS for services to 55 Dr-clients between January 2006 and July 2008 and 28 responded to the survey, giving a 68% response rate. These 28 respondents provided data on 39 Dr-clients, being 39/55 (71%) of the Dr-clients who had used the service. Twenty-four out of 55 (44%) of the Dr-clients who had used the service returned completed questionnaires.

Demographics

Gender and hours of work—The providers indicated that of the 39 Dr-clients, 14 were male and 25 female.

Of the 24 Dr-client respondents, 12 were male and12 female. There was no significant difference between the data from the provider or Dr-client respondent groups (p=0.27). The mean hours worked reported by Dr-clients were 39.47 for males and 37.6 for females.

Field of practice—Providers indicated that 23 of their Dr-clients were in general practice, 5 practised internal medicine, 6 were junior doctors (house surgeons or registrars), and the remainder worked in surgery, psychiatry or research (1 each) and 2 were not able to be categorised from the responses received. Of the 24 Dr-client respondents, 15 were practising in general practice, 3 in internal medicine, 2 in surgery, and 1 each in anaesthetics, pathology, public health, and psychiatry.

Location—Providers indicated that 24 of their Dr-clients practised in an urban setting, 11 in a small town (population 5000–25,000) and 3 rurally. No data was received from one provider. Dr-client respondents indicated that 17 practised in an urban setting, 4 in a small town, and 3 rurally.

Training—Dr-client respondents indicated that 11 graduated from a New Zealand university, 12 from overseas, and 1 respondent provided no data.

Age—Providers indicated that for 37 of their Dr-clients, 3 were aged 20–30; 12 were aged 31–40; 15 were aged 41–50; and 7 were aged 51–60. Dr-client respondents indicated that 3 were aged 20-30; 6 were aged 31–40; 8 were aged 41-50; and 7 were aged 51–60. There was no significant difference between the data from the provider or Dr-client respondent groups (p=0.70).

Utilisation—Providers indicated that for their Dr-clients, 25 had received 1-6 sessions (83 sessions in total), 9 had received 7–12 sessions (90 sessions in total), and 3 had received over 12 sessions (50 sessions in total). No data was provided for 2 respondents. Overall, 25 out of 37 Dr-clients only used 37% of the sessions, whereas 12 out of 37 Dr-clients used approximately 63% of the counselling service sessions.

Dr-clients provided data indicating that 13 had used 1–6 sessions, 6 used 7–12 sessions, and 3 used over 12 sessions. There was no significant difference between the data from the provider or Dr-client respondent groups (p=0.74). Essentially, two-thirds of the resource had been used by one-third of the consumers.

Analysis of the utilisation of the counselling service and disorders identified by providers indicated that most Dr-clients requiring 3 or fewer sessions (14/39) were suffering from work-related stress, with a handful having marital or alcohol-related problems. However, Dr-clients who had 10 or more sessions (8/39) had more significant diagnoses including depression, bipolar disease, and prior sexual abuse and personality disorders.

The 28 providers had also seen doctors as part of their practice over the 2.5 years of the period studied, who were not funded by this service. They indicated that they had treated 114 doctors *outside* of the MPS/MAS counselling service (a rate of 4.1 Dr-clients/provider), in contrast to the 55 invoices received from the 41 providers for Dr-clients paid for by MPS/MAS (a rate of 1.34 Dr-clients/provider).

Degree of benefit

The providers indicated that in their opinion, 25/39 Dr-clients received significant benefit from engaging in the counselling service, 1/39 received extreme benefit, 12/39 received some benefit, and only 1/39 received no benefit, with a comment that this Dr-client was psychotic and required immediate referral for psychiatric care. The Dr-client respondents indicated that 10/24 had received extreme benefit, 10/24 had received significant benefit, and 4/24 had received some benefit from the service. There was no significant difference between the data from the provider or Dr-client respondent groups (p=0.31).

Degree of coercion

The providers felt that 27/39 Dr-clients were not at all coerced into engaging in the service, 2/39 were minimally and 6/36 were somewhat coerced, and that 4/39 had

been significantly coerced. Dr-client respondents indicated 21/24 felt not at all coerced, 1/24 felt minimally coerced, and 2/42 felt somewhat coerced into using the service. There was no significant difference between the data from the provider or Dr-client respondent groups (p=0.17).

Aspects of the service valued by Dr-client respondents

The following features of the service were valued by the respondents:

- Confidentiality (extremely important 13/24, very important 6/24).
- Being able to choose their provider (extremely important 13/24, very important 6/24).
- Independence of the provider (extremely valued 11/24, significantly valued 10/24).
- No charge for the service (extremely important 10/24, very important 3/24, important 6/24).

The importance of the provision of the service through MPS/MAS drew a wider spread of responses, with Dr-clients indicating that this was not at all important (4/24), a little important (5/24), important (8/24), very important (6/24), or extremely important (1/24).

Utility of the counselling service

Dr-clients indicated that accessing the service had contributed extremely (7/24) or significantly (13/24) to allowing them to remain in or return to work.

Barriers to use of the service

Dr-clients cited the following as barriers to initiating contact with the counselling service: lack of awareness of the service, concerns about confidentiality, and personal reservations about receiving counselling.

Events and consequences leading to use of the service

Providers gave information about the events and consequences leading to the presentation for 37 of 39 of their Dr-clients. Eleven had issues arising from the receipt of a complaint that involved the need for counselling and 26 did not.

Thematic analysis of providers' responses indicated that Dr-clients sought help for issues arising in both the workplace and in the home environment. In considering the workplace, many providers commented on "work stress" in broad terms, but some elaborated on particular issues. They commented on the following causes of work-related stress in their Dr-clients-staffing shortages and work conditions including on-call requirements; perceptions of inadequacy and of not performing to potential leading to burnout; problems in the workplace such as difficult dynamics of workplace relationships including lack of effective communication with seniors; difficulty with management including feeling devalued and unsupported; specific instances of bullying; and idiosyncratic reactions to deaths of patients.

Stress in the home environment precipitated the need to seek help and providers noted that these stresses sometimes overlapped with those of the work environment.

Subthemes of personal or home-related stress included issues related to personal health both physical and psychological, including pre-existing depression and alcohol overuse; issues related to family health; issues related to partner/spouse relationships; and difficulties faced by immigrant doctors, with special reference to conflicts arising in the family when children are exposed to and acquire the values of the new country, as captured in the following quote:

> …(she was) concerned about the management of her teenage daughters [overseas doctor with different cultural values from her teens who were embracing New Zealand teenage behaviours and values]

Underlying problems identified by the providers

For 30/39 Dr-clients, providers reported underlying problems that contributed to the need for counselling. Responses covered a spectrum of problems including emotional distress precipitated by grief and loneliness; stress; and pre-existing psychological characteristics including low self-confidence, fear of failure, dysthymia, anxiety, and alcohol and addiction issues. Providers also reported uncovering serious underlying issues including untreated bipolar disease, major depression, and (in two instances) prior sexual abuse leading not only to problems in personal relationships but also in the Dr-client's working life:

> …prior sexual abuse led to poor self-esteem, zero sexual experiences as an adult, depression (severe), and avoidance behaviours of many sorts including "hiding" in work and study

Likelihood of doctors needing to re-use the service

Providers indicated that 0/39 were not at all likely to need further assistance, 10/39 had minimal need, 16/39 had some need, and 9/39 were significantly (and 4/39 were extremely) likely to need further assistance.

Suggestions for improvement

The Dr-client respondents were highly supportive of the service; some commenting that they have recommended it to others. Some did not realise that they could choose their own provider and one suggestion was that a list of suitable providers would be useful to be able to access.

The providers were also highly supportive of the service, but several noted the need for more advertising, workshops and similar to raise awareness of the service amongst doctors. Some providers felt that a higher number of sessions were needed to deal with more severe underlying mental illness issues and also noted that doctors tended to not seek help for stress related issues that could be helped with just a small number of sessions.

Discussion

The results of this survey suggest that doctors who have used the MPS/MAS-funded counselling service have found it beneficial and satisfactory. Their positive assessment appears to correlate with the perception of the providers. The results suggest that the service has utility in terms of helping doctors remain in or return to work. No doctors rated the benefit of the service as "none" or "minimal" and several commented on recommending the service to others. It is reasonable to conclude that the service is worthwhile and should be continued.

Small numbers in the provider and the Dr-client respondent groups contribute to the lack of statistical significance between the responses indicated on Likert scales. However, the lack of difference suggests that the perceptions of the two respondent groups may be similar.

Doctors appear to value confidentiality, the ability to chose the provider, the provider being seen as independent of MPS/MAS and having the service fully funded. The survey did not find any negativity towards accessing the service by initial contact with the MPS medicolegal consultant.

The results suggest that appropriate recognition of stress or distress in the doctor and minimally intrusive "steering" towards the counselling service, is appropriate. More intrusive questioning about the nature of the issues (events and consequences) may diminish the sense of confidentiality that is so highly valued. The results indicate a general lack of awareness of the service amongst the medical community and a need for greater publicity around it.

Analysis of issues leading to doctors seeking help and of the underlying diagnoses is consistent with Firth-Cozens' systems approach to poor patient care.[2] Some doctors are affected by both their workplace and their home environments, depending on their prior psychological makeup and their existing coping strategies. Stresses experienced in each environment may overlap with the other, impairing function in either or both concurrently.

In simple terms, if all is not well at home, work may suffer and stresses from work may be brought home and negatively impact on marital and other relationships. Although this seems blindingly obvious, it appears that prior to receiving counselling, the Dr-clients had either not quite made these connections, or had failed to develop appropriate strategies to cope.

Furthermore, the providers made diagnoses of important underlying psychopathology in several of their Dr-clients, including depression, bipolar disease, and two cases of sexual abuse.

In this study, only one Dr-client was funded for every three other Dr-clients attended by the providers, which may give some indication of the potential demand for the service, if it was widely publicised. Other options for funding include doctors' own health insurance, self funding, and access to counselling paid for by their employers.

Analysis of the number of sessions required, diagnoses made and comments from the providers, suggests that a limited number of sessions can help to manage stress-related issues (in either the work or home environment), but that for Dr-clients with important underlying problems, more sessions may be required.

In the authors' opinion, this study suggests that a funded counselling service has merit in terms of helping doctors deal with stress that may diminish their ability to provide good quality patient care. However, performance is also related to competence. One question that arises is whether a similarly accessible, individualised, and collegial system aimed at addressing issues around doctors' competence, might have similar benefit in terms of potentially improving patient care.

Previous research in New Zealand indicates that doctors on receipt of a complaint have an "intellectual" response that involves close scrutiny of their practice, largely

using a biomedical lens, to determine whether they have practised appropriately or not.[14] This approach is reinforced by the approach of both prosecuting and defending organisations when they seek to determine standards of practice.

Absent, is a structured approach to learning at an individual level, and it is this need for learning, particularly in the context of a Health and Disability Commissioner's or Coronial inquiry that is sorely needed.[15] One possibility would be for the Colleges to institute a mentoring service in which colleagues could explore issues of competence in a safe learning environment, along the lines of the counselling service considered in this study.

Conclusion

As a way of providing psychological assistance to doctors at a time of need, the MPS/MAS funded counselling service appears to be effective, efficient, and well received, but there is insufficient awareness of its availability. It provides valuable counselling intervention to those doctors struggling to cope with stress related issues, and provides initial access for doctors with serious mental health problems.

Impaired doctors can impact negatively on patient care, and the provision of counselling for stressed doctors can potentially improve the delivery of health services in New Zealand.

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THE NEW ZEALAND MEDICAL JOURNAL
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A surgical career for New Zealand junior doctors? Factors influencing this choice

Jason Du, Janarthanan Sathanathan, Gill Naden, Stephen Child

Abstract

Aims To discover the level of interest in a surgical career amongst junior doctors and trainee interns in the Auckland region. Secondary aims are to identify the factors that influence career choice as well as the timing of career choice.

Methods An anonymous and structured questionnaire was distributed to all trainee interns and junior doctors in their first to fifth postgraduate years in the Auckland region. Questions were based on basic demographics, level of training, career preference and factors from previous experiences in surgery that may have influenced their career choice.

Results Total of 87 replies with 36% expressed interest in surgery whereas 64% were interested in non-surgical specialties. Top three factors influencing career choice were similar in both groups: Lifestyle, career ambitions and family. Personal interest, practical hands-on and positive previous experiences were the top reasons why junior doctors chose surgery. Poor lifestyle, lacking of interest, limited future part-time work and previous negative experiences were the top reasons why junior doctors did not choose surgery. A significantly ($p<0.05$) larger number of junior doctors in the surgical group had positive previous experiences on their surgical runs, with their consultants and registrars compared with the non-surgical group. Those interested in surgery decided on their careers earlier.

Conclusion Career aspirations of New Zealand junior doctors were similar to findings reported overseas. To promote surgery amongst junior doctors and medical students, attention should be paid to the key factors which may influence career choice. By improving working conditions and have better surgical education with good mentoring, team atmosphere and opportunities for early exposure will hopefully allow better recruitment and training of future surgeons.

Today's medical graduates are moving away from surgery in favour of 'family or lifestyle-friendly' careers.[1–7] Evans et al reported up to 75% of graduating medical students in 2002 cited length of training and poor lifestyle as factors influencing choice against a surgical career.[7] Current junior doctors in the workforce are part of what is known as 'Generation Y' which is associated with characteristics such as: self-centred, protected, optimistic, confident, technologically savvy, have job-hopping tendencies in search for the ideal career and expect constant positive reinforcement from their senior colleagues.[8] As such, the perception that a surgical career requires long hours, little sleep, arduous exams and contact with 'difficult' personalities may have contributed to the marked decline in interest in surgery over the past decade.[9,10]

According to the Royal Australasian College of Surgeons report in 2005,[11] 31% of the New Zealand surgical workforce is aged 55 and over. With one-third of the current

active surgeons expected to retire in the next 5 years and a declining interest in surgical training, there is a projected increasing surgical workforce shortage in New Zealand.

While two studies have looked at the career aspirations of medical students in New Zealand,[12,13] and one study looked at postgraduate career choices in 2003,[14] no study has looked at the factors affecting the career choice of New Zealand junior doctors with respect to surgery specifically.

The primary aim of the study was to determine the level of interest in a surgical career amongst junior doctors and trainee interns (final year medical students) in Auckland. Secondary aims were to identify the positive and negative factors that influence career choice as well as the timing of career choice.

Methods

Based on a literature review, a structured 12-question questionnaire was developed on basic demographics, level of training, career preference, factors influencing their choice, and previous experiences in surgery. All participants were given a list of factors to prioritise when deciding on a career choice in general. They were then asked to score 1–5 from a more specific list of factors relating to choosing surgery or not as to how influential these factors were (1 being least, and 5 being the most influential).

Questionnaires were distributed to all trainee interns (TI) and junior doctors in their first to fifth postgraduate years (PGY1-5) in the Auckland region. Questionnaires were sent both in paper form and electronically via email between April and September 2008. In addition, questionnaires were also distributed at weekly junior doctor teaching sessions at Auckland hospitals.

All questionnaires were anonymous, although respondents were asked their gender and level of training. All questionnaires were received and analysed by the principal author.

Ethics approval was obtained via our internal research office. All statistical analyses for the study were done using excel at 95% confidence intervals with a p value of less than 0.05 considered significant.

Results

A total of 87 replies (37% male, 63% female) were received and all were included in the final analysis. The estimated response rate was 25% as it was difficult to quote actual response rate since both paper and electronic questionnaires were distributed. Over 75% of responses were from TI, PGY1, and PGY2 with PGY 3+ making up the rest (see Figure 1).

Overall, 31/87 (36%) junior doctors were interested in surgery (surgical group) and 56/87 (64%) were interested in non-surgical specialties (non-surgical group). Lifestyle, career ambitions and family were the top three factors influencing career choice in general in both groups (see Table 1). In the surgical group, career ambition seemed to be the most influential factor whereas lifestyle and family were the most influential in the non-surgical group. However, p values were >0.05 when the two groups were compared due to small population numbers.

Figure 1. Training level of participants.

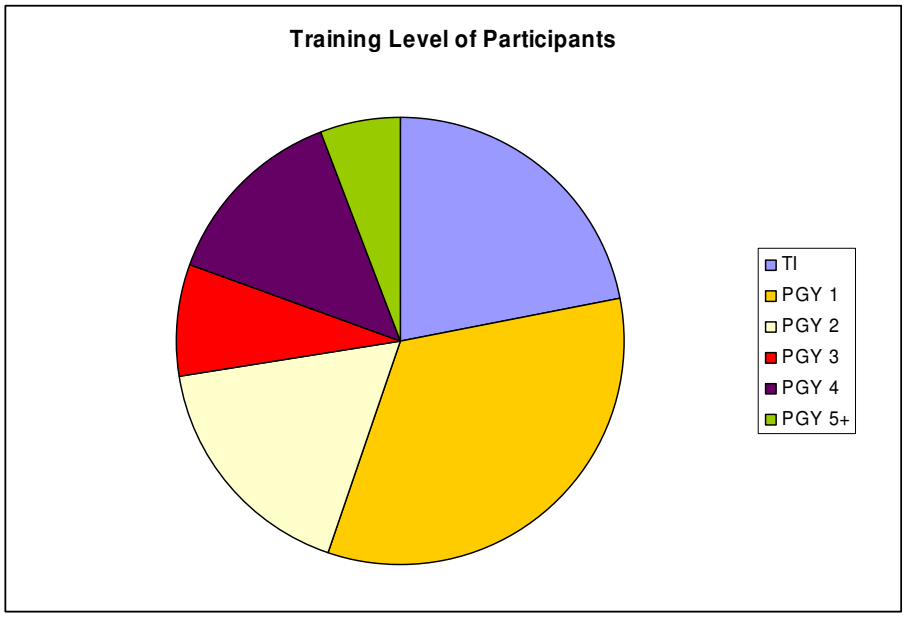


Table 1. Factors influencing career choice.

Factors	Interested in surgery	%	Not interested	%
Lifestyle	25	80.6%	52	92.9 %
Career ambitions	27	87.0 %	45	80.4 %
Family	25	80.6 %	50	89.3 %
Finances	18	58.0 %	30	53.6 %
Travel	14	45.2 %	27	48.2 %
Research	14	45.2 %	22	39.3 %

When asked more specifically about factors that affected whether or not surgery was chosen. Personal interest, practical hands-on aspect of surgery and positive previous experiences were the top reasons why 36% of the junior doctors chose surgery (See Figure 2).

Poor lifestyle, lacking interest, limited part-time work, and previous negative experiences were the top reasons why 64% of our junior doctors did not choose surgery (See Figure 3).

Figure 2. Factors affecting choice of surgery

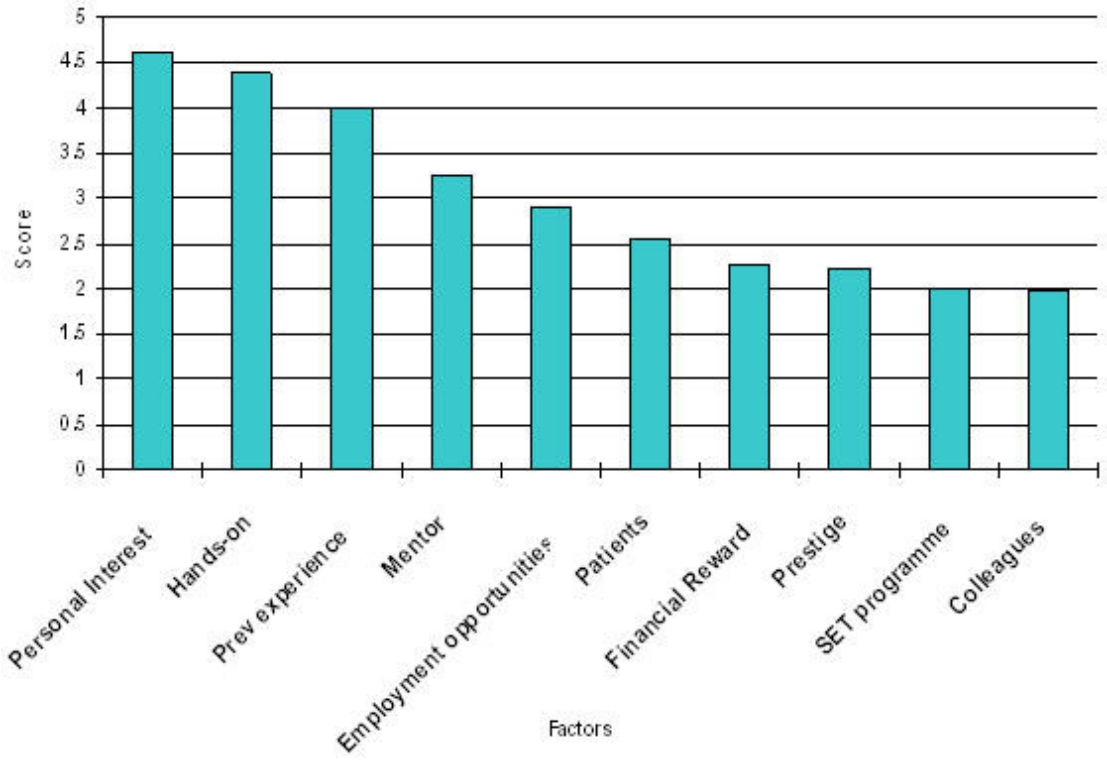
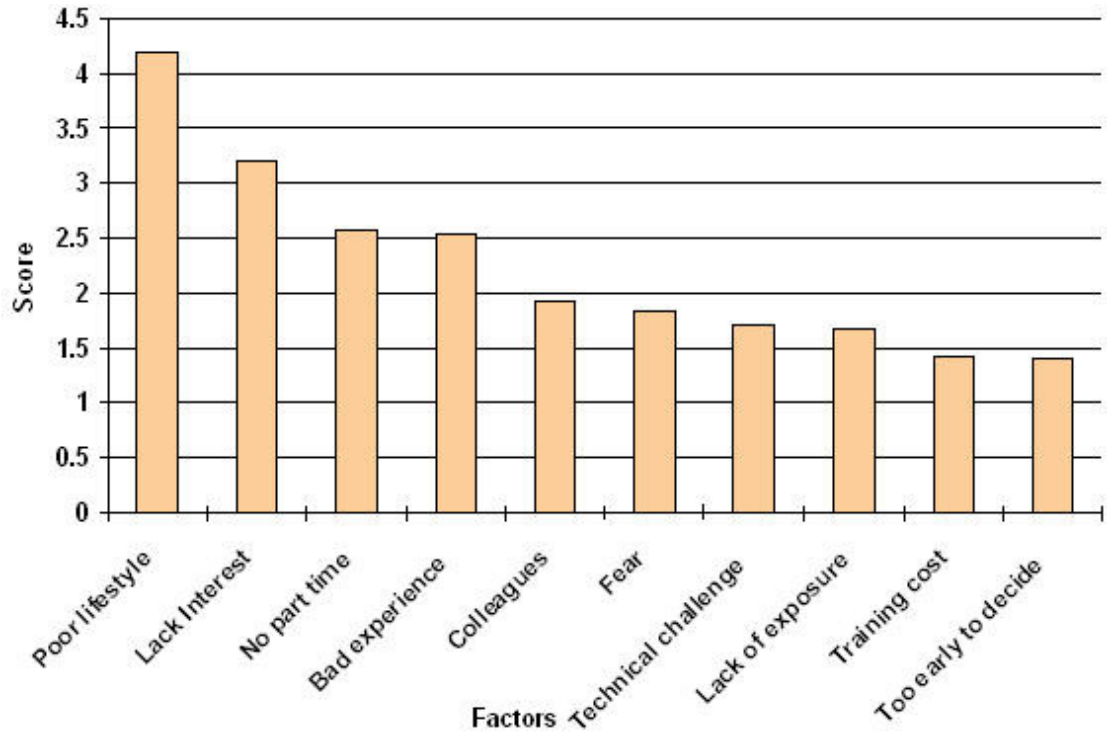
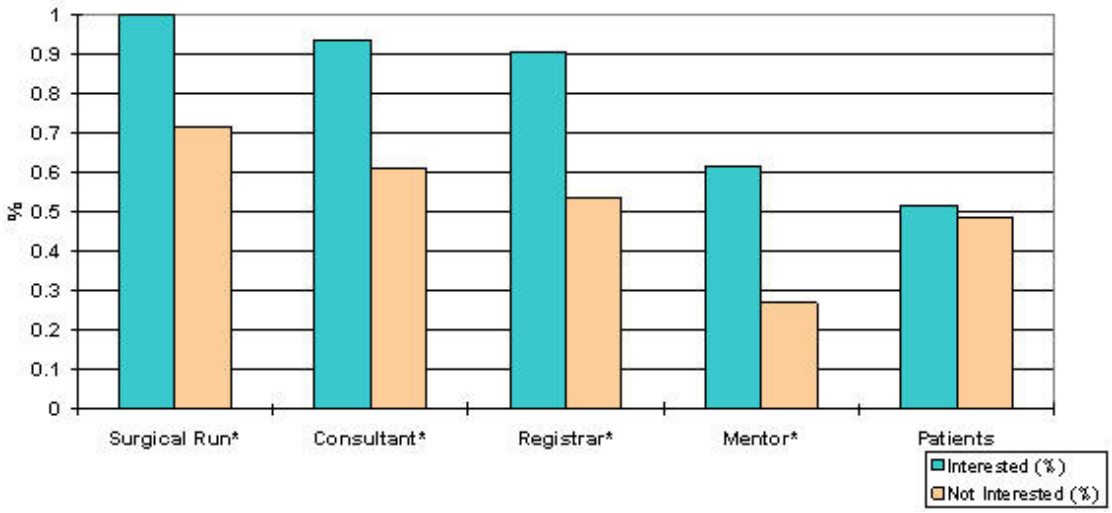


Figure 3. Importance of factors for not choosing surgery



In the surgical group, everyone (100%) had positive previous experiences with previous surgical runs versus 71% of the non-surgical group ($p<0.05$). Of the surgical group 94% had positive previous experiences with their surgical consultants versus 61% of the non-surgical group ($p<0.05$). Of the surgical group 90% had positive previous experiences with surgical registrars versus that of 54% of the non-surgical group ($p<0.05$) (See Figure 4).

Figure 4. Positive personal experiences in surgery

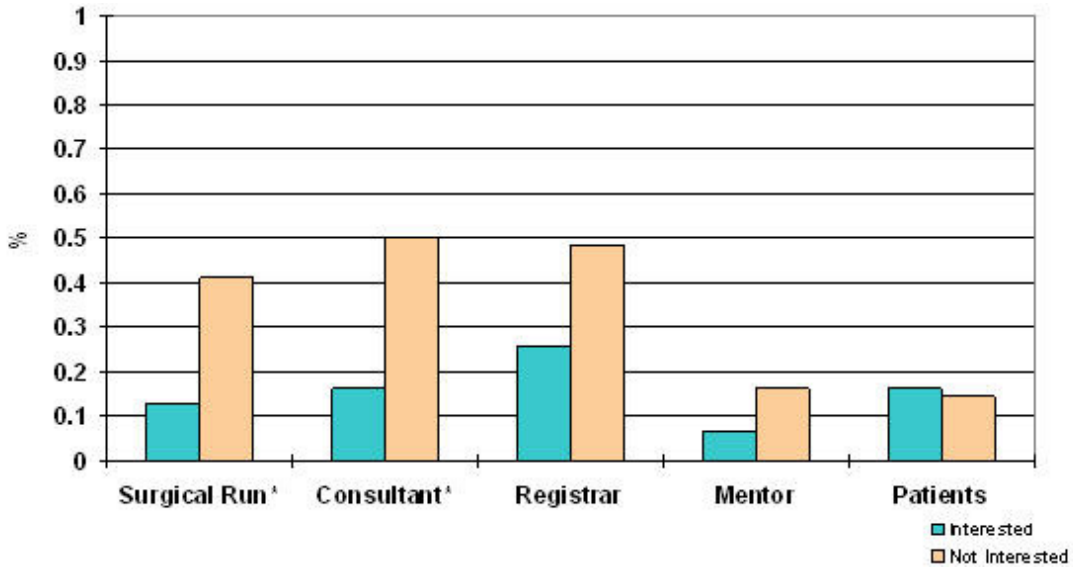


* = $p<0.05$

A significantly larger number of junior doctors in the non-surgical group had negative previous experiences on their surgical runs and with their surgical consultants ($p<0.05$) (See Figure 5).

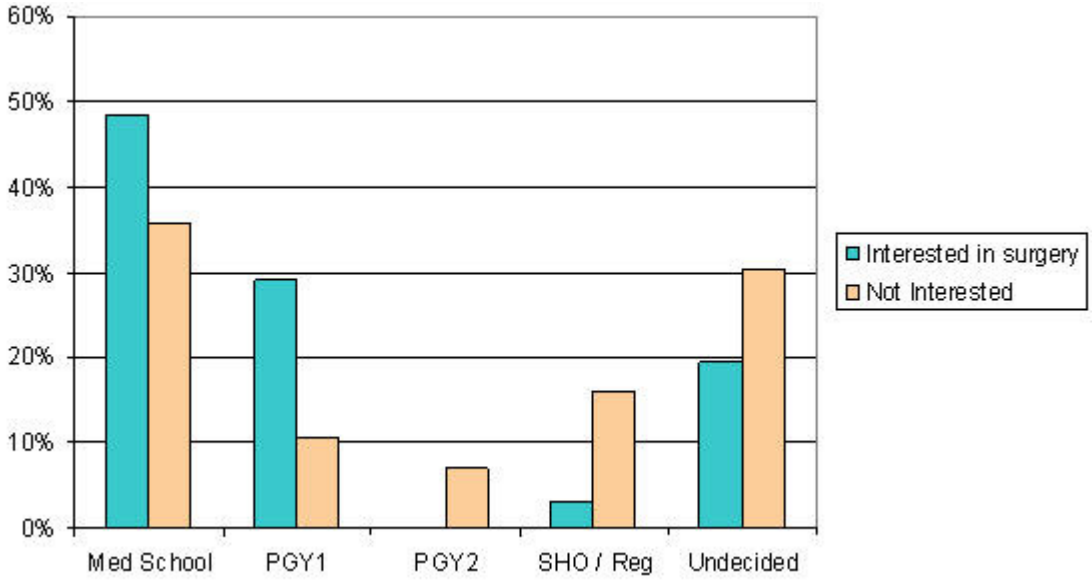
In the surgical group, 26/31 (84%) junior doctors decided on their careers either during or before the PGY1 year compared with that of 26/56 (46%) in the non-surgical group ($p<0.05$) (See Figure 6).

Figure 5. Negative personal experiences in surgery



* = p<0.05

Figure 6. Timing of career choice



Discussion

Historically, surgery has been considered a highly respected, prestigious profession and has involved a competitive selection scheme.[1] However, studies abroad have suggested a trend among recent medical graduates moving away from surgery as a result of lifestyle issues, likelihood of litigation, absence of role models, and lack of

undergraduate exposure.[2,7] The changing nature of healthcare delivery, societal values, and medical school selection may also be contributing factors influencing career choice among medical professionals.

Although extensive literature exists internationally on career choices of junior doctors and some literature exist on New Zealand junior doctors,[12–14] our study is the only study specifically looking at factors influencing a career choice in surgery.

In this study, 36% of respondents were interested in surgery which was similar to a previously conducted survey in 2003,[14] and aligns with international data.[4, 5] Although only the Auckland junior doctors were sampled, it is likely that the results are representative of New Zealand as a whole.

When asked about factors influencing career choice in general, it was interesting to find that regardless of which specialty the junior doctors are interested in, the top three factors were: Lifestyle, career ambitions and family. However, career ambitions topped the surgical group list whereas lifestyle and family topped the non-surgical group list. This shows that the medical graduates of today have significantly different lifestyle interests and goals than those from prior decades.[5–7]

The desire to keep leisure and work separate and balanced is increasingly prominent. In effect, the need for a 'controllable lifestyle' has become an essential factor in career selection and specialties that can address this concern such as dermatology, radiology and anaesthesiology, are increasing in popularity.[1,3]

Of note, gender analysis with respect to factors influencing a career choice in surgery was not performed in this study. However, other studies have shown that the desire for greater flexibility of schedule and lifestyle is no longer limited to female doctors but is an influencing factor shared equally among men and women.[6,7]

When surgically inclined junior doctors were asked specifically about why they chose surgery, the top reasons were: personal interest, practical hands-on aspect of surgery and previous positive experiences with their surgical rotation and consultant and / or registrar mentors. Not so surprisingly, poor lifestyle, lacking interest, limited part-time work and previous negative experiences with their surgical rotation and consultants were the main reasons why the majority of the junior doctors did not want to pursue a surgical career.

Many studies have illustrated the importance of a positive role model in attracting and maintaining medical graduates' interest in surgery, particularly at an early stage.[1,5–7] International studies coincide with this study suggesting that consultant surgeons have a critical role in this respect. Consultant surgeons are in the strongest position to demonstrate the benefits of the field, act as role models or mentors for students and junior doctors.

Perhaps more importantly, they also demonstrate the satisfaction and enjoyment of a surgical career. In particular, exposure to positive role models with balanced, successful personal lives can counteract the many lifestyle concerns facing current graduates and demonstrate that becoming a surgeon is an obtainable goal for any hardworking junior doctor.[2]

It is known that junior doctors interested in surgery decide on their careers earlier compared to their non-surgical colleagues. Early surgical education from exposure to

operating experiences, participation in surgical teamwork, surgical skills practice in training courses and laboratories for junior doctors, trainee interns and medical students may all contribute to developing interest in the specialty.

Junior doctors, especially those with enthusiasm for surgery, are not discouraged by high demands, but these demands must be structured, visible, goal oriented, and achievable.[15] Junior doctors who are interested in a surgical career respond positively to a clear and structured educational curriculum. Coaching and mentorship from senior surgeons along with a positive team experience are important aspects to developing potential surgeons.

A too-high workload and too much pressure for an optimal and error-free performance in hospital and society may well discourage young doctors from choosing surgery as a career with a result that they end up looking for simpler solutions outside of surgery.[2]

Motivation is lost when basic career needs are not met. This means having an adequate salary, job security and satisfaction, which includes leisure time for friends, sports, relaxation, cultural events, and hobbies. Motivation is also diminished by poor role models and unstructured surgical education.[15]

To encourage more junior doctors to pursue a surgical career, it is postulated that consideration needs to be given to improving working conditions (controllable lifestyle), better role-modelling / mentoring from consultant surgeons, clearly structured education or training curriculum and encourage a friendlier, team atmosphere.

Conclusion

Career aspirations of New Zealand junior doctors were similar to those reported overseas and appeared not to have changed since 2003. To promote surgery amongst junior doctors and medical students, it is necessary to take into account that current graduates, consistent with known generation Y attributes, place more emphasis on lifestyle and family. However, the junior doctors are not discouraged while interest is maintained and the demand is structured, visible, and achievable.

In short, attention should be given to improving working conditions and well structured surgical education programs with good academic and career mentoring. Encourage a friendlier and supportive team environment for all staff. The creation of opportunities for junior doctors and students in surgical education through early exposure to a variety of surgical disciplines, participation in surgical teamwork, practice in surgery and laboratory training courses would contribute to enhanced recruitment and efficient effective training of future surgeons.

Competing interests: None known.

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Patient satisfaction in New Zealand

Gerard Zwier

Abstract

Aims To determine whether the Patient Survey Guidelines developed for district health board (DHBs) in 2000 are being adhered to and what the results of the survey can tell us about patient satisfaction in New Zealand.

Method Nationwide patient survey data obtained from the Ministry of Health under the Official Information Act was examined to determine the validity and reliability of the survey instrument. Data was then analysed to ascertain whether patients are more or less satisfied than in previous years and what factors influence patient satisfaction.

Results To determine the reliability of the instrument, the "Cronbach alpha" statistic was calculated. The patient satisfaction instrument demonstrated high levels of reliability for patient satisfaction measures of "communication", a "personal approach" and "organising patient care". Assessment of convergent validity showed that the highest correlations were found between items that measured closely related aspects of patient care and, conversely, discriminant validity was demonstrated by the very low correlations between items that measured unrelated aspects of patient care.

Conclusion The current dataset of some 229,000 inpatient and 254,000 outpatient records from 21 New Zealand DHBs has the potential to generate extremely valuable information that can be employed to increase patient satisfaction throughout New Zealand. However, while high levels of reliability and validity were demonstrated, the majority of DHBs do not implement the survey as required by Patient Survey Guidelines which it developed in 2000.

It is exactly 8 years ago since the Sector Accountability & Funding Directorate, then known as Crown Company Monitoring & Advisory Unit or CCMAU), published the "Patient Satisfaction Survey Guidelines 2000".[1] This report, which embodied the collaborative effort of several Ministry of Health staff and a team of public hospital Quality Managers and Customer Services personnel, described the newly proposed Inpatient and Outpatient questionnaires and explained in great detail the "Best Practice" methodology that should be used by all New Zealand public hospitals so that they would be able to monitor patient satisfaction accurately and reliably.

In an accompanying letter, the then Hon Minister of Health, Ms Annette King, said that (these guidelines) would…

- Improve the statistical robustness of survey results and the consistency with which district health boards (DHBs) can apply them.
- Expand the base of the patient populations being surveyed.
- Focus the questions asked on the key determinants of patient satisfaction, from the patients' perspective.

The question that needs to be asked now is, has the implementation of the new survey gone to plan? Has the statistical robustness of the statistics and usefulness of the results been demonstrated? More to the point, and keeping in mind the issues raised in previous publications (Zwier & Clarke[2,3]), are DHBs now in a position to use the data to better understand and/or increase patient satisfaction?

Method

The dataset covering the last 8 years was analysed on the basis of the survey results submitted by each DHB to the Directorate. This database, which presently contains 229,000 inpatient and 254,000 outpatient records from 21 New Zealand DHBs, incorporates patient satisfaction ratings on 17 inpatient and 15 outpatient items respectively. It presents New Zealand with a treasure trove of information, both from the perspective of statistical analyses and from the potential use that can be made of it to further improve our patient satisfaction ratings.

To permit analyses of specific aspects of care, the inpatient questionnaire asks questions about patient perceptions of the Emergency Department, the availability of staff, the manner in which they were treated by staff (did they receive enough information, did the staff treat them with dignity and respect?), their opinion of the hospital's facilities (safety & security, cleanliness, food), discharge procedures and the adequacy of communication between different departments involved in their care.

The outpatient questionnaire covers the usual topics such as the patients' perceptions of the appointment system, the manner in which they were treated by staff (did they receive enough information, did staff ask permission to treat the patient?), their opinion of the clinic's facilities (e.g. cleanliness), the adequacy of communication between different departments involved in their care, and their satisfaction with the organisation of their care with other service providers.

The present overview is divided into two separate sections:

- An assessment of the reliability and validity of the questionnaire, and
- An analysis of the results of the survey data using ESPRI software.

This overview is concluded with a recommendation regarding future requirements.

Results

How reliable and valid is the data?

A preliminary investigation into the reliability and validity of the present survey was carried out. Because if it were found to be severely lacking, a lot of effort would have been made to no avail. The public could rightly accuse the government of wasting good public hospital money.

Is the prescribed method implemented?

When the question was posed whether the DHBs are surveying their patient population using the method prescribed in the Patient Survey Guidelines, it became clear that some do but most don't:

Table 1 shows that only Auckland, Bay of Plenty, Canterbury, and Taranaki consistently achieve the minimum number of required questionnaires returned by patients. Five other DHBs (i.e. Capital & Coast, Counties Manukau, Hutt Valley, Nelson Marlborough, and Waikato) achieve this some of the time. A number of DHBs regularly miss out on achieving the required sample size while West Coast submits less than a dozen questionnaires each quarter and might as well not participate.

Even when DHBs are sending out a sufficiently large enough number of questionnaires, the response rate is in most cases quite low. Excluding such obvious errors as made by Hutt DHB which in the first quarter this year recorded sending out

600 questionnaires and receiving 609 responses, the average response rate among these DHBs is around 35%.

Table 1 Over and under target numbers and response rate by district health board (DHB)

DHB	2008 quarter 1		2008 quarter 2		2008 quarter 3		2008 quarter 4	
	Over or under	Response rate %	Over or under	Response rate %	Over or under	Response rate %	Over or under	Response rate %
Auckland	90	34%	156	37%	153	37%	118	35%
Bay of Plenty	511	37%	390	29%	496	29%	411	26%
Canterbury	24	43%	23	43%	4	41%	22	44%
Capital & Coast	86	33%	565	37%	232	39%	-171	25%
Counties Manukau	9	26%	-73	20%	66	30%	-29	23%
Hawke's Bay	-132	35%	-158	33%	-146	34%	-205	31%
Hutt Valley	278	107%	150	85%	-137	25%	-113	37%
Lakes	-34	33%	-32	33%	-57	31%	-82	32%
Mid Central	-116	44%	-74	51%	-105	46%	-74	51%
Nelson Marlborough	37	38%	27	46%	-43	37%	-4	42%
Northland	-44	36%	-2	39%	-59	33%	-26	36%
Otago	-70	49%			-86	46%	-109	42%
South Canterbury	-97	45%	-97	42%	-123	40%	-110	39%
Southland	-156	35%	-134	39%	-20	38%	-125	40%
Tairawhiti	-154	24%	-194	25%	-163	26%	-193	24%
Taranaki	18	35%	23	36%	41	39%	38	37%
Waikato	9	35%	36	40%	223	38%	-19	38%
Wairarapa	-101	43%	-117	39%	-144	33%	-107	35%
Waitemata	-142	32%	-156	34%	-117	35%	-170	32%
West Coast								
Whanganui	-50	41%	-51	39%	-71	34%	-60	37%

In addition, various DHBs have amended the stipulated questionnaire by changing the sequence or adding in new questions such that comparability of results is lost. Hutt Valley DHB, for example, rearranges the entire sequence of items and intersperses some 60 additional questions to the prescribed 17 inpatient questions.

Furthermore, the bias in the sample caused by self-selection (older and European patients are more likely to respond than are younger and Māori/Pacific patients) has lead in virtually all cases to a lack of representativeness of the resulting sample of patients: older and European patients are over-represented and younger and Māori/Pacific patients are under-represented.

Yet disappointingly, the agency charged with monitoring the implementation, i.e. The Sector Accountability & Funding Directorate of the Ministry of Health which is responsible for funding, monitoring and ensuring the sector is compliant with accountability expectations, has taken no action to rectify these shortcomings.

Consequently, for most DHBs the number of questionnaires used to calculate the patient satisfaction scores on a quarterly basis is insufficient and the detailed reporting that is done by the Ministry of Health (e.g. in the quarterly produced DHB Hospital Benchmark Information Report) is shaky at best.

Instead of encouraging the DHBs to improve their performance and increase their sample size, the Directorate issued a directive to all DHBs at the start of the new financial year (July 2008) that data on the patient population make up (age, sex, ethnicity) was no longer required—the reason given was that the information wasn't used anyway. That this makes it impossible to do checks on the extent to which samples accurately represent patient populations appears to have been regarded as unimportant.

But does this mean that the results of the nationwide patient survey are totally unreliable and worthless? What happens when the reliability and validity of the data is examined?

Reliability

Across the board, and on a scale where 1=very poor and 5=very good, average patient satisfaction ratings for *inpatient* services range from 3.74 (quality of hospital food) to 4.56 (treating the patient with dignity and respect). For *outpatient* services, the scores range from 4.33 (informing the outpatient about how long they would have to wait) to 4.52 (treating the patient with dignity and respect).

The scores are well distributed and have relatively large standard deviations ranging from 14% to 32%. The relatively smaller standard deviations on items measuring patients' rating on being treated with "dignity and respect" suggest the high scores are unanimously endorsed whereas, conversely, large standard deviations on items measuring satisfaction with hospital food (inpatients) and waiting times (outpatients) demonstrate that there is considerable variability across the 21 DHBs on these measures of quality.

To determine the reliability of the inpatient and outpatient questionnaires, the most commonly used measure of internal consistency was calculated: a statistic called "Cronbach alpha". The value of alpha can range between 0 and 1 and it is generally accepted that if a set of items has an alpha above 0.60, it is usually considered to be internally consistent. If it goes above 0.80, it signifies a very high reliability.

Following Nelson et al (1989),[4] who assessed the reliability and validity of the 68-item "Patient Judgement System" (PJS), the alpha statistic of the New Zealand inpatient and outpatient survey was also measured. Although the New Zealand questionnaires were not constructed to assess patient satisfaction on a set of dimensions (as does the 68-item PJS), results show that on measures that gauge satisfaction among inpatients with specific aspects of treatment such as communication (i.e. providing explanation and information), adopting a personal approach and facets of organising patient care, high alpha levels of 0.88, 0.86, and 0.85 were achieved. Similar Cronbach alpha levels were achieved when constructs such as "explanation" and a "personal approach" were analysed among outpatient ratings.

Another method by which one can assess the reliability of a survey instrument is to perform a test-retest reliability analysis. Test-retest reliability estimates are obtained by repeating the measurement using the same questionnaire under as nearly equivalent conditions as possible. However, as it is not possible to re-administer the questionnaire to the same patient 3 months later, the average absolute value of the difference between the two means of two consecutive periods was compared.

The results show extremely small changes in the average scores from one period to the next. When the entire sample is compared in this manner, the difference among inpatients and outpatients over comparable calendar quarters is less than half a percent. Without even taking into account the possibility that some of these differences are caused by actual changes in the delivery process, this stability of measurement provides further support for the reliability of the measures.

Validity

Further analyses focussing on the annual period ending December 2008 show that there is substantial variability across the DHBs on all items in both questionnaires. These statistically significant differences between the DHBs (many at $p<0.01$, others at $p<0.05$) provide some support for the validity of the items used.

In the absence of a set of different scales all measuring the same construct, the best example of convergent validity must be the way in which all items are in some way or another associated with the one general validity indicator variable, namely an item which relates directly to the patient's overall satisfaction with his or her treatment.

The results indicate that, among inpatients, the "overall satisfaction" item is highly correlated with items such as staff availability ($r=0.68$), being treated with dignity and respect ($r=0.68$) and being listened to ($r=0.67$). Among outpatients, overall satisfaction is most strongly correlated among items asking patients to rate staff on how well they explained their condition and informed them about their care ($r=0.76$).

It is reassuring to note that the highest correlations were found between items that measured closely related aspects of patient care. For instance, among inpatients, information given by ED staff on: (a) the patient's condition and (b) length of waiting time (items one and two) were very strongly correlated ($r=0.76$). Among outpatients, the high correlation ($r=0.70$) between (a) approval of the effort exerted by staff to make an appointment time that suited the patient and (b) satisfaction with the appointment time itself (items 1 and 2) was most revealing.

Conversely, discriminant validity of the nation-wide patient survey is shown by the very low correlations between items such as satisfaction with the quality of hospital food and informed consent ($r=0.27$). Similarly, among outpatients, a low correlation was evident between the item measuring satisfaction with waiting time and cleanliness ($r=0.29$).

As the survey clearly distinguishes between items that ought to correlate with one another and items between which one would not expect to find a strong association, these findings provide additional empirical support for the validity of these items.

The relationship between satisfaction and demographic variables

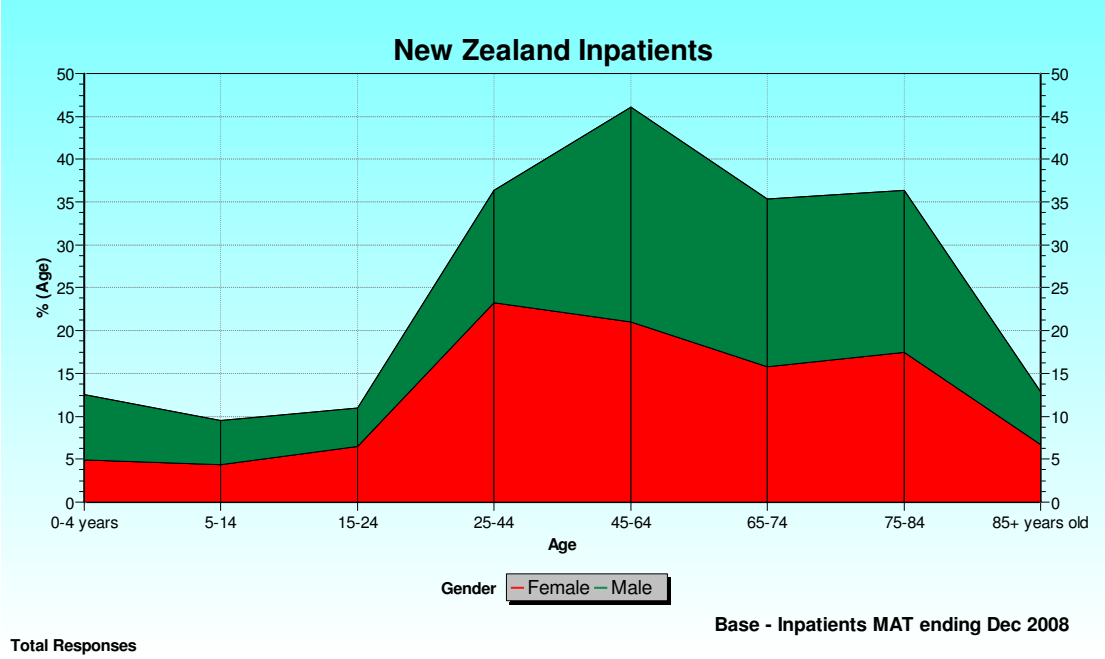
Keeping in mind that the sample size is not sufficiently large to analyse the data on a quarterly basis, and acknowledging the lack of representativeness caused by self-selection of respondents, the characteristics of the sample can nevertheless be scrutinized on the basis of a 12-month period.

Age and sex

The inpatient sample during the 12-month period ending December 2008 consists of 24,533 patients: 12,917 female patients and 11,616 male patients.

Figure 1 shows that the distribution of age between the two sexes is disproportionate due to greater percentage of childbearing women in the 24-44 year age bracket.

Figure 1 Distribution of age and sex in the sample

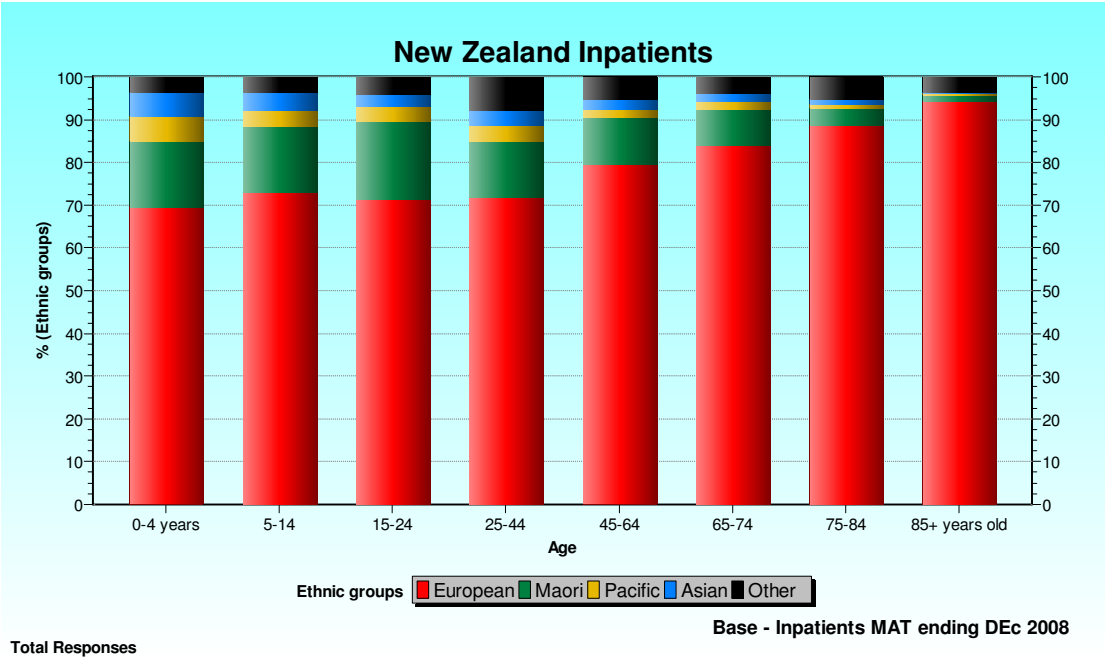


Ethnicity

Across the board, 80% of these inpatients are European, 10% are Māori, 2% are Pacific Islanders, and 2% are of Asian origin.

Figure 2 shows that Māori and Pacific Island patients are disproportionately represented in the lower age bands while European patients make up 94% of the over 85-year-old age group.

Figure 2. Distribution of age and ethnic group in the sample



Comparing the distribution of non-European inpatients across all DHBs (West Coast is excluded because of its very small sample size), it is evident that Otago has the smallest percentage and Counties Manukau the largest percentage of non-European inpatients (see Figure 3).

Satisfaction as a function of demographic variables

Before the question "How satisfied are New Zealand patients?" can be answered, it is crucial that the relationship between patient satisfaction and demographic variables is understood.

As expected, results show that patient satisfaction rates are a function of age, sex and ethnic group. For instance, Figure 4 shows that age is strongly correlated with satisfaction: older patients are more likely to express greater satisfaction than are younger patients ($p<0.01$).

Figure 3 Distribution of non-European patients across district health boards

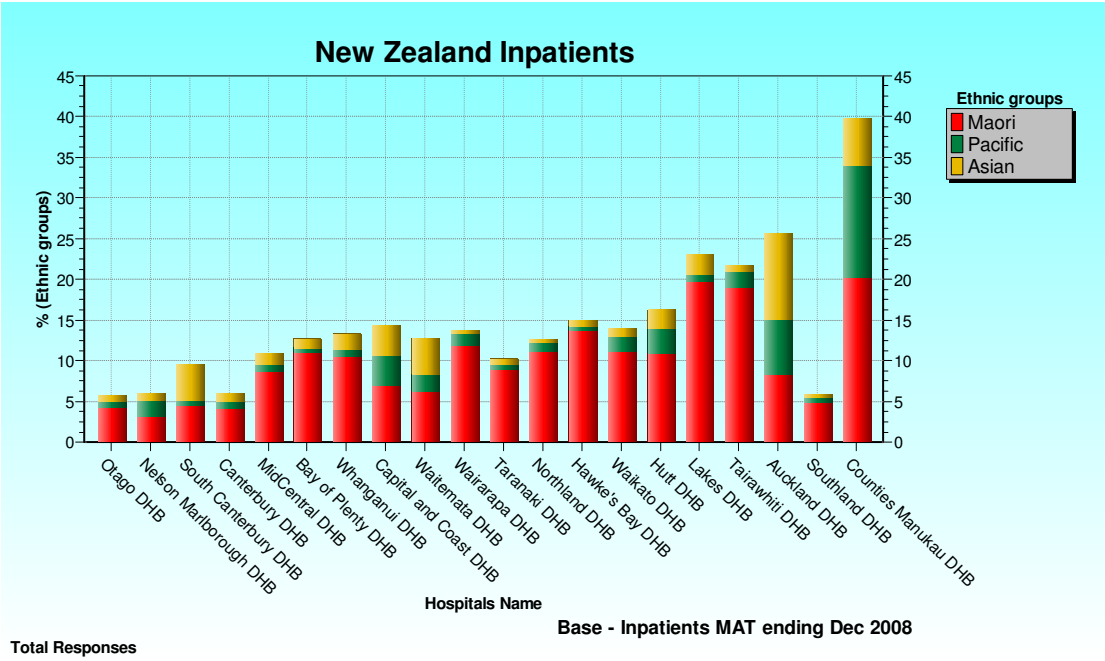
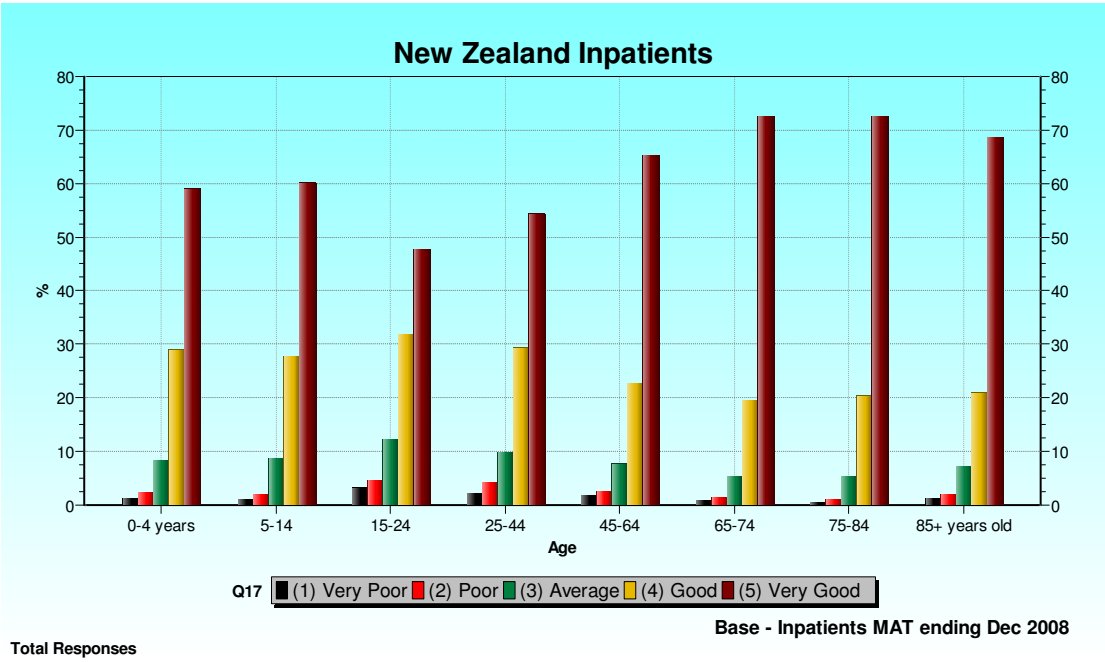


Figure 4 Distribution of overall satisfaction as a function of age



Similarly, patient satisfaction correlates with the patient's sex (males are more likely to express satisfaction; $p<.01$) and ethnicity (European patients are more likely than Māori patients to reply with "very good" or "good" when asked to say how satisfied they are; $p<0.01$; Asian ethnicities are much less likely to answer with "very good" [5]).

Thus it is no surprise that hospitals with proportionally more female patients, more non-European patients and a younger population will tend to have lower patient satisfaction rates than hospitals with more and older European male patients. Comparisons between DHBs will have to take this into account to be of any use.

The best way therefore to make appropriate and valid comparisons is either to apply a post-stratification weighting method (i.e. weighting each response using inverted selection probabilities multiplied by the ratios of expected to observed counts) or by confining one's analysis to a subset of the database, e.g. a specific age or ethnic group or sex.

Another issue is the difference in size between New Zealand hospitals and DHBs. There is sufficient evidence to indicate that, compared to smaller country hospitals, the larger city hospitals with more complicated booking systems, more complex case management, more departments, more facilities, and being physically larger in terms of the ground they occupy, are less likely to have greater patient satisfaction.

In order to provide a level playing field when comparing patient satisfaction rates, the New Zealand Patient Satisfaction Index, which is a quarterly report produced by the author, uses weighting factors to take into account differences in patient profile between the various DHBs and compares satisfaction ratings between DHBs of approximately similar size.

Patient satisfaction in New Zealand

Now the question can be answered: "How satisfied are New Zealand patients?"

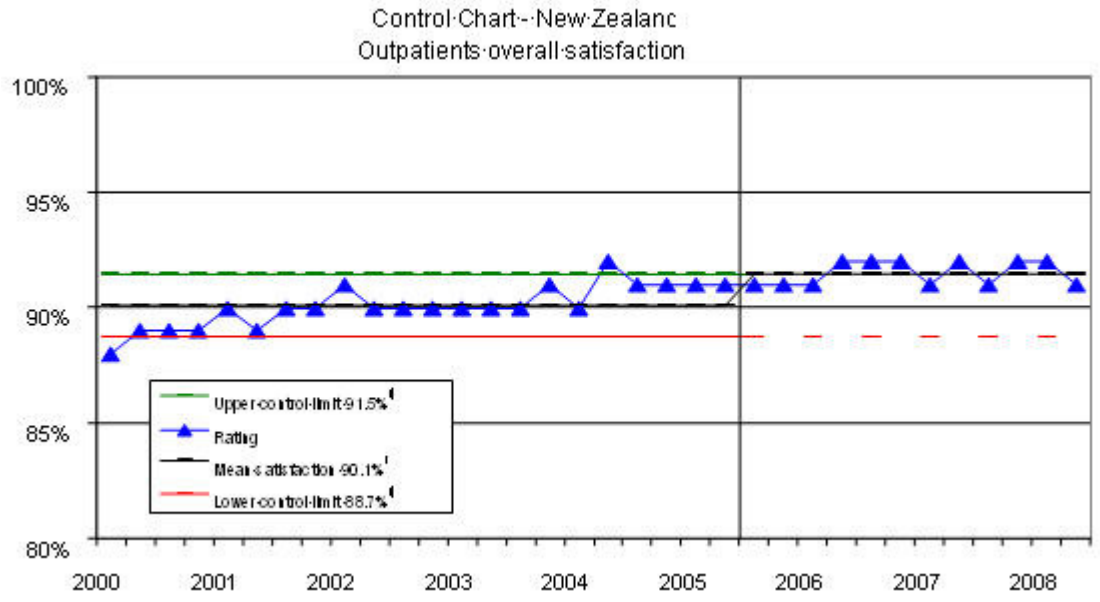
Contrary to what is often reported in the popular press about discontented hospital patients, the analysis of the 24,814 inpatients who answered the general "overall satisfaction" question during the most recent 12-month period shows that 65% are very satisfied and an additional 24% are satisfied. This suggests that, across the board, 89% of all inpatients say they had a good hospital experience. Only 8% of inpatients say that their satisfaction is only "average" while 3% of inpatients express overall dissatisfaction.

Similarly, of the 28,432 outpatients who answered this same question about their overall satisfaction with outpatient services and facilities, 67% indicate that their satisfaction is "very good" and an additional 24% reply with "good". This means that more than 9 out of 10 outpatients are positive about their treatment by the outpatient services. Yet 6% rate their satisfaction as "average" and now only 2% are dissatisfied (one percent respond with "poor" and another 1% respond with "very poor").

Investigating whether these percentages have increased or decreased over time, it is found that, while overall *inpatient* satisfaction has not changed much over time, there has been large and significant improvement over the last eight years in terms of *outpatient* satisfaction. (The Ministry of Health combines the two measures claiming that overall patient satisfaction has increased [6]). The increase in outpatient satisfaction is illustrated in the control chart shown in Figure 5.

The control chart shows the "Upper Control Limit" and the "Lower Control Limit" of the series over the last 34 quarterly periods.

Figure 5. Control chart showing overall outpatient satisfaction in New Zealand



The Upper and Lower control limits will vary depending on the variation from quarter to quarter: the greater the variation, the wider the space between the limits. These control limits represent three standard deviations on either side of the distribution.

For any increase in satisfaction to be significant, the combined percentage of "very good" and "good" responses must be greater than the Upper Control Limit. Conversely, any real decrease in satisfaction can only occur when the series dips below the Lower Control Limit.

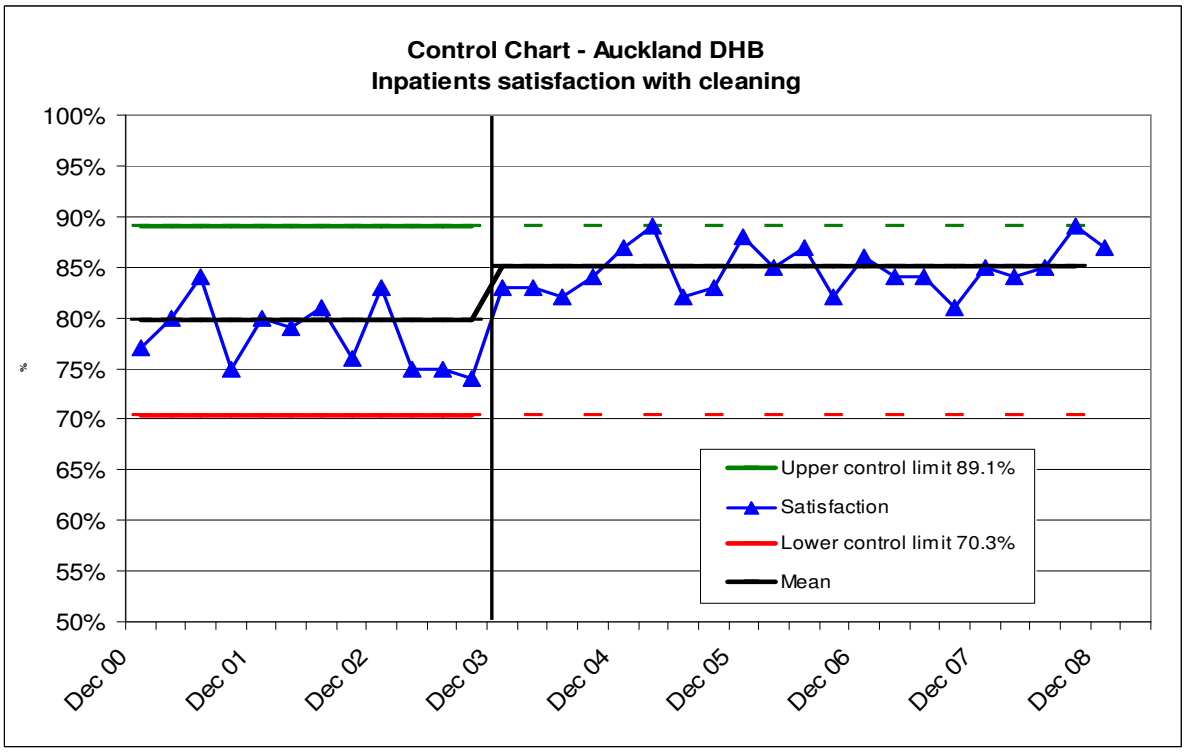
This increase in outpatient satisfaction has been particularly evident in the smaller DHBs such as Hawke's Bay, Lakes, South Canterbury, Tairawhiti, Taranaki, and Wairarapa.

But if the patient survey was only able to show general satisfaction rates, any analysis would be rather limited and would not be able to show progress on specific aspects of care or identify which issues should be addressed.

Having data available that stretches back to Sept 2000 allows us to ask questions such as "What was the impact on patient satisfaction when new facilities were built for inpatients?" For example, what happened to satisfaction with cleanliness of facilities at Auckland Hospital when the new city hospital was opened in October 2003?

Figure 6 shows that after a short period of adjustment, there was a substantial and statistically significant ($p<.01$) increase in satisfaction with cleanliness in the years following the use of the new facilities.

Figure 6. Inpatient satisfaction with cleaning at ADHB



Conclusion

It was demonstrated that patient satisfaction survey data is both reliable and valid. There are shortcomings in the collection of the data, but it has potential to be used to answer questions such as:

- Which DHBs have experienced an increase and which DHBs have experienced a decrease in overall patient satisfaction?
- In what area(s) of patient care have the increases/decreases been most salient?
- What strategies to improve patient satisfaction have proved to be effective and which have proved to be relatively ineffective?

Both the Sector Accountability & Funding Directorate and the DHBs have a responsibility to ensure that the Patient Survey Guidelines developed specifically for this purpose are implemented properly.

To achieve the stated objectives underlying the initiation of the patient survey, the following changes need to be implemented.

The Directorate is required to:

- Inform DHBs that deviation from the guidelines will not be tolerated.

- Insist that DHBs make greater effort in ensuring scientific validity of the survey.
- Encourage the use of the results of the survey by presenting the results in a timely fashion and in a user-friendly format.

And the DHBs are required to:

- Use the prescribed questionnaires, not change the sequence of the questions or insert additional questions
- Send out the correct number of questionnaires to achieve the required sample size
- Carry out data entry check procedures
- Provide the required patient population statistics to the Directorate on time
- Make use of the results of the survey to improve satisfaction rates in their DHB.

Only when the Sector Accountability & Funding Directorate and the DHBs work together on this project will patients benefit from the huge investment in resources that has been made over the last 10 years.

Competing interests: Gerard Zwier is Managing Director of Health Services Consumer Research Limited (HSCR), a company which carries out patient surveys for several DHBs. HSCR also produces the New Zealand Patient Satisfaction Index which is a report based on data obtained from the government under the Official Information Act.

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Consenting to medical treatment: legal requirements vs medical practice. Are healthcare providers exposing themselves to potential legal action?

Carol Peters

Abstract

Aim This research sought to (1) clarify the law relating to consent to medical treatment; (2) assess healthcare providers' knowledge of that law; (3) determine the extent of risk of legal sanctions; and (4) make recommendations to address any knowledge gap identified.

Method A questionnaire was distributed to healthcare providers in six pre-selected District Health Board areas. Participation was voluntary and open to all healthcare providers whose work requires involvement in the consent process. The Health and Disability Commissioner's Office identified 19 questions *all* healthcare providers are expected to know (referred to as "expected knowledge" questions). The effect that participants' clinical experience, occupation and training had on knowledge of the law was assessed. 144 questionnaires were completed.

Results Only one "expected knowledge" question was answered universally correct. Error rates for the other 18 expected knowledge questions varied between 1.4% to 75.4%. "Don't know" responses varied between 0% to 28.2%. The respondents' clinical experience and occupation had no statistically significant effect upon reported knowledge of the law. Respondents who had received training on consent issues achieved statistically significant better results than untrained respondents in respect of the expected knowledge questions, although the magnitude of difference was small. Only 51.4% of respondents had received any form of training on consent to medical treatment issues.

Conclusion This research indicates poor overall knowledge of some key areas of the law relating to consent to medical treatment. Failure to redress the current knowledge levels may result in negative outcomes for patients and healthcare providers including compromised patient autonomy, poorer patient health, and potential legal liability for non-compliant healthcare providers. Improved access to the law is recommended together with legislative amendments where the law is identified as unclear.

From the perspective of healthcare providers, all consent issues may be simplified to a single query – "May I treat this patient?" However, the answer to this basic question may be difficult to find. For example, the questionnaire's answers are sourced from numerous Acts and regulations (over 20 in total affect matters of consent), Health & Disability Commissioner's Opinions, and case law from New Zealand, England, Canada, and Australia.

The sheer magnitude of resources requiring consultation has produced a complex and inaccessible body of law—the law is difficult to find, is often expressed in a confusing manner, and may not even be viewed by healthcare providers without

recourse to a legal professional.[1] Yet healthcare providers are expected to comply with the law and are held accountable when they fail to do so.

Compliance with the law has been declared by some healthcare providers as unachievable and a defensive stance to the law advocated.[2] Many legal academics, law practitioners and the Health and Disability Commissioner disagree.[3] This dichotomy of views motivated the author to conduct this research with an intention to assist healthcare providers.

Method

Questionnaire format—A questionnaire was devised to assess healthcare providers' knowledge of the law relating to consent to medical treatment. A broad range of consent issues were selected and tested. In particular, three key areas of consent law were considered:

- Voluntariness;
- Competence; and
- The provision of sufficient information to enable patients to give informed consent.

Other issues raised in the questionnaire include: decision making on behalf of incompetent individuals, advance directives, the role of the courts and liability issues, and legal exceptions to the basic principle that no person may be treated without consent. A total of 47 questions were asked of which the Health and Disability Commissioner's Office expected all respondents to answer 19 of them correctly.

The sources of legal authority were limited to: (1) legislation; (2) the Code of Health and Disability Services Consumers' Rights; and (3) the common law.

Sample and survey administration—Distribution of the questionnaire was targeted primarily at healthcare providers in six District Health Board areas: Waitemata, Auckland, Tairawhiti, Hawke's Bay, Otago and Southland. These DHB areas were selected as they provided a cross-section of city, provincial and rural areas in both islands. The DHBs, Primary Health Organisations, private hospitals, aged care facilities and private medical practices in the selected DHB areas were invited to participate in the research. A total of 144 questionnaires were completed. The response rate cannot be calculated as the extent to which the various organisations distributed the questionnaire amongst eligible staff is unknown.

To explore the relationship between legal knowledge and the selected demographic factors (experience, occupation and training), two scales were constructed from the expected knowledge questions and all 47 questions ("all questions"). Respondents' answers were categorised as either correct or incorrect / don't know. Aggregating the incorrect and don't know answers is justified as accurate legal knowledge needed to be identified and compared against other knowledge. Higher scores on each scale indicated greater knowledge of the legal consent issues referred to. Missing data was excluded from analysis.

The effect that occupation and experience has on legal knowledge was investigated using two-way between-groups analysis of variance ("ANOVA"). The author used *t-tests* to compare the performance of respondents who had received training against those who did not.

Results

Part A – Demographic Results

The largest occupational group of the respondents was registered nurses (29.2%), followed by midwives (20.1%). Respondents from "other" occupations (13.2%) included (but not limited to) clinical psychologists, physiotherapists, social workers, occupational therapists and research co-ordinators. Medical specialists accounted for 12.5% of respondents, anaesthetists 8.3%, general practitioners 7.6%, registrars 4.9% and surgeons (both general and specialist) 4.2%.

The mean number of years respondents had spent in practice was 16.26 years (sd 10.44), with a range of one month to 40 years. The majority of respondents (62.5%) had 10 or more years of experience.

Part B – Individual Question Results

The questions referred to below relate to the key issues of consent only and do not cover all the 47 questions asked. The questions discussed are not limited to the "expected knowledge" questions. (Refer to Appendix A for the full questionnaire and answers).

In determining whether a patient's consent is valid, the law requires that it be voluntarily given and the patient must be competent to give that consent.

Voluntariness—Two questions relating to voluntariness were posed in the questionnaire. First, respondents were asked whether the decision to accept or reject treatment must normally be the patient's own free choice. This was answered correctly as true by all respondents. However, the issue of voluntariness is fraught with danger for healthcare providers. The presumption of a power imbalance will almost always apply.[4]

In addition, factors such as knowledge imbalance, the effects of illness and / or physical condition, and the impact of medication – all have the potential to vitiate any consent purportedly given by a patient.[5] Even where full information is provided, the common law demonstrates that factors outside the control of medical professionals may nonetheless vitiate consent.[6]

The issue of free choice was again raised in the questionnaire with a scenario describing probable undue influence over the patient by a third party—a situation ostensibly beyond the control of the surgeon. Nearly two-thirds (65%) correctly identified that further steps may need to be taken to clarify that a patient's treatment choice is indeed a true and independent decision—irrespective of any written consent given; 32.9% believed such steps to be unnecessary; 2.1% did not answer the question. These responses demonstrate that while the basic concept of freedom of choice is well understood by healthcare providers, putting that concept into practice is (at times) a difficult matter.

Competence—'Competence' or 'capacity' are terms used to refer to a patient's ability to make a rational, informed choice about accepting or refusing the treatment or service offered. In law, competence may be determined in two broad ways: (1) Some persons as a class are considered incompetent as a matter of law (often referred

to as the "status" approach). (2) In virtually all other cases, actual competence must be determined on a case by case basis beginning with the rebuttable presumption that the individual is competent (referred to as the "functional" approach).

This research found that healthcare providers are uncertain as to the extent to which persons of reduced capacity are able to give consent and prefer the security of the "status" approach where the law is ambiguous.

An intellectually handicapped person was considered legally unable to decide what treatment he would prefer by 26.2% of respondents, even though he fully understood the treatment proposed. However, of the 68.1% of respondents who correctly identified otherwise, 32.9% erroneously considered that further consent from a third party was required. In total, 57.9% of respondents incorrectly considered third party consent necessary.

This result is disappointing given that the Code of Health and Disability Services Consumers' Rights provides that "where a consumer has diminished competence, that consumer retains the right to make informed choices and give informed consent, to the extent appropriate to his or her level of competence."[7] Evidently, the label 'intellectually handicapped' inclines many healthcare providers to treat such patients as incompetent *per se* and thereby avoid any inquiry into the patient's actual capacity.

Competence of minors—Section 36 of the Care of Children Act 2004 permits a person aged 16 years and over to consent to and refuse medical treatment seemingly as if they were of full age. (Note: the proposed treatment must be for the minor's benefit – a restriction that does not apply to persons aged 18 and over). However, the Act and the common law are silent on the position of minors under 16 years.

On a simplistic level, such an omission suggests that until a child reaches the age of 16 years, guardians are vested with medical decision making powers over the child. However, such a position is inconsistent with the Code's adoption of the functional approach whereby actual competence is the relevant factor, not age. The functional approach is also favoured by the Ministry of Health and the Health & Disability Commissioner. In the absence of any clear guidance from the law, healthcare providers must elect whether or not to accept a functionally competent minor's treatment choice.

This research found that a functionally competent 14-year-old girl was considered unable to consent to the removal of a prominent mole on her face by 83.5% of respondents whose patients include adolescents. From the perspective of risk management, this result is entirely predictable. Had the doctor refused to remove the mole without parental consent, it is unlikely that a complaint would have emanated from the patient. However, if the doctor had determined that the patient was functionally competent and removed the mole without parental consent, an aggrieved parent or guardian would be far more likely to complain. In the absence of legal certainty, the status approach remains not only easier to administer but provides less risk for healthcare providers.

Sufficient information to enable consent—Once voluntariness and competence have been established, any decision to accept treatment is legally valid. However, in the course of obtaining patient consent, healthcare providers must provide sufficient information to enable consent to be given. This obligation is often referred to as

'informed consent' although this phrase may be apt to misinterpretation as it erroneously suggests a further legal test of validity exists. The failure to provide sufficient information is considered a breach of a healthcare provider's duty of care to his or her patient. Any action against a healthcare provider will therefore be in negligence and not trespass to the person.

Right 6 of the Code requires disclosure of information that a reasonable patient would expect or need. Three aspects of 'sufficient information' were assessed in the questionnaire—risk disclosure, the legal withholding of information and the obligation to provide information on matters other than risks.

Risk disclosure—Not *all* risks require disclosure yet 64.1% of respondents believed such a duty exists. This finding replicates the results of research conducted in Victoria, Australia where 68% of general practitioners surveyed incorrectly believed that medical practitioners had a legal duty to disclose *all* foreseeable risks to patients.[8] As noted by the Health & Disability Commissioner's Office:[9]

> Some health professionals mistakenly believe that the Code and the common law require them to approach informed consent from a defensive risk management perspective. However Right 6 is framed in terms of the information that a reasonable consumer, in that consumer's circumstances, would expect to receive – it is not framed as a right to "all" information. Indeed, I have received complaints from consumers that they were given too much information.

Of the 34.5% of respondents who correctly noted that disclosure of all risks is not required, the duty to disclose risks of less than 1% if the consequences are severe or likely to be significant to the patient was correctly identified by 95.8%.[10] In total, 83.1% of respondents correctly noted this duty; 3.5% of respondents answered incorrectly and 13.4% did not know. Respondents understood (98.6%) that healthcare providers must disclose risks if the patient specifically asks.[11]

Withholding information—The withholding of information from a patient is only rarely justified. Three alternative motives were put to respondents for withholding information.

Respondents understood (96.5%) that healthcare providers cannot withhold information on the basis that the patient is likely to reject necessary treatment because of the risks.[12] Further, 94.2% of respondents correctly identified that information cannot be withheld from a terminally ill patient at the request of the patient's family.[13]

However, doubt was evident when respondents were asked whether or not information may be withheld from a patient if the patient advises the health professional that they "do not want to know". A health professional cannot force a patient to receive information. Right 6 of the Code gives consumers the "right to information". It does not oblige healthcare workers to provide it against the wishes of the patient. However, only 36.6% of respondents correctly identified that information may be withheld on this basis; 42.3% of respondents believed otherwise and 21.1% did not know.

Information required—Respondents understood (97.2%) that patients must be advised of the consequences of not accepting treatment, and patients afflicted by mental illness are entitled to receive the same kind of information that a reasonable non-afflicted person would expect to receive (93%).[14] The obligation to provide

patients with information concerning other treatment options was not as well understood as only 83.8% correctly noted that such an obligation exists.[15]

Refusal of consent by competent adults—A patient's right to refuse consent to medical treatment may at times cause consternation for healthcare providers, particularly if a refusal compromises a patient's health. However, the right to refuse medical treatment is not unqualified. A refusal must be the patient's own free choice and the patient must be competent. State interests that have been legislatively protected may also take precedence over what would otherwise be a valid refusal. For example, section 79 of the Health Act 1956 provides for the compulsory removal, detention, examination, and treatment of any person suffering from an infectious disease.

Respondents understood (93.7%) that healthcare providers cannot legally override the decisions of competent adults irrespective of the patient's best interests or the rationality of the patient's decision.[16] However, there is a notable reluctance to accept that the patient's decision is final as 28.2% of respondents believed that a court order authorising treatment should be sought if it is in the patient's best interests to receive treatment. The desire to seek court intervention was even greater if the patient's decision was perceived to be irrational (from the perspective of the healthcare provider) (50%) or the life of an unborn child was at risk (79.3%).

Healthcare providers are even less accepting of a competent patient's refusal of necessary treatment if such treatment could easily be administered and the failure to administer it would lead to the patient's death. Only 76.8% of respondents correctly noted that a competent refusal cannot be ignored in such circumstances; 10.6% of respondents believed that treatment could be given irrespective of the patient's refusal while 12.7% of respondents did not know.

These results suggest an underlying tension between respecting patients' decisions and providing care in the best interests of the patient as assessed by healthcare providers.

Part C – Demographic factors affecting knowledge

Expected knowledge—The HD&C identified questions 19 questions as "expected knowledge" questions. Table 1 records the responses to these questions.

Table 1. Participants' responses to "expected knowledge" questions

Question No.	% Correct	% Incorrect	% Don't know
9	100	0	0
12	96.5	0	3.5
15	18.3	75.4	6.3
16	76.8	10.6	12.7
17	50.0	21.8	28.2
20	97.2	1.4	1.4
21	83.8	7.0	9.2
24	69.0	16.9	14.1
27 (i)	93.7	3.5	2.8
27 (ii)	67.6	28.2	4.2
30 (i)	66.9	29.6	3.5
31 (i)	98.6	0	1.4
31 (ii)	98.6	0	1.4
32 (i)	94.4	4.2	1.4
33 (i)	68.1	26.2	5.7
33 (ii)	37.9	57.9	4.3
34 (i)	90.7	9.3	0
34 (ii)	72.1	24.3	3.6
37 (i)	88.6	7.8	3.6

Experience—The respondents were categorised into four groups of experience level: <5 years, 5–10 years, 10–20 years, and >20 years. The distribution of respondents across these four groups is shown in Table 2 below.

Table 2. New Zealand experience of respondents

Experience as a healthcare professional in NZ	%	N
<5 years	16.67	24
5–10 years	20.83	30
10–20 years	31.94	46
>20+ years	30.56	44
Total	**100**	**144**

It might be assumed that experience leads to increased knowledge. While this may be true in respect of medical knowledge, the questionnaire results suggest the same does not apply to legal knowledge.

Using the ANOVA test, no statistically significant difference in knowledge levels was found between any of the groups in respect of the "expected knowledge" questions [$F(3, 110)=1.705$, $p=0.170$] or "all questions" [$F(3, 110)=0.376$, $p=0.771$]. This finding suggests that knowledge of consent issues will not improve with 'on the job' experience. Consequently, inexperienced healthcare providers will not be able to learn the requisite legalities from their more experienced peers.[17]

Occupation—The author hypothesised that a healthcare providers' occupation may affect the extent of the respondents' legal knowledge. For example, anaesthetists and

surgeons are specialists who are regularly and consciously involved in the consent process – consequently it is not unreasonable to expect higher levels of knowledge.

Using the ANOVA test it was found that no statistically significant difference was found in respect of the "expected knowledge" questions between the various occupational groups [F(7,110)=1.852, p=0.084]. However, a highly significant difference was found between scores on "all questions" and occupational groups. [F(7,110)=4.654, p=0.000]. The effect size calculated using the eta squared was 0.228 suggesting a very large effect, with a good power of 0.993. Post-hoc comparisons using the Tukey HSD test indicated that anaesthetists (M=31.33, SD=3.57) had a significantly higher mean score than the group "other" (M=26.53, SD=5.57). The level of knowledge of medical specialists (M=33.5, SD=3.33) was also significantly higher than midwives (M=29.07, SD=3.11), registered nurses (M=28.05, SD=4.29) and the group "other".

The absence of a statistically significant difference between the occupational groups in respect of the "expected knowledge" questions may be indicative of either (1) the respondents having received training on the core consent issues; (2) a reflection of the availability of information on these core matters across all occupations; or (3) a result of institutional procedures which reinforce compliance with and knowledge of the core legal requirements.

Training—Either access to or the uptake of training on consent issues in respect of medical or surgical treatment is poor in New Zealand as only 51.4% of respondents had received any training.

It was hypothesised that healthcare providers who had received training on consent issues would score higher than their untrained peers. An independent-samples t-test was conducted to make the comparison. There was no significant difference on the "all questions" scores between those who had received training (M=30.09, SD=4.409) and those who did not [M=29.04, SD=4.450; t(136)=-1.381, p=0.170]. However, a significant difference was found in respect of the "expected knowledge" scores (training received (M=15.13, SD=1.825) and no training [M=14.43, SD=2.288; t(136)=-1.996, p=0.048]). The magnitude of the differences in the mean was small (eta squared=0.028).

These results suggest that the content of any training programme focused on matters which the HD&C considers to be essential knowledge. Some of the more obscure issues which formed part of the questionnaire (and included in the "all questions" analysis) were most likely not covered in training programmes.

Discussion

While the questionnaire results found that significant gaps in healthcare providers' knowledge of the law exist, the errors nonetheless indicate that healthcare providers are not legal risk takers and could even be described as inherently cautious. This cautiousness was demonstrated by:

- A belief that ***all*** risks require disclosure, even if the patient has specifically stated that they "*do not want to know*".
- A preference for third party consent if the patient is intellectually handicapped.

- A preference for the status approach to assessing the competence of minors.
- A desire to seek court orders authorising the treatment of competent persons refusing life-saving treatment.

The call to practice defensively has evidently not gone unheeded. However, defensive risk management necessarily focuses healthcare providers' attention on procedures designed to avoid potential complaints rather than the patient's best interests. Commonly cited examples of negative features include unnecessary diagnostic tests and caesarean sections, the prescription of unnecessary drugs and increased follow-up appointments and referrals. Ironically, patients may ultimately be exposed to additional risks and, in an environment of limited health resources, increased costs.[18]

Providing good quality care seems an obvious way to minimise legal risk – by far the majority of complaints are triggered by a patient suffering an adverse event. However, the identified tension between respecting patients' treatment choices and providing the most appropriate medical care will inevitably lead to legal risk, particularly when these competing interests are difficult to reconcile. Even when healthcare providers get everything 'right' in a medical context, if the treatment rendered is contrary to the wishes or expectations of the patient, complaints or legal action may follow.[19]

It is the author's view that defensive risk management practices and legal errors are attributable, in part, to a lack of legislative clarity and a complex, inaccessible law. By way of example, this research found confusion exists as to what age a minor may legally consent to medical treatment. This confusion is caused solely by imprecise legislation which could be simply remedied by an appropriate amendment to the Care of Children Act 2004. Where a law is identified is deficient, Parliament ought to intervene and rectify the situation.

It is not surprising that healthcare providers' knowledge of the law is inadequate given the complexity of the issues and the difficulty in finding the 'answers'. While greater access to training programmes may provide some degree of improvement in knowledge levels, the author recommends attention be focused instead on improving access to the law. A mechanism which provides quick access to the law in a cost effective and directly relevant manner will permit all healthcare providers to clarify legal issues as and when they arise or may, at the very least, direct the user to seek further help when the issue of concern has no definitive answer. Properly constructed, such a mechanism could also serve as an educational tool negating the need for costly and time consuming training programmes.

Technology is now available to deliver real-time information to healthcare providers. Tablet computers enable access to this information even at the patient's bedside or anywhere in the world. Further, the move towards electronic medical records in the United States of America will inevitably impact upon the way in which information is disseminated, collected and stored in New Zealand.[20] Devising an appropriate system to improve access to the law should now be possible.

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Appendix A
Questionnaire Answers

Questions which appear in bold below are questions that, from the perspective of the Health & Disability Commissioner's Office, all health care providers are expected to answer correctly irrespective of position or area of expertise.

SECTION A

Assume that all patients are competent adults unless otherwise stated in this section.

9. The decision to accept or reject treatment must normally be the patient's own free choice.

TRUE

Right 7 of the Code of Health and Disability Services Consumer's Rights retains the common law requirement that consent must be freely (i.e. voluntarily) given by the patient. Section 2 of the Health and Disability Commissioner Act 1994 defines "informed consent" as:

"Informed consent", in relation to a health consumer on or in respect of whom there is carried out any health care procedure, means consent to that procedure where that consent—

(a) Is *freely given*, by the health consumer or, where applicable, by any person who is entitled to consent on that health consumer's behalf; and

(b) Is obtained in accordance with such requirements as are prescribed by the Code:

The voluntary aspect of consent has been an issue for the Health and Disability Commissioner. In *97HDC9172* the Commissioner received a complaint in respect to Mr A. who was admitted to a retirement home without his consent when he was competent. In his opinion, the Commissioner stated:

> The use of the word "choice" as well as "consent" is intended to emphasise that the consumer is taking an active role in decision making, rather than passively acquiescing to a course of action proposed by the provider. Consent is not valid unless it is *freely given* and fully informed in accordance with the requirements of the Code…

The common law has determined that there are a variety of factors which may influence whether a patient has given "free" consent or not. Factors which may potentially invalidate a patient's decision through lack of free choice include: (1) Power and / or knowledge imbalances between healthcare provider and the patient; (2) the effects of illness and / or physical condition; (3) the impact of medication or drugs; and (4) the strength of the relationship between the patient and the person

exerting influence to accept a particular medical treatment. (Such a person may include a spouse, parent or religious authority). Effective communication and the provision of sufficient information are therefore essential to enable "free" choice.

10. Health professionals are required to advise their patients of *all* known possible risks and outcomes.

FALSE

Right 6 of the Code provides that "every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive." It does not require disclosure of *all* risks or possible outcomes.

The Health and Disability Commissioner has rejected any suggestion that *all* risks, no matter how infinitesimal, require disclosure. (See *98HDC19009*, 19 January 2001). Such a requirement would be unduly burdensome on healthcare workers.

11. Information may be withheld from a patient if the patient advises the health professional that they "*do not want to know*".

TRUE

A health professional cannot force a patient to receive and / or listen to information. Right 6 of the Code gives consumers the "right to information". It does not oblige health care workers to provide it against the wishes of the patient. However, if some information is so important that it should not be withheld, and the patient refuses to listen to the information, the healthcare provider may need to withdraw from providing the proposed treatment until such time as the patient is willing receive the information.

It should be noted that Clause 3 of the Code states that a provider is not in breach of the Code if the provider has taken reasonable steps in the circumstances to give effect to the rights, and comply with the duties, in the Code. This Clause is relevant to whether or not a healthcare provider has acted reasonably in withholding information at the patient's request.

12. Health professionals may withhold information if the patient is likely to reject necessary treatment because of the risks.

FALSE

Information cannot be withheld even if healthcare professionals are fearful that a proposed treatment will be rejected. In *01HDC01820* the treating doctor "did not go into great detail about the risks [of the antibiotic gentamicin] because [he] feared [the patient] would reject the gentamicin…" The failure to provide such information was considered a breach Right 6(1)(b) of the Code:

> "If you had provided Ms A with more detailed information about the risks of gentamicin – information that was readily available and that you suspected she required – it is almost certain she would have refused to have it administered. It was inappropriate for you to deliberately withhold this information. Consumers are entitled to be given the information they need to make treatment decisions. Your decision meant Ms A was denied this opportunity."

Information may on rare occasions be withheld if "there is a particular danger that the provision of all relevant information will harm an unusually nervous, disturbed or volatile patient." However, such therapeutic privilege cannot be invoked in answer to

a concern that the patient might make the 'wrong' decision in accepting or rejecting medical treatment.

13. Necessary treatment may *always* be given in an emergency situation.

FALSE

An emergency situation does not override the refusal of treatment by a competent person. This includes situations where the patient may consent to be unconscious but a valid advance directive refusing treatment exists.

14. Assessing the competence of a patient is a task of medical professionals and the courts are bound by the assessment of such professionals.

FALSE

The court is not bound by the opinion(s) of medical professionals or experts even if evidence is led that such opinion(s) is in accordance with sound medical practice as accepted at the time. As noted in *Bolitho v City and Hackney Health Authority* [1997] 4 All ER 771:

> "…if, in a rare case, it can be demonstrated that the professional opinion is not capable of withstanding logical analysis, the judge is entitled to hold that the body of opinion is not reasonable or responsible."

However, the courts will normally accept a medical assessment of competence. As noted in *Re B* [2002] 2 All ER 449:

> "… unless it is an exceptional case, the judicial approach to mental capacity must be largely dependent upon the assessments of the medical profession whose task it is on a regular basis to assess the competence of the patient to consent to or refuse the medical / surgical treatment recommended to the patient."

15. A refusal to accept treatment by a competent adult must *always* be adhered to by health professionals.

FALSE

Various societal interests are considered sufficiently important that legislation overriding an individual's refusal to medical treatment is deemed necessary. A variety of enactments exist to provide for the compulsory examination or treatment of adult patients. For example, section 79 of the Health Act 1956 provides for the compulsory removal, detention, examination and treatment of any person suffering from a prescribed infectious disease. The competence or choice of the patient is irrelevant.

16. A competent patient's refusal to accept necessary treatment may be ignored if such treatment could easily be administered and the failure to administer it would lead to the patient's death.

FALSE

It is a basic principle that:

"A mentally competent patient has an absolute right to refuse to consent to medical treatment for any reason, rational or irrational, or for no reason at all, even where that decision may lead to his or her death."

(See *Sidaway v Board of Governors of the Bethlem Royal Hospital* [1985] AC 871, at 905).

17. An advance directive may be ignored if the patient is unconscious and following the advance directive would not be in the patient's best interest.

FALSE

As defined in the Code, an advance directive is an oral or written directive:

"(a) By which a consumer makes a choice about a possible future health care procedure; and
(b) That is intended to be effective only when he or she is not competent."

The common law has identified four elements of a valid advance directive:
(1) the patient must have the capacity to consent or refuse the treatment (i.e. the patient must be competent) at the time the advance directive is made; and
(2) any decision must be free of undue pressure or influence; and
(3) the patient must receive sufficient information to make their decision; and
(4) the patient must have anticipated and intended the decision to apply to the circumstances which subsequently arise.

If these four elements are present, the provision of medical treatment expressly prohibited by a valid advance directive is unlawful. (See Malette v Shulman (1990) 67 DLR (4^{th}) 321). Note: Whether or not a valid advance directive is in the patient's best interest is irrelevant as the basic principle referred to in the answer to question 16 above applies).

18. The consent of a minor aged 16 and above may be overridden by a refusal by a parent.

FALSE

Section 36 of the Care of Children Act 2004 provides:

"(1) A consent, or refusal to consent, to any of the following, if given by a child of or over the age of 16 years, has effect as if the child were of full age:

(a) any donation of blood by the child:
(b) any medical, surgical, or dental treatment or procedure (including a blood transfusion, which, in this section, has the meaning given to it by section 37(1)) to be carried out on the child for the child's benefit by a person professionally qualified to carry it out."

As the minor's rights are equal to that of someone of full age, a parent cannot override the consent (or refusal) of a competent minor. The only limiting factor is that the treatment or procedure must be for the benefit of the minor. Consequently, a minor may not be able to consent to the donation of a kidney (for example) as that procedure would be for the benefit of another person. (A minor who is married or in a de facto relationship is not restricted by the "benefit" provision of the Act and has the same rights as an adult of full age).

For the consent or refusal to be valid, the minor must competent and his or her decision must be freely made. Parents have no authority to veto such decisions.

19. A court order is required before a child under 10 years of age may be treated if one parent consents to treatment but the other refuses.

FALSE

Section 36(3) of the Care of Children Act 2004 provides:

> "(3) If the consent of any other person to any medical, surgical, or dental treatment or procedure (including a blood transfusion) to be carried out on a child is necessary or sufficient, consent may be given—
>
> (a) by **a** guardian of the child; or
>
> (b) if there is no guardian in New Zealand or no guardian of that kind can be found with reasonable diligence or is capable of giving consent, by a person in New Zealand who has been acting in the place of a parent; or
>
> (c) if there is no person in New Zealand who has been so acting, or if no person of that kind can be found with reasonable diligence or is capable of giving consent, by a District Court Judge or the chief executive.

As noted in *Re R (a minor)(wardship: medical treatment)* [1991] 4 All ER 177 at p185:

> If the parents disagree, one consenting and the other refusing, the doctor will be presented with a professional and ethical, but not with a legal, problem because, if he has the consent of one authorised person, treatment will not without more constitute a trespass or a criminal assault.

Consequently, there is no legal requirement for all guardians of a child to provide consent.

20. Health professionals must advise their patients of the consequences of not accepting the proposed procedure or treatment.

TRUE

In order to make a choice (i.e. make a decision to receive or refuse treatment), Right 6 of the Code provides that "(1) Every consumer has the right to the information that a reasonable consumer, in that consumer's circumstances, would expect to receive, including - …(b) An explanation of the options available…".

Just as patients are entitled to know the risks involved in accepting a proposed treatment, patients are equally entitled to know the risks of foregoing such treatment. Without such knowledge, an informed choice cannot be properly made.

21. Health professionals must advise patients of the existence of other treatment options offered by other responsible professional colleagues even if the health professional does not personally believe such options to be in the patient's best interest.

TRUE

Information in respect to alternative options must be disclosed. In *02HDC18414* Dr C complained to the commissioner that Dr A (a neurosurgeon) failed to inform him of

the option of surgery, specifically tumor resection, including its expected benefits, to treat his advanced brain cancer. The commissioner accepted that such information ought to be disclosed as:

> "Surgeons have a responsibility to locate their own opinions within the spectrum of professional views about possible procedures and to contextualise their recommendations, rather than simply "announce" their stance."

Furthermore:

> "Dr A had an obligation to inform Dr C of the option of wider resection of the tumor – even if he did not recommend it or was unwilling to perform it himself – and to facilitate discussion of the feasibility of that option. By failing to discuss the option of further surgery with Dr C, and the risks, side effects and benefits of the procedure, Dr A breached Right 6(1)(b) of the Code."

22. A patient suffering from a diagnosed mental illness does not need to receive the kind of information that a reasonable 'normal' patient would expect or need to receive.

FALSE

Right 7(3) of the Code provides that "where a consumer has diminished competence, that consumer retains the right to make an informed choice and give informed consent, to the extent appropriate to his or her level of competence." A mental disorder does not imply incapacity.

Patients subject to the provisions of the Mental Health (Compulsory Assessment and Treatment) Act 1992 are also entitled to receive information concerning their condition and treatment. Section 67 provides "Every patient is entitled to receive an explanation of the expected effects of any treatment offered to the patient, including the expected benefits and the likely side-effects, before the treatment is commenced."

23. Risks of less than 1% must be disclosed if the consequences are severe or likely to be significant to the patient.

TRUE

Risks of less than 1% ought to be disclosed if the consequences are severe or of significance to the patient. (See *Rogers v Whittaker* (1992) 109 ALR 625). The Health & Disability Commissioner agrees noting that whether a risk ought to be disclosed depends upon a variety of factors:

> "The probability of a risk eventuating is one factor to be weighed in considering the need for disclosure. However, the magnitude of the potential harm and the availability of other options must also be considered.
>
> In my opinion is it entirely appropriate that a woman be warned of the slight but well recognised risk of uterine perforation, which can be associated with serious complications. A reasonable consumer in Ms A's circumstances would expect to be informed of this risk, even though it was less than 1%. I refute the alarmist suggestion that this finding will require all risks, no matter how infinitesimal, to be disclosed, and will force clinicians to adopt the practice of defensive medicine, leading to longer waiting lists."

(See *98HDC19009*,19 January 2001)

24. Health professionals will not be held to be in breach the Code of Health & Disability Services Consumers' Rights unless their acts or omissions cause the patient to suffer harm (whether physical or mental).

FALSE

A patient does not need to suffer any harm in order for the Code to be breached. As noted by the Health and Disability Commissioner in *01HDC02221* (12 November 2002):

> "It has not been possible to establish whether there is a causal connection between Mrs A's post anaesthetic complications and her subsequent cognitive impairment. Mrs A's persistent disorientation and confusion and her marked muscle spasm was highly unusual and there was no readily apparent cause at the time. Dr I, with subsequent neurological examination, has also been unable to determine a cause for Mrs A's ongoing problems. The relationship that exists between her cognitive dysfunction and the surgery is temporal.
>
> It is not necessary to show that a patient suffered harm because of inappropriate care, in order to establish a breach of the Code. Having reviewed all the available evidence and expert advice, I am satisfied that Dr B did not exercise reasonable care and skill in deciding to discharge Mrs A to the ward. Dr B therefore breached Right 4(1) of the Code."

25. ACC legislation prevents health professionals from being sued by their patients.

FALSE

The failure to obtain consent to treatment is specifically covered under the Injury Prevention, Rehabilitation and Compensation Act 2001 as medical error (prior to 1 July 2005) and as treatment injury (post 1 July 2005).

"Medical error" means the failure of a registered health professional to observe a standard of care and skill reasonably to be expected in the circumstances and can arise in the obtaining consent to treatment from the person to whom the treatment is to be given or the person's parent, legal guardian, or welfare guardian, as appropriate, if the person does not have legal capacity.

As from 1 July 2005 claims which would previously have been considered as medical misadventure are now covered if they fall within the definition of "treatment injury" in s 32. The key requirements for cover for "treatment injury" are:

(a) A personal injury;
(b) Suffered by a person seeking or receiving treatment;
(c) From a registered health professional; and
(d) A causal link exists between the treatment and injury.

Treatment injury includes personal injury suffered by a person as a result of treatment given as part of a clinical trial if the patient did not given written consent to participate in the trial or appropriate ethics approval was not given for the trial. (See s 32 of the Injury, Prevention, Rehabilitation, and Compensation Act 2001)

Treatment also includes "obtaining, or failing to obtain, a person's consent to undergo treatment, including any information provided to the person (or other person legally entitled to consent on their behalf if the person does not have legal capacity) to enable the person to make an informed decision on whether to accept treatment." (See s 33).

Section 317 of the Injury, Prevention, Rehabilitation, and Compensation Act 2001 continues to bar claims for damages arising directly or indirectly out of personal injury by accident including treatment injury. Consequently, liability in *compensatory* damages for personal injury resulting from a breach of duty to obtain informed consent is not available in New Zealand. However, a patient may still sue for exemplary damages (see s 319).

SECTION B
SCENARIOS

PART ONE

Questions in this part are answerable by reference to various statutory enactments.

26. Amy is 16 years old, lives with her parents and has large breasts (size E). She has upper back and neck pain and low self-esteem as a result of teasing from her school mates. Amy and her mother visit Dr B (a cosmetic surgeon) to explore the options. Dr B recommends a breast reduction and full information is given. Amy's mother makes it clear that the decision is Amy's to make. Two days later Dr B receives a telephone call from Amy's father. He tells Dr B that Amy does not have his consent to proceed with the surgery and threatens to sue Dr B if he proceeds with the operation. A week later Amy visits Dr B again on her own. She tells him that she wants to proceed with the operation. Dr B believes it is in Amy's best interest to have the operation.

	YES	NO
(i) Is Amy legally able to provide consent?	☐	
(ii) As Amy is a minor (i.e. under 20yrs) can her father veto her consent?		☐

As Amy is 16 years old, competent and freely making a choice to submit to a procedure for her benefit, she is able to give legal consent. Her father has no right to veto her decision. (See question 18 above).

27. Ben is a 59 year old truck driver. He has sustained a severe crush injury to his left leg as a result of a motor accident. Amputation is considered necessary. Ben refuses to consent even though he understands that gangrene will likely develop and could lead to his death. As a result of Ben's refusal, he is assessed to see if he is competent. He is.

	YES	NO
(i) Can Ben's leg be amputated as it is in his best interests that it be removed?		☐
(ii) Should a court order authorising the amputation be sought?		☐

As Ben is competent, his leg cannot be amputated without his informed consent even if the consequences of such a refusal would lead to his death.

(See question 16 above). A court cannot override the refusal of an informed and competent adult. Consequently, there would be no point seeking the court's consent to the amputation.

28. Doris is 77 years old and is subject to property and welfare guardianship orders under the Protection of Personal and Property Rights 1988. Her daughter Edna has been appointed by the court as her welfare guardian in respect to all aspects of her personal care and welfare. Doris, while resident in an elderly care facility, accidentally cuts a varicose vein in her leg while unattended. By the time she is found she has lost a lot of blood and is in serious need of a blood transfusion. (Doris is likely to die without one). Edna is urgently contacted. Edna advises that her mother should be made as comfortable as possible but she is not to receive a blood transfusion.

YES NO

(i) Can Doris be given a blood transfusion despite the refusal from her welfare guardian? ☐

While a welfare guardian may be able to consent to treatment, he or she is not empowered to refuse consent to the administration of any standard medical treatment or procedure intended to save the life or to prevent serious damage to the person subject to the guardianship order. (Section 18(1) Protection of Personal and Property Rights Act 1988). Consequently, Edna has no legal ability to refuse the blood transfusion for Doris.

As Doris is unable to consent to the blood transfusion herself and there is no other person available who can give consent on her behalf, the common law doctrine of necessity applies. Applying this doctrine, a blood transfusion may be given if (1) there is a necessity to act when it is not practicable to communicate with the assisted person; and (2) the action taken must be such as a reasonable person would in all the circumstances take, acting in the best interests of the assisted person. Medical treatment will be in a patient's "best interests" only if it is "carried out in order either to save their lives or to ensure improvement or prevent deterioration in their physical or mental health." (See F v West Berkshire Health Authority & Anor (Mental Health Act Commission Intervening) [1989] 2 All ER 545).

A blood transfusion may be administered to Doris (despite the objections of Edna) if it is considered to be in her best interests. As Doris is likely to die without one there are adequate grounds for a health care provider to conclude that a blood transfusion would be in her best interests.

YES NO

(ii) Would it make any difference if Edna said her mother was a devout Jehovah Witness before her mental demise and Doris would have chosen death over a blood transfusion? ☐

Health care providers have a legal duty to provide the necessaries of life and are criminally responsible for omitting, without lawful excuse, to perform such a duty if the patient either dies or their life is endangered or the patient's health is permanently injured, by such omission. (See section 151 of the Crimes Act 1961). In the absence of a valid advance directive or a valid refusal of treatment from Doris, there is no lawful justification to withhold a blood transfusion which would be in the best interests of Doris to receive.

YES NO

(iii) Should an urgent application be made to the court to override the legal guardian's refusal to consent to the transfer? ☐

As the guardian has no legal ability to refuse consent, no application to the court is necessary.

29. Fred is 21 years old. While driving home from a party he loses control of his car and crashes into a ditch. He is taken to the local hospital's accident and emergency department for treatment. A police officer advises the attending doctor that he suspects Fred had been drinking alcohol prior to the accident and requests blood samples be taken for analysis. Fred tells the doctor in somewhat "explicit" terms that he does not consent to any blood tests for any purpose. The police office replies, "Ignore him doctor, you have my authority to take it".

YES NO

(i) Can the doctor legally take the blood sample without Fred's consent? ☐

YES NO

(ii) Fred wishes to make a complaint to the Health & Disability Commissioner. Is the doctor legally protected by the police officer's purported authorisation? ☐

Section 73 of the Land Transport Act 1972 makes it clear that patient consent is not required if the blood specimen is taken in a hospital or doctor's surgery. Further, there is a legal obligation on the registered medical practitioner in charge of the patient to ensure a blood specimen is taken if so requested by an enforcement officer. Consequently, there has been no breach of the Code of Health & Disability Services Consumer's Rights.

30. Frank has recently returned from a trip to China where another outbreak of SARS has occurred. He visits his doctor with flu like symptoms and a high fever. When advised by his doctor that he may have SARS and requires further assessment and treatment at a special isolation unit in hospital, Frank refuses to co-operate. He believes that he has the flu and just needs some drugs to ease the headaches and will not entertain the idea of going into hospital. (He loathes hospitals).

YES NO

(i) Must the doctor accept Frank's refusal to be admitted into hospital and find an alternative way to treat him? ☐

SARS is an infectious disease under Schedule 1 of the Health Act 1956. Consequently the provisions of that Act apply – namely, the treating doctor must advise the Medical Officer of Health that Frank may be infected with SARS. The Medical Officer of Health or any Health Protection Officer may then make an order for the removal of Frank to a hospital or other suitable place where he can be effectively isolated, (and detained by force if

necessary), until he has been medically examined and undergone such preventive treatment as the Medical Officer of Health may prescribe.
(Note: The Health & Disability Commissioner acknowledges that some doctors may never face such a situation in their career. However, all doctors are expected to be aware of their obligations in terms of notifiable and prescribed infectious diseases).

PART TWO

Answers to the questions posed in this part can be found in the Code of Health & Disability Services Consumers' Rights.

31. Grace is 37 years old and a routine smear test has revealed abnormal cells. Further tests confirm cervical cancer. Prior to Grace being told the results, her husband advises the doctor that "Grace is worried that she won't be able to have a baby. We're in the process of trying to start our family now and I know she won't do anything to jeopardise having kids of her own." All appropriate treatment options carry a risk that her fertility will be affected. Grace is told of her condition and the treatment options are explained to her. She does not ask about the risks to her fertility.

YES NO

(i) Can the risk of infertility be withheld from Grace if the doctor believes she will not accept necessary treatment if she knew? ☐

Information cannot be withheld even if healthcare professionals are fearful that a proposed treatment will be rejected. (See question 12 above).

YES NO

(ii) If Grace explicitly asks "Will any of these treatments affect my ability to have a baby?", must the doctor disclose the risks? ☐

Information must be provided if a patient specifically asks for it.
(*Bolitho* v *City and Hackney Health Authority* [1997] 4 All ER 771)

Right 6(3) of the Code also provides:

"Every consumer has the right to honest and accurate answers to questions relating to services…"

(Note: ""Services" means health service, or disability services, or both; and includes health care procedures:)

32. Isaac is 70 years old. He has been suffering from severe headaches from time to time but is otherwise fit and healthy. Test results reveal that he has an inoperable brain tumour. It is only a matter of time before he dies (probably in 3 – 6 months). His daughter, who has been present with her father throughout all of his tests, does not want her father to know his true condition. She believes he would be happier not knowing and advises Isaac's doctor of this. Isaac visits his doctor and says "So Doc, is it good news or bad?"

YES NO

(i) May the doctor withhold from Isaac that fact that he is terminally ill? ☐

Information must be provided if a patient specifically asks for it. (*Bolitho v City and Hackney Health Authority* [1997] 4 All ER 771). However, therapeutic privilege applies where "there is a particular danger that the provision of all relevant information will harm an unusually nervous, disturbed or volatile patient." (*Rogers v Whitaker* (1992) 109 ALR 625)

In this instance, Isaac is competent and therapeutic privilege does not apply. Consequently, there are no valid grounds for withholding the information which Isaac has clearly sought.

33. Jason is intellectually handicapped. He lives in a community house and undertakes work programmes with the IHC. While working in the woodwork shop, he accidentally cuts his arm. At the hospital Jason is told that his cut should be stitched. He is given a full explanation as to what that means and the consequences of receiving stitches. Jason tells the nurse that he does not want stitches. He is then told he could have a special kind of tape instead and again, a full explanation is given. Jason says he wants the tape. The doctor would prefer Jason to have stitches and she is reluctant to accept his refusal. However, the doctor is satisfied that Jason understands what is proposed and if Jason were not intellectually handicapped, the doctor would simply proceed to use tape to close the wound.

YES NO

(i) Is Jason legally able to decide what treatment he would prefer? ☐

Right 7(3) of the Code provides that "where a consumer has diminished competence, that consumer retains the right to make an informed choice and give informed consent, to the extent appropriate to his or her level of competence." In this case Jason understands what is proposed and has made a free choice.

YES NO

(ii) Should the doctor obtain consent to treat Jason from a person responsible for his care? ☐

As Jason is able to consent to the proposed treatment, there is no need to seek consent from someone responsible for his care.

34. Karen is 27 years old and unconscious as a result of a car accident. She also has a broken arm and it is in her best interest that she receives prompt surgery to fix it. Her husband is contacted and he advises that Karen would consent to the surgery if she were able to.

YES NO

(i) Is the husband's advice sufficient to allow the required surgery to proceed? ☐

YES NO

(ii) As the surgery is not urgent (i.e. it is not required to save her life or limb from serious harm), ought the surgeon wait until Karen becomes competent before proceeding? ☐

Right 7(4) of the Code applies, namely:

"… the provider may provide services where –
(a) It is in the best interests of the consumer; and
(b) Reasonable steps have been taken to ascertain the views of the consumer; and
(c) Either –
(i) If the consumer's views have been ascertained, and having regard to those views, the provider believes, on reasonable grounds, that the provision of services is consistent with the informed choice the consumer would make if he or she were competent; or
(ii) If the consumer's views have not been ascertained, the provider takes into account the views of other suitable persons who are interested in the welfare of the consumer and available to advise the provider.

As the provisions of Right 7(4) have been complied with, the surgery may proceed without delay.

35. Logan is 49 years old and has advanced lung cancer. He has lost a lot of weight. His doctor has heard of a new drug which is undergoing a clinical trial to test whether it may improve cancer-related weight loss, lack of appetite, and fatigue. Logan is provided full information including the fact that the drug's side effects are not yet known. Nonetheless, Logan is desperate to try anything and he verbally consents to try the new drug as part of the clinical trial. Unfortunately, Logan suffers an allergic reaction to the new drug which causes his premature death. When his family discover that Logan was part of a clinical trial, they are furious and complain to the Health & Disability Commissioner. The doctor is unconcerned about the family's complaint as Logan gave informed consent to participate in the drug trial.

YES NO

(i) Has the doctor breached the Code of Health & Disability Services Consumers' Rights? ☐

Right 7(6) of the Code requires consent to be evidenced in writing if:

(a) The consumer is to participate in any research; or
(b) The procedure is experimental; or
(c) The consumer will be under general anaesthetic; or
(d) There is a significant risk of adverse effects on the consumer.

As Logan is participating in a clinical trial, written consent is necessary.

YES NO

(ii) If Logan had not died but instead the trial drug worked well, would the doctor be in breach of the Code? ☐

In determining whether a breach of the Code of Health and Disability Services Consumers' Rights has occurred, the issue of causation is irrelevant. (See question 16 above). As consent was not given in writing a breach of the Code occurred irrespective of the outcome.

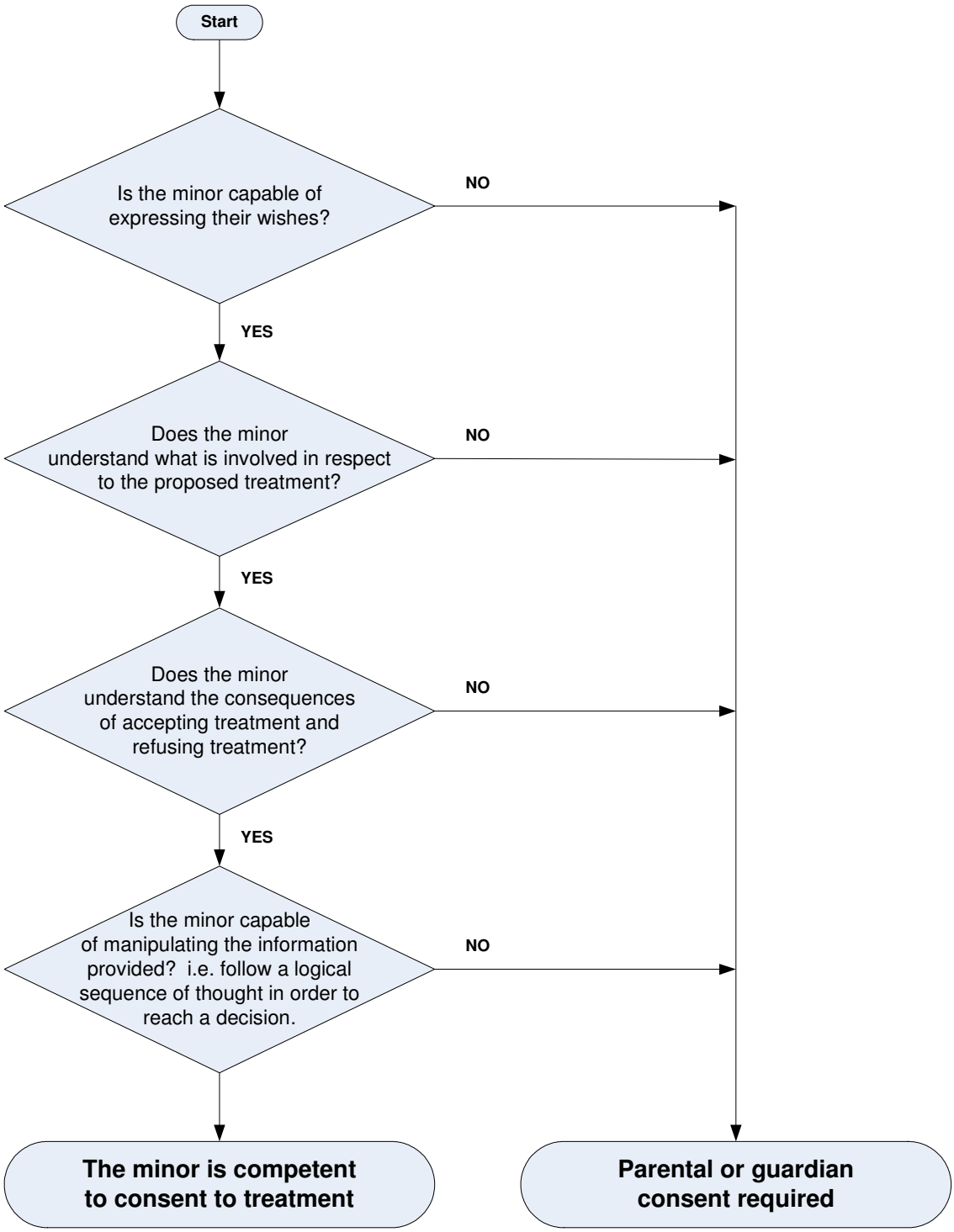
PART THREE

Statutory enactments and / or the Code will not provide clear answers to the questions posed in this Part. Assistance must therefore come from the common law.

36. Mandy is a 14 year old girl with a prominent mole on her face. She thinks it makes her look ugly and wants it removed. Mandy consults her doctor. She receives full information about the procedure and her doctor is satisfied that Mandy understands what the procedure entails, the risks involved and alternative treatments available. Mandy carefully considers the information and decides that she wishes to go ahead with the removal. However, her mother will not consent. She believes that Mandy is being vain and should be satisfied with the way she looks. The doctor is prepared to remove the mole but only if he obtains valid consent to the procedure.

	YES	NO
(i) Can Mandy provide that consent?	☐	☐

In New Zealand there is an unresolved conflict between the status approach (i.e. the minor must reach a fixed age before he or she is legally able to consent to or refuse medical treatment) and the functional approach (i.e. has the minor reached sufficient maturity to be assessed as competent irrespective of their age?) to the provision of health care to minors. This conflict remains unresolved by the Code which states that health care services may only be provided to a consumer if that consumer makes an informed choice and gives informed consent, *except* where any statutory enactment or the common law provides otherwise. Consequently, any relevant statutory provisions and the common law which are contrary to the Code's presumption of competence prevail. Unfortunately neither the applicable legislation or the common law provide clear cut answers to the health care worker's dilemma - "May I treat this child?". Until the law is clarified, the following guideline is recommended:



When assessing the competence of minors under the age of 16 years to consent to treatment, there can be no legal certainty in the current environment as to the correct course for healthcare workers to adopt. Consequently both the status approach and the functional / understanding approach are recommended. If the proposed medical treatment or procedure is minor with little or no risk of an adverse outcome, the minor *may* be capable of giving consent. The following flow diagram provides guidance for assessing competence:

However, if the proposed medical treatment or procedure is either:
a) not insignificant; or

b) involves an element of risk (including risks of less than 1% which are severe); or
c) requires written consent;
parental or guardian consent should be sought.

(ii) If Mandy's father gave consent, could the doctor legally remove the mole notwithstanding the mother's refusal to give her consent? YES ☐ NO

This question, although in the "Common Law" section of the questionnaire, is answerable by reference to Section 36(3)(a) of the Care of Children Act 2004 which provides that consent may be granted on behalf of a minor by **a** guardian. Consent of all guardians is not required. (See question 19 above.)

YES NO

(iii) Should a court order be sought in circumstances where parents cannot agree on the medical treatment to be given to children who are unable to provide consent? ☐ ☐

A court order is not necessary from the perspective of providing legal protection for the healthcare provider if one parent provides consent. However, if the proposed treatment is ongoing and one parent is being deliberately obstructive, it would be prudent for a court order to be sought. (See Pritchard v Pritchard (FC, Hamilton, FP288/98, 9 September 1999). The consenting parent would normally be the applicant.

In this fact scenario, no benefit would be obtained by seeking a court order if the father gave his consent to the removal of the mole.

37. Nicola is 46 years old and has recently become a Jehovah's Witness. She needs to have a hysterectomy. She consents to the procedure but gives explicit written instructions that under no circumstances is she to receive any blood or blood products even if necessary to save her life. Complications develop and a blood transfusion is now necessary to save her life. (Nicola is unconscious).

YES NO

(i) Notwithstanding Nicola's instructions, can a blood transfusion legally be given to Nicola? ☐

The reasoning of Robins J.A. in the Canadian case of Malette v Shulman (1990) 67 DLR (4th) 321 aptly explains the law:

> "… A doctor is not free to disregard a patient's advance instructions any more than he would be free to disregard instructions given at the time of the emergency. The law does not prohibit a patient from withholding consent to emergency medical treatment, nor does the law prohibit a doctor from following his patient's instructions. While the law may disregard the absence of consent in limited emergency circumstances, it otherwise supports the right of competent adults to make decisions concerning their own health care

by imposing civil liability on those who perform medical treatment without consent…

…In short, the card on its face set forth unqualified instructions applicable to the circumstances presented by this emergency. In the absence of any evidence to the contrary, those instructions should be taken as validly representing the patient's wish not to be transfused. If, of course there were evidence to the contrary - evidence which cast doubt on whether the card was a true expression of the patient's wishes - the doctor, in my opinion, would be entitled to proceed as he would in the usual emergency case".

(See also question 17 above).

Nicola's directive is clear and as there is no reason to suspect that her decision is in any way invalid, providing a blood transfusion contrary to her express wishes is unlawful.

YES NO

(ii) Nicola's husband is quickly contacted. He says to go ahead with the blood transfusion. Is the husband's consent sufficient to enable the blood transfusion to be given? ☐

As noted in Re T (adult: refusal of medical treatment) [1992] 4 All ER 649 per Lord Donaldson MR at p 653:

"There seems to be a view in the medical profession that in such emergency circumstances the next of kin should be asked to consent on behalf of the patient and that, if possible, treatment should be postponed until that consent has been obtained. This is a misconception because the next of kin has no legal right either to consent or to refuse consent."

As Nicola's husband has no legal ability to provide consent on Nicola's behalf, he is unable to override her valid advance directive.

38. Olivia is 40 years old and has had a full mastectomy following breast cancer. Olivia now wants breast implants to restore her to the size B she once was. Olivia consults a cosmetic surgeon with her current partner Paul. When asked what size she would like to be by the Surgeon she replies "a B". Paul makes some derogatory remarks and tells her to "get a decent set of jugs - at least size D". Olivia becomes unusually quiet but then says "Okay, make it a D". The surgeon again speaks with Olivia (who is again accompanied by Paul) just prior to her surgery. Paul reads the written consent form, which refers to the insertion of size "D" breasts, prior to allowing Olivia to sign it. The surgery goes well. Not long after the surgery Olivia begins to experience neck and upper back pain. It doesn't take her long to realise that it is new large breasts which are causing her pain. Olivia makes a complaint to the Health & Disability Commissioner stating that she never actually wanted size D breasts, that she told the surgeon she wanted size B breasts, but that the surgeon went along with what her now ex-partner wanted.

YES NO

(i) Is the surgeon legally protected by the fact that Olivia signed a written consent form consenting to the Surgery? ☐

A signed written consent form does not provide legal protection but merely serves as evidence that consent was sought and apparently given to the treatment. If, however, one of the necessary elements of informed consent are absent (i.e. the consent was not voluntarily given or the patient was not competent), the existence of a written document purporting to give consent will not validate an otherwise invalid consent.

	YES	NO
(ii) Would it make any difference if the surgeon had received confirmation from Olivia that she wanted size D breasts without Paul being present at the time?		☐

In some situations health care providers will have to consider whether a patient's choice resulted from the patient's will or from the will of another. It does not matter that another sought to persuade the patient to make a particular choice so long as, in the end, the choice made represented the patient's independent decision. If however, the patient's will is overborne, the choice will not represent a true decision and any purported consent (or refusal) is invalid. In this context, the relationship of the persuader to the patient, for example a spouse or partner, parents or religious advisor, will be important, because some relationships more readily lend themselves to overbearing the patient's independent will than do others. (Re T (adult: refusal of medical treatment) [1992] 4 All ER 649)

Clause 3 of the Code of Health & Disability Services Consumer's Rights provides:

> (1) A provider is not in breach of this Code if the provider has taken reasonable actions in the circumstances to give effect to the rights, and comply with the duties, in this Code…
>
> (3) For the purposes of this clause, "the circumstances" means all the relevant circumstances, including the consumer's clinical circumstances and the provider's resource constraints.

If an astute surgeon took active steps to speak with Olivia on her own, and thereby seek to establish whether her choice was truly her decision, he or she would not be in breach of the Code having taken reasonable steps to ensure compliance with the Code.

The surgeon would also not be in breach of the Code if he had been unable to speak with Olivia on her own, despite attempts to do so, if she had insisted upon Paul remaining with her as she is entitled to have one or more support persons of her choice present, except where safety may be compromised or another consumer's rights may be unreasonably infringed. (Right 8 of the Code of Health and Disability Services Consumer's Rights)

39. Quentin is a 48 year old recluse and is suffering from kidney failure. Dialysis is required. Quentin fully understands his condition and accepts that his doctor believes dialysis is necessary. However, Quentin is a follower of a sect which believes that aliens are communicating directly with earth and "the intervention is coming", at which time, his devotion will be repaid by the aliens who will cure him. In the meantime, he intends to survive off the "life force of the universe". He refuses to accept dialysis. Concerned that Quentin may not be competent, his doctor arranges for his competence to be assessed. He is found to be competent not withstanding his irrational (from the perspective of his doctors) belief.

YES NO

(i) As Quentin's rejection of treatment is based upon an irrational belief, may he be treated nonetheless? ☐

"A mentally competent patient has an absolute right to refuse to consent to medical treatment for any reason, rational or irrational, or for no reason at all, even where that decision may lead to his or her death."

(See *Sidaway v Board of Governors of the Bethlem Royal Hospital* [1985] AC 871, at 905).

What is relevant is the patient's competence. The only legal test applied in New Zealand to date in respect to competency requires that a patient must:

- Possess an ability to communicate choices.
- Understand relevant information.
- Appreciate the situation and its consequences.
- Be able to manipulate information. i.e. Follow a logical sequence of thought in order to reach a decision. (See Re FT (District Court, Auckland, PPPR 68/94, 11 January 1995)).

As Quentin has been assessed as competent, his refusal is binding.

YES NO

(ii) Should a Court order authorising treatment be sought before subjecting Quentin to dialysis? ☐

No application should be made to the court as the court has no jurisdiction, in this case, to override the decision of a competent adult.

40. Rachel is 20 years old and is 38 weeks pregnant. Rachel has pre-eclampsia and monitoring of the baby reveals foetal distress. As the life of the both Rachel and her baby are at risk, an urgent caesarean is required. Rachel refuses to have a caesarean and insists on proceeding with a natural birth as that is "God's will". Rachel is assessed as competent.

YES NO

(i) May a caesarean be conducted to save the baby's life despite Rachel's refusal? ☐

YES NO

(ii) Should a Court order be sought authorising a caesarean section? ☐

There is no legal authority in New Zealand currently to answer the question of whether a competent woman may be forced to undergo necessary medical treatment for the benefit of herself, her foetus or both. While considerable international authority exists giving maternal autonomy priority, the New Zealand High Court decision in *Re an Unborn Child* [2003] 1 NZLR 115 has extended the court's jurisdiction to cover unborn children under the Care of Children Act 2004. As that Act declares that the welfare of children is paramount, there is a possibility that the New Zealand courts could give

priority to the welfare of an unborn child ahead of the mother's right to refuse consent to medical treatment.

Should a situation arise where a competent pregnant woman refuses necessary medical treatment, health care providers ought to, in the current environment, make an application to the courts (under urgency if necessary) to seek judicial consent to treatment. In the absence of any applicable legislative enactment, the only way to protect health care providers from liability (whether in trespass if a caesarean is performed without the woman's consent; or in negligence, for the failure to provide the necessaries of life) is to obtain a judicial pronouncement on the matter. Until a court orders otherwise, a competent woman's refusal to submit to a caesarean must be accepted by health care providers.

THE NEW ZEALAND MEDICAL JOURNAL
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Predicting the past or risk management?

Graham Mellsop, Fiona Clapham-Howard, John Turbott

Abstract

Within mental health services, the development of risk assessment templates has been driven by a desire to reduce the rates of major adverse events. A number of theoretical problems exist with such an approach. Empirical and observational evidence suggests the exercise may be paradoxically counter productive, partly by distracting from comprehensive clinical management planning and partly by contributing to inefficiencies. A way forward which would utilise the established preference of New Zealand psychiatrists for a multiaxial classificatory as a precursor of their clinical management may offer gains in effectiveness and efficiency.

In recent years there has been increasing emphasis on the concept of risk assessment. For example, publications in the area of risk of suicide[1,2] risk of harm/violence to others[3] and more extended risks to the patient themselves, such as self-neglect.[4] The understanding of these risk factors has been gradually increased by more precise epidemiologically-guided research.

Public and health service concerns about the consequences of inadequate risk management have led to the gradual emergence of a number of guidelines[5–8] Almost inevitably, these guidelines which connect risk assessment and risk management, concentrate on only one of the three major risk areas referred to above (i.e. risk of violence, suicide, or self neglect), despite the recognition that a single, comprehensive clinical management or recovery plan best serves patient/consumer needs. The Ministry of Health in New Zealand has launched a Risk of Violence Assessment Toolkit for clinicians working in Mental Health Services.[6]

This emphasis on risk assessment is designed to encourage clinicians to identify those factors which are known to be correlated with the risk of an adverse outcome, such as suicide. That is, its apparent intention is to highlight the degree of concern the clinicians, or other key interested people, should have about the likely adverse events in the person under care or scrutiny.

In New Zealand, a large number of separate templates exist for such risk assessment. Some have been centrally developed as noted above, some developed within specific DHB's, who sometimes share, and who sometimes bring out new editions every year.

Several theoretical or empirical problems need to be recognised in this policy commitment to risk assessment templates:

- Studies have repeatedly demonstrated that doctors, or indeed others, are not able to accurately predict risk in individual cases, regardless of their level of seniority, professional discipline or effort[9,10]
- Evidence from within the field of forensic psychiatry has highlighted the distinction between static and dynamic risk factors.[11,12] Male gender, a parent

who committed suicide, previous attempts at suicide, may all be statistical risk increasing factors, but all are static in the sense that they have been there for some time, will continue to exist, and cannot be modified. Dynamic factors such as timely diagnosis by experienced clinicians followed by effective treatment are more critical to risk reduction.

- Within the context of a National commitment to risk assessment, the significant extra paperwork associated with completing the ever changing templates and meeting the relevant quality assurance and Ministry guidelines, must inevitably distract from some other part of clinicians' daily activities. Experienced clinicians now find that up to one third of their clinical time is spent on form filling and note keeping, subtracting significantly from the time available for patient contact. The extent to which this might encourage a spurious sense of satisfactory task completion in itself, is influenced by the amount of policy and staff education time devoted to encouraging or insisting on template usage.
- Perusal of patient notes in serious incident reviews or other systematic reviews conducted variously by the authors usually reveal only loose connections between management plans drawn up in different sections of the case files. For example, that arising out of a multidisciplinary team meeting, versus any management plan that might have been written on to a risk assessment template, versus one which may have been written by any of a variety of individual clinical staff members following their own assessment as a psychiatrist, psychologist, case manager etc.

A defensible conclusion which can be drawn from the above is that what seemed like a good idea has, in practice, become very counter productive. The mere idea of risk assessment and the commitment to risk assessment which in practice place such emphasis on static factors, gives a false sense of "good work done"; it detracts from good clinical practice both by fragmenting the array of management plans (as opposed to a single comprehensive management plan) and reduces the recognition that good (or preferably the best) clinical management provides the best chance of a good outcome, i.e. distracts people from remembering that good clinical practice helps prevent adverse outcomes despite clinicians' inability to actually predict them.[13–15]

Consumers and family consistently provide feedback preferring comprehensive approaches to assessment and treatment, preferring a recovery-centred style to one where the concept of "clinical risk" dominates.[16]

It can also be argued that continuing to assign such importance to assessing risk as a separate factor contributes to the stigma linking mental disorder to "danger" and violence. This link is routinely represented via the media to the wider community as being virtually causal, but is minimally supported by the data.[17-19]

An argument for a Risk Axis has been developed in a recent, conceptual, paper based on a selective literature review.[12] A risk axis template has been devised using risk factors from the HCR-20, structured Suicide Guidelines,[7] SAMI, and a review of literature on self neglect. This axis is best seen as a structured clinical guideline aimed to aid busy clinicians who routinely assess and manage risk.

New Zealand Psychiatrists overwhelming use the multi-axial, American developed, DSM-IV diagnostic system.[20] The suggested Axis could replace one of the underused axes in the DSM-IV system[20,21] so requiring no change in the conceptualisation of their clinical assessment. It would very much allow the incorporation of the consequences of considerations of risk into a single, comprehensive management plan, linked to the assessment through the diagnostic and formulative process.[22] This would produce a win for consumers, effectiveness gain for clinical services and an efficiency gain for the clinicians, to say nothing of a general boost in morale with the removal of a variety of bureaucratically introduced (usually misfiled) templates.

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Early presentation following overdose of modified-release paracetamol (Panadol Osteo) with biphasic and prolonged paracetamol absorption

Andis Graudins, Hanh Ngoc Pham, Chris Salonikas, Daya Naidoo, Betty Chan

Abstract

Background Panadol Osteo®(GlaxoSmithKline) is a modified-release paracetamol formulation marketed in Australia and New Zealand, comprising 33% immediate and 66% sustained-release fractions. In overdose, absorption may be delayed and the paracetamol treatment nomogram can miss potentially toxic paracetamol concentrations if only one serum estimate is taken. We report a massive ingestion of Panadol Osteo® with biphasic, prolonged absorption requiring extended treatment with N-acetylcysteine.

Case report A 72-year-old female presented 2 hours after ingesting 119×665 mg (1 g/kg) of Panadol Osteo and 5×30 mg mirtazepine. The patient was drowsy (GCS14). Activated charcoal was not administered. Her pulse was 70 bpm, BP 149/63 mmHg with an unremarkable physical examination. Two-hour paracetamol concentration was 2628 micromol/L falling to 2216 micromol/L, 4 hours post-ingestion. Admission acid-base status and liver function were normal. N-acetylcysteine was commenced using the standard 21-hour intravenous protocol and continued for 5 days (total dose 700 mg/kg) until paracetamol concentrations were undetectable. Serum paracetamol peaked a second time, 12 hours post-ingestion, at 3040 micromol/L and paracetamol absorption continued for 35 hours post-ingestion. Despite early administration of N-acetylcysteine, serum AST/ALT peaked at 384 and 541 IU/L on day 3 with normal coagulation profile.

Conclusions Massive ingestion of modified-release paracetamol (Panadol Osteo) may result in biphasic and prolonged paracetamol absorption requiring extended administration of N-acetylcysteine. Current intravenous dosing regimens may not provide enough N-acetylcysteine to effectively metabolise paracetamol to non-toxic adducts.

A modified-release formulation of paracetamol is available in Australia and New Zealand for management of chronic pain. The same formulation is marketed under three different names: Panadol Extend® (GlaxoSmithKline), Panadol Osteo® (GlaxoSmithKline), and a generic brand called Duotrol® (Menley & James).

The formulation is a 665 mg bilayer tablet divided into two separate portions with 31% being immediate-release paracetamol and 69% formulated in a sustained-release gel matrix. In therapeutic dosing this formulation allows for the gradual release of paracetamol from the tablet over a period of 8 hours, reducing the frequency of paracetamol dosing from four to three times a day. The immediate-release fraction of the tablet is absorbed rapidly, similar to standard paracetamol formulations while the sustained-release fraction is formulated so that the gel matrix rapidly hydrates

releasing paracetamol by a combination of diffusion from and erosion of the gel layer.[1]

Data on the behaviour of this formulation in overdose is limited. A volunteer study in simulated overdose, at 75 mg/kg, suggested that the mean time to peak paracetamol concentrations is increased from 1 to 3.5 hours when compared to comparable doses of immediate-release paracetamol.[2]

A clinical case series of overdoses with this formulation up to 24 grams showed that patients may continue to absorb paracetamol for up to 18 hours post-ingestion and that paracetamol concentrations remain persistently above the Rumack-Matthews treatment line during this time period.[3] We report a case of massive modified-release paracetamol ingestion where the patient exhibited biphasic paracetamol peak concentrations and prolonged absorption necessitating prolonged treatment with N-acetylcysteine.

Case report

A 72-year-old 80 kg female presented 2 hours after the ingestion of 119x665 mg tablets (79.13 grams, 1 gram/kg body weight) of modified-release paracetamol (Panadol Osteo, GlaxoSmithKline Consumer Healthcare, Australia) and 5x30 mg mirtazepine. The patient had a background history of depression, hypertension, and osteoarthritis. Her regular medications included mirtazepine 15 mg nocte, verapamil sustained-release 240 mg daily, perindopril and indapamide. She denied extra ingestion of her antihypertensives.

Figure 1. Time course of hepatic aminotranferase enzyme elevation and duration of N-acetylcysteine therapy following overdose with 79.13 grams of modified-release paracetamol in a 72 yo female patient who received early treatment with N-acetylcysteine

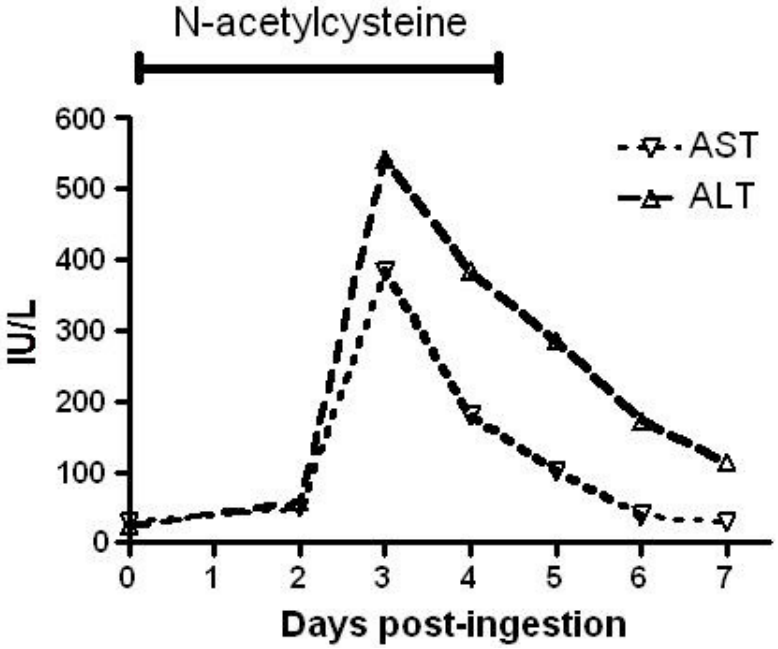
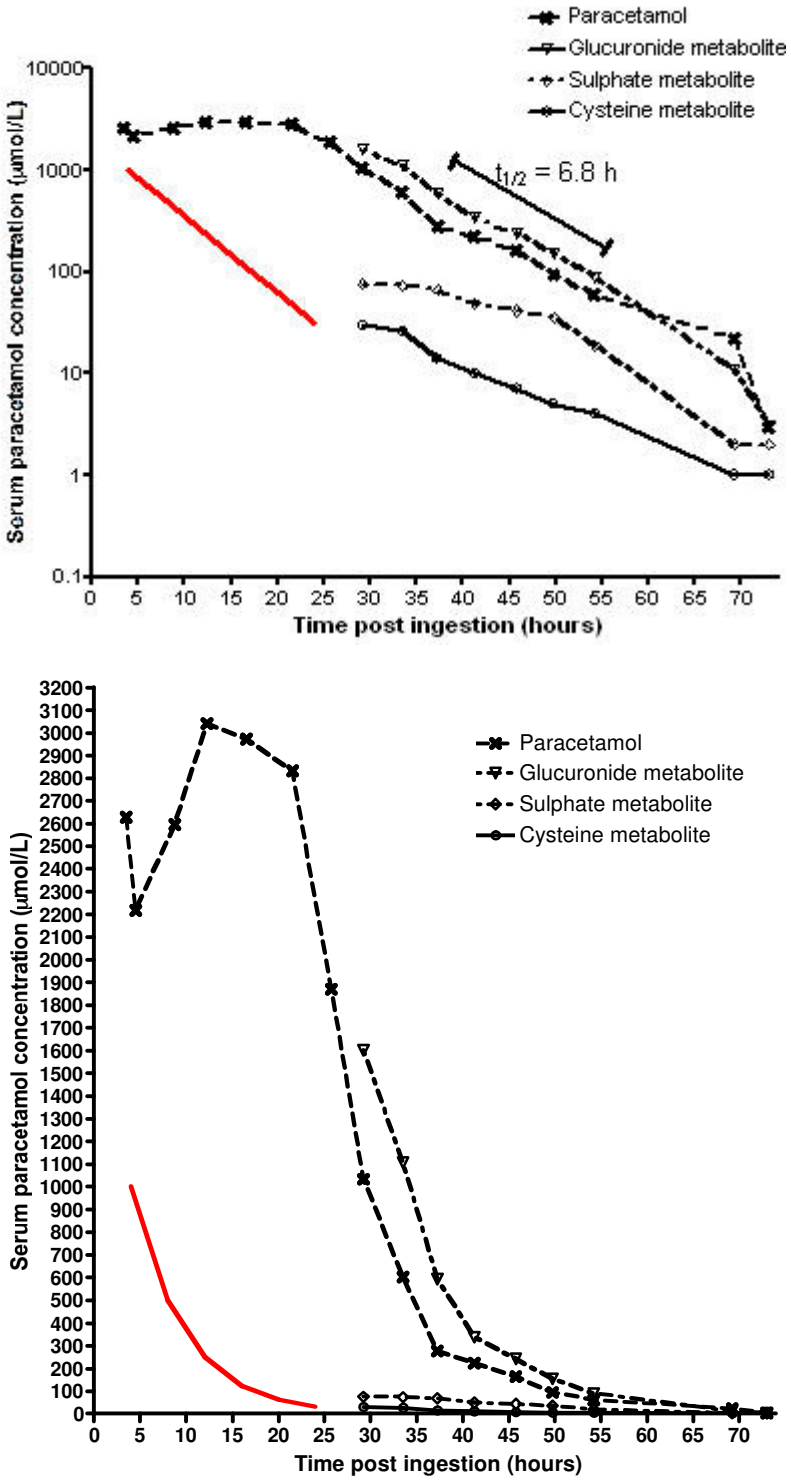


Figure 2. Time-concentration curves for paracetamol and paracetamol metabolites following overdose with 79.13 grams of modified-release paracetamol (Panadol Osteo) in a 72-year-old female



The upper panel shows a semi-log plot of paracetamol and metabolite concentrations with non-linear decay of paracetamol to 35 hours. Elimination half-life calculated from 37 to 54 h ($t_{1/2}$ = 6.8 hours)
The lower panel shows the biphasic nature of paracetamol absorption in this patient. The unbroken line represents the paracetamol treatment nomogram line in both figures.

On arrival to the emergency department, the patient was drowsy but easily rousable and oriented to time place and person (Glasgow Come Score=14). Her vital signs revealed a pulse of 70 bpm, blood pressure 149/63 mmHg, and unremarkable physical examination. A 2-hour post-ingestion paracetamol concentration was 2628 micromol/L falling to 2216 micromol/L, 4 hours post-ingestion. Admission acid-base status and liver function were normal. N-acetylcysteine was commenced using the 21-hour (150 mg/kg over 60 min, then 50 mg/kg over 4 hours, then 100 mg/kg over 16 hours) intravenous protocol.

Therapy was continued for a total of 5 days (total dose 700 mg/kg) by four repetitions of the 100 mg/kg infusion, while paracetamol concentrations remained elevated and the patient developed evidence of mild hepatotoxcity. N-acetylcysteine was ceased when hepatic aminotransferases were documented to be falling. Serum paracetamol peaked a second time, 12 hours post-ingestion at, 3040 micromol/L and paracetamol absorption appeared to continue for at least 35 hours post-ingestion.

Despite early administration of N-acetylcysteine, serum AST/ALT peaked at 384 and 541 IU/L (Figure 1), respectively, on day 3 with normal coagulation profile. The patient remained clinically well and care was transferred to the psychogeriatrics department for ongoing in-patient management of her depression.

Serum paracetamol glucuronide, sulphate, and cysteine metabolites were assayed from 29 hrs post-ingestion utilizing HPLC methodology, revealing higher glucuronide metabolite fraction (88.6%) based on $AUC_{29\text{-}70h}$ comparisons, than described after therapeutic dosing. Sulphate and cysteine metabolites represented 9.1% and 2.3% of measured metabolite fractions. Paracetamol and metabolite concentrations are summarized in Figure 2.

Discussion

We report a relatively large ingestion of modified-release paracetamol in an elderly lady resulting in biphasic and persistently elevated paracetamol concentrations requiring prolonged treatment with N-acetylcysteine. This is the first case report describing a patient presenting at an early stage post-overdose with such a large overdose of this formulation and demonstrates dual peaks in paracetamol concentrations that may result from the sequential release of drug firstly from the immediate-release fraction of the tablet and then the sustained-release fraction.

Previously, we have reported four cases of modified-release paracetamol overdose where patients ingested from 8 to 24 grams of this formulation.[3] At this lower dose range, paracetamol absorption was complete by 24 hours in all four cases and serum concentrations had fallen below the therapeutic range. As a result, all four patients had a good outcome with a 21-hour infusion of N-acetylcysteine and did not develop any evidence of hepatotoxicity.

Roberts and Buckley report the only other case where a patient ingested a similar amount (64 grams) of paracetamol as the patient in the current report.[4] However, unfortunately, their patient presented 14 hours post-ingestion. Paracetamol concentrations peaked at 2500 micromole/L at 20 hours post-ingestion. It is unknown whether the paracetamol concentrations may have been higher prior to presentation.

As with our case, Roberts and Buckley also continued N-acetylcysteine for longer than the standard 21 hour intravenous course until paracetamol concentrations had fallen below 120 micromole/L. Their patient did not develop biochemical evidence of hepatotoxicity [4].

The paracetamol formulation ingested by this patient has a significant sustained-release proportion, and unlike immediate-release paracetamol, there may be continued absorption of the drug for many hours. The dissolution profile of a North American immediate-release and modified-release paracetamol (Tylenol Extended Relief – McNiel) have been compared in an in-vitro model, revealing a prolonged dissolution profile of the modified-release formulation.[5]

The dissolution profile of the modified-release Australian and New Zealand paracetamol formulation may also be delayed due to clumping of tablets and possible pharmacobezoar production when compared to immediate-release paracetamol. This may, in part, explain the prolonged period of absorption seen after overdose with this formulation. Consequently, the administration of activated charcoal more than the recommended 2 hours post-ingestion of immediate-release paracetamol may reduce the absorbed dose and reduce peak serum paracetamol concentrations [6].

In our patient, it is also possible that the co-ingestion of mirtazepine played a role in slowing of gastric emptying. However, the patient did not exhibit signs of major mirtazepine poisoning such as sinus tachycardia, hypotension, marked sedation or coma. As the reported dose ingested for this drug was relatively small and the patient did not have major signs of mirtazepine toxicity it is likely the influence of this drug on paracetamol absorption was minimal.

Certainly, co-ingestion of opioids and first generation antihistamines has resulted in delayed paracetamol peak concentrations after both immediate-release paracetamol overdose as well as following overdose with other modified-release formulations of this analgesic, such as the North American, Tylenol Extended Relief (McNiel Pharmaceuticals).[7,8]

Interestingly, our patient developed evidence of mild hepatotoxicity with moderate elevation of hepatic aminotransferases, peaking on day 3 post-ingestion. This is despite the fact that antidotal therapy was commenced within 8 hours of ingestion of her overdose. The amount of N-acetylcysteine provided by the standard 21 hour intravenous protocol may not be adequate to provide enough sulfhydryl group replacement to completely conjugate the toxic intermediary paracetamol metabolite (N-acetyl-para-benzo-quinoneimine) to non-toxic cysteine and mercapturate paracetamol metabolites in cases of massive paracetamol overdose.

Similar elevations in hepatic aminotransferases have been noted following massive ingestion of immediate-release paracetamol despite N-acetylcysteine being commenced early post-ingestion in a patient with gastric paresis and administered for an extended period.[9] Similarly, hepatotoxicity has developed in cases where the antidote has been accidentally discontinued after the standard 21 hour intravenous regimen following massive immediate-release overdose despite delayed and ongoing paracetamol absorption.[10]

As a result, it is important to administer N-acetylcysteine for prolonged periods in any massive paracetamol ingestion until blood concentrations are documented to fall

below therapeutic levels and liver function is demonstrated to either be normal or improving in cases where hepatotoxicity is evident.

Clinical consensus guidelines for the management of overdose with this particular modified-release formulation of paracetamol have been agreed upon by Clinical Toxicologists and Poisons Information Centres in Australia and New Zealand and recently been published.[11] These recommend empiric commencement of N-acetylcysteine if the dose ingested is greater than 10 grams or 200 mg/kg (whichever is the least).

An initial paracetamol concentration 4 or more hours post-ingestion should be assayed and followed with a second paracetamol estimation 4 hours after the first. Treatment with N-acetylcysteine should be continued if either concentration falls above the paracetamol treatment nomogram line. When massive ingestion of modified-release paracetamol (e.g. >50 grams) occurs, it is likely that persistently elevated paracetamol concentrations will be seen for more than 48 to 72 hours. Prolonged administration of N-acetylcysteine until paracetamol levels fall below therapeutic concentrations may prevent the development of hepatotoxicity resulting from delayed glutathione depletion in the face of continued paracetamol metabolism.[4]

Finally, we were also able to assay paracetamol metabolites in this patient. Unfortunately, the initial 24 hours of blood samples had been discarded by the time the assays were performed and results are from 29 hours onwards. Interestingly, the proportion of paracetamol metabolized to glucuronide conjugates appeared greater than that usually reported with substantially less sulphate and cysteine conjugates detected in the samples (See Table 1). This may suggest some degree of induction of glucuronide metabolism with prolonged hepatic exposure to paracetamol over a number of days although it is not possible to be certain of this given the loss of blood samples from the first 29 hours.

The addition of metabolite concentrations from the initial 24 hours following ingestion may have influenced the AUC ratios and resulted in less of a difference than observed. Nonetheless, the phenomenon of glucuronide induction has been reported in volunteers administered 8 grams/d of paracetamol for three consecutive days.[12] Gelotte et al showed that suspected hepatic glucuronyltransferase enzyme induction was associated with increased glucuronide metabolite concentrations, increased paracetamol clearance and a concomitant decrease in sulphate metabolism. It is possible that a similar phenomenon may be evident in patients with massive paracetamol overdose with prolonged absorption and persistently elevated blood concentrations.

Conclusion

When massive ingestion of modified-release paracetamol (e.g. >50 grams) occurs, it is likely that persistently elevated paracetamol concentrations will be seen for more than 48 to 72 hours. Prolonged administration of N-acetylcysteine until paracetamol levels fall below therapeutic concentrations may attenuate or prevent the development of hepatotoxicity resulting from delayed glutathione depletion in the face of continued paracetamol load.

Table 1. Summary of area-under-the-time-concentration curve estimates for paracetamol and its metabolites calculated from 29 hours post-ingestion using least squares analysis and GraphPad Prism graphical software. Glucuronide metabolite appears to have a more significant fraction of total metabolite production

	Paracetamol	Glucuronide metabolite	Sulphate metabolite	Cysteine metabolite
$AUC_{29\text{-}70}$ µmol/L/hr	8528	14251	1465	366
Percent of total metabolite AUC		88.6%	9.1%	2.3%

Competing interests: None known.

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Bilateral trochlear nerve palsies following dorsal midbrain haemorrhage

Sumu Simon, Avninder Sandhu, Dinesh Selva, John L Crompton

Abstract

Bilateral trochlear nerve palsies without other signs of dorsal midbrain syndrome following spontaneous midbrain haemorrhage is extremely rare. We report the case of a 37-year-old man with bilateral trochlear nerve palsies causing superior oblique palsies (SOP) from dorsal midbrain haemorrhage which recovered with conservative management. The report highlights the need for imaging in patients with spontaneous bilateral superior oblique (BSO) motility deficits.

Acquired BSO palsy is extremely rare and constitutes 0.48% of nerve palsies affecting the oculomotor, trochlear and abducens nerves.[1] One of the authors (JLC), in 30 years of clinical practice has seen 34 patients with acquired BSO palsies. The commonest cause of acquired BSOP is closed head trauma.[2] Dorsal midbrain haemorrhage with resultant bilateral SOP is usually associated with other neuro-ophthalmic and neurological manifestations with only 5% of fourth nerve palsies being truly isolated.[3]

Case report

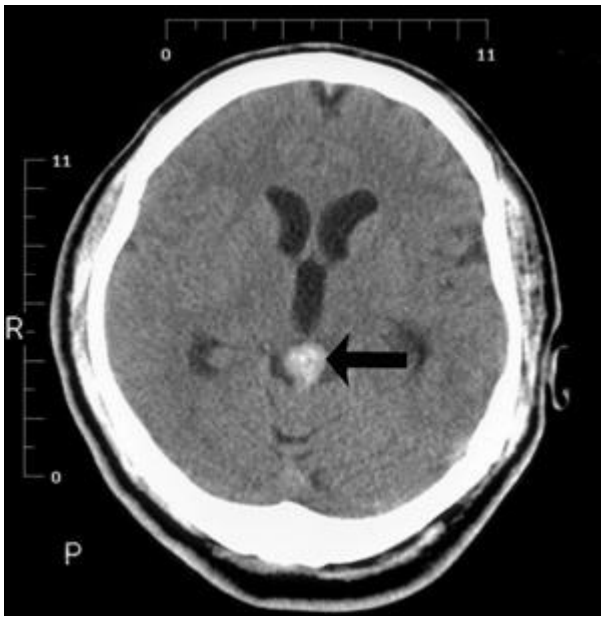
A 37-year-old man had a sudden onset of generalised weakness, double vision, tinnitus, deafness, numbness over the right cheek and tingling over his right arm. He had a history of alcohol abuse. On examination he was found to be alert. Best corrected visual acuity was 6/6 bilaterally. There was no significant head tilt. Cover test revealed slight right hypertropia in primary gaze. Bielshowsky was positive to both sides.

Ocular motility examination revealed limitation of depression in adduction in both the eyes (-2 in the right eye (RE) and -1 in the left eye (LE)) and a V pattern esotropia. There was mild inferior oblique over action in both eyes. He had vertical and torsional diplopia which worsened on down gaze. Double Maddox rod examination demonstrated an excyclotorsion of 15 degrees. He had normal saccades and there was no papilloedema.

Visual field testing was normal. Systemic examination revealed mild nuchal rigidity, bilateral sensorineural deafness, decreased sensation in the maxillary division of the right trigeminal nerve to pain and to light touch and tingling in the right arm. Blood pressure was normal and there were no signs of chronic liver failure.

Computerised tomography showed a non-enhancing 15 mm hyperdense mass in the region of the tectum, obliterating the aqueduct which was consistent with acute haemorrhage. There was also early dilatation of the lateral and third ventricle (Figure 1).

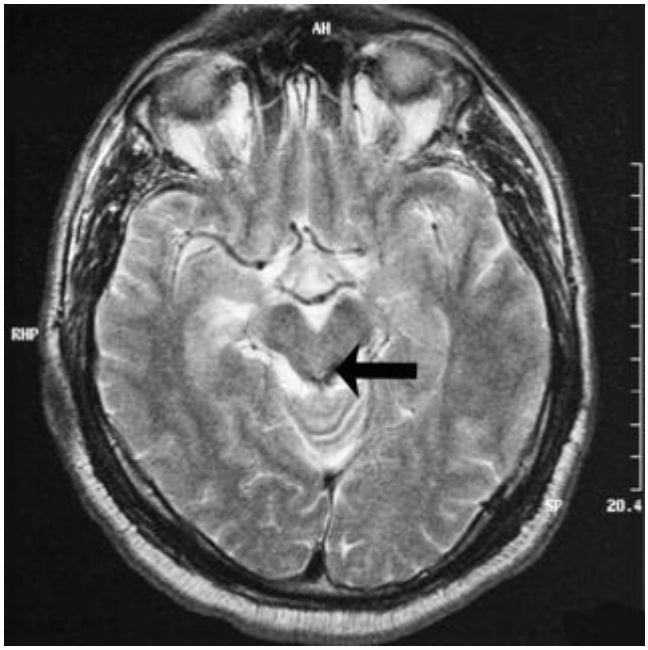
Figure 1. Axial section CT scan showing a well circumscribed hyperdense lesion in the dorsal midbrain (arrow) suggestive of acute haemorrhage.



Magnetic resonance imaging confirmed the presence of acute haemorrhage in the midbrain with perilesional oedema and obstructive hydrocephalus. An audiogram revealed a mild high tone sensory neural loss with the right side hearing slightly worse than the left. Routine blood investigations were normal (platelet count 366x10 ^{9}/L). He had an altered lipid profile (total triglycerides 4.1mmol/L, total cholestrol 8.4 mmol/L, HDL 1.1 mmol/L, LDL 5.4 mmol/L).

The liver function tests were normal except for elevated levels of gamma glutamyl transpeptidase (116U/L). He was started on dexamethasone 2 mg twice a day which was tapered over the next three days. His diplopia resolved over five weeks. The facial numbness and upper limb tingling improved over a week. The deafness and tinnitus resolved six months later. He was followed up periodically with MRI over two years (Figure 2) which showed near total resolution of the haemorrhage with no evidence of an underlying lesion.

Figure 2. MRI scan at 2 years follow up. An axial T1-weighted image shows near total resorption of the haemorrhage in the dorsal midbrain (arrow) with normalisation of the ventricles



Discussion

Spontaneous bilateral SOP from midbrain stroke with no other associated ocular signs has been reported only once before,[4] and we are unaware of any other detailed clinical description in the English literature. The cause of spontaneous midbrain haemorrhage is often unclear; the commonest cause being vascular malformation.[5] The cause for the haemorrhage in our patient may have been due to a bleed from a cavernous haemangioma or cryptic arteriovenous malformation.

The bilateral sensorineural loss was probably due to the involvement of the inferior colliculi.[6] Although no cause for the other neurological deficits was detected on imaging, a plausible explanation is that the bleed and resultant perilesional oedema could have caused a restricted sensory syndrome. The diagnostic dilemma in this case would be an alternating skew deviation but the arguments in favour of double fourth nerve palsy are the impaired ductions in the domain of the superior oblique, V pattern esotropia and significant excyclotorsion. The other reported non traumatic causes of isolated double fourth nerve palsy include intracranial inflammations, arachnoid cysts, neoplasms, post infectious neuritis, mononeuritis multiplex, hydrocephalus and multiple sclerosis.[7–13]

Both CT and MRI are accurate and non invasive investigations, with CT being more useful to diagnose an acute haemorrhage while MRI is the preferred investigation to monitor the evolution. Management is usually conservative. Exploration and shunting can be done in patients with progressive deterioration and hydrocephalus respectively.[5]

In conclusion, non-traumatic isolated bilateral SOP are indicative of pathology in the midbrain, specifically a dorsal midbrain lesion. Appropriate imaging with CT and/ or MRI should be performed on a semiurgent basis in order to make an accurate diagnosis and to lead to appropriate advice and treatment.

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An abdominal pearl

Richard Tapper, Frank Frizelle

Clinical

A 70-year-old male with Gleason 4 prostate cancer underwent a CT scan of the pelvis for planning for curative intent radiotherapy. This scan incidentally identified a lesion (Figure 1) . The patient was asymptomatic. The lesion which was initially thought to be a duplication cyst of the rectum and further imaging was recommended.

An MRI scan raised the possibility of this being a teratoma, liposarcoma, or gastrointestinal stromal tumour (GIST). During radiotherapy for prostate cancer he developed intermittent rectal bleeding. The lesion was not palpable on abdominal or digital rectal examination and a colonoscopy revealed mild radiation proctitis only. A repeat MRI scan suggested the lesion had increased in size and it was felt that it should be removed.

A laparotomy was performed and on initial inspection of the pelvis a 7cm by 5cm intraperitoneal free body was identified and removed (Figure 2). It had no attachments to any surrounding structure. The patient did well postoperatively and has made a full recovery.

Figure 1. MRI scan showing lesion in pelvis

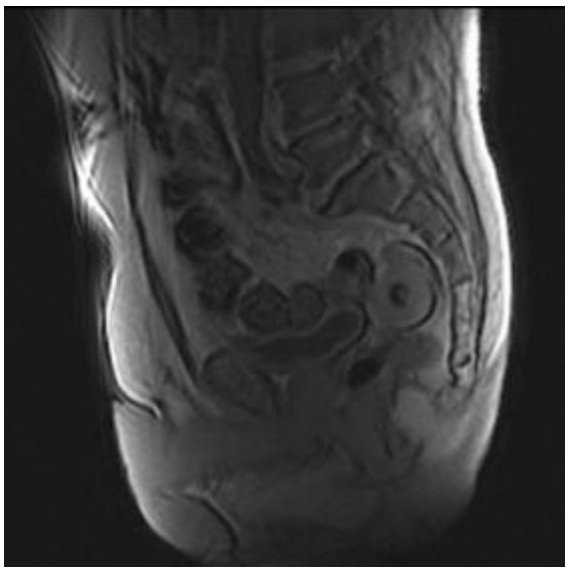
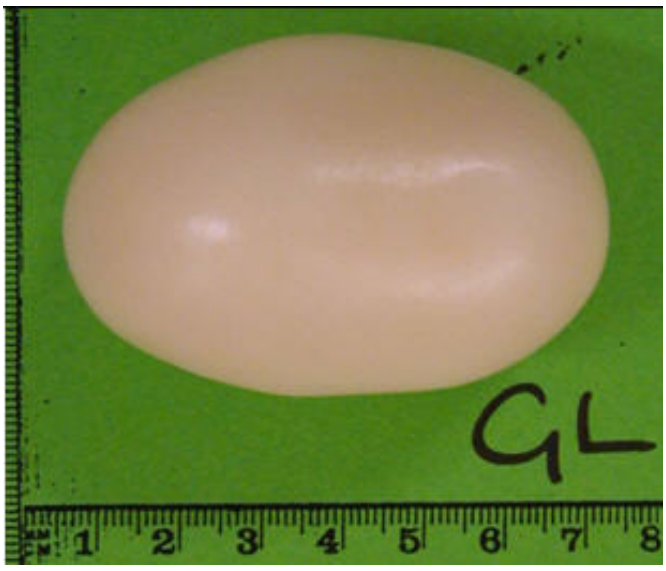


Figure 2. Photo of lesion about the size of a large goose egg



Discussion

Intraperitoneal free bodies are a common finding at laparotomy, however giant loose bodies are very rare. They are felt to develop from gradual build-up of serum over a torted appendix epiploicae.[1]

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Hydatid cyst of the thigh

Resat Ozaras, Ersin Vanli, Fatih Kantarci, Rana Ramazanoglu, Birgul Mete, Recep Ozturk

Clinical

A 38-year-old man presented with a mass on right anterior thigh. He reported a gradually enlarging mass without pain and redness for 3 years (Figure 1). He had a fluctuating mass measuring 13×6 cm on the right thigh. Laboratory studies revealed a mild eosinophilia (4%).

Figure 1

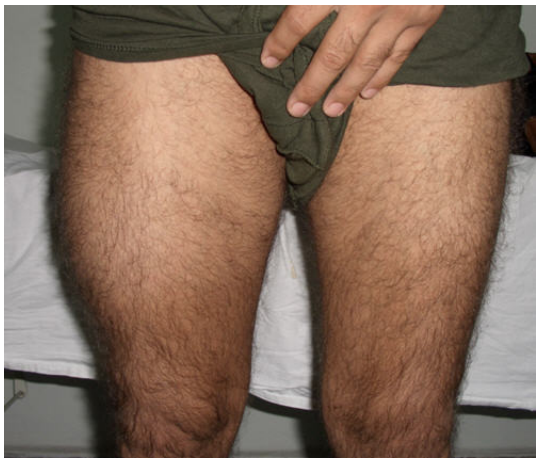
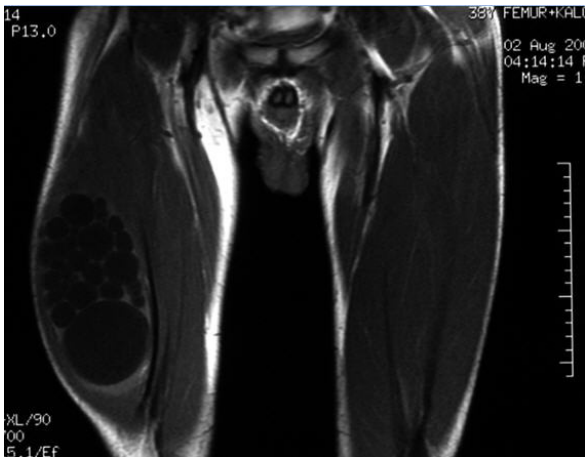
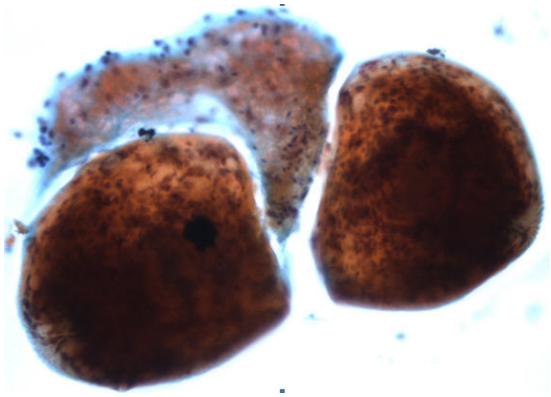


Figure 2



MR showed a huge multicystic mass, containing multiple daughter cysts, in the anterolateral part of the right thigh within the quadriceps femoris muscle (Figure 2).

Figure 3



Fine needle aspirate of the cyst showed a clear fluid of 10 ml. The conventional smears were hypocellular with inflammatory cells and the examination of the slides prepared after cytocentrifugation, although sparse, revealed protoscolexes, and hooklets (Figure 3). The diagnosis of hydatid cyst was confirmed by a positive hemagglutination test. Chest X-ray and abdominal ultrasonogram were negative. He was given albendazole pending surgical excision.

Discussion

Cystic echinococcosis caused by *Echinococcus granulosus* affects many organs mainly the liver and the lungs. The primary hydatid disease of the muscle is extremely rare. The diagnosis generally depends on imaging studies. Serodiagnostic studies may be useful especially when the liver is involved. A specific diagnosis can be made by the examination of aspirated fluids for protoscolices or hooklets, but diagnostic aspiration may lead to leakage of the cystic fluid and thus to the dissemination of infection or an anaphylactic reaction.

Therapy is based on considerations of the size, location, and manifestations of cysts and the overall health of the patient. Surgery has been the principal definitive treatment. Albendazole is active against *Echinococcus* and is administered adjunctively.

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Rupture of Hydatid Cyst of the Liver

Published in NZMJ 1909;8(32):6–8 and written by Dr. Sidney C. Godfray, Waipawa. Read before the Hawke's Bay Division, B.M.A.

I have lately had under my care in the Waipawa District Hospital a case of Rupture of a Hydatid Cyst of the Liver, which, if only on account of the rarity of such an accident, appears to me to be sufficiently interesting to be recorded.

Late on the night of last June 23rd a half-caste, aged 23, was admitted to hospital, having been driven some 35 miles. The history given was, that, whilst playing football at about 2.30 p.m. on the previous day, the patient collared a heavy Maori of not less than 15 stone weight, the latter failing heavily in the sitting position on the former's abdomen.

After lying down for a few minutes, the man rose and walked, with difficulty, about 20 yards, and then had to be carried off the field. No medical attendance was obtainable that day, and the patient suffered from considerable abdominal pain and frequent vomiting. I was unable to ascertain that any complaint of feeling ill had been made at any time previously, but the man himself acknowledged to me that he had been "short-winded for a long time.

I saw the patient soon after admission, and found him to be suffering very much from shock and in considerable pain; vomiting had been frequent (during the journey, and the matter ejected was of coffee-ground appearance. He was very cold and clammy, the temperature was subnormal, the pulse rapid, flickering, intermittent and almost uncountable, and dyspnoea was marked.

The man's condition was too bad to admit of any other than a rapid and incomplete examination. The abdomen was much distended, tympanitic anteriorly, but dull in the flanks; the apex beat of the heart was outside the nipple line, and the cardiac pulsations faint and rapid. I diagnosed Rupture of the Bowel, probably of the Duodenum. Hot bottles were packed around the patient, and he was stimulated with Strychnine, Adrenalin and Digitalin at intervals.

Later on during the night Heroin was administered to relieve the pain, and a few hours' sleep was obtained. Next morning the patient had rallied somewhat, but his general condition was evidently very serious, and "abdominal facies" was more marked.

With Dr. Lewis Reed's assistance, I opened the abdomen, and found a large quantity of chocolate-coloured fluid in the cavity; the bowels were enormously distended and congested. After the greater part of the fluid had been evacuated, a small cyst of the size of a large pea was found lying amongst the coils of the bowels. It was now evident that the source of the fluid was a ruptured Hydatid cyst, but no cyst could be seen or felt. The liver was much enlarged, and we came to the conclusion that the cyst must be on the upper surface of the liver.

I was about to explore the liver further when the patient's condition became so alarming that I rapidly flushed out and closed the abdomen, after inserting large drains in the middle line and both flanks. The man never rallied, and died seven hours after the operation.

Post-mortem notes

The intestines, were intensely congested, but there was no exudation of lymph. The liver was very large, but it was impossible to see or get at the cyst without removing the gland, it being situated on the upper surface of the right lobe, immediately beneath the Diaphragm, which was much displaced, the capacity of the Thoracic cavity, especially on the right side, being extremely small, and the heart displaced to the left.

The enormous cyst had a ragged, almost circular laceration, about the size of a 5/- piece, and still contained about a pint of chocolate-coloured fluid, of which a considerable amount had collected in the abdomen and pelvis since the operation. The lungs were very small, of marbled appearance, and in a state of chronic congestion, probably due to pressure.

Remarks

From the state of the lungs, and from the fact that the enormous cyst must have interfered very materially with the action of both' lungs and heart, it seems incredible that the man could have even attempted to play football. We all know how large a Hydatid cyst may become before any complaint is made, but I have never before seen a case in which, judging by post-mortem appearances, pressure symptoms had been so marked that one would have thought it absolutely impossible for the subject to have been able to take, any active exercise at all. Yet in this case, so far as I have been able to ascertain, the patient had never made any complaint to his friends or sought medical advice.

Had the case been available for operation prior to the accident, the cyst could not have been reached from the abdomen, but could have been easily dealt with in the right axillary region after resection of part of one or two ribs.

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Carotid endarterectomy in UK

Carotid narrowing is implicated in the causation of transient ischaemic attacks and strokes. If such patients have more than 50% narrowing of the relevant artery it is generally believed, on trial based evidence, that endarterectomy is superior to medical treatment in terms of stroke prevention. However, there is also evidence that the benefit decreased substantially if surgery was delayed for more than 2 weeks after the presenting event. This observational study reports that only 20% of symptomatic patients had surgery within the 2-week target time. The delay had several facets—ignorant clinicians, inadequate ultrasound facilities and inadequate surgical facilities. So they recommend major improvements in services. Indeed, the UK Department of Health currently recommends the surgery should be done within 2 days, not 2 weeks.

BMJ 2009;338:b1847dol:10.1136/bmj.b1847.

Venous thromboembolism (VTE)—how much anticoagulant therapy?

This review provides a handy reference about the evidence (ranging through A, strong, B, moderate, and C, low-quality) for duration of treatment in a variety of thromboembolic conditions. Provoked VTE, associated with a transient risk factor calls for 3 months treatment, but unprovoked VTE or cancer related VTE warrant a minimum 3 months and consideration of long term treatment (A). Recurrent unprovoked VTE also may warrant long term treatment (A). Patients with chronic thromboembolic pulmonary disease and thrombophilic patients may also warrant long term treatment, but there appears to be a less acceptable evidence base for this recommendation.

MJA 2009;190:659–60.

Gastric acid inhibitors and hospital-acquired pneumonia (HAP)

An increased risk of community-acquired pneumonia has been found in current users of acid-suppressive medications. We have recently (NZMJ 8/5/09) reported on this phenomenon and the speculation on the causes of this relationship. This paper reviews the situation with respect to HAP. Their reviewed cohort comprised 63,878 adult patients admitted for 3 or more days. Acid-suppressive medication was ordered in 52% of admissions and hospital-acquired pneumonia occurred in 2219 admissions (3.5%). This amounted to a 30% increased odds of acquiring HAP. The association was statistically significant for proton pump inhibitors but not for histamine receptor antagonists. So acid inhibitors should not be frivolously prescribed.

JAMA 2009;301(20):2120–8.

Aspirin for the prevention of cardiovascular disease—another view

Recently (NZMJ 24/7/09) we reported on the opinion of the US Preventive Services Task Force on this topic—if the haemorrhagic risk is low they recommend low dose (75 mg) aspirin daily as a primary prevention measure against cardiovascular disease. This paper from the UK reaches the opposite conclusion after an analysis of six primary prevention trials (95,000 individuals). They report a 12% proportional reduction in serious vascular events but also a significant increase in gastrointestinal and extracranial bleeds. Consequently they feel that, as a primary preventer, aspirin is of uncertain net value as the reduction in occlusive events needs to be weighed against any increase in major bleeds. Can these viewpoints be reconciled? Maybe. I note that in approximately 30% of these six trials the dose of aspirin was not really low—in one it was 500 mg daily. Whichever, those with haemorrhagic risk factors should probably not have aspirin. And those who have aspirin should have 100 mg or less per day.

Lancet 2009;373:1849–60.

The metabolic syndrome and resistant hypertension—is aldosterone the villain?

Obesity, dyslipidaemia, Type 2 diabetes, insulin resistance, and hypertension are features of the metabolic syndrome. In this review the authors convincingly implicate aldosterone as a malign factor. They state that evidence indicates that adipose tissue produced aldosterone secretory factors that promote excessive adrenal aldosterone production. Elevated plasma aldosterone levels in turn promote insulin resistance, inflammation, oxidative stress, and sodium retention. In turn, hypertension, often resistant to treatment, develops. The obvious clinical implication is that mineralocorticoid receptor blockade might prove useful in this situation. Enter spironolactone—not a very useful diuretic for which purpose it was initially promoted, but maybe useful in this context. Sounds a reasonable approach.

Ann Intern Med 2009;150:776–83.

THE NEW ZEALAND MEDICAL JOURNAL
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New Zealand smokers' attitudes to smokefree cars containing preschool children: very high support across all sociodemographic groups

In 2008 we published the overall support by New Zealand smokers for smokefree cars containing preschool children (96%).[1] To provide further detail on the support by different groups, we examined the support by age-groups, gender, ethnicity, level of socioeconomic deprivation, and level of financial stress.

The data came from the wave 1 of the New Zealand arm of the International Tobacco Control Policy Evaluation Survey (NZ ITC Project). This wave involved surveying a national sample of 1376 New Zealand adult (18+ years) smokers in 2007–2008. We asked: *Do you think smoking should be allowed in cars with preschool children in them?* Further detail on the survey methods is available elsewhere.[2]

We found that smokers in all age-groups, both men and women, those in the four ethnic groups considered, and those in all small area deprivation quintiles, disagreed with the statement at a level of 92%+ (Table 1). Of those smokers who reported suffering from two different types of smoking-related financial stress (those unable to pay any important bills on time due to a shortage of money, and those not spending on household essentials due to spending on smoking) over 92% also disagreed (see Table 1).

The key finding is that New Zealand smokers from different socio-demographic groups appear to give very high support for not allowing smoking in cars carrying preschool children. These data are further supported by results from a 2008 national survey of the New Zealand public, which found 91% (82% for smokers) agreeing with the statement 'that smoking should not be allowed in cars with children under the age of 14 in them'.[3]

These results indicate that there is strong support across a very wide range of smokers (and from the public) for active government intervention to protect New Zealand children from tobacco smoke pollution in cars. We need to consider why New Zealand is lagging behind 11 states and provinces in Australia, Canada, and the USA, which have all passed laws to protect their children from smoking in cars.[4]

While further social marketing campaigns on this theme are desirable, we suggest that smokefree car legislation is an appropriate use of the law, and would provide a strong signal on the priority of child protection from tobacco smoke. If the New Zealand Parliament is going to consider banning cell phone use while car driving, they could consider smokefree cars at the same time.

Table 1: Attitudes of a national sample of smokers to smoking in cars (with all the results weighted to adjust for the complex sample design and non-response)

Variable	Disagree with question *Do you think smoking should be allowed in cars with preschool children in them* (column% & 95%CI)	Crude odds ratios (OR) for disagreeing (95% CI)**
Age group*		
18–24 (n=147)	96.5 (92.5–100.0)	1.00 Referent
25–34 (n=339)	96.9 (95.1–98.7)	1.12 (0.29–4.30)
35–44 (n=353)	94.9 (92.3–97.5)	0.67 (0.18–2.52)
45–54 (n=292)	94.5 (91.5–97.5)	0.62 (0.16–2.34)
55+ (n=245)	97.0 (94.8–99.2)	1.17 (0.28–4.84)
Gender*		
Men (n=529)	96.8 (95.1–98.4)	1.00 Referent
Women (n=847)	95.0 (93.2–96.8)	0.63 (0.33–1.21)
Ethnicity*		
European (includes Other) (n=620)	96.5 (95.0–98.1)	1.00 Referent
Māori (n=607)	95.1 (93.0–97.2)	0.70 (0.37–1.32)
Pacific (n=90)	94.9 (90.3–99.6)	0.68 (0.23–1.98)
Asian (n=59)	92.8 (85.2–100.0)	0.46 (0.14–1.57)
Small area deprivation level (quintiles)*		
1&2 (least deprived) (n=121)	100.0 (96.9–100.0)	1.00 Referent
3&4 (n=205)	93.6 (89.4–97.7)	0.05 (0.0–0.37)#
5&6 (n=238)	97.8 (95.8–99.7)	0.12 (0.0–0.91)#
7&8 (n=308)	96.2 (94.1–98.2)	0.07 (0.0–0.51)#
9&10 (most deprived) (n=504)	94.0 (91.2–96.8)	0.07 (0.0–0.52)#
Financial stress		
Unable to pay any important bills on time – "yes" (n=113), (referent="no")##	92.9 (86.0–99.8)	0.52 (0.18–1.56)
Not spending on household essentials – "yes" (n=374) (referent="no")##	96.2 (94.3–98.2)	1.11 (0.58–2.13)

Notes:

* Based on NZ Health Survey data with the age data collected a few months prior to the ITC Project survey. Deprivation level was based on a New Zealand specific small area deprivation index (NZDep2006). Ethnicity results are for prioritised ethnicity where all those with Māori or both Māori and other ethnic affiliations were classified as Māori; where all those with Pacific and other ethnic affiliations were classified as Pacific (unless Māori affiliation was also reported) etc. For more detail on these variables, see an online *Methods Report* [2].

** All results are crude and are unadjusted for any other covariates. Age-adjusted results for the results by ethnicity were virtually identical (and are available on request).

\# Confidence intervals for these odds ratios were calculated using the 'Inverse Sinh Transfomation'.[5]

We considered two measures of financial stress which are correlated with each other (and the other deprivation measure),[2] but involve significant conceptual differences.[6,7] The first question was "…because of a shortage of money, were you unable to pay any important bills on time, such as electricity, telephone or rent bills?". The second question was: "In the last 6 months, have you spent money on cigarettes that you knew would be better spent on household essentials like food?".

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Competing interests: Two of the authors (GT, NW) have undertaken work for health sector agencies working in tobacco control.

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When the tap is turned down—restricted water flow increases bacterial contamination after handwashing

In New Zealand, domestic water is distributed as a commodity, with state-owned privatisation of supply companies in Auckland. In the case of non-payment, water companies now restrict water to a level they believe is "adequate". Sanitary conditions are assumed not to be breached in restricted households. A flow limiting device is placed between the mains and the household which decreases the water flow rate to about 1 L/min. In 2007, among households supplied by one Auckland water company, over 1000 households were affected.

Effective hand hygiene prevents the spread of pathogens by reducing the risk of person to person transmission. A range of factors that affect decontamination of hands by washing have been described.[1] Time spent washing hands was the main determinant of hand decontamination. Friction (hand rubbing) also facilitated removal of microbes. We designed a study to measure the effect of water flow on hand hygiene efficacy.

Methods

Participants—We recruited healthy adult health care workers. Subjects with (1) immunocompromise, (2) severe allergy, and/or (3) chronic skin condition were excluded.

Laboratory procedures—We used a laboratory based, cross-over, repeated measures study to assess *Escherichia coli* decontamination, after washing hands at different water flow rates. *E. coli* was isolated from a personal faecal sample with inoculums prepared. Subjects contaminated their hands by touching their finger and thumb pulps with a surface coated with *E. coli* suspension for 10 seconds. Then, subjects' hands were air dried for 2 minutes and they commenced a hand wash—5 seconds lathering with 0.25 mL of non-antibacterial liquid soap followed by 15 seconds of washing with friction with the flow rates varying between 1 and 3.8 L/minute.

We measured flow using a Signet 8150 Flow paddle wheel meter (accurate to 0.1 L/minute). The reduced calibre of the paddle wheel restricted flow to a maximum of 3.8 L/min (cf. normal household flow of 7 L/min).

Baseline contamination was assessed once per subject. After the wash period, hands were flicked free and touch contact made with sterilised leather chamois (2.5 cm × 2.5 cm, one per hand) for 5 seconds. Colony forming units were counted after 24 hours incubation. Hands were decontaminated between washes. Repeat contamination and touch transfer at different flow rates were made. The temperature of the water was fixed to the 'cold' setting.

Sample size—The sample size for this study was based on data collected from a similar study.[2] 5 participants are required to detect, with an 80% probability, at a two-sided 5% significance level, a true difference of $\log_{(10)}(0.89)$ between high and low flow rate washes (sd 0.43). To allow for uncertainties, 12 participants were recruited.

Statistical analysis—The effect of water flow (exposure) on touch transfer of *E. coli* after handwashing (outcome) was estimated using linear mixed effects models using the *nlme* utility of the 'R' project.[3] This study was approved by the Northern Y ethics committee.

Results

12 adults participated—our men and 8 women (mean age 45 years). Mean $\log_{(10)}$ counts at each flow rate are presented in Table 1. The mean $\log_{(10)}$ difference between colony count at 1 L/min and 3.8L/min was 0.84 ($\log_{(10)}$ cfu/mL).

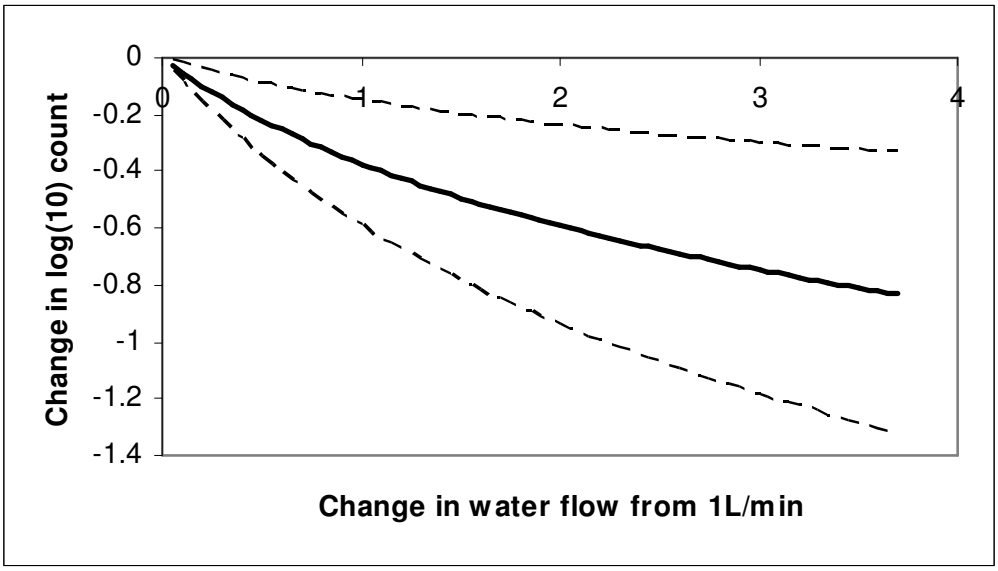
Table 1. Mean (sd) of counts after 20-second handwash at different flow rates (n=12)

Water flow; Litres per minute (*n*)	Baseline (12)	1.0 (12)	1.5 (12)	2.0 (12)	3.0 (12)	3.8 (11)
Mean (sd) $\log_{(10)}$bacterial count (cfu/mL)	5.54 (0.75)	3.45 (0.86)	3.29 (0.85)	3.10 (0.73)	2.96 (0.62)	2.61 (0.92)

Table 2. Fixed effect estimates of linear mixed effects regression relating $\log_{(10)}$ water flow rate to $\log_{(10)}$ bacterial count after handwashing

Variables	**β coefficient (95% CI)**	**P value**
(Intercept)	-0.12 (-2.62–2.37)	0.92
log(10) flow rate (L/min)	-1.24 (-1.97–-0.50)	0.002
Baseline log(10)bacterial count (cfu/mL)	0.65 (0.21–1.09)	0.02

Figure 1. Effect of water flow on bacterial contamination after 20-second handwash (dashed line indicates 95% CI).



A 1% increase in water flow rate reduced absolute bacterial colony count 1.24%, although this function is not linear, with a 10% reduction in flow corresponding to a 14% increase in count (Table 2 and Figure 1). Baseline level of contamination was an important predictor of contamination after hand wash.

Discussion

We found that restricted water flow reduces handwashing efficacy. The multivariate $\log_{(10)}$ reduction in bacteria (cfu/mL) from the 2.8L/min difference in flow (between 1L/min and 3.8L/min) was 0.72. To put this in context, other studies of antibacterial agents that assist hand decontamination have shown a reduction in $\log_{(10)}$ colony count of between 2 and 3.5 for soap and 70% ethanol, respectively.[4] Further, if we extrapolate from our data the $\log_{(10)}$ difference would be 1.05 between high and low flow states. Although smaller than the effect of washing with soap and alcohol, restricted flow causes a real decrement in hand hygiene efficiency.

This study's results are also affected by public hand hygiene practices. A local study[5] showed that 1/10 males and 1/5 females do not wash their hands at all after using a public toilet. Also, water restricted households are likely to be socioeconomically disadvantaged and suffer from higher levels of communicable disease. Water restriction is another factor and although small, it impacts on a number of individuals and is likely to compound this burden. We suggest that water utilities seek other ways of securing payment which are less likely to have direct health effects.

In conclusion, the imposition of restrictive water flow measures to rates as low as 1L/minute, is likely to expose inhabitants to increased risk of communicable disease. We recommend against such a practice.

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A pilot study of the efficacy of a vitamin C-containing showerhead on symptoms of eczema

Studies have shown that the water-holding capacity of the stratum corneum in patients with eczema is more sensitive to chlorine exposure than that in people who do not have eczema, and that chlorine exposure in patients with eczema may play a role in the development or worsening of the condition.[1,2] Some patients with eczema develop dry skin or cutaneous inflammation with frequent swimming in public pools or after bathing.[3–5] A novel showerhead which eliminates chlorine using a vitamin C cartridge has recently been launched (Satinjet Maia, Methven, New Zealand).

The manufacturers have received a number of reports that people who have used this showerhead have experienced marked improvements in their eczema. This pilot study was the first clinical trial of the vitamin C cartridge showerhead as a treatment for eczema.

12 adults with a doctor diagnosis of atopic eczema were recruited. They agreed to maintain their usual eczema treatments during the 8-week study period. Participants were randomised to use either the standard or the vitamin C showerhead for 4 weeks, return to the clinic for an assessment and then use the other showerhead for 4 weeks, followed by a final assessment. Both showerheads appeared identical, and the assessing doctor was blinded as to the treatment order. Outcome variables were participant and doctor global assessment and change in the Dermatology Life Quality Index (DLQI).[6,7]

7 females and 5 males participated in the study, aged 19–76 years. No clinically or statistically significant differences were seen in the DLQI results. With respect to the global assessments, more participants and doctors reported a better outcome after the vitamin C treatment period than after the placebo period, although the result was not statistically significant, P=0.18 (Table 1).

Table 1. Participant and doctor global assessment

Variables	No. reporting better outcome for vitamin C	No. reporting better outcome for placebo	No. reporting same outcome for vitamin C and placebo
Participants	6	2	4
Doctors	7	2	3

Therefore, in this initial pilot study, although no statistically significant differences were seen in the outcome measures, global assessment showed a trend of better eczema outcomes after using the vitamin C treatment. This finding is consistent with the anecdotal reports that the vitamin C showerhead improves eczema symptoms, but larger studies are needed to confirm these findings. If replicated in larger studies, this novel treatment has the potential to improve the symptoms of patients with eczema.

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Conflict of interest statement: The study was funded by a grant from Methven Ltd, New Zealand.

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Ethnic disparities in New Zealand hospital care

We were pleased to see Juliet Rumball-Smith's review of ethnic disparities in New Zealand hospital care.[1]

We wish to clarify one point in relation to her statement regarding our paper[2]:

> "The results of statistical analyses were not quoted in the paper; as such it is not possible to draw conclusions regarding the statistical significance of the findings."

Statistical significance is used to assess whether observed results could have occurred by chance due to sampling error, arising from taking a sample from a larger population. However, as we deliberately stated in the paper, we calculated the rates in the paper from complete censuses of both hospitalisations and the New Zealand population, "which means [they] are not subject to sampling error".

Therefore the rates, and their differences, can be assessed for their substantive meaning and conclusions drawn without any need to deal with statistical significance issues.

We agree with the author that New Zealand researchers are fortunate in their access to a census of hospitalisations. It can serve as an invaluable source for studying health service issues, including differences and potential disparities in health care, especially for Māori.

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Ethics of prescribing placebos

Holt and Gilbey's letter[1] describing the use of placebos by GPs is significantly flawed, based on its narrow understanding of "placebo". In his concise book on the subject[2] Moerman cogently argues that a more useful descriptor of this effect is the "meaning effect". It happens in situations where no "pill" is given, and is dependent on the patient attributing a positive meaning (belief) to the treatment. Contrary to Holt's ambivalent attitude to placebo, Moerman argues that medicine would benefit greatly from a better understanding and utilisation of the "meaning effect".

As noted the survey was "closed format" and filling it out felt at times like answering the question "Have you stopped beating your wife yet". The phrase "Unjustified demand for medication" is one that I would not use. My patients will not demand something if they do not have a justification for this. I may not agree and if I do not then the next phase of the consultation is to try to reach a shared "belief" about the situation. This might be achieved by my explaining the role of antibiotics but it also might be achieved by my acknowledging that my patient has a very strong belief that antibiotics are going to be helpful for them that I am unable to alter. In this setting it is very likely that this patient will get better more quickly if I prescribe antibiotic than if they leave me empty handed and disgruntled.

Add to the scenario the usual GP circumstance where diagnosis is uncertain (how much purulent phlegm in a middle-aged smoker counts as exacerbation of COPD rather than a viral URTI) and you will understand why I found the survey questions shallow. We don't know whether those who answered the survey considered a scenario such as this when ticking the box "unjustified demand" or to "get the patient to stop complaining"

Up to 30% of the benefit that our patients get from the treatments that we prescribe is shown in repeated studies to be due to this effect rather than the effect of the active ingredient.

Acute otitis media is usually a bacterial infection. However it is now accepted that 85% of cases will get better without antibiotics and that use of antibiotics has a small effect on level of pain and duration of illness. If the patient believes that antibiotic is essential for treatment of this condition then it is likely that their "placebo responsiveness" will be higher than if they are philosophically opposed to antibiotics.

In her letter on the ethics of placebo prescribing the presumption Malpas[3] makes is that deception is involved. Deception implies a knowlege of truth which in the general practice setting is unusual uncertainty is the norm.

I would argue that if I have a patient who believes that in injection of vitamin B12 will help their symptoms the evidence would show that a proportion of patients will benefit…because of that belief, not because of the action of the vitamin. Given that there is little harm in giving the vitamin I could argue that on balance the ethical thing to do is to give the injection. Do we ever know why people get better and does it matter exactly?

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Timothy John Buckley

11 July 1924–23 June 2009

Tim was born in Whangarei. He was the third of five children born to Whangarei GP, Dr HF "Buck" Buckley, and his wife Pat. Buck was a very popular GP who was well known for his golfing prowess and Tim followed in his footsteps.

Tim won a scholarship to St Patrick's College Silverstream in Wellington. There he excelled both academically and on the sporting field. He captained the first XI and played for the first XV. He was head boy in 1941. After leaving secondary school Tim entered Otago Medical School. He went on to play rugby for Otago University and New Zealand Universities.

On graduation Tim moved to Auckland to start obstetrics training at National Women's Hospital. There he met a nurse named Nola Sherlock. Their wedding in 1952 was the beginning of a wonderful 57-year marriage.

Tim and Nola travelled to England where Tim completed his obstetric training at Wansworth Hospital. On returning to Whangarei in 1954 he worked as the only obstetrician north of Auckland and sometimes also worked in the role of a general surgeon. In 1957 Tim's father Buck died and Tim took over his central Whangarei general practice.

Tim and Nola's lives became even busier. In the following years they had four children and a very busy general practice. Tim's reputation, popularity, and obstetric skills ensured he was always in high demand. Over the years Tim delivered thousands of Northlanders and did endless around-the-clock house calls. He was awarded his Fellowship to the Royal College of Obstericians during this time.

Tim's astute clinical acumen, work ethic, broad range of skills, and obstetric expertise made him highly regarded among his peers. His ready smile and gentle, compassionate personality endeared him deeply to his patients. Patients still talk of not minding the wait for Tim to return from the delivery suite—it was always worth it.

Despite the demands of his practice Tim still found time to pursue his passion for golf. His natural sporting talent ensured many years as a scratch golfer. He was nine times club champion at his beloved Mount Denby Golf Club, and he also represented Northland three times in Freyberg Provincial Tournaments. Tim was only too happy to iron out any problems with patients' short games using the putter he kept in the surgery for demonstrations.

Nola masterfully juggling the demands of the practice, family, his Catholic Parish, and golf. Patients fondly recall the amazing team that Tim and Nola formed to provide the highest quality general practice.

Tim and Nola retired in 1989 and finally got some well deserved, uninterrupted time together. Tim enjoyed more time on the golf course, this time often with Nola. He also became a golf referee, developing an encyclopaedic knowledge of the rules and refereeing many matches around Whangarei. He found time to indulge in his other loves of reading, listening to his jazz records, and spending more time with his family.

Tim will be greatly missed by Nola and his children: Simon (the manager of the renowned Wairere sheep station), David (a Starship Paediatric Anaesthetist and Intensivist), Sarah (a GP Obstetrician and author), and Louise (a Radiographer and Radiology practice manager). He also is survived by nine greatly loved grandchildren and one great grandchild.

Tim Cunningham (GP, Whangarei) wrote this obituary.