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This Issue in the Journal

For better or worse: role models for New Zealand house officers

R Wyber, T Egan

Professional role models are thought to have a major influence on junior doctors as they develop professional skills and attitudes. This study is based on interviews with New Zealand general practitioners and house officers about their experiences of positive and negative role models while working as house officers. Analysis of the interviews suggest that house officers usually choose senior clinicians to be their role models, and that they base this decision on the way senior doctors relate to them, to their patients, and to the profession of medicine itself. Participants in this study had only limited awareness of the effects of role modelling at the time it was occurring, although the process is probably most useful when house officers are conscious of it. Improving awareness of role modelling may assist junior doctors in assimilating their professional experiences and developing a professional identity.

How many health professionals does a patient see during an average hospital stay?

N Whitt, R Harvey, S Child

Patients are often confronted with a large number of different health professionals when admitted to hospital. This can be confusing for patients and can raise concern about the transfer of clinical information between the health professionals. More recently, limits on doctors working hours have necessitated increasing use of shift systems which may further increase the number of different doctors seen by a patient during a hospital stay. In this small observational study, we counted the number of different health professionals seen by a patient admitted to Auckland City Hospital on a given day and commented on differences between employee groups and clinical services. Our study demonstrated that there are a large number (17–26) of different health professionals involved in a single admission and that a patient sees almost twice as many nurses as doctors.

Procedural and examination skills of first-year postgraduate doctors do not improve with clinical experience alone

I Stolarek

The aim of this study was to look at the clinical examination and practical procedural skills of newly graduated doctors at Hutt Hospital, and to assess the impact of 6 months of on-the-job experience. The findings suggest that there were gaps in these skills both at baseline and after 6 months, with improvements only occurring in some areas. Opportunities for practice of practical skills were limited, with competition amongst doctors for them, resulting in clinical exposure alone not necessarily being enough to gain experience.

Procedural and examination skills of first-year house surgeons: a comparison of a simulation workshop versus 6 months of clinical ward experience alone

I Stolarek

The aim of this study was to look at the effect of a one-day skills workshop using simulation models, on the clinical examination and practical procedural skills of newly graduated doctors at Hutt Hospital, and to compare this to 6 months of on-the-ward experience alone. The findings suggest that after the skills workshop, baseline scores improved in all areas taught, to levels comparable to 6 months of clinical exposure alone. There were significant improvements for lumbar punctures, spirometry, fundoscopy, prostate and rectal examinations. The skills workshop reduced anxiety and allowed gaps in previous training to be addressed.

Doctors, practices, patients, and their problems during usual hours: a description of rural and non-rural primary care in New Zealand in 2001–2002

P Hider, R Lay-Yee, P Davis

Data from the National Primary Medical Care survey was used to describe the characteristics of patients who attended rural general practice offices in New Zealand in 2001/2 during normal hours along with the problems they presented and the management that they received. Comparisons were made with patients who attended non-rural practices. The results from the survey suggest that aside from a few key differences, the characteristics of patients, practitioners, and practice were generally similar between rural and non-rural locations during normal hours in 2001/2. With some notable exceptions, patient problems and their management were also broadly consistent at that time. However, the impact of a number of recent important changes may limit the applicability of the findings to the current primary care situation.



Get the learning environment right and the facts will look after themselves

Tim Wilkinson

Learning does not occur in isolation. We learn from our peers, we learn from our experience, we learn from observing others, and of course, we learn from personal study and teaching from others. We are social beings and learn best when immersed in meaningful activities and in an environment that is supportive and full of opportunities.

“Get the learning environment right and the facts will look after themselves” was an aphorism often used by the late Professor Alan Clarke when he was Dean at the Christchurch School of Medicine. It is a paraphrase from the famous medical education reformer, Abraham Flexner¹ in the early part of the twentieth century. It suggests that only a little of what is learnt can be taught. Two articles in this issue of the journal remind us how apposite this is today.^{2,3}

The article by Wyber and Egan³ reminds us that role models have powerful long lasting effects on our views of medicine, our practice of medicine, and our choice of medical practice. It may not be surprising that a sample of people who chose general practice as a career recalled a number of powerful negative role models within hospital contexts. People we work with are the major part of our learning environment.

Callaghan and colleagues remind us that competency is not a product just of the task to be done, or even of the person undertaking the task.² The task itself occurs in a context where necessary preparatory work, follow-up work, and generic professional skills are needed. More importantly, such tasks occur within health systems that have powerful influences on outcomes. Competent people undertaking tasks competently but within unsafe systems can still result in bad outcomes. The health system environment is important.

The physical and emotional environment is critical to effective learning. How much would you enjoy a good movie if you did not have a comfortable seat, did not feel warm, if you were hungry? Even worse, if you believed that you may be humiliated at any moment?

You may learn a little and may enjoy the movie a little, but you would get a lot more out of it if you did not have to worry about these things. This is the basis of Maslow's hierarchy of needs⁴ which states that we can best focus on higher-order activities (such as learning, creating, or evaluating) only after more basic needs (such as hunger, warmth, or safety) have been satisfied.

A recent survey of New Zealand medical students⁵ revealed that how students are treated during medical school influences career choice. The consequence of humiliation or intimidation for nearly one-third of students was to be put off that area of medical practice. Nearly 60% subsequently avoided that person or department. Learning occurs best within an environment of trust and respect.

All novice practitioners have probably experienced how the theory they learnt isn't reinforced in everyday practice. "You might have read that in a book but we don't do it like that here" may be familiar to some. What is the practitioner to do? Stick to what the book says or conform to "how we do things around here"?

More often than not, the powerful social and professional pressures of the work environment mean that we conform. This could be because the voice of experience, pragmatism, and empirical observation mean that abstract theoretical knowledge is less applicable. Or could it be because the pressures of habit and social conformity over-ride rationality? Either way, the learning and practice environments have very powerful positive and negative influences.

There is now evidence linking the types of teaching approaches to subsequent types of clinical practice. The concept of autonomy support describes a learning climate where authority figures take the perspectives of learners into account, and encourage them to accept more responsibility for their own learning and behaviour.⁶

A longitudinal study of medical students undertaking a 6-month medical interviewing course showed that when the instructors were more autonomy-supportive, not only did the students become more autonomous in their learning and feel more competent, but the value they placed on the psychosocial aspects of medical care increased.⁷ They were also more patient-centred several months after the course ended.

Furthermore, if health providers behave in an autonomy-supportive manner, this has positive effects on patients' health-promoting behaviours and health status.⁷ Patients' perceptions of their doctors' autonomy-support are linked to greater adherence to medical prescriptions and lifestyle changes.⁸ Finally, teachers are more likely to be autonomy-supportive if they work in a supportive environment.⁹ Thus, supportive environments encourage us to be supportive teachers, which encourage our students to be supportive, which result in better outcomes for our patients.

There are many ways the learning environment can be made to be positive. Role modelling good practice is one; creating a supportive and welcoming environment is another.

New Zealand research on what encourages effective learning of house officers (while at work)¹⁰ highlights some useful supervisor and trainee behaviours: a simple welcome and orientation into the team, "thinking aloud" so that juniors know not only the decision but why that decision has been made. Creating informal opportunities (such as over a cup of coffee) to discuss patients can be remarkably effective. Overall, if people feel included and their opinions are valued, they are more likely to offer more, to contribute more, and to learn more.

The consequences of this are clear. Good role modelling will mean effective earlier learning will not be undermined. If we work within a supportive environment, we are more likely to be supportive of others. Not only that, we are more likely to be supportive of our patients who are then more likely to adhere to treatment recommendations. Furthermore, patient safety will be improved.

If we get the learning environment right, it will be much more than the facts that will look after themselves.

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For better or worse: role models for New Zealand house officers

Rosemary Wyber, Tony Egan

Abstract

Role modelling is considered an important influence on emerging professional identity. However as a process it goes largely uninspected. In an effort to develop greater awareness of this important process, this study examines the positive and negative role modelling experiences of New Zealand house officers.

The Medical Council of New Zealand (MCNZ) Intern Handbook is distributed to senior clinicians who supervise house officers. It outlines the desired characteristics and influence of role models in New Zealand.

A growing body of academic literature suggests that role models are inescapable mediators of medical socialisation and professional development.¹⁻⁷ Research indicates their influence over specialty selection,⁸⁻¹⁰ ethics,^{10,11} professionalism,¹² and the patient-doctor relationship.^{13,14} Theorists suggest that these influences can be moderated by awareness of role modelling process.¹⁵ It is unclear whether the importance of role modelling is as well recognised in the wards where it occurs.

This research was conducted to establish the nature of role modelling experiences for New Zealand house officers over the last decades to the present day. Retrospective accounts were provided by current general practitioners, which limits generalisability to other specialties. However, details of contemporary role modelling were provided by PGY1 and PGY2 doctors without speciality bias.

Examining these formative working years is important; house surgery represents the first time that many young doctors have been outside formal, full-time education, and may be marked by a loss of the structure and support associated with the student years. The experiences of junior doctors are also an important barometer of the professional and medical culture in New Zealand hospitals.

Methods

In November 2004, interviews were held with a convenience sample of six male and six female general practitioners (GPs) from the urban Dunedin area who completed their house surgery years in New Zealand and were provisionally registered at least ten years ago (Group 1).¹⁶

GPs are in an ideal position to reflect on their house office years with limited subsequent exposure to hospital culture. After training and a practise interview with the second author, the medical student first author conducted the interviews. The semi-structured interview, lasting about half an hour, was conducted in person at practice rooms around the city. The interviews began with the volunteers providing an example of 'an experience, person or incident' that they considered represented positive, and then negative, role modelling during their house officer years.

The third part of the interview covered reflection and consciousness of role modelling during and after the events. In December 2005 a convenience sample of 3 male, and 10 female, current house officers at Dunedin Public Hospital (Group 2) participated in interviews using the same probes.¹⁷ These participants were PGY1 and PGY2 doctors with standard house officer rotations in medicine, surgery, and specialties.

The interviews were held in person, most at the Dunedin Public Hospital while the house officers were on duty. In general, the second round of interviews was shorter and slightly less structured than the first. All interviews were taped, independently transcribed, and underwent multiple readings by the first author to identify key themes. These themes, and samples from the transcripts, were regularly discussed with the second author throughout coding and analysis. Themes are illustrated with verbatim quotes in the results section; numbers in parenthesis refer to individual respondents.

Ethics approval was granted by the University of Otago Ethics Committee under the auspices of the Hidden Curriculum Project.

Results

Identity of role models

Participants were initially asked to identify a person or incident which they considered an instance of positive role modelling. Senior teaching clinicians, specifically registrars and consultants, were the vast majority of positive models. A small number of participants also identified nurses, and and/or their peers, as positive role models. Most volunteers identified a number of positive role models, although group two seemed more aware of having multiple models.

In the second part of the interview, participants were asked to describe a negative role model. Volunteers from Group 1 generally identified consultants as negative models. Participants from Group 2 seemed reluctant to clearly identify individuals that they did not want to emulate. Instead, they spoke about broad categories—superiors, consultants, and supervisors—not single clinicians. When the information was volunteered, consultants and registrars were the most frequent negative role models.

Characteristics of role models

Analysis revealed three relationships which house officers in this study seem to use for identifying role models:

- Relationship between house officer and their role model;
- Relationship between role model and patients; and
- Relationship between role model and medicine

Relationship between house officer and role model—Participants from both groups identified supportiveness as the most important trait of their positive role models. They also described senior clinicians who were ‘nice’, generous with their time, engaging, patient, accessible for questions, and easy to work with..

His manner was kind and warm and uncritical and he was always very approachable, always very very helpful, never made you feel as a learning house surgeon as though you were stupid or you made a foolish error (Group 1, 1)

Poor support, or poor communication, typified the relationship with senior clinicians who were negative role models. The incidents reported by Group 1 participants were generally more serious.

I had to ring someone at home one night and they were just really horrible and unhelpful and I just sort of found that quite negative (Group 2, 3)

...I rang him up about a baby who had been sent in and I started doing the presentation as I'd been taught to do and he sort of interrupted me and said 'What the f--k are you telling me this for?' That is something that certainly stuck in my mind (Group 1, 2)

Relationship between role model and patients—Senior clinicians who demonstrated a good relationship with their patients were widely admired by participants from both groups. These doctors were described as being compassionate, caring, and engaging.

He was a registrar and he was just really good with patients...he always used their name, always made a joke, or would take their hand, or he might just pop his hand on their knee or leg, or something, so he made patient contact really well. He really engaged the patient.
(Group 2, 9)

Negative role models who had poor relationships with patients were described as uncaring and disinterested. Interviewees expressed frustration, anger, and disbelief at the treatment of some patients. A significant number of participants in Group 2 described their attempts to make up for poor communication by their consultants.

... if my consultant had gone around in the morning and was being really rude to the patients, then I would often go back and clarify what was going on for patients... often they didn't realise what was happening, or understand what the consultant was saying (Group 2, 2)

I do find myself as a house surgeon going back and doing a second ward round sometimes...and actually going through things [explanations to patients] in a bit more depth and detail (Group 2, 5)

Relationship between role model and medicine—Several participants described and admired their positive role models for enjoying their job or having maintained interests outside medicine. Recent graduates in Group 2 seemed particularly reassured that positive role models had retained an enthusiasm for medicine.

...it can be done. They're happy. (Group 2, 1)

Contrastingly, doctors who were bitter or cynical in their relationship with medicine were identified as negative role models by both groups, particularly Group 1.

I think in hindsight definitely the registrars and consultants I didn't like were basically the people who didn't enjoy the job and you did sort of wonder why they were in medicine actually (Group 1, 10)

Role models also demonstrated a relationship with their specialty. Participants from both groups felt that role models had been influential in their thinking about specialty selection, mainly in a negative sense.

He was vitriolic of them in his condemnation of [the] GP and always about, you know, the crap and the dross that was referred...and why was this patient in, and why was that patient in...and stupid GP didn't see this, and stupid GP didn't notice that. And that was enormously destructive (Group 1, 1)

Invariably, surgery was identified as a specialty with many negative role models. Some participants described choosing runs to work with consultants they liked and avoiding supervisors who were difficult to work for. This may bias graduates towards experiences in certain specialties.

Consciousness—Most interviewees said that they were aware whether other clinicians were 'good' or 'bad' while watching them on rounds. The vast majority of Group 1 participants could discuss who, why, and how they had been influenced by their interaction with senior doctors. They described a superficial awareness of role models during their house officer years, but growing reflection and consciousness over time.

But when you think back from... however many years later I am now, 12 or 13, I guess...I do remember individuals and they do start to stick out as a sort of positive role model (Group 1, 10)

In contrast, current house officers found it more difficult to single out individual doctors who had influenced them. They tended to identify a wide range of positive and negative models who had helped to shape their professional style.

Both groups confirmed that house officers talk about their colleagues and senior clinicians. These discussions rarely focused on the clinician as a role model. Instead, house officers shared information about the idiosyncrasies of senior clinicians, or informally debriefed after negative experiences.

A significant number of participants in Group 1 provided unprompted explanation for poor behaviour by negative models. They cited external stress, exhaustion, bureaucracy, and family pressures as factors contributing to unprofessional behaviour by their superiors.

Looking back you can see that I am...perhaps a bit sort of softer on them than I perhaps was sometimes at the time...just because you understand that they were probably under a lot of stress from all sorts of different things and perhaps were completely unaware of this house surgeon (Group 1, 4)

In contrast, participants from Group 2 made only very rudimentary attempts to explain or understand the behaviour of their negative role models. They occasionally identified that negative models were very busy or stressed, but were less sympathetic to these demands than Group 1.

Discussion

The basic characteristics of positive role models have been described by a number of studies: clinical excellence, good teaching, compassion, focus on the patient-doctor relationship, and certain elements of personality. However it is an oversimplification to consider these traits as the sole criterion for professional excellence. It is rare for students and junior staff to have global role models who represent the endpoint of all their professional aspirations.¹⁸ Rather, role modelling is an interactional, transactional process which occurs simultaneously with multiple models and changes over time.^{7,10,19} How young doctors interact with their role models is better served by examining relationships than lists of adjectives.

The interviews revealed three broad relationships that house officers consider important for identifying their role models: the relationship between house officer and the model; the model's relationship with patients; and the model's relationship with medicine. Clinical skills are excluded from this discussion because they are generally a poor demarcation between positive and negative role models.

Relationship between house officer and role model—Senior clinicians who were supportive towards junior staff were most often elevated to role model status. Elements of supportiveness have been described in other studies; senior clinicians who spend non-essential time with house officers, make an effort to build relationships with them, and have a positive attitude towards junior staff are most likely to be considered positive role models.^{10,20}

Being supportive transcends the boundaries of positive role modelling, encompassing good teaching, and good supervision. In contrast, negative role models had poor relationships with house officers from both groups. Participants described senior clinicians who were terse when called for clinical advice, unreasonable in their expectations, and unsupportive of junior staff. Negative interactions with senior staff

have been identified as one of the most memorable, stressful, and influential experiences for junior doctors.²¹⁻²⁴ Although gross examples of student abuse may be becoming less common, it seems that a cycle of poor relationships between senior doctors and their junior staff still exists.

Relationship between patients and role model—Consultants who made time to give thorough explanations or provide reassurance to patients were singled out as role models. Participants from Group 2, who have been more exposed to the principles of biopsychosocial medicine, were particularly appreciative of this.

The importance of the patient-doctor relationship is widely reported in literature on role model selection. Negative role models who display poor patient-doctor relationships are an unfortunate constant for junior staff.²⁵

In our study, negative role models who communicated poorly with patients were discussed by both groups. However, only participants of Group 2 described ‘fixing’ the communication of senior doctors after ward rounds. Completing a second ward round to clarify the communication of consultants is a significant investment of time for a house officer. It is heartening to think that junior doctors are taking positive action to address perceived deficiencies; however there are questions about the appropriateness and efficacy of this practice. Junior staff may lack the experience, knowledge, and insight, to undertake all the intricacies of communicating clinical issues. Learners need to observe excellent consultants display the subtleties of the patient-doctor relationship to fully develop their own skills. Understanding why young doctors seem to be taking on additional responsibility to compensate for the perceived inadequacies of their seniors should be carefully examined in a dedicated study.

Relationship between role model and medicine—Young doctors need reassurance that medicine is challenging, manageable, and satisfying. These needs are probably greatest in the midst of the high stress PGY1 year when house officers are vulnerable to doubts about their clinical abilities and career choices.

Participants from both groups identified positive role models who were enthusiastic about medicine. Participants from Group 2 also admired senior clinicians who had maintained outside interests and demonstrated a work/life balance. This probably represents a wider generational shift towards career flexibility. Negative role models who had become cynical, disillusioned, weary, or bored with medicine were also identified.

A poor relationship with medicine is thought to be an area of considerable unconscious influence of role models. This may contribute to the well documented decrease in idealism during student and early clinical years.⁶

Specialty selection is an important issue for house officers and is consciously and unconsciously influenced by role modelling. Volunteers were conscious of the explicit, personal advice which they had received from mentors or active role models. They also identified clinicians whose behaviour and attitudes had made their specialty unappealing. Some also referred to the influence of casual comments or remarks they had overheard during training.

This ‘badmouthing’ of specialties, by potential role models, is exceptionally common in medical school and can seriously undermine learners’ confidence in their career

choices.^{6,26} A yet more subtle influence occurs when students and house officers choose runs based on which consultants are 'nice to work with'. Biased run selection can limit exposure to an entire field based on negative behavior by a single senior clinician.

The number and constancy of subtle messages about a given specialty—especially the surgical specialties—could be expected to have a significant influence on house officers. Analysis of these interviews indicates that this continues to be the case for modern house officers.

Consciousness—There is significant misalignment between the qualities learners profess to admire, and the characteristics they ultimately develop. Junior doctors describe aspiring to professional ideals of compassion, idealism, and humanism, yet research reliably indicates that students and young doctors become progressively less compassionate, idealistic, humanistic and empathetic during their training.^{24,27}

This change is clearly multifactorial but role models almost certainly play a part. It is possible that if junior staff were conscious of this paradox they would be better equipped to deal with the myriad negative influences which shunt them away from their stated ideal. It makes sense that students and house officers who can analyse the behaviour of role models are most likely to benefit from their interactions.

Being conscious of role modelling allows medical learners to selectively integrate multiple models, and facilitates reflection. This process can reduce the impact of negative role models, and strengthens the influence of positive models. In the absence of understanding and appreciation of role modelling, young doctors passively absorb a multitude of mixed messages about medicine, patients, communication, and professional values.^{15,28}

A spectrum of role model consciousness was revealed during these interviews. All participants could recall encounters which they considered to be role modelling. Some volunteers displayed deeper insight and went on to discuss role modelling as an active process, occurring simultaneously with multiple models. A few identified that most of their colleagues had been influential in forming their professional style and identity.

For others, role modelling was a novel concept which they had not really considered prior to these interviews. Awareness of multiple models was more apparent in Group 2; this was reflected in their tendency to be vague when identifying or describing single individuals as role models.

Personal reflection on role models and professional socialization was generally limited. Some of the current house officers from Group 2 referred to formal team debriefings after traumatic cases; they valued these forays into a formal reflective process. A few participants described mulling over the events of their day. Most indicated that these thoughts were an effort to check that everything had been done, and elements of clinical care had not been overlooked.

Volunteers generally indicated that surviving the house surgery experience was a much higher priority than thinking about examples of good practice. Time and subsequent general practice training seemed to have increased the reflective abilities of participants from Group 1.

Self-reported discussions between house officers were also heavily influenced by the time and role demands of house surgery. Conversations were generally focused on

sharing practical information, or tips about working with a given consultant. Some discussions with peers also serve as an informal debrief after difficult events.

Discussing negative role models is generally more emotive than analytical; although recounting a story about what happened on the wards does force learners to identify and articulate their experiences. Participants from both groups consistently alluded to the time pressure and clinical demands which superseded discussion of role models.

In place of constructive, reflective analysis, it seems that past and present house officers rely on informal storytelling to peers and friends as a way of coping with the stresses of their role. This should be an area of consideration, and possible concern, in terms of the wellbeing of junior doctors.

Inter-group analysis—Decades of difference in age and experience between the two groups were evident but not overwhelming. Participants from Group 1 were distinguished by their greater life experience; they referred to overseas examples, personal research interests, empathy with consultants, and were generally more opinionated. This group also expressed a general view that the house surgery experience has changed and is now less traumatic. There was little evidence that this was the case.

A significant area of distinction was the willingness of Group 1 to explain, justify, or excuse, the behaviour of negative role models. This was an unexpected outcome with a number of potential explanations. One previous study has suggested that students become less critical of faculty as they gain experience.²⁹

Alternately, their progression through the medical hierarchy may have provided insight into the pressures experienced by their role models. This ‘insight’ may be compounded by an alarming normalization of poor behaviour as house officers progress through medicine. Some participants identified that their general practice training had emphasised reflective skills; it is possible that their reflective development enhanced their empathy with role models.

Maturity and medical experience probably also influenced the recall of the general practitioners. These elements may explain why current house officers in Group 2 made little comment about the context of negative role modelling.

Volunteers from Group 2 seemed somewhat muted in comparison to Group 1; their interviews were considerably shorter and they were understandably more self absorbed by their own experiences. Participants who had had other careers before medicine and those who had been involved in student medico political activities were exceptions and displayed a wider perspective in their interviews.

Group 2 participants were more likely to want to ‘fix’ inadequate communication by their supervisors and were more focused on models with an effective work/life balance. Participants from Group 2 also indirectly displayed a greater awareness of the socialization process; they stressed that they had multiple models who they emulated to create their own personal style. It is difficult to know whether this indicates a genuine awareness of role modelling, or simply an inability to be definitive about the people and qualities that they admire.

Conclusion

This study adds to our understanding of role modelling for house officers in the New Zealand health system. It demonstrates the importance of providing multiple models who excel clinically and in the three relationship domains that house officers use to identify role models. Awareness, understanding, and reflection on role modelling was variable in both groups. However, the majority of participants had a limited appreciation of the influence of role models.

Methodological weaknesses stem from recall bias, potential gender selection bias in Group 2, geographic bias, and the single specialty represented in Group 1. However, qualitative analysis revealed consistent key themes, and correlates well with other research in role modelling.

A recent paper from the *New Zealand Medical Journal* calls for district health boards to take increased responsibility for providing mentorship for resident doctors.³⁰ A mentoring program for house officers began recently at Dunedin Public Hospital. This increasing awareness and support of mentoring is to be applauded. However, even the most talented of mentors can not hope to single-handedly outweigh the incidental influence of other clinicians.

Improving the learning environment for junior staff requires attention to both mentoring and to role modelling. If students and junior staff could have a greater understanding of socialisation, role modelling, and mentoring then they would be more equipped to analyse, and benefit, from the interactions they have with professional colleagues. Clearly this increased awareness needs to be parallel in senior clinicians.

All members of clinical teams need to view themselves as role models and appreciate the impact and influence they have on young doctors. Excellence in teaching, role modelling, and mentoring must be rewarded alongside research and clinical excellence as criteria for recruitment and promotion.

The values, skills, attitudes, and behaviours which role models imbue in learners are some of the most important elements of clinical training. Although this is increasingly recognised by medical councils and educators, it is not yet common knowledge in wards where role modelling occurs.

Addressing this lack of awareness should be a primary consideration in order to improve the teaching, socialisation, and professional development of junior staff in New Zealand hospitals.

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How many health professionals does a patient see during an average hospital stay?

Naomi Whitt, Richard Harvey, Garth McLeod, Stephen Child

Abstract

Aim To assess how many health professionals are directly involved in a patient's stay at Auckland City Hospital, Auckland, New Zealand.

Methods A retrospective review of the records was carried out of all patients admitted through the Admission and Planning Unit and the Emergency Department on a chosen day. Every health professional who wrote in the medical notes was counted and tabulated for each patient.

Results 81 patients were admitted—47 medical and 34 surgical.

In medicine, the patients saw an average of 17.8 health professionals during their hospitalisation (95%CI 0.0–36.7) (median 17) (range 5 to 44); an average of 6.0 doctors (0.0–12.6) (5) (2–21); 10.7 nurses (0.0–22.3) (11) (3–24); and 1.0 allied health workers (0.0–4.5) (0) (0–6).

In surgery, the patients saw an average of 26.6 health professionals during their hospitalisation (95%CI 0.0–66.7) (median 21.5) (range 2 to 75); an average of 10.0 doctors (0.0–25.8) (8.5) (1–33); 15.9 nurses (0.0–39.2) (13.5) (1–44); and 0.8 allied health workers (0–3.3) (0) (0–4).

Conclusions Modern hospital healthcare delivery involves many different healthcare professionals. Patients have more nurse contacts than doctors ($p < 0.0001$). Surgical patients see more health professionals than medical patients overall ($p = 0.01$) but the daily rate was not found to be statistically different ($p = 0.3$). Involvement of different health professionals may necessitate good communication/handover processes as well as possible changes to traditional training methods.

Patients often appear unsure of which health professionals are caring for them whilst in hospital. It is not uncommon for patients to ask who their doctor is and to complain of seeing lots of different people during their hospital stay.

In New Zealand, restrictions on doctors' hours and shift patterns have been in use for a number of years. The MECA (Multi Employer Collective Agreement)¹, effective from February 2005, states that doctors have a commitment to work back to a maximum of 60 hours but should not work more than 72 hours in 7 days or greater than 16 hours in 1 day.

The European Working Time Directive² was implemented in the United Kingdom in August 2004. These new regulations restrict junior doctors' average hours to 58 hours per week with plans to further reduce these hours by 2009.

As a result of these restrictions, increased shift patterns of work are inevitable. For doctors, this means that individual patients will be cared for by a greater number of different doctors in a 24-hour period, whereas nursing staff and allied health

professionals have been working shift systems for many years. A change to medical rosters, therefore, has implications for continuity of care and training.

In this study we chose to look at the number of different individual health professionals a patient sees during a hospital stay as a baseline for future roster changes and to compare current nursing versus medical systems.

Auckland District Health Board (ADHB) is the largest health provider in New Zealand. It provides district hospital coverage for the 386,000 population in central Auckland as well as regional and national services for 30% of New Zealand's population. The hospital has 710 acute adult overnight beds and 50 acute rehabilitation beds with almost 2 million patient contacts annually.³

Method

A retrospective review of the ADHB records was carried out of all acute patients admitted through the Admission and Planning Unit and the Emergency Department on a chosen day—Monday 2 May 2005. A Monday was chosen as this is usually the busiest day of the week for admissions.

Length of stay was recorded as the number of distinct calendar days (If admitted on Monday 2 May and discharged Tuesday 3 May, then the patient was recorded as having a length of stay of 2 days).

Nurses work 8 or 12 hour shifts based on individual and ward preferences.

Non-consultant doctors work 15 hour “acute call” days approximately every fifth day as well as standard 8–10 hour weekday shifts.

Overnight medical cover varies from “in-house” to “on-call, home based” systems but all function with separate night rosters.

Patient notes are recorded in CRIS (Computerised Records Information Service) software.

All notes for each patient were reviewed to identify different health professionals involved in a patient's care.

Health professionals were defined as: house surgeon (PGY1, intern, house officer), registrar, consultant, trainee intern (final year medical student), nurse, specialist nurse, physiotherapist, dietician, speech and language therapist, social worker, occupational therapist, and pharmacist.

These occupations were then combined into three groups:

- Doctors (trainee interns, house surgeons, registrars, consultants)
- Nurses (specialist nurses, nurses)
- Allied health professionals (physiotherapists, dietician, speech and language therapists, social workers, occupational therapists, pharmacists)

Data collection allowed for the name, signature, or some other distinguishing feature to be recorded for each entry in the notes. A tally chart was used to record each time the patient was seen by each health professional. Results analysis counted each health professional only once regardless of the number of patient contacts they had. Therefore our study recorded the number of *different* health professionals involved in a patient's hospital stay.

The study made the following assumptions:

- Notes were scanned into CRIS accurately.
- Every time the patient is seen by a health professional, notes were recorded.
- Consultant ward rounds included the consultant, registrar and house surgeon unless otherwise specified.
- Registrar ward rounds included the registrar and house surgeon unless otherwise specified. The exception to this was at the weekends when registrars may do the ward rounds alone.
- If more than one anaesthetist was present in theatre then this was taken to be a consultant and a registrar (unless otherwise specified).

To investigate whether there was a difference in the numbers of different types of health professionals encountered during a stay in hospital, a linear mixed model was used with the square root of the

number of different professionals as the outcome (to reduce the skewness and correlation of the mean and the variance). The different types of health professional (nurse, doctor, or allied) were included as repeated measures with ward and the interaction of ward and type as explanatory variables. The particular contrast of nurses compared to doctors was investigated.

To investigate whether there was a difference in the daily rate of different health professionals encountered in the surgical and medical wards, Poisson regression was used with the number of health professionals encountered as the outcome, with the log of the length of stay as an offset, and ward, age and sex as explanatory variables.

Results

A total of 81 patients were admitted—47 medical and 34 surgical patients.

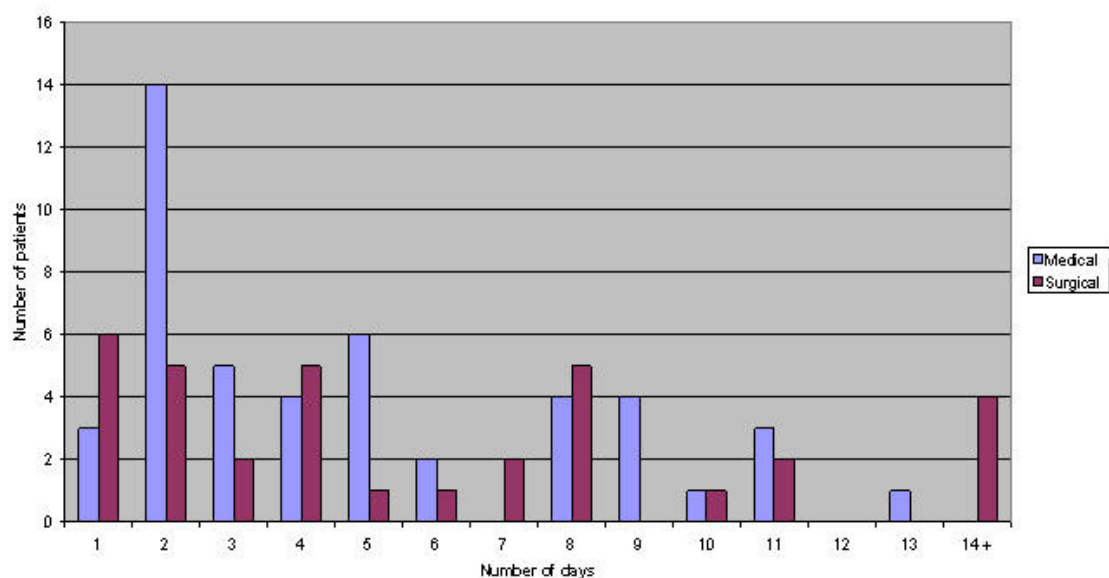
The medical patients (47) had an average age of 59 (range 19–92) with 34% female. The surgical patients (34) had an average age of 49 (range 18–88) with 59% female

Medical patients were admitted under subspecialties General Medicine (34 patients), Cardiology (6), Dermatology (1), Gastroenterology (1), Haematology (1), Oncology (1), and Renal (3).

Surgical patients were admitted under subspecialties General Surgery (13 patients), Cardiothoracic (2), Otorhinolaryngology (5), Orthopaedics (7), Urology (6), and Vascular (1).

The average overall length of stay was 5.67 days—average medical admission 4.85 days (range 1–13) and average surgical admission 6.79 days (range 1–30). See Figure 1.

Figure 1. Length of stay



An average of 17.8 different health professionals were seen by those patients admitted to Medicine (6.0 doctors; 10.7 nurses; 1.0 allied) compared to 26.6 different health

professionals seen by those admitted to Surgery (10.0 doctors; 15.9 nurses; 0.8 allied). See Table 1.

Table 1. Number of health professional seen during hospitalisation

Service	Health professional	Median	Minimum	Maximum	Average	Av./day	Min./day	Max./day
Medicine	Doctor	5	2	21	6.0	1.3	0.6	3.5
Medicine	Nurse	11	3	24	10.7	2.2	1.3	4.0
Medicine	Allied	0	0	6	1.0	0.2	0.0	1.0
Medicine	All	17	5	44	17.8	3.7	2.2	7.0
Surgery	Doctor	8.5	1	33	10.0	1.5	0.5	3.5
Surgery	Nurse	13.5	1	44	15.9	2.3	1.0	5.0
Surgery	Allied	0	0	4	0.8	0.1	0.0	0.75
Surgery	All	21.5	2	75	26.6	3.9	1.5	9.0

The difference between the number of different health professionals seen by the two services (Medicine and Surgery) was statistically significant ($p=0.01$). However as a rate per day there was no statistical difference found. ($p=0.30$)

The result correlated well with the observation of a close relationship between length of stay and number of health professionals seen. See Figures 2 and 3.

Figure 2. Number and type of health professional by length of stay for 47 medical admissions

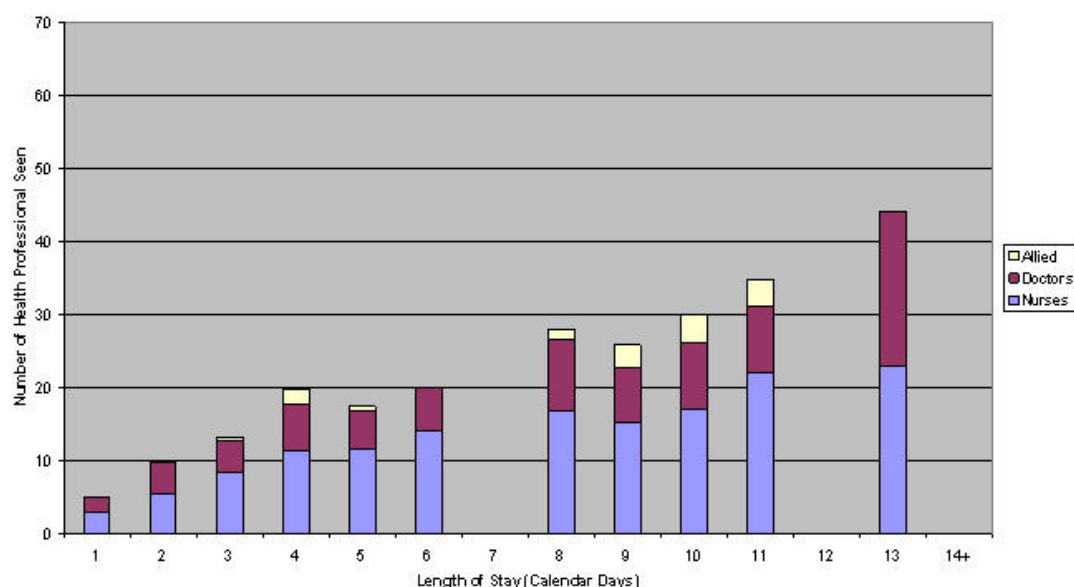
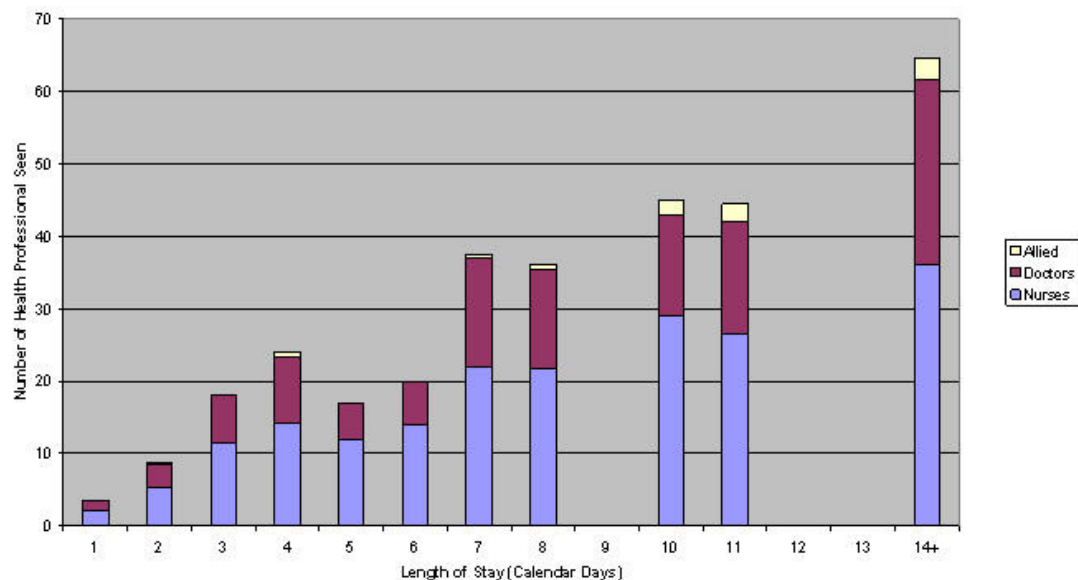


Figure 3 Number and type of health professionals by length of stay for 34 surgical admissions



For both medical and surgical patients, there was a strong difference in numbers seen by the different professional groups ($p < 0.0001$), with more nurses than doctors seen ($p < 0.0001$). Nurses made up over half of the patient's health professional contacts. See Table 2.

Table 2. Number of different health professionals seeing patients

Service	Health professional (HP)	Number	% of all HPs for Service
Medicine	Doctor	283	34
Medicine	Nurse	503	60
Medicine	Allied	49	6
Medicine	All	835	100
Surgery	Doctor	340	38
Surgery	Nurse	539	59
Surgery	Allied	27	3
Surgery	All	906	100

The different grades of doctor seen by patients from each specialty are shown in Table 3. Patients saw a greater number of registrars per hospital stay for both medicine (2.51) and surgery (4.56) than any other grade of doctor.

Table 3. Average medical grade per admission

Grade of doctor	Medicine Average no. of health professionals per admission (%)	Surgery Average no. of health professionals per admission (%)
Trainee intern	0.3 (5%)	0.5 (5%)
House surgeon	1.9 (32%)	3.1 (31%)
Registrar	2.5 (41%)	4.6 (46%)
Consultant	1.3 (22%)	1.8 (18%)
Total	6.0	10.0

Discussion

Our study was small and intended as an observational “snapshot” of current hospital practice.

Apart from anecdotal reports, we were unable to find any similar comparative studies evaluating the numbers of health professionals seen by patients when admitted to hospital. Previous studies have shown that when a patient is looked after by a greater number of doctors their length of stay is increased. Lofgren et al⁴ showed that when a patient’s care was transferred to a different senior resident (the day after admission to hospital) they had more laboratory tests performed and longer inpatient stays compared with patients cared for by the same senior resident.

Smith et al⁵ looked at the effect of a patient being admitted at the end of the month (when there was a transfer of care due to house staff changeover) on length of stay and quality of care among patients with myocardial infarct. They found admission during the last 3 days of the month was an independent predictor of length of stay but did not have a large effect on quality of care.

For patients, the experience of illness and admission to hospital is often frightening and disorientating. Also, patients may be more confused while they are unwell or have some underlying cognitive impairment. With these problems, in combination with the number of different people they meet, it is not surprising some patients can become unsure as to who their doctors are. It is for these reasons that we undertook this small study.

It must be noted that our study was based on clear assumptions stated within the paper. Only individuals involved in patient care who actually wrote in the notes were recorded. When a doctor is responsible for a patient’s care, they do not necessarily write in the notes. This may be because they have not had cause to see the patient during that shift or the reason for seeing the patient did not require an entry in the notes.

In addition to the deficiency outlined above, our study fails to include all the other people who are crucial to a patient’s stay in hospital. These include healthcare assistants, phlebotomists, radiographers, porters, and ward clerks—all of whom can have regular (if not daily) contact with patients but do not write in the notes. It can therefore be said that the number of different individuals a patient meets during their hospital stay would be significantly greater than shown in this study.

Nurses in our institution currently work 8–12 hour shifts. It would therefore be expected that a patient would be exposed to 2–3 different nurses in a 24-hour period.

As nurses tend to do roster cycles of 2–5 days at a time, we would have expected some “continuity of care” during the average 5–6 length of stay. It was, therefore, somewhat surprising for us to record an approximate average of 2.3 different nurses per day during an average hospital stay. This is probably due to a combination of factors including higher proportion of nurses on 8 hour shifts; nurse vacancies with temporary/locum positions, leave, and sickness.

Nevertheless, the relatively high number (10.7–15.9) of different nurses seen by a patient during an average length of stay highlights the vital importance of formal handovers and good communication.

Doctors in our hospital work in medical teams, with each team tending to take their “turn” to admit patients approximately every fifth day.

Patients are usually initially reviewed by the registrar and other junior members of the team with the supervising consultant then reviewing the patient within 24 hours of admission.

While the junior doctors therefore rotate “on and off” 15 and 8 hour shifts, the senior consultant usually maintains single supervisory continuity of care throughout the patients stay.

With this system, we therefore would have expected the registrar and consultant to have remained fairly constant throughout a hospital stay whereas other members of the team may have changed more frequently.

Surprisingly, we discovered that 72% of medical and 74% of surgical patients saw more than 1 registrar throughout their hospital stay and more than one consultant was seen by 34% of medical and 44% of surgical patients.

Some of the variation for the consultants can be explained by ward subspecialty consultations, anaesthesia, and procedures involving more personnel—but there are also the issues of leave, and consultant rotations to explain the discrepancy.

Unless doctors work the impossible 144 hours/week, there will always be the need for the “sharing” of medical care. As doctors’ hours continue to reduce, it is inevitable that some sort of “shift work” will occur. Subsequently, the 1.3–1.5 new doctors per day observed in this study is likely to increase to that seen with nurses at 2.2–2.3 per day.

The large number of professionals who are directly involved in a patient’s care highlights the importance of effective communication both “between health professionals and patients” and “between health professional themselves”.

Conclusion

In conclusion, our small study has shown that a relatively large number of different health professionals are involved in an individual patients hospital stay.

Established shift roster systems for nurses expose a larger range of different nurses to patients than current medical rosters.

Good communication and handover is vital to good healthcare today and the concept of “continuity of care” is already under threat.

Any change by the medical profession to shift roster systems will only highlight the issues of handover and continuity of care.

Competing interests: None.

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Procedural and examination skills of first-year postgraduate doctors do not improve with clinical experience alone

Iwona Stolarek

Abstract

Aim To look for factors mitigating for or against first-year postgraduate house surgeons (PGY1) gaining experience in examination and procedural skills.

Methods Ten PGY1s at Hutt Hospital (Lower Hutt, New Zealand) filled in self-reporting questionnaires to assess the impact of 6 months of on-the-ward training on their baseline competence in clinical examination and procedural skills. Opportunities for skills acquisition, and barriers (if any) towards gaining experience were assessed.

Results The small numbers of PGY1s limit generalisation of the findings, however certain trends are evident. Improvements were seen in commonly carried out procedures, though gaps in these areas could still be present after 6 months. Commonly performed examinations such as auscultation of heart sounds and murmurs improved, though in the area of intimate exams and fundoscopy there was little confidence gained. Log diaries show that opportunities for practice of clinical procedures were limited and that regular weekly practice only occurred with arterial blood gases and intravenous (IV) cannulation. A discussion group analysis revealed that competition with other PGY1s for the limited number of opportunities and the random occurrence of practical procedures were barriers to gaining skills.

Conclusions Clinical on-the-ward experience is not always enough to gain clinical skills and perhaps alternate means such as simulation need to be explored.

Acquisition of expertise in any area including medical skills is dependent upon deliberate practice involving repeated performance of the targetted skill, along with rigorous assessment that provides specific and informative feedback. Ongoing practice is also required for maintenance of mastery.¹⁻⁴

Reports suggesting deficiencies in examination and procedural skills of doctors in training were first published in the 1970s and continue to date. A 1983 report showed that junior doctors made errors in assessment in more than half the patients examined during ward rounds.⁵

A 1992 paper showed that only 50% of junior staff were able to recognise each of the four most common murmurs at the start of their jobs, and that 6 months of clinical experience made no significant difference.⁶

Surveys in 1998/9 showed that the only practical skills United Kingdom (UK) graduates felt prepared for were venepuncture, cardiopulmonary resuscitation (CPR), and arterial blood gas (ABG) sampling.⁷

In Finland, a 2003 study showed that although 90% of graduating students knew the theory of emergency procedures, only the insertion of IV cannulae, and endotracheal intubation, had been successfully performed by over 90% of them.⁸ Of 1996 graduates

from Irish medical schools, 91% of graduates felt they were not prepared for all the skills and competencies needed by a PGY1.⁹ Furthermore surgical skills after a year's clinical exposure were shown to be deficient in a 1996 study, with 27% of junior doctors unable to perform any of 10 drills tested.¹⁰

Locally, a 2001 report from the Wellington School of Medicine,¹¹ showed that although trainee interns had ample practice in venepuncture and cannulation, there were many practical procedures they had never done or attempted only once, such as rectal examinations and nasogastric (NG) tube insertion. More recently, a 2006 paper showed that the procedural skills of first-year house surgeons in Auckland hospital were lacking, with gaps remaining after their first year.¹²

The aim of this study was to assess the baseline practical and examination skills of PGY1s starting at Hutt Hospital and then measure the impact of 6 months of clinical experience and ward exposure alone on these skills.

Methods

Study population—Hutt Hospital is a 250-bed district general hospital 15 km from Wellington. Staffing includes 22 house surgeons, with a variable proportion of PGY1 doctors. This study was carried out over the period of 6 months from November 2000 following a year's intake of PGY1s. All participation was voluntary.

The purpose of the study was explained and only PGY1s spending their entire initial 6 months at Hutt Hospital were included in the evaluation. All PGY1s remaining at Hutt Hospital for the entire 12 months post graduation were invited to take part in a discussion group. The results of this study therefore reflect only ward and on-the-job clinical experience at Hutt Hospital.

Questionnaires—PGY1s were asked to fill out questionnaires at the beginning and end of each quarter. They were asked to fill in their names to allow for comparisons; they were reassured that all results would be kept confidential and not divulged to their supervising consultants, and that any results presented would be anonymous. The PGY1s were not allowed access to their previous questionnaires.

The areas surveyed by the questionnaire were founded on an indicative list of skills published by the Medical Council of New Zealand.¹³ PGY1s were asked to self-report their level of competence in carrying out 12 procedures: male and female catheterisation, IV cannulation, arterial blood gases (ABGs), intramuscular (IM) injections, NG tube insertion, lumbar puncture (LP), ascitic tap, pleural tap, joint aspiration, chest drain insertion, central venous line (CVL) insertion, and in using five pieces of clinical equipment: ophthalmoscope, electrocardiogram (ECG) machine, spirometer, a ventilator, and a continuous positive airway pressure (CPAP) ventilator.

The procedures, apart from CVL, were all commonly used in clinical practice. PGY1s would have seen CVL insertion infrequently in training, and would not be expected to have experience themselves. CVL as well as a ventilator, and a CPAP ventilator were included as controls to check PGY1s were not overestimating their abilities.

PGY1s were asked to score their competence using the following Likert scale:

- 0 Never seen, don't know how to do
- 1 Seen, don't know how to do
- 2 Never seen, but know how to do theory
- 3 Seen, know how to do on a manikin/model
- 4 Done in clinical practice but need supervision
- 5 Competent to do alone

The second section of the questionnaire surveyed PGY1's self-reported confidence in picking up abnormalities in 11 areas of clinical examination or data. These were chosen to cover both common daily occurrences—listening to heart and breath sounds, murmurs, interpreting ECGs and chest X-rays (CXR's)—as well as less routinely performed examinations such as prostate, rectal, breast and eye.

PGY1s scored their level of self-reported confidence using the following Likert scale:

- 0 None, no confidence whatsoever
- 1 Poor
- 2 Reasonable
- 3 Good
- 4 Very good

Log diaries—A one-page log diary was used to establish the number of opportunities PGY1s had during the course of a normal week's work, in performing the clinical procedures assessed in this study. This was handed out to PGY1s on two random Fridays at their handover meeting. PGY1s were asked to approximate the number of times they had carried out a clinical procedure, during the preceding week.

Discussion group—An informal group discussion of barriers that might exist in obtaining clinical experience and training was held with 6 of the PGY1s, who spent their entire first year at Hutt Hospital.

Statistical evaluation—This was performed using a Minitab statistical package. Wilcoxon matched pairs analysis was used to look at the difference between the group at the start of first quarter, and after 6 months of clinical experience, in each of the clinical examination and procedural areas.

Results

Ten PGY1s started at Hutt Hospital in November 2000. All participated in the study over the 6-month period.

Procedural skills—Table 1 shows the number of PGY1s who self-reported feeling competent to carry out a procedure unsupervised (score 5) both at the start of their jobs, and after 6 months of clinical experience. Total cumulative self-reported competence scores for all 10 PGY1s in these procedural areas, were compared post graduation, and after 6 months work, and Wilcoxon matched pairs analysis was carried out—p values are shown in column 4.

Table 1 also shows the numbers of PGY1s who had 'never seen' or 'seen but don't know how to do' (score 0 or 1), various clinical procedures immediately post graduation, and after 6 months of clinical work.

Results of log diaries—All 10 PGY1s completed a log diary during week 1, whilst because of leave only eight completed the log diary in week 2. Table 2 shows the numbers of PGY1s (N=10) reporting total opportunities in week 1 (ranging from 0, 1, or >1) for carrying out a clinical task or practical procedures that week. Table 2 also shows the number of procedures averaged out per PGY1 per week during the two time periods shown.

Table 1. Baseline and 6-month PGY1 self-reported competence in practical procedures

Clinical task	Numbers reporting feeling competent to do alone (N=10)		P value* for total cumulative scores	Nos. reporting having never seen (N=10)	
	Start	After 6 months		Start	After 6 months
Female Catheter	3	8	0.059	2	0
Male catheter	2	10	0.014	0	0
I/V cannulation	10	10	1.000	0	0
ABG	8	9	0.789	0	0
I/M injection	5	5	1.000	2	1
NG tube insertion	0	0	0.100	3	1
LP	0	1	0.022	7	3
Ascitic tap	0	1	0.139	6	3
Joint aspiration	0	0	0.181	6	5
Pleural tap	0	4	0.030	4	1
Chest drain insertion	0	0	0.787	5	6
CVL insertion	0	0	0.423	10	7
Ophthalmoscope	6	5	0.281	0	0
ECG machine	7	10	0.181	0	0
Spirometer	1	2	0.063	7	4
CPAP	0	0	1.000	8	9
Ventilator	0	0	1.000	8	9

*Wilcoxon matched pairs analysis.

Table 2. PGY1 opportunities for clinical procedures

Clinical task or procedure	Week 1—numbers of PGY1s (N=10) having 0, 1, or >1 opportunity			Average number procedures/PGY1/week	
	0	1	>1	Week 1	Week 2
Female catheterisation	10	0	0	0	0
Male catheterisation	8	1	1	0.375	0.4
IV cannulation	0	0	10	8.75	6.75
ABGs	6	2	2	1.375	0.8
IM injection	10	0	0	0.25	0
NG tube insertion	10	0	0	0	0
LP	9	1	0	0.125	0.1
Ascitic fluid aspiration	9	1	0	0	0.1
Joint aspiration	10	0	0	0.125	0
Pleural fluid aspiration	8	2	0	0.125	0.2
Chest drains	10	0	0	0	0
CVL insertion	10	0	0	0	0
Ophthalmoscope	8	2	0	0.125	0.2
ECG	8	1	1	0.875	0.3
Spirometry	9	0	1	0	0.4
CPAP	10	0	0	0	0
Ventilator	10	0	0	0	0

IV=Intravenous; ABG=Arterial blood gases; IM=Intramuscular; NG=Nasogastric; LP=Lumbar puncture; CVL=Central venous line; ECG=Electrocardiogram; CPAP=Continuous positive airway pressure.

Clinical examination—Table 3 shows the numbers of PGY1s reporting confidence (score 3 or 4) in picking up abnormalities of clinical examination at the start of the year, and after 6 months of clinical experience. Wilcoxon matched pairs analysis of the total cumulative scores for the two time periods was carried out for each clinical procedure, and the p values are shown in column 3.

Table 3. Baseline and 6-month PGY1 self-reported confidence in clinical examination

Area of examination	Numbers reporting confidence in picking up clinical abnormalities		*P value for total cumulative scores
	Start	After 6 months	
Abnormal fundi	0	0	0.465
Prostate abnormalities	2	3	0.295
Rectal abnormalities	0	1	0.205
Breast lumps	1	1	0.787
Abnormal spirometry	2	3	0.181
Abnormal heart sounds	3	5	0.100
Abnormal breath sounds	6	7	0.787
Murmurs	4	7	0.100
Pericarditis	1	1	0.590
Abnormal ECGs	4	6	0.225
Abnormal CXRs	4	8	0.059

*Wilcoxon matched pairs analysis; ECGs=Electrocardiograms; CXR=Chest X-rays.

Discussion

This study included only 10 PGY1s; all Otago University graduates from the Wellington School of Medicine and therefore the results must be interpreted with caution.

Performance of clinical examination and procedural skills was not assessed in this research and the results are based on self-evaluation. Self-assessment is an adult educational tool, and there is an expectation that adult learners will have learnt to accurately assess and remedy gaps in their knowledge and skills.

Although it has been shown that self-assessment of clinical skills may be inaccurate especially in those who perform poorly,¹⁴ other studies have shown that house surgeons do define competence, based on their abilities and previous experience.¹⁵

We can see from Table 1 that there were some issues of recall with an increase (by one) of the numbers reporting having never seen chest drains and ventilator, as they were not allowed access to their original questionnaires. This again may limit generalisation from the findings, however some trends are still evident.

Table 1 shows that IV cannulation was the only procedure all PGY1s felt able to undertake unsupervised at the start, a figure very similar to UK experience.¹⁶ Our NG-tube insertion findings are similar to previous studies,^{7,17} with three PGY1s having never seen the procedure.

ECG competence was higher than studies in the UK¹⁶ and Denmark,¹⁷ yet despite this, three PGY1s still wanted supervision, something that senior staff might not normally perceive as being required.

Surprisingly, seven house surgeons had not seen an LP by the start of PGY1. Following 6 months clinical exposure there were significant improvements in total self-reported competency for male catheterisation, LPs, and pleural taps. For LPs and pleural taps, this mirrors the decrease in PGY1s who had never witnessed these procedures.

In contrast, the improvement for male catheterisation may reflect the gain in practical experience as documented by the log diaries. We can see from Table 2 that IV cannulation and ABGs were the most common procedures undertaken on a weekly basis by PGY1s, yet they already self-report competence in these areas.

We can also see that for many of the procedures there would hardly be the opportunity to perform the task once in a 13-week run, yet skills can only be acquired through regular practice.² Similar reports have recently emerged from the US using personal digital assistants (PDA) to track student encounters in 52 core, basic clinical skills over a 9-month period.¹⁸

The log diaries may explain why some PGY1s had yet to witness procedures such as chest drains and pleural taps after 6 months of clinical exposure, and the lack of opportunity to practice procedures may explain why numbers rating themselves as 'competent to do unsupervised' only improved in the commonly carried out procedures, as has been reported in Australia.¹⁹

Table 3 shows that the only examination area where over 50% of PGY1s rated themselves as 'good' at picking up abnormalities at the start was in breath sounds similar to previous studies.²⁰

After 6 months of clinical experience, the numbers of PGY1s who rated themselves as 'good' or 'very good' did not change greatly (except for heart sounds, murmurs, and abnormal CXRs and ECGs), although there was not as marked an improvement as might have been expected.

For clinically unusual conditions such as pericarditis, there had been no change (as predicted), but there was also little change in areas of intimate examination as has been previously reported.^{16,21} Possible reasons for this were raised at the informal group discussion.

As admissions had been examined by registrars, PGY1s felt it was ethically inappropriate to re-examine just for learning purposes, a reluctance reported in medical students.²² Most examinations PGY1s carried out were whilst 'on call' in the evening or on night duty. This was limited in terms of hours worked, but also in the availability of on-site senior staff to discuss these findings, a process we know improves skills.²³

Limitations to training opportunities in terms of clinical procedures were felt to be due to competition both with other PGY1s, PGY2s, and inexperienced junior registrars. PGY1s also reported not feeling confident about undertaking a procedure for the first time on a patient, without some prior practice on simulators.

Many commented on the fact that procedures were often performed out of hours when they were not on call. This random and emergency nature of clinical procedures has been shown to impair skills acquisition.⁸

Reductions in work hours and shift systems have impacted on training with some studies showing an increase in the number of practical procedures carried out,²⁴ others have shown a decline in clinical exposure,²⁵ and poorer training and satisfaction scores.²⁶

PGY1s reported that when teams were busy in the winter months and caseloads high, they had little time to look for educational opportunities. This is supported by Australian research showing both too few or too many patients impair learning.²⁷

Summary

Although numbers in this study were small, we can still see that relying on clinical exposure alone as the only means of acquiring procedural and examination skills may not be enough.

Improvements are only seen in commonly carried out procedures and examinations. Log diaries show that opportunities for practice are limited and that there is competition for these. If the opportunities to gain experience in skills with ward exposure alone are limited, perhaps we need to look at alternate means such as simulation to ensure that clinical skills are acquired early in training.

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Procedural and examination skills of first-year house surgeons: a comparison of a simulation workshop versus 6 months of clinical ward experience alone

Iwona Stolarek

Abstract

Aim To assess the impact of a simulation workshop prior to starting clinical work, on the practical and examination skills of first-year postgraduate house surgeons (PGY1s) starting at Hutt Hospital (Lower Hutt, New Zealand) and to compare this to 6 months of clinical ward experience alone.

Methods Self-reporting questionnaires on clinical examination, and procedural skills were used to compare a 'control' group of 10 PGY1s who had 6 months on-the-ward training only, to a second 'intervention' group of 10 PGY1s who underwent training in a simulation skills workshop prior to starting clinical work.

Results The small numbers of PGY1s limit generalisation of the findings, however certain trends are evident. The skills workshop improved self-rated competence scores in clinical procedural skills, and was significant for lumbar punctures (LP) and spirometry. Scores were comparable to those of 6 months of clinical exposure alone. Self-reported confidence scores in picking up abnormalities of clinical examination improved in all areas taught and were significant for fundal, prostate, and rectal abnormalities. Scores exceeded those achieved with 6 months of clinical exposure.

Conclusions The findings suggest that a skills workshop prior to starting clinical work may approximate 6 months of clinical experience and improve baseline procedural and examination skills.

Acquisition of expertise in any area including medical skills, depends upon deliberate practice, repeated performances, rigorous assessment, and specific feedback with ongoing practice required for maintenance of mastery.¹⁻⁴

Until recently, the problem in mastering medical skills is that the subjects necessary to practice on were human beings, however advances in medical simulation technology have resulted in simulators that look, feel, and respond to interventions with ever-increasing realism. Issenberg et al (2002) compared an intervention with "Harvey" a cardiological simulator, to random clinical exposure alone, showing a significant improvement in the intervention group. The adoption of "Harvey" at Dundee University, Scotland, has resulted in more than 78% of students recognising important heart sounds and murmurs.⁶

Key advantages of simulation-based learning are that training can be determined by the needs of the learner and not the patient, skills can be practiced as often as is necessary to gain expertise, and learners have permission to fail in a way that would not be possible in the clinical setting.⁷

Simulation training when compared to on-the-job training, improves patient safety with complication rates after central venous pressure (CVL) line insertion showing a significant reduction.⁸

Simulation reduces medical student anxiety, as recognition of equipment and the opportunity to perform procedures prior to patient contact makes them more at ease.⁹ Simulation bridges the gap between theory and practice, develops teamwork skills, as well as a systematic approach to problems.¹⁰ Early introduction of procedural skills can have long-term positive effects with increased competence, and increased uptake of opportunities to practice skills during work.¹¹ Studies have shown that the clinical experience of new medical graduates is poor,^{12,13} and that clinical exposure alone does not improve this.¹⁴ Alternative methods must be found to provide this experience.

The aim of this study was to assess the impact of a simulation workshop (prior to starting clinical work) on the practical and examination skills of PGY1s starting at Hutt Hospital, and to compare this to 6 months of clinical ward experience alone.

Methods

Hutt Hospital is a 250-bed district general hospital 15 km from Wellington. Staffing includes 22 house surgeons, with a variable proportion of PGY1 doctors. This study was carried out over the period of 18 months from November 2000 following two consecutive years' intakes of PGY1s (Year 1 and Year 2). All participation was voluntary.

The purpose of the study was explained, and only PGY1s spending their entire initial 6 months at Hutt Hospital were included in the evaluation. During Year 1 of the study, no access was available to a clinical skills unit. Year 1 acted as "controls" and allowed the evaluation of clinical experience alone on clinical skills. For Year 2, a clinical skills simulation workshop was organised at the beginning of their first quarter prior to starting clinical work. Analysis of this Year 2 "intervention" group allowed an assessment of the impact of simulation when compared to clinical experience.

Questionnaires—PGY1s in both groups were asked to fill out questionnaires at the beginning and end of each quarter and in addition the intervention group filled in a questionnaire post workshop. They were asked to fill in their names to allow comparisons, however were reassured that all results would be kept confidential and not divulged to their supervising consultants, and any results presented would be anonymous. No access was given to previous questionnaires.

The areas surveyed by the questionnaire were founded on an indicative list of skills published by the Medical Council of New Zealand.¹⁵ PGY1s were asked to self-report their level of competence in carrying out 12 procedures: male and female catheterisation, intravenous (I/V) cannulation, arterial blood gases (ABGs), intramuscular (I/M) injections, NG tube insertion, LPs, ascitic tap, pleural tap, joint aspiration, chest drain insertion, CVL insertion, and in using five pieces of clinical equipment: ophthalmoscope, electrocardiogram (ECG) machine, spirometer, a ventilator, and a continuous positive airway pressure (CPAP) ventilator.

The procedures, apart from CVL, were all commonly used in clinical practice. PGY1s would have seen CVL insertion infrequently in training, and would not be expected to have experience themselves. CVL as well as a ventilator, and a CPAP ventilator, were included as controls to check PGY1s were not overestimating their abilities.

PGY1s scored their competence using the following Likert scale:

- 0 Never seen, don't know how to do
- 1 Seen, don't know how to do
- 2 Never seen, but know how to do theory
- 3 Seen, know how to do on a manikin/model
- 4 Done in clinical practice but need supervision
- 5 Competent to do alone

The second section of the questionnaire surveyed PGY1s' self-reported confidence in picking up abnormalities in 11 areas of clinical examination or data. These were chosen to cover both common daily occurrences—listening to heart and breath sounds, murmurs, interpreting ECGs and chest X-rays (CXR)s—as well as less routinely performed examinations such as prostate, rectal, breast, and eye.

PGY1s scored their level of self-reported confidence using the following Likert scale:

- 0 None, no confidence whatsoever
- 1 Poor
- 2 Reasonable
- 3 Good
- 4 Very good

Skills workshop—This consisted of a full day's training in the skills unit prior to starting clinical work in the first quarter, with the intervention group (Year 2) rotating through various simulation models covering male catheterisation, ABGs, LP, I/M injection, fundoscopy, ECGs, prostate examination, spirometry, breast examination, and NG tube insertion.

All teaching was by senior medical staff and in small groups of 3–4 PGY1s. All had hands-on experience in trying out the procedures or examinations on the models, as well as the opportunity to discuss any issues. At the end of the workshop PGY1s were asked to fill out repeat questionnaires, as well as an evaluation form to assess the course's usefulness towards a house surgeon job. They were not given access to their initial questionnaires.

Statistical evaluation—This was performed using a Minitab statistical package. Year 1 and Year 2 were compared at the beginning of the 1st quarter, using Mann-Whitney analysis, to look for any statistically significant differences between the two groups. Wilcoxon matched pairs were used to compare the Year 2 "intervention" group undergoing the clinical skills workshop, both pre and immediately post workshop to evaluate its impact.

Results

Ten PGY1s started at Hutt Hospital in 2000 and 2001. All participated in the study.

Baseline procedural skills—Table 1 shows the baseline self-reported competence scores (maximum 50) in carrying out clinical procedures prior to starting clinical work for both year 1 and Year 2, with results of p values of Mann Whitney analysis for each individual procedure.

Baseline clinical examination skills—Table 2 shows the baseline total cumulative scores (maximum 40), for self-reported confidence in picking up abnormalities of clinical examination immediately prior to starting clinical work, for both Year 1 and Year 2. For each individual examination area, Mann-Whitney analysis of the differences in scores between the two groups was carried out, and the p values are shown alongside.

Table 1. Baseline clinical procedure scores for Year 1 and Year 2 groups

Clinical procedure	Baseline Year 1 Total cumulative score	Baseline Year 2 Total cumulative score	P value
Male catheterisation	41	46	0.064
IV cannulation	50	50	0.332
ABG	48	47	0.957
NG tube insertion	26	26	0.815
LP	16	14	0.654
IM injection	39	40	0.840
ECG	47	42	0.815
Spirometry	17	14	0.934
Fundoscopy	46	38	0.020
Female catheterisation	37	41	1.000
Ascitic tap	16	16	1.000
Joint aspiration	20	19	0.899
Pleural tap	25	25	0.937
CVL insertion	7	10	0.122
CPAP	12	13	0.427
Ventilator	12	11	1.000
Chest drain	22	12	0.157

Table 2. Baseline clinical examination scores for Year 1 and Year 2 groups

Area of examination	Baseline Year 1 Total cumulative score	Baseline Year 2 Total Cumulative score	P value
Abnormal fundi	13	10	0.229
Prostate abnormalities	17	11	0.284
Rectal abnormalities	12	11	0.493
Breast lumps	19	15	0.136
Abnormal spirometry	20	20	1.000
Abnormal heart sounds	22	18	0.233
Abnormal breath sounds	26	29	0.144
Murmurs	24	24	1.000
Pericarditis	18	12	0.252
Abnormal ECGs	24	25	0.706
Abnormal CXRs	27	26	0.576

IV=Intravenous; ABG=Arterial blood gases; IM=Intramuscular; NG=Nasogastric; LP=Lumbar puncture; CVL=Central venous line; ECGs=Electrocardiograms; CPAP=Continuous positive airway pressure; CXRs=Chest X-rays.

Impact of the skills workshop on procedural and clinical examination skills—

Table 3 shows the total cumulative scores (maximum 50), for self-rated competence in carrying out clinical procedures before and after the skills workshop for Year 2 “intervention” PGY1s.

The post workshop scores reflect the impact of the skills course prior to any clinical experience. The procedures covered in the workshop are shown in *italics*. Wilcoxon matched pairs analysis was carried out for the differences in scores pre and post workshop in each of these individual clinical procedural areas, and the p values are shown. For comparison, Year 1 scores after 6 months of clinical experience are shown in column 4.

Table 3. Practical procedure scores post skills workshop

Clinical procedure	Year 2 Pre workshop	Year 2 Post workshop prior to clinical work	P value	Year 1 After 6 months' clinical work
<i>Male catheterisation</i>	46	49	0.181	50
<i>IV cannulation</i>	50	50	1.000	50
<i>ABG</i>	47	50	0.371	49
<i>NG tube insertion</i>	26	38	0.076	33
<i>LP</i>	14	31	0.009	30
<i>IM injection</i>	40	41	0.866	39
<i>ECG</i>	42	47	0.273	50
<i>Spirometry</i>	14	40	0.006	33
<i>Fundoscopy</i>	38	44	0.059	43
Female catheter	41	41	1.000	48
Ascitic tap	16	19	0.584	28
Joint aspirate	19	23	0.100	25
Pleural tap	25	25	1.000	41
CVP	10	11	1.000	11
CPAP	13	14	0.855	12
Ventilator	11	11	1.000	12
Chest drains	12	10	1.000	20

Table 4 shows the total cumulative scores (maximum 40), for Year 2 PGY1s in self-reported confidence in picking up clinical examination abnormalities before and after the skills workshop. Again the post workshop scores reflect the impact of the skills course prior to any clinical experience. Examination areas covered in the workshop are shown in *italics*.

Wilcoxon matched pairs analysis was carried out for the differences in scores pre and post workshop in the individual clinical examination areas, and the p values are shown. Year 1 'control' scores after 6 months of clinical experience are shown in column 4 for comparison.

Table 4. Clinical examination scores post skills workshop

Area of examination	Year 2 Pre workshop	Year 2 Post workshop prior to clinical work	P value	Year 1 After 6 months clinical work
<i>Abnormal fundi</i>	10	20	0.022	13
<i>Prostate abnormalities</i>	11	28	0.006	21
<i>Rectal abnormalities</i>	11	26	0.009	17
<i>Breast lumps</i>	15	23	0.059	20
<i>Abnormal spirometry</i>	20	28	0.036	23
Abnormal heart sounds	18	23	0.181	27
Abnormal breath sounds	29	29	1.000	27
Murmurs	24	26	0.465	28
Pericarditis	12	16	0.173	18
Abnormal ECGs	25	28	0.361	28
Abnormal CXRs	26	28	0.465	29

Discussion

This study included only 10 PGY1s in each group—all were Otago University graduates from the Wellington School of Medicine—and therefore the results must be interpreted with caution.

Performance of clinical examination and procedural skills was not assessed in this research and the results are based on self-evaluation. Self-assessment is an adult educational tool, and there is an expectation that adult learners will have learnt to accurately assess and remedy gaps in their knowledge and skills. Although it has been shown that self-assessment of clinical skills may be inaccurate especially in those who perform poorly,¹⁶ other studies have shown that house surgeons do define competence, based on their abilities and previous experience.¹⁷ Repeat questionnaires at the end of 6 months were not carried out in the intervention group and confidence may have decreased. These points may limit the generalisability of the findings.

Table 1 shows that there was little difference in procedural skills between the two groups at the start of the first quarter, except for fundoscopy where there was a significant difference ($p=0.02$) in the self-reported confidence of the year 1 “control” group, though there was no statistical difference between them when scoring their ability to pick up abnormalities in the examination of fundi ($p=0.229$).

Maximal scores were given for IV cannulation, a figure very similar to UK experience.¹⁸ As expected there were low self-rated competence scores for CVL insertion and use of CPAP and ventilators (in keeping with a lack of exposure); it also suggests that the PGY1s were not overestimating their abilities.

Table 2 shows that there was no statistically significant difference between the two groups in any of the clinical examination areas.

Impact of the skills workshop—From Table 3 we can see that the total cumulative self-reported competence scores in carrying out clinical procedures improved in all areas taught on the workshop, and were significant for LPs ($p<0.009$) and spirometry ($p<0.006$). Looking at areas not taught, there was an increase in scores for some procedures such as ascitic tap and joint aspirate. The improvement in scores for areas not taught may reflect transference of confidence or a difficulty in recall of previous questionnaire scores.

When compared to the Year 1 scores after 6 months of clinical exposure, we can see the total cumulative marks post skills workshop were similar to those of the control group, thus showing that a skills workshop prior to starting clinical work may approximate clinical experience.

The improvements seen in this skills workshop confirm previous research showing the benefits of structured training or skills workshops in improving procedural skills;¹⁹ the results also confirm that an intense skills course helps accelerate progress.²⁰

We can see from Table 4 that the total cumulative scores for self-rated confidence in picking up abnormalities of clinical examination (post skills workshop) improved in those areas taught with significant differences for fundal ($p=0.022$), prostate ($p=0.006$) and rectal abnormalities ($p=0.009$) and spirometry ($p=0.036$).

When compared to the scores of the Year 1 after 6 months of clinical exposure, we can see the total cumulative marks post skills workshop, exceeded the control group, thus showing that a skills workshop prior to starting clinical work may improve baseline examination skills confirming previous research.^{21,22}

All 10 PGY1s who attended the skills workshop filled out evaluation forms. Comments from house surgeons are in *italics*. Many reported wishing they had had a skills workshop in medical school “*good to practice LP on simulator as had never seen an LP before.*” All the stations were seen as valuable and all wanted more topics to be covered.

Over three-quarters felt less anxious about starting their PGY1 posts “*I now feel more confident about attempting the procedures under clinical supervision.*” All rated the skills workshop as having a very positive benefit on their skills and would recommend a similar future course.

Summary

A skills workshop at the start of PGY1 improved self-rated competence scores in clinical procedural skills and self-reported confidence in picking up abnormalities of clinical examination to levels comparable to or exceeding 6 months of clinical exposure alone.

There were significant improvements in baseline scores for LP, spirometry, fundoscopy, prostate, and rectal abnormalities. The workshop reduced anxiety about starting PGY1 jobs and allowed ‘experience’ of procedures that they may not have witnessed in their undergraduate years.

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Doctors, practices, patients, and their problems during usual hours: a description of rural and non-rural primary care in New Zealand in 2001–2002

Phil Hider, Roy Lay-Yee, Peter Davis

Abstract

Aim To describe the characteristics of patients who attended rural general practice offices in New Zealand in 2001/2 during normal hours along with the problems they presented and the management that they received. Comparisons are made with patients who attended non-rural practices.

Methods Data were collected from a stratified random survey of GPs in New Zealand as part of the National Primary Medical Care survey carried out in 2001/2.

Results Response rates at rural and non-rural general practices were high (72%). Comparing practice characteristics by locale, there were fewer full-time equivalent doctors in rural settings, their practice fees were lower, their throughput was slightly higher, and more services were provided (such as evening surgery, group health promotion and doctors involved in maternity care). More rural practitioners had graduated overseas than their urban counterparts but their characteristics were otherwise similar.

Patients who presented to rural practices were similar in age and gender, but a higher proportion were Māori and more were from more deprived areas. Patients made a similar number of visits as people in non-rural areas, although visits were slightly shorter in rural practices and more were funded by Accident Compensation Corporation (ACC). Rural patients presented slightly fewer reasons or problems per visit. Injury and respiratory conditions were more frequent problems managed at rural practices. Patient management was generally similar regardless of location, although laboratory tests and other investigations were ordered less frequently at rural practices. Prescriptions and non-drug treatments were also provided slightly less often at rural practices and follow-up was arranged less frequently.

Conclusions Aside from a few key differences, the characteristics of patients, practitioners, and practice were generally similar between rural and non-rural locations during normal hours in 2001/2. With some notable exceptions, patient problems and their management were also broadly consistent. Further work is needed to develop an ongoing database of patient morbidity encountered in primary care, ideally with more information about the complexity of each encounter and the nature of after-hours work.

The assessment of patient encounters with general practitioners (GPs) at both rural and urban settings is a remarkably under-researched area in New Zealand, despite the importance of this information for the planning, funding, and delivery of health services and medical education.

Most assessments of rural health services have focused on providing a description of the characteristics of practitioners, their workloads, or their distribution.¹⁻³ These studies have highlighted significant disparities in the availability and distribution of GPs in New Zealand. Other examinations of the rural GP workforce and their workload have used anonymous questionnaires sent to rural and semi-rural GPs.⁴

In these surveys, rural GPs have identified that the lack of locum relief, onerous on-call responsibilities, and rural GP shortages were all important problems for rural health service delivery.⁵

Without an equivalent to the National Minimum Dataset (NMDs) that provides detailed attendance information about inpatient care, community-based services have largely relied on occasional audits⁶ and the findings from the RNZCGP research group⁷ that has piloted an electronic dataset amongst a number of practices to generate descriptive data about the patients who receive care, their problems, and their treatments.

The National Primary Medical Care survey (NatMedCa) was undertaken to describe primary health care in New Zealand, the first paper provided an overview of the characteristics of providers and their practices.⁸ This paper provides an analysis of a representative sample of daytime attendances at rural and non-rural offices around New Zealand and compares patients' reasons for consultation, morbidity managed by the GPs, the management of problems, referrals for specialist care, and requests for investigations.

Methods

The methods used to undertake the NatMedCa survey have previously been described.⁸ In brief, the survey was carried out during 2001/2 using a nationally representative, multi-stage probability sample of GPs stratified by geographical location and practice type. A sampling frame of active GPs was generated from telephone White Pages listings.

Practices were defined as rural providers if their rural ranking score was equal to or greater than 35. This is the criterion for the Ministry of Health's rural health benefits eligibility. The scale allocates points on the basis of the frequency of on-call responsibilities; requirement to be on-call for major trauma; the occurrence of regular peripheral clinics; and the times required to travel to the nearest hospital, nearest colleague, and the most distant boundary.

A follow-up survey of participating practices located in country areas with a resident population less than 30,000, for which no score had been provided, was carried out following data collection in order to ascertain and confirm rural provider status according to the Ministry's criteria. In addition, to ascertain the population of rural provider organisations a complete list was sourced via the Ministry.

GPs were asked to provide data on themselves, their practice, and to report on their patients in each of two week-long periods during usual working hours. The log questionnaire completed for all patients seen during the data collection period, recorded demographic data. The visit questionnaire recorded data on every 4th patient's problem(s) and management. Telephone calls and call-outs to visit patients or attend emergencies were not included.

Statistical analyses were conducted taking into account the stratified, multi-stage sampling scheme, the weights associated with each stratum, and clustering at different sampling stages. Reason-for-visit and diagnosis were coded using READ version 2 while drugs were classified using the anatomically based Pharmacodes/ATC system.

Approval was obtained from ethics committees in all areas represented in the survey. The study received advice from an advisory and monitoring committee that included representation from consumers and relevant professional groups.

Results

Data were contributed by 41 rural practices and 146 non-rural practices comprising 47 rural GPs and 197 urban doctors. Response rates were similar between rural and non-rural providers (73.4% and 72.1%).

Table 1. Practice characteristics

Practice characteristic	Rural* (n = 41)		Non-rural (n = 146)	
	Percent (95% CI)†		Percent (95% CI)†	
Response rates	73.4%		72.1%	
Personnel (mean number)				
Full-time equivalent (FTE) doctors	1.7 (1.3-2.0)¶		2.3 (2.0-2.5)¶	
FTE nurses	1.4 (1.2-1.6)		1.6 (1.4-1.8)	
FTE community workers	0.05 (0.0-0.12)		0.05 (0.01-0.09)	
Access				
Hours open per week (mean)	49.2 (46.6-51.8)		48.8 (47.7-49.9)	
Offering evening surgery hours (%)	52.5 (28.6-76.4)		38.7 (27.2-50.1)	
Offering weekend surgery hours (%)	28.3 (6.7-49.9)		34.6 (23.9-45.4)	
Offering booking system (%)	100.0		96.2 (91.3-100.0)	
Services provided (%)				
Doctors providing maternity care	71.7 (51.8-91.7)		60.2 (49.7-70.7)	
Independent nursing consultations	71.1 (52.2-90.0)		76.4 (67.5-85.3)	
Complementary/alternative services	50.8 (30.2-71.4)		34.8 (24.3-45.3)	
Group health promotion	42.4 (22.0-62.8)		22.3 (13.5-31.0)	
Community worker services	9.1 (2.0-16.1)		5.4 (2.1-8.8)	
Computerisation (%)				
Computerised patient records	81.2 (69.1-93.3)		67.4 (57.1-77.7)	
Governance (%)				
Separate, or external, management structure	13.1 (2.2-24.0)		9.1 (5.2-13.0)	
Patient representation in management	6.8 (0-15.6)		2.0 (1.2-2.7)	
Legal practice structure (%)				
Sole trader	33.5 (12.2-54.8)		35.5 (24.6-46.3)	
Partnership	18.7 (5.5-31.8)		24.2 (15.8-32.7)	
Community trust	9.0 (0-20.4)		0.5 (0-1.0)	
Incorporated society	5.2 (0-13.1)		1.8 (0.8-2.7)	
Limited liability company	29.5 (10.5-48.5)		18.0 (10.2-25.7)	
Practice needs (%)				
Formal community needs assessment	26.0 (7.8-44.2)		18.1 (9.2-27.0)	
Quality management				
Written policy on complaints	62.3 (42.9-81.7)		59.2 (49.0-69.4)	
Written policy for quality management	31.6 (12.8-50.5)		30.0 (20.2-39.7)	
Standard fees (mean \$)	Card‡	No card	Card	No card
Adult (18 years and over)	18.98 (17.75- 20.22)¶	35.25 (33.89- 36.61)¶	23.19 (22.57- 23.82)¶	38.61 (37.46- 39.77)¶
Funding regime (%)				
Capitated	35.1 (15.2-55.1)		25.5 (18.4-32.7)	
Budget holding	11.2 (0-26.0)		20.0 (11.0-29.1)	

*Practice's rural ranking score ≥ 35 ; †.Percentages, means and 95% confidence intervals have been appropriately adjusted to account for sample design. Missing data have been excluded from calculations; ‡Combines both High User and Community Services Cards; ¶Significant difference between Rural and Non-rural practices.

Table 1 compares practice characteristics between rural and non-rural locations. The mean number of full-time equivalent doctors and adult patient fees were significantly

lower at rural practices. Other differences between rural and non-rural practices were not statistically significant. The mean number of hours open per week was similar between rural and non-rural practices, but rural venues provided more scheduled evening surgery hours and fewer hours at weekends.

Rural practices offered more of almost all the services listed in Table 1, including doctors providing maternity care, complementary health, group health promotion, and community worker services. Computerised patient records were especially common at rural practices (81.2% versus 67.4%).

In relation to governance, external management structure and patient representation in management were uncommon at both settings, particularly urban practices. The legal structure of most practices regardless of location was as a sole trader business. Rural practices undertook more formal needs assessment than their non-rural counterparts. Formal complaints policies were relatively common at both rural and non-rural practices (62.3 and 59.2% respectively), but few (31.6% and 30%) had written policy for quality management. More rural practices were capitated, but fewer were budget-holding practices.

Participating rural GPs were significantly more likely to have graduated overseas than their non-urban colleagues. No other comparisons between practitioners were statistically significant.

Rural and non-rural GPs were predominantly male, on average they were 45 years old and had been in practice for an average of about 15 years. (Table 2). On average, rural GPs had been at their current practice for a slightly shorter duration (8.8 versus 11.4 years). Fewer rural participants were members of the RNZCGP (63.2% versus 81.8%) or the NZMA (44.8% versus 54.1%).

Rural participants worked on average more half-days per week (8.2 versus 7.7) and they also saw more patients per week (on average 117 versus 99 patients).

The distribution of visits by people in the various age groups was similar between rural and non-rural practices (Table 3). However, rural providers had significantly more patients from deprived areas (NZDep01 1-3: 17.2% versus 32.4%), more Māori (20.2% versus 10.1%), but fewer Pacific Islanders and fewer were judged to have language difficulties (only 1.2% were not fluent in English).

The visiting profile of patients was the same (Table 4); that is, the proportion new to the practice, or the doctor, and the average number of previous visits over the last 12 months, were all similar. Most visits at either rural or non-rural practices (86.0% and 89.3%) were financed by the patient with or without general medical benefit subsidisation (GMS).

Visits funded by the Accident Compensation Corporation (ACC) were significantly more common at rural practices (11.8% compared to 8.3% at non-rural practices). The pattern of urgency for visits was also similar between locales. Mean consultation length was marginally shorter at rural practices (14.0 compared to 15.2 minutes).

Table 2. Practitioner characteristics

Practitioner characteristic	Rural* (n = 47)	Non-rural (n = 197)
	Percent (95% CI) †	Percent (95% CI) †
Gender %		
Female	36.8 (20.6-53.0)	38.5 (29.8-47.1)
Male	63.2 (47.0-79.4)	61.5 (52.9-70.2)
(n)	(47)	(197)
Age %		
Mean	44.8 years (41.5-48.1)	45.2 years (43.6-46.7)
(n)	(46)	(195)
Years in practice %		
Mean	14.4 years (11.6-17.2)	15.7 years (14.2-17.2)
(n)	(47)	(195)
Years this practice %		
Mean	8.8 years (6.1-11.6)	11.4 years (9.9-13.0)
(n)	(46)	(194)
Place of graduation %		
NZ	43.6 (27.2-60.1) ‡	70.7 (62.6-78.8) ‡
(n)	(47)	(197)
% RNZCGP	63.2 (46.2-80.1)	81.8 (74.7-89.0)
(n)	(46)	(182)
% NZMA	44.8 (27.6-62.0)	54.1 (45.2-63.0)
(n)	(46)	(190)
Mean daytime patients/week	117.2 (105.3-129.1)	99.0 (90.0-107.9)
(n)	(47)	(196)
Mean half-days /week	8.2 (7.7-8.7)	7.7 (7.3-8.2)
(n)	(47)	(197)
Mean daytime patients per half-day	14.4 (13.2-15.5)	12.6 (11.8-13.5)

*Practice's rural ranking score ≥ 35 ; †Percentages, means and 95% confidence intervals have been appropriately adjusted to account for sample design. Missing data have been excluded from calculations; ‡Significant difference between Rural and Non-rural practices.

Table 3. Patient characteristics

Variables	Rural * (n=8686 Logs)			Non-rural (n=31991 Logs)		
	% (95% CI) †			% (95% CI) †		
Age groups	Male	Female	Total	Male	Female	Total
<25	37.5 (34.9-40.0)	30.6 (28.2-32.9)	33.5 (31.4-35.6)	36.5 (33.3-39.6)	28.9 (26.6-31.3)	32.0 (29.6-34.4)
25-64	42.3 (40.4-44.2)	46.1 (43.6-48.6)	44.4 (42.7-46.2)	42.5 (40.1-44.8)	47.7 (45.7-49.8)	45.6 (43.9-47.2)
≥65	20.2 (18.3-22.2)	23.3 (20.7-25.9)	22.0 (20.0-24.1)	21.1 (18.6-23.6)	23.3 (20.5-26.2)	22.4 (19.8-25.0)
Ethnicity ‡						
NZ European	75.6 (69.0-82.3)			74.9 (69.9-79.9)		
Māori	20.2 (14.0-26.4)§			10.1 (8.1-12.0)§		
Pacific Islander	0.7 (0.4-1.0)§			4.9 (1.3-8.6)§		
Other	3.5 (2.5-4.4)§			10.1 (8.3-12.0)§		
Card status						
No card	46.7 (42.4-51.0)			53.7 (50.8-56.5)		
Any Card (Community Services /High User)	53.3 (49.0-57.6)			46.3 (43.5-49.2)		
	Rural (n=1943 Visits)			Non-rural (n=7287 Visits)		
NZDep01 deciles ¶						
1-3	17.1 (11.9-22.4)§			32.4 (28.6-36.2)§		
4-7	43.6 (38.3-48.9)			38.7 (35.7-41.8)		
8-10	39.3 (30.2-48.5)			28.9 (23.9-33.9)		
Not fluent in English						
%	1.2 (0.6-1.9)§			4.9 (3.2-6.5)§		

*Practice's rural ranking score ≥35; †Percentages, means and 95% confidence intervals shown in all tables have been appropriately adjusted to account for sample design. Missing data have been excluded from calculations; ‡Ethnicity was self-reported, with multiple categories allowed. One ethnic category was then assigned per patient according to prioritisation of Māori and Pacific peoples. NZ Deprivation decile is a measure of deprivation based on the area of residence; §Significant difference between Rural and Non-rural practices.

Practitioners were asked to record up to four reasons for each visit using, wherever possible, the patient's own words. Problems were determined by the practitioners. Non-rural patients had slightly more reasons-for-visit or problems per 100 attendances than patients at rural locations but neither difference was statistically significant.

Respiratory problems were the most common problem during daytime at both rural and non-rural practices and accounted for 23.4 and 22.8% of visits, at each location (Table 5). Injury was a significantly more frequent problem among patients at rural practices compared with those in non-rural areas.

Table 4. The visiting profile of patients

	Rural (n=1943 Visits)	Non-rural (n=7287 Visits)
Relationship to practice/doctor		
% new to practice	7.6 (5.9-9.4)	7.5 (6.2-8.7)
% new to doctor	10.9 (8.4-13.3)	12.9 (10.8-15.0)
Number of previous visits over last 12 months (includes current visit)		
Mean	6.5 (5.7-7.4)	6.6 (6.2-7.1)
Source of payment*		
% visits cash/GMS	86.0 (84.1-87.6)	89.3 (88.0-90.7)
% visits ACC payment	11.8 (10.2-13.6)§	8.3 (7.0-9.5)§
% visits maternity care	2.2 (1.2-3.2)	2.4 (1.6-3.2)
Consultation length		
Mean duration (min.)	14.0 (13.0-14.8)	15.2 (14.5-15.9)
Urgency (patient)		
ASAP (%)	5.9 (3.4-8.4)	4.9 (3.5-6.4)
Today (%)	32.2 (26.9-37.4)	32.8 (28.7-36.8)
This week (%)	44.1 (40.8-47.5)	43.4 (40.4-46.5)
This month (%)	17.9 (12.4-23.2)	18.9 (16.2-21.5)
No. of Reasons for visit †		
All (per 100 visits)	134 (126-142)	144 (139-150)
No. of Problems ‡		
All (per 100 visits)	161 (149-172)	169 (161-178)

*Categories are mutually exclusive, with maternity or ACC taking precedence over cash/GMS where more than one is cited; †Up to 4 reasons could be recorded per visit; ‡Up to 4 problems could be recorded per visit; §Significant difference between Rural and Non-rural practices.

Overall, rural GPs ordered significantly fewer tests and investigations compared to their non-rural counterparts. Laboratory tests were less frequently requested at rural practices while imaging tests, and other investigations (such as spirometry and ECG tests) were ordered at comparable rates to urban practices.

Rural and non-rural practices were similar in relation to the proportion of problems or visits that were associated with prescription or other treatment items.

Follow-up and referral rates were also comparable at both settings.

Table 5. Problems managed, tests ordered and follow-up

	Rural (n = 1957)	Non-rural (n = 7315)
Problems managed (% of visits)		
Respiratory	23.4 (20.3-26.6)	22.8 (21.0-24.5)
Actions	15.0 (12.8-17.4)	17.5 (15.8-19.3)
Injury/poisoning	14.4 (12.5-16.3)‡	10.8 (9.7-12.0)‡
Nervous system / sense organs	12.4 (10.8-13.6)	13.4 (12.3-14.5)
Cardiovascular/circulatory	12.6 (10.6-14.6)	14.0 (12.3-15.7)
Test or investigation ordering		
Any laboratory test (%)	12.8 (10.7-14.6)‡	18.4 (16.6-20.2)‡
Imaging(%)	4.4 (3.0-5.8)	4.0 (3.4-4.7)
Other test (%)	7.4 (5.3-9.5)	8.5 (7.0-9.9)
Overall any test or investigation (%)	21.0 (18.1-23.6)‡	25.9 (23.7-28.1)‡
Treatment modality		
Prescriptions items per 100 visits *	126 (112-139)	130 (122-139)
Prescription items per 100 problems †	78 (70-86)	77 (72-82)
Other treatment items per 100 visits *	102 (81-122)	118 (104-131)
Other treatment items per 100 problems †	63 (53-74)	70 (63-76)
Disposition ††		
Follow-up within 3 months	52.3 (47.4-56.8)	58.6 (55.1-62.1)
Referred on	15.6 (12.7-18.7)	15.9 (14.7-17.1)

*Any number of prescription or other treatment items could be recorded; †Up to 4 problems could be recorded per visit; †† Follow-up and referral are not mutually exclusive; ‡ Significant difference between Rural and Non-rural practices.

Discussion

The National Primary Medical Care survey provides the most comprehensive and representative sample of the character of rural and non-rural office practice during usual working hours ever conducted in New Zealand. The key impression is that there was a broadly similar pattern of practice and practitioner characteristics as well as a presentation of patient problems across locale during daytime in 2001/2.

Few significant differences between practices and GPs were noted, although rural practices were staffed by significantly fewer GPs and charged lower fees. Rural GPs were more likely to have graduated overseas. Patient characteristics were also similar although patients at rural practices were more likely to be Māori, reside in a lower decile area and be fluent in English. The visiting profile of the patients were similar at each locale although more visits were related to injury at rural areas and were funded by the ACC.

Finally it also appears that rural practitioners generally allocated similar treatment, follow-up and referral services as their urban colleagues except they less frequently arranged laboratory tests and investigations for patients.

A limitation of the survey is the absence of any data about after-hours work or emergency call-outs. The greater burden of these activities, especially for rural practitioners, have been associated with a considerable amount of additional stress for the rural workforce.⁹ The survey also does not provide detailed information about the relative complexity of some presentations. For example, the greater number of

injuries managed in rural practice may sometimes include the provision of X-ray and plaster services on-site.

READ codes provide some ability to accommodate symptoms that may not have a recognisable pathological basis but are limited in their ability to portray the complexity of the decision making processes needed to identify different forms of psychological and physical ill-health in primary care. Changes in primary care since 2002 may also limit the applicability of the data to current practice. For example, since NatMedCa was undertaken many primary care organisations have significantly increased the computerisation of their practices and done much to facilitate patient enrolment.¹⁰

There is a major problem in New Zealand associated with the ongoing dearth of any reliable data about the morbidity encountered in primary care. In contrast with New Zealand, extensive work has been undertaken in other Western countries such as Australia¹¹ and the United States¹² where databases detailing patient encounters in primary care have been maintained for a number of years.

Comparisons between rural and non-rural general practice in these countries have generally obtained results broadly consistent with those documented by NatMedCa. They have described a similar pattern of slightly longer working hours and more patient visits at rural compared to urban practices, relatively higher rates of injuries treated at rural practices and a lower number of visits by patients with mental illnesses.^{13,14} Elsewhere these databases have provided important information to assist workforce planning¹⁵, promote service development¹⁶, and support quality improvement.¹⁷

The 2005 New Zealand Health Information Strategy¹⁸ signals the electronic collection of national primary care data as an 'action zone' priority for the next five years. The results from NatMedCa provide a unique insight into the information that could be available from a National Minimum Dataset in primary care. Although the creation of such a dataset must first overcome a number of problems related to resources and the compatibility of both software and hardware the benefits of these data for health services planning, funding, and delivery make this work a continuing imperative.⁷

Future work should also aim to more fully describe the workload of rural and non-rural practitioners particularly by capturing more information about the complexity of patient care and the burden imposed by other communication outside of the consultation including telephone calls and administrative work as well as the requirements for being on-call and providing after hours care.

Competing interests: None.

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Profound hypokalaemia secondary to a large rectosigmoid villous tumour

Steve Kelly, Peter Lee, Greg Robertson

Villous adenomas causing secretory diarrhoea and hypokalaemia are known as the McKittrick Wheelock syndrome after it was first described in 1954.¹ We report a case of this uncommon syndrome and review the literature on the possible mechanisms.

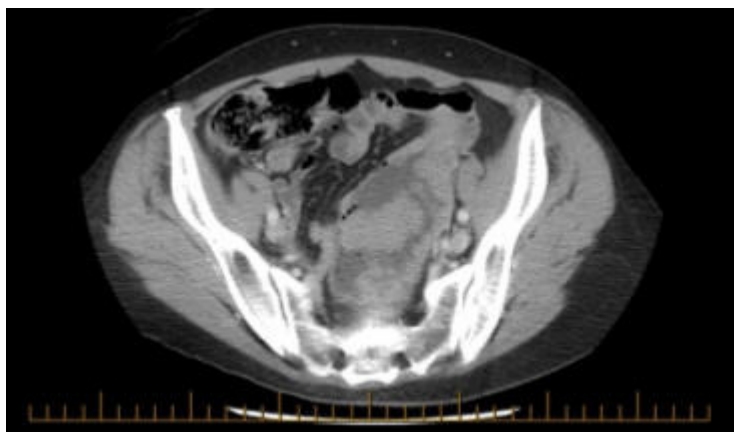
Case report

A 60-year-old female was admitted acutely on three occasions with mucinous diarrhoea, nausea, and malaise. She had no abdominal pain or weight loss. Clinically she was dehydrated, but her vital observations, abdominal and per rectal examination were normal.

On each admission the potassium was found to be low with acute renal failure (on the first admission the potassium was 1.9 mmol/L (normal 3.5–5 mmol/L) and creatinine 0.45 mmol/L (normal 0.03–0.12 mmol/L)). Serum sodium and protein concentrations were normal. Following potassium and fluid replacement the patient felt much better and was discharged home with a presumptive diagnosis of infective gastroenteritis.

On the third admission to hospital with the same clinical picture a CT scan of the abdomen and pelvis was obtained as the previously collected faecal specimens had failed to reveal an infective cause. The CT showed a large villous tumour centred on the rectosigmoid junction (Figure 1). There was no evidence of metastatic disease.

Figure 1. CT scan showing large villous tumour of the rectosigmoid



At this time the patient was referred to the colorectal service. A colonoscopy confirmed the presence of a large villous tumour carpeting the rectum and distal sigmoid colon. The tumour involved up to three quarters of the circumference of the

bowel and extended over 20 cm. No other colonic lesions were identified. Biopsies of the rectosigmoid tumour showed villous adenoma with low grade dysplasia.

An elective low anterior resection with defunctioning loop ileostomy was performed. The patient made an uncomplicated postoperative recovery. At the 6-week follow-up, the serum potassium was normal without the need for oral potassium supplementation. The formal histological assessment confirmed a 15 × 18 cm rectosigmoid villous adenoma with high grade dysplasia. There were microscopically abundant goblet cells and mucin production.

Discussion

The McKittrick Wheelock syndrome classically describes secretory diarrhoea associated with a depleting syndrome of dehydration, acute renal failure, hyponatraemia, hypokalaemia, and hypoproteinaemia. The syndrome is rare with approximately 46 cases reported in the literature. Hypokalaemia is uncommon in association with rectal villous lesions and was present in only one case in a series of 104.²

Secretory villous adenomas differ from nonsecretory adenomas on light microscopic and ultrastructural examination. In nonsecretory villous adenoma, mucin secretion is decreased and goblet cells are normal or decreased in number. However in secretory villous adenomas there is an increase in mucin production with prominent, mucin-filled goblet cells as was evident in our case.

Many of the case reports of McKittrick Wheelock syndrome describe very large villous adenomas or adenocarcinomas of the rectum.⁴ There is a general paucity of cases affecting the more proximal colon.³ The theoretical explanation for this is that the more distal and larger the lesion, the more likely the bowel is unable to subsequently absorb the large secretory output of the tumour.

A proposed pathophysiological mechanism was suggested by Jacob et al.⁵ They found that in a patient with a secretory villous adenoma that there was increased adenylate cyclase activity compared to patients with non secretory tumours. This suggested a situation similar to that seen with cholera toxin-induced diarrhoea. In a study by Steven et al, they found that in a patient with a secretory villous adenoma of the rectum the stool levels of prostaglandin E2 (PGE2) were high, compared to patients with gastroenteritis, who had low levels of PGE2.⁶

Following the administration of indomethacin to the patient with the secretory rectal villous adenoma, the stool concentration of PGE2 markedly decreased as did the patient's stool volume which went from 1800 ml per day to 850 ml per day. There was a similar decrease in the stool sodium excretion.

When the indomethacin was stopped, the stool PGE2, sodium, and volume once again increased. The authors concluded that PGE2 formation in the secretory villous adenoma epithelium was the cause of the increased fluid secretion.

This study suggests that the use of prostaglandin synthetase inhibitors can be used to reduce the stool output in patients with secretory distal tumours. However caution should be exercised with this treatment when the patient has dehydration and renal failure.

In conclusion we present a case of an uncommon syndrome in which some of the pathophysiological mechanisms have been explained. Although indomethacin may be used as a bridge to surgical resection, these patients are prone to renal failure due to dehydration. Our preference would be for fluid and electrolyte replacement with early recourse to definitive surgery.

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Efficacy of steroids in preventing cutaneous heparin-related allergic reactions in patients requiring anticoagulation

Rosita Caponetti, Gianpiero Gravante, Tania Caponetti, Patrizio Aloisio, Aldo Fierro

Heparin is a widely-prescribed drug used as an anticoagulant in the prophylaxis and treatment of thromboembolic vascular events. Its most important adverse effect is immune-based-thrombocytopenia.¹ However allergic reactions, mostly cutaneous, have been described.²⁻⁴ These may occur as an urticarial rash (presumably due to a local release of histamine), type I hypersensitivity reaction, present as skin necrosis due to vasculitis (type III Arthus reaction), or a well-circumscribed lesion without necrosis (delayed type IV hypersensitivity reaction). If the diagnosis is missed, fatal outcomes have been described especially in patients who also developed a white clot syndrome related to heparin-induced thrombocytopenia.

In cases of allergic reactions, authors recommend patients shift to oral anticoagulants. Although theoretically possible, in many cases this is not possible because the patient is unable to swallow or has difficult venous access that render difficult serial INR dosing.

We describe the case of a female oncologic patient who developed diffuse pruritis and cutaneous rash to heparin only after steroids discontinuation.

Case report

A 92-year-old woman was diagnosed with an ovarian cancer after 1 month of unremitting fever (37.5–38.5°C) and an episode of painless vaginal bleeding. CA-125 was 147 U/ml and transvaginal ultrasound found a pelvic mass, probably adnexal in origin (May 2006). Final diagnosis and clinical staging were performed with CT scan (stage IIIC ovarian cancer) that also found a right thrombotic occlusion of the femoral vein.

The patient began chemotherapy with carboplatin AUC=2 (area under the curve = 2 mg/ml x min) weekly, anticoagulation with enoxaparin (4000 international units twice daily—1.1 mg/kg) and steroids (betamethasone 0.25 mg daily) for fever control. Two days later the fever disappeared. After 2 months of chemotherapy, CA-125 was 47 U/ml and CT imaging showed a 25% decrease of the tumour mass and a complete disappearance of the thrombus. Steroids therapy was interrupted and enoxaparin reduced to prophylaxis dosage (4000 IU daily).

One hour after the first dose of heparin without concomitant steroids, the patient developed a diffuse rash with generalised pruritus that lasted for 6 hours. This phenomenon manifested for 3 consecutive days and disappeared with the complete discontinuation of heparin. The patient proceeded with her fourth chemotherapy cycle without further problem.

Discussion

Multiple cases of heparin hypersensitivity reactions have been described.^{5–10} They usually occur after few days from the heparin administration and manifest as infiltrated erythemas, eczematous plaques, partial or generalised measles-like eruptions, or eczematous dermatitis.^{5–10} These reactions spontaneously resolve after the heparin discontinuation.

Our patient was a classic case of cutaneous reaction to heparin due to the drug-reaction temporal relationship and the similarity of the response until heparin withdrawal. Referred symptoms and present signs were highly suspicious for a type I hypersensitivity. Furthermore, the late appearance of the allergy (after 2 months of treatment) and the fact that it manifested only when steroids were discontinued, lead us to believe that the immunosuppressive activity of betamethasone initially eliminated the hypersensitivity reaction.

This opens new fields of applications. In our case, the effect of steroids, that prevented heparin's cutaneous reaction, was unpredicted but beneficial. Patients that prove allergic to heparin and require long-term anticoagulant therapy can benefit from low-dose steroids to prevent unwanted allergic reactions without the need to change anticoagulant modality. For example, allergic patients that are not able to swallow (inability to assume oral anticoagulants) or those with problems of venous access (INR dosing difficult) could be candidates. Further randomised studies are necessary to validate this hypothesis and confirm its utility.

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Issues in implementing a *real* competency-based training and assessment system

Kathleen Callaghan, Graham Hunt, John Windsor

Abstract

“First, do no harm” is a medical admonition; but harm does occur. There is thus mounting pressure for Medicine to adopt more rigorous systems to ensure professional competency. Traditionally, medical education and professional development has focussed on developing clinical expertise and technical skills within each speciality. Recent studies into the causes of adverse events have highlighted that the failure of non-technical aspects of competency are more common than the failure of technical skills amongst health professionals. Traditional training has also focussed on the individual and yet error management strategies in organisations that require high reliability processes for maintaining safe practice puts the emphasis on the team.

It is our contention that the delivery of safe patient care requires a redefinition of professional competency—in terms of the interface between members of the team, patients and the organisational and social requirements of the health system. A change to competency-based training and assessment will require a team-orientated definition of professional competency that may challenge individual professionals and the sovereignty of medical specialities.

As firm believers in competency-based training and assessment, we applaud the Minister of Health’s recently publicly released plans for medical training.¹ Competency-based training and assessment raises several issues which are not obvious in the two reports released by the Minister^{2,3} but which must be addressed if progress is to be made.

The way in which healthcare professionals, and medical doctors in particular, are trained is becoming strained for a number of reasons. Emerging research in New Zealand,⁴ and worldwide,^{5,6} has highlighted the prevalence of human error in medical practice. There are many factors that increase the risk of error, and these include the increasing complexity of medical and surgical therapies, the trend to super-specialisation, and the reduction in junior doctor hours leading to reduced continuity of care and training experience. Demographic factors include the aging and immigrant populations.

In response to these trends there is an increasing acceptance of the need to take a “systems” approach to threat and error management,^{7,8} Key to this discussion is the definition of ‘competency’, which we consider is the sum of cognitive, aptitude, attitudinal, and manipulative skills⁹ that can be demonstrated in defined medical task-related contexts.^{10–11}

Competencies can be assessed in terms of the contribution they may make to the quality of individual and team intervention in patient health and care. Our definition facilitates two outcomes. The first is a broad ‘real-world’ platform from which to

consider both the technical and non-technical¹² aspects of individual and team performance. The second provides the basis for developing tools to measure competency and from which credentialing and training systems can be constructed and validated.¹³

There have been several recent attempts at specifying “core competencies”^{14,15} and many based on the analysis undertaken by The Royal College of Physicians and Surgeons of Canada's Canadian Medical Education Directions for Specialists 2000 Project (CanMeds).¹⁶ Unfortunately, many contemporary analyses over-simplify professional competency and the dynamic inter-relationship between technical and non-technical skills.

First, professional competency needs to be identified in the context of the multidisciplinary team environment rather than within each specialist group. Second, the elements of professional competency need to be assessed across the entire breadth of health profession activities. As an example, it is necessary in Surgery to identify the range of competencies that may be required from the first encounter with the patient, through assessment and investigation, the operation and recovery, convalescence and follow-up until discharge.

While there are a set of technical competencies required during each phase of patient care, it is clear that many of the non-technical skills are generic. For example all health care professionals require good communication skills¹⁷ but within this there are levels of complexity that vary with the phase of care and who is responsible. Taking communication as an example, this means that ‘communication’ cannot be defined as a single entity.

An effective and efficient psychiatrist will require different communication skills to those of an effective and efficient trauma surgeon (accepting, as above, that different modes of communication will be necessarily dependent on the circumstances at the time of the communication). Precise specification of each competency is complex and time consuming, and a task still to be undertaken in Medicine. In other contexts competencies have been carefully defined through the use of cognitive task analysis methods¹⁸ and used to develop curriculum and licensing prescriptions¹⁹.

In a competency-based system there are difficult decisions that will have to be made (explicitly and transparently) during selection and training. The following exemplifies the type of issues that we believe should be debated by *all* stakeholders in the decision-making process.

The relationship between skill acquisition and aptitude is important to consider in developing competency based training. In other contexts aptitudes have been defined as any learner characteristic which might have relevance to a learning outcome²⁰. A surgeon has to have the ability to visualise three dimensional anatomy that is displayed in two dimensions in laparoscopic surgery. Is this ability purely based on skill acquisition, or is this ability somehow augmented by a visualising aptitude? We would argue that the acquisition of these aptitudes is very different from the acquisition of cognitive or manipulative skills. Differential points along an aptitude continuum are likely to have significant consequences for the kind and amount of training and practice required to achieve a competency standard. Even if we were to accept the view that we can train anyone to do anything, the evidence is clear that for many tasks, those individuals with lower levels of spatial awareness, for example,

may take significantly longer to train and may perform less well than those with higher levels of that aptitude.

Aviation is an industry committed to competency-based certification and training. The quality of the pilot selection processes is an integral part of their competency-based system. Both military and airline selection systems invariably include measures of candidate spatial awareness. Both systems recognise that if their applicants fall below a nominated standard in this domain, the chances of the candidate successfully completing training within the time and financial constraints will be significantly reduced. Increasingly, organizations that select candidates to work in these complex systems recognise that as well as traditional selection indices such as IQ and educational achievement, predictors of individual and team performance are critical to the success of the initial phases of training which follow, and the ongoing demonstration of professional competency. These organizations want to know *prior* to selecting their candidates, how good they are in simulated tasks such as those which emphasise situational awareness, stress tolerance and in managing attentional abilities^{21, 22}. Added to these components, they want to see the demonstration of a high level of aptitude across a range of social attributes which are equally critical to effective interpersonal and intra team performance.^{23,24}

What are the implications of competency based training and assessment on the selection of candidates for speciality training in the health care professions? Should there be testing of relevant attitudes and aptitudes prior to selection for post-graduate training? Or should we select prior to undergraduate training for a wider array of attitudes and aptitudes which would then be integrated and progressively monitored throughout undergraduate training to ensure a differentiated output of doctors based on society's needs. If we test, will those with low measures be excluded from entering training and/or will we set a time frame for the acquisition of skills and competency? When there is a failure to meet a required standard will they be excluded from further training? What about those with an uneven distribution of core competencies? Will we 'fail' those who demonstrate high performance in many but not all essential skills, as for example a highly competent technical surgeon with poor communication skills?

It should be noted that the move to a competency-based model does not just mean the re-labelling of the knowledge, skill and time elements of a curriculum or qualification requirement. It is a truly holistic process which starts by asking some fundamental questions such as 'what are the patient outcomes that society expects us to deliver?' and 'what are the professional competencies required to ensure that these outcomes are achieved?'

From this information it should be possible to design competency specifications that identify the abilities and attitudes that are required for selection and those that can be developed through training, practice and experience. The competency specifications can also be used to provide the basis for the objective assessment and maintenance of competencies periodically through the active career of a health professional.

Setting a timeframe for the acquisition of competency is predicated on a system that has 'competent' trainers and assessors who can deliver services in the time frame required. It also assumes that learners have access to instructional resources, including simulation and part-task training devices that have been developed and specifically validated as tools for learning.

A practical challenge with the introduction of competency based training is that the tools to assess competency on the scale and with the detail required to re-engineer medical training are in their infancy. The management of the learners and resources in the learning process is just one of the many components to a successful competency-based system.

We accept that change will be required to the way that New Zealand trains and maintains a competent medical workforce. But any change to the old and tired apprenticeship model will have significant cost implications to the resource constrained Health and Education sectors. Whether there is an untapped capacity in the private sector to help address these challenges has yet to be determined.

We reiterate our support for the proposed move to a competency-based system of medical training and assessment. However, we believe that the real issue that needs to be addressed is whether there will be sufficient commitment to ensure that this plan is not just another governmental initiative that will distract resources, re-label existing practice, and deflect us from the desired outcomes of establishing more efficient training, creating a highly competent medical work force and achieving high quality safe outcomes for patients throughout the country.

There needs to be further debate as to the best way forward and a willingness to invest in the costs of this change. It will require a multidisciplinary approach with not only the input of health professionals but also human factors specialists, educationalists and other social scientists.

Competing interests: None.

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Presidential Address: Public Health Department

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The Public Health Department admirably organised by Dr J. M. Mason, and with a Cabinet Minister at its head, supplies a medical service of the highest value.

Plague and smallpox are kept at bay—war against the white plague, tuberculosis, is energetically waged, virulent epidemic disease like typhoid and diphtheria is tracked to its source, sanatoria and infectious disease hospitals are being established in various parts of the colony, though not so rapidly as we all could wish, the milk and other food supplies are supervised, arrangements are been made for the periodical medical inspection of school children, and in a score of other ways, the Public Health Department is safeguarding the welfare of the people.

In New Zealand for the ten years ending December, 1905, there were 1141 cases of hydatid disease in man, with 136 deaths, a mortality rate of about 12%. This shows the disease in New Zealand is a common and a dangerous one. The provincial statistics further show that in Otago the disease is far more prevalent than in any other part of the colony—an unenviable distinction for Otago.

For the five years ending 1900, there were 46 cases in New Zealand, and for the five years ending 1905, there was 715 cases, showing that the disease is increasing alarmingly. Out of the 715 cases, only 65 were fatal—a drop in the mortality rate from 17% to 9%, showing that modern methods of dealing with hydatid disease have lowered the death rate by nearly one half.

The victims of hydatid disease are chiefly vigorous young adults whose occupation brings them into more or less close association with sheep-dogs, and who are careless as to the water they drink. The disease even when successfully dealt with by surgical means, necessitates a long period of enforced idleness, so that apart from the mortality, the colony is a heavy loser, in as much as a considerable number of its most active inhabitants are annually incapacitated for a long period.

Coming to the occurrence of hydatid disease in animals, I really feel somewhat dubious about the propriety of making a public deliverance of the actual facts, for fear of creating anything approaching a scare. I must ask the representatives of the press to exercise their usual tact and courtesy in dealing with this aspect of the hydatid question. We, as medical men, know that hydatid disease cannot be conveyed to human beings as the result of eating the flesh of the sheep, ox or rabbit.

We know that human infection takes place through the medium of the ova of the parasite which is passed in the faeces of the dog. But the general public New Zealand do not know this, nor do the buyers of New Zealand meat exported to other countries.

I think if it were generally known, that of the fully grown carcasses slaughtered and medically passed as fit for food, more than 50% were affected with hydatid disease, it might create a very uneasy and damaging impression amongst local consumers, and might prejudicially affect one of the leading export industries in New Zealand.



Advanced oesophageal cancer complicated with tracheoesophageal fistula and aspiration pneumonia

Sheng-Hsiang Lin, Tsu-Tuan Wu

A 62-year-old man presented with cough and shortness of breath of 2 weeks' and dysphagia of 1 month's duration. Vital signs included a blood pressure of 136/84 mmHg, a pulse of 120 beats/min, respirations of 34 breaths/min. and a core temperature of 36.5°C.

Physical examination revealed bilateral low lung crackles on auscultation and use of accessory respiratory muscles. An arterial blood sample had a pH 7.44, PO₂ 51 mmHg, PCO₂ 31 mmHg, and HCO₃ 20 mmol/L.

An anteroposterior chest radiograph (Figure 1) demonstrated bilateral reticular-nodular infiltrates and an abnormal air column in the mediastinum (arrows). Oesophagoscopy revealed an ulcerative polypoidal mass with whole circumference involvement and severe stenosis at 20 cm below the incisors.

Figure 1. Chest radiograph showing bilateral reticular-nodular infiltrates and an abnormal air column in mediastinum (arrows)

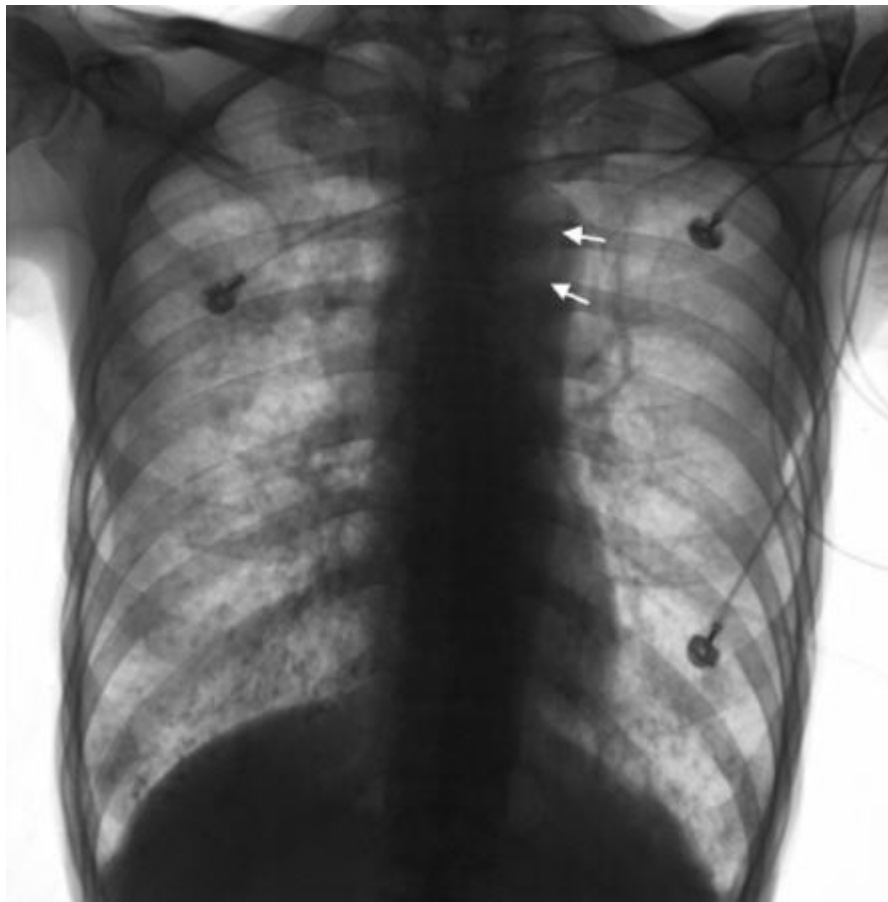


Figure 2. Chest computed tomography showing mid-oesophageal tumour with a fistulous tract to large airway near carina (arrow). T: trachea; E: (o)esophagus



The histopathological diagnosis was moderately differentiated squamous cell carcinoma. Contrast computed tomography (CT) of the chest (Figure 2) showed a mid-oesophageal tumour with a fistulous tract to a large airway near the carina (arrow) and multiple mediastinal lymphadenopathy. CT of the chest with lung windows showed consolidation of dependent areas, compatible with the features of aspiration pneumonia.

Non-invasive positive pressure ventilation and a simple oxygen mask were used alternatively to treat the severe respiratory distress with fatigue of the respiratory muscles. Total parenteral nutrition (TPN) was ordered to avoid further food aspiration. Without endotracheal intubation, the pneumonia resolved gradually under antibiotic treatment and he received a gastrostomy for enteral feeding.

Discussion

The biggest risk with tracheoesophageal fistula is the progression of aspiration pneumonia to respiratory failure during oral intake. There may be only obscure hints on a chest radiograph and it is not always identified by oesophagoscopy. In patients with aspiration pneumonia and an oesophageal lesion, a CT scan is needed to detect tracheoesophageal fistula in certain circumstances.¹

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Mammographic screening from age 40 years—beneficial or harmful?

Screening women from age 50 years by mammography has been shown in randomised controlled trials to reduce mortality from breast cancer by around 25% in those offered screening.

So it should be good for women in the 40–49 year age group. Is it? This paper reports a trial in the UK involving 160,921 women aged 39–41 who were randomly assigned in the ratio 1:2 to an intervention group of annual mammography to age 48 years or to a control group of usual medical care.

At a mean follow-up of 10.7 years there was a reduction in breast-cancer mortality in the intervention group, in relative and absolute terms, which did not reach statistical significance (relative risk 0.83; $p=0.11$).

So, good for those who benefited, but what about the rest? A thoughtful accompanying editorial discusses the downside. False-negative screens might lead to inappropriate reassurance and delays in diagnosis, whereas false positives might result in unnecessary biopsies and additional imaging studies.

However, the main harms associated with screening mammography relate to potential death from radiation-induced breast cancer—some 10–20 years later. So you wouldn't want to rush into it. A later follow-up report on these subjects would be useful.

Lancet 2006;368:2053–60 & 2035–7

Direct-to-consumer advertising of prescription medicines (DTCA-PM) in Australia—and elsewhere

We know that New Zealand (NZ) and the United States (US) allow DTCA-PM, but Australia does not.

Negotiations over the Australia-US Free Trade Agreement (FTA) and the trans-Tasman agreement with NZ have excited interest, and some in Australia believe they should allow DTCA-PM in order to align themselves with their trading partners.

This interesting paper says that they need not bother as Australia's ban on DTCA-PM is being sidestepped already. It is pointed out that the drug company websites advertise prescription medicines. Furthermore, spam email campaigns remain common in Australia and they often promote prescription drugs. And there are also the TV "infomercials". In the public (and their own) interest, drug companies frequently sponsor 'disease awareness campaigns'. In Australia, these include a new variety of late-night advertisement that typically combines an exhortation to the viewer to 'ask your doctor about new treatments'.

Very cunning. Methuselah recommends you read this paper if DTCA-PM is one of your interests.

Internal Medicine Journal 2007;37:224–8

Exercise and menstrual function

Amongst the myriad of joggers Methuselah and everyone else sees on the roads every day there seems to be an increasing number of young females. Presumably they indulge to keep the body fit (and beautiful). But is it beneficial and is there a downside?

Unfortunately there is some bad news. Secondary amenorrhoea occurs in up to 44% of women who exercise vigorously, compared with 2–5% of the general population. This may be associated with luteal phase deficiency, anovulation, oligomenorrhoea, and delayed menarche.

Probably the main underlying mechanism is hypothalamic inhibition with suppression of gonadotrophin releasing hormone pulsatility. The consequences can include musculoskeletal injuries (in particular stress fractures), infertility, and the general medical consequences of hypo-oestrogenism. Healthy?

BMJ 2007;334:164–5

Acute ischaemic stroke—is thrombolysis safe, effective, and practicable?

Enthusiasm for thrombolysis is strong amongst neurologists and other physicians who treat stroke patients. Others have been less keen because of the time constraints (viz the treatment needs to be done within 3 hours) and the fear of haemorrhagic complications. This report addresses these points.

6483 patients were recruited from 285 centres (50% with little previous experience in stroke thrombolysis) in 14 countries between 2002 and 2006 for this prospective, open, monitored, observational study. Primary outcomes were symptomatic intracerebral haemorrhage within 24 h and mortality at 3 months.

Alteplase, which is a recombinant tissue plasminogen activator, was the treatment used in this study and the authors concluded that intravenous alteplase is safe and effective in routine clinical use when used within 3 h of stroke onset, even by centres with little previous experience of thrombolytic therapy for acute stroke. The findings should encourage wider use of thrombolytic therapy for suitable patients treated in stroke centres.

A lot more work at the front-line but a better outcome for the patients. Or do the critics require a randomised placebo vs thrombolysis study?

Lancet 2007;369:275–82

Exacerbation of chronic obstructive pulmonary disease (COPD)—care needed with oxygen therapy

Moran Campbell, an eminent respiratory physician and physiologist, pointed out over 40 years ago that unrestricted oxygen administered to COPD patients with hypoxia and carbon dioxide retention could worsen their situation.

In this paper from the Royal Melbourne Hospital, 65 patients admitted via the emergency department had their management reviewed. This audit showed that 95% of patients defined as retaining carbon dioxide received oxygen at a flow rate greater than 2L/min. The process began in the ambulance and continued in the ED, often without monitoring of their arterial blood gases.

The conclusion was that this was slack and outside internationally recorded guidelines. They recommend liaising with ambulance services and emergency clinicians to improve their practise—seems to be a good idea.

Med J Aust 2007;186:235–8



Burns treatment in New Zealand: another response to Patricia Holborow's letter on saline baths for burns patients

A burn injury represents an injury to the largest organ to the human body and is associated with a release of a storm of inflammatory mediators responsible for multiple clinical effects. To this end, modern burn care has concentrated on minimising the release of inflammatory mediators via two strategies. First, via prevention programmes, and secondly, in promoting adequate first aid and early removal of the burn and 'closure' of the wound.

The author is absolutely correct about the need for the prompt removal of burnt and non-viable tissue.¹ Whereas in the past this was done via an autolytic process with time and regular dressing changes over months, today this is achieved surgically within the first few days of injury for full-thickness burns. Closure of the wound with the patient's own skin (preferably) or in combination with biosynthetics not only minimises the source of the inflammatory mediators (and thus fluid loss) but more importantly maximises healing, rehabilitation, and ultimately reintegration.

Whilst fluid loss through the skin represents one of the early manifestations of the inflammatory mediators, the effect on capillary permeability is more important. Loss of fluid out of the intravascular space into the interstitium cannot be replaced via external means. Without prompt intravenous support, the patient would die of 'burn shock'.

Finally, many of our large burns are intubated and require multiple invasive lines in keeping with a critical illness. The logistical and physical difficulties in caring for such a patient in an aquatic environment would be difficult indeed.

Nevertheless, perhaps in the future, the use of a fluid similar to amniotic fluid, into which we could suspend patients, may deliver the holy grail of 'scarless' regeneration.

Richard Wong She

Consultant Plastic & Reconstructive and Burn Surgeon and Clinical Leader for Burns
National Burn Centre, Middlemore Hospital
Auckland

Reference:

1. Holborow P, Fish J. Burns treatment—with a response from Middlemore Hospital's Burn Unit [letter]. N Z Med J. 2007;120(1253). <http://www.nzma.org.nz/journal/120-1252/2504>



Taxation of New Zealand doctors

In the election campaign leading up to the general election in 1999, the Labour Party gave a clear indication that it would raise taxes on higher incomes. At least one very prominent candidate expressed the pious hope, or expectation, that those fortunate people who were earning higher incomes would be willing to contribute a bit more to public spending on health, education, and social welfare. The projected tax hike was a lovely exciting promise, enthusiastically accepted by those who imagined that the increases would do them some good. Labour swept to victory. They wasted no time introducing a new tax rate of 39 cents in the dollars for all incomes over \$60,000.

This new tax would have caught almost all doctors working full-time even then, and the situation is worse now. Every resident doctor will be paying some tax at the top rate.

Historically there is no evidence that people cheerfully pay out more of their income in taxes. Increased taxation aggravates inflation, and we can see that. Only the most naïve will trust either government statistics on the annual rate of inflation, or the attempts of the Reserve Bank to deal with it.

Whilst we all understand that an ageing population pushes up costs, there are other pressures on the District Health Boards, and they can scarcely meet any of them. The strike by the resident doctors was an expensive failure, and the radiographers, having achieved nothing with their first strike, are, as I write this, planning another.

The commotion surrounding the cancellation of hospital waiting lists brought to light an incontrovertible fact. Far too many people are being referred to outpatients departments, when they should be seeing a specialist in private practice at least for their first assessment. People will seldom turn down a “freebie”, but they now face enormous vexations in trying to get it; if they are lucky enough to ever get it at all.

Why do they, or their GPs, bother with appointments in public hospitals? Because inflation has stripped them of their wealth, and because private specialist care is too dear for them.

Why is specialist care too dear? Because every specialist is paying a grossly excessive tax bill, and that is the biggest overheads item s/he has to meet.

This simple catechism shows us that the increased tax introduced by Labour has produced a result directly opposite to that hoped for. Economical private care has vanished and the Government is unable to supply the deficit. Much of the work in general practice is now delivered by part-time doctors who have no interest in earning anything over \$60,000 a year. They are not going to the country, and in town they have a two- or three-day working week. That suits them nicely, just so long as their patients don't need hospital attention.

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The first Grand Round presentation: an original poem

You'll recall it for years as something like a nightmare—
that first presentation at the hospital Grand Round...
You've digested the case notes, memorised the facts,
prepared your slides and read what the experts declare
on everything from Diogenes' syndrome to colonic polyposis,
hoping to be ready for the tricky questions the audience
will surely throw at you. Plus you're worried stiff
that you'll make a serious blunder, like calling osteoporosis
osteomalacia, thus allowing the distinguished visiting professor
to enhance your reputation as a complete and utter idiot.

So now, there you are, trapped behind the lectern:
your pulse rate's 165 and so is your systolic pressure,
your mouth is dry and you wish you were elsewhere—
even the hospital morgue would've been preferable to this—
as you look up at 300 white coats, not a friendly face
amongst them.

Audience cordially welcomed by the Chair
and you begin. In the top right hand corner, old Prof. Hay
is already nodding off, and you've only just started;
whilst in the middle on the left, doctors Smith and Jones
seem to be engaged in some verbal by-play *sotto voce*
and you wish they'd shut up. Then the laser pointer quits:
“Just my luck” (a voice in your head), but you soldier on
at least the projector hasn't given up the ghost—yet.

Somehow you stutter through your allotted ten minutes
gratefully collapsing whilst your chief dons the mantle
of wise man, regurgitating much of what you'd covered,
adding a few vaguely relevant anecdotes and personal opinions.
Then a couple of local experts engage in a furious wrangle
for several minutes over a number of obscure details
before the chairman intervenes and calls for questions.
Mercifully there's only one you cannot handle
so you turn it over to your chief, who half-heartedly flails
away at it for a bit.

Finally, the visiting professor
is asked to give his opinion, which he does, bamboozling
98.5 ± 2.6% of the audience with the complexities
of his speciality; deriving the greater from the lesser.

But half an hour has disappeared already, so that's that:
time for some other scared rabbit to take the stand.
Maybe it wasn't so bad after all: the chairman actually
compliments you on your presentation and people clap!

David E Richmond
Professor Emeritus
Auckland
(d.richmond@clear.net.nz)



Athol Maurice Abrahams

A leader and pioneer in the field of treatment of sexual dysfunction in New Zealand

Athol was born in Auckland in 1933. Athol graduated from Otago Medical School in 1956; he was an above-average student with skills of clear expression. He spent his house surgeon years in Hawera and Masterton, where he met his wife-to-be, Marion. They married in Auckland and moved to Lower Hutt where he took over Sandy Eaton's practice in Melling Road.



Later he moved to Central Chambers above Ted Owle's pharmacy where he was in family practice from 1959 to 1963.

Because of his interest in psychiatry, he moved to Dunedin for postgraduate study and was approved as a specialist psychiatrist. He then moved back to Lower Hutt to practise psychiatry and to work part-time at Porirua Hospital.

During this time, Dr Domeena Renshaw, an overseas specialist in sexual medicine, came to New Zealand. Sexual medicine became one of his particular interests. He went to Loyola University in Chicago for further studies. On returning to New Zealand, he set up a private sexual dysfunction clinic at Central Chambers.

According to Beverley Keall, a colleague and friend, Athol became a leader and pioneer in the field of treatment of sexual dysfunction in New Zealand. He earned an international reputation in adapting Masters and Johnson techniques in the light of his psychiatric practice, and informed by his relationship counselling skills.

In the late 1970s, Beverley was privileged to work with Athol as his co-therapist in the Wellington Hospital Board's sexual dysfunction clinic based at Kenepuru Hospital, learning from his clear diagnostic skills and empathic manner, especially in the specialist field of sexual issues of people with disabilities.

I know there are many hundreds of people in whose lives he made a difference through his work and his counsel. As a colleague and friend he was supportive and affirming, a wry and witty commentator on the foibles of the world, a lovely man. He will be truly missed.

From 1976–1990 he was Director of the Sexual Dysfunction Clinic at Porirua Hospital. He was also co-founder of the New Zealand Society on Sexology. In 1992 Athol was made a fellow of the American Academy of Clinical Sexologists, and was an advisory member of the World Association for Sexology 1979–1991.

When a houseman at Greenlane he was noted for the accuracies of his diagnoses, his detailed treatment plans, and the succinctness of his notes as well as his clear handwriting. Nurses were constantly borrowing his notes for study purposes.

Athol enjoyed golf, reading, and overseas travel. He is survived by wife Marion, two daughters, Karen (an Auckland GP) and Debbie (a Lower Hutt audiometrist), and three grandchildren.

This obituary was written from material supplied by Marion Abrahams. We also thank Beverley Keall and Eugene McCabe.



Noeline Lillian Beatrice Walker

Leader of medical women when they were still a small and embattled minority in the medical profession (28 October 1926 – 21 March 2007)

Many people still frowned on women doctors when Noeline Walker began medical studies. Indeed, some accosted her about taking a man's job when she started work as a house surgeon at Christchurch Hospital.



None of this fazed her. Walker never hesitated to stand up for what she believed and to take an initiative.

As an early woman doctor, as a wife who shared her doctor husband's workload, as a psychiatrist at Sunnyside Hospital, and as a leader in groups promoting family health, she was a pioneer.

But she was no radical. When she resumed medical studies as a mother of three in her 30s, she was seen by fellow students as a maternal figure.

Many came to her with their problems. She filled the mother role with practical grace and was often complimented for it at later class reunions.

Walker died after 40 years of coping with a blood disorder which had required frequent transfusions. She was 80.

Born and raised in Dunedin, Walker shone at Otago Girls' High School and left at 17 to go to university. She wanted to study medicine but was told it was not suitable for women and took home science instead. A year later, she switched to medicine. Her husband, Norman Walker, says: "She had no qualms about standing up and challenging ideas."

Half-way through her medical course, she married. Norman was a fellow student but was older than her. He had completed his degree and was about to join a medical practice at Lyttelton. The couple decided they should start a family and that she could then go back to university.

They moved to Lyttelton in 1948 and had three children. Norman says his wife assumed the chores of a GP's wife, at a time when few doctors were married to doctors. Although she helped willingly and, after graduating, provided treatment for some patients, she was never attracted to general practice.

The couple returned to Dunedin in the late 1950s, when all their children were at school. Walker completed her medical studies, while her husband lectured at the university medical school. She served as house surgeon, first at Dunedin Hospital and, when her husband returned to his Lyttelton practice, at Christchurch Hospital.

Norman says it was rare for a student to be allowed to take a break from medical studies. The dean of the school of medicine showed great foresight in accepting her back.

Walker was passionate about the workings of the human mind and, completing her term as house surgeon, decided to specialise in psychiatry. She was one of the first New Zealand-born and trained doctors to travel to London to qualify in psychiatry. While she studied at London's Maudsley Hospital, her husband worked as a port health doctor at Heathrow Airport for about a year.

Back in Christchurch, she went to work at Sunnyside Hospital, where she ran the adolescent unit. She worked later with the Student Health Service, until retiring in 1991.

Walker was active in many groups. Women were still a small and embattled minority in the medical profession when she served as president of the NZ Medical Women's Association. She was Canterbury medical representative on the National Council of Women and was involved in the Association of University Women, the Society for Research on Women and Zonta.

Walker believed strongly in the need for advocacy in health issues, particularly concerning families. She was a foundation member of the Parents Centre, serving as its medical adviser and a director and being elected a life member. She carried out advocacy for Family Life and Education and Family Planning. Among her advocacy successes were agreement with hospitals to allow fathers to attend the birth of children and improved access of parents to sick children in hospital wards.

Much of her community work was voluntary. Norman says she was not the sort to be "upfront" but preferred to work behind the scenes. "Whenever she saw that she could make a contribution, she put her heart and soul into it," he says.

This applied also to her membership of professional associations, the committee of the NZ Broadcasting Corporation and groups campaigning for social justice. She helped train Christchurch Anglican clergy to deal with disturbed people.

Norman says his wife had an acute mind and an irreverent sense of humour. They travelled often to conferences overseas. At home, Walker loved the outdoors and had many skiing, climbing and tramping expeditions. Although her blood disorder was a long-time problem, she never let it stop her doing what she wanted to. Walker was an avid reader and a music lover. She sang in a choir—and around the house.

Noeline is survived by husband Norman, daughter Heather, sons Stephen and David, six grandchildren, and one great-grandchild.

This obituary has been adapted slightly from one entitled *Groundbreaker in medicine* that appeared in *The Press* newspaper (Christchurch) on 14 April 2007, written by Mike Crean. We are also grateful to Bruce Rennie of *The Press*.



GRANTS AWARDED APRIL 2007

At the April 2007 meeting of the Scientific Advisory Group of the National Heart Foundation, a total of 21 limited budget grants were awarded.

The awards included 6 Small Project Grants and 15 Travel Grants.

SMALL PROJECT GRANTS

Dr Elizabeth Broadbent

Department of Psychological Medicine,
University of Auckland

*A randomised trial to improve patient
understanding of cardiac risk*

\$14,183 for a period of 1 year.

Assoc Professor Ngaire Kerse

Department of General Practice and Primary
Health Care, University of Auckland

*Reaching advanced age: older hearts and
health*

\$14,929 for a period of 15 months.

Dr Nee Scze Khoo

Department of Paediatric & Congenital Cardiac
Services, Starship Hospital

*Comparison of left and right ventricular
volume measurements with real time 3D
echo vs cardiac MRI in congenital heart
disease*

\$14,187 for a period of 18 months.

Dr Gillian Whalley & Assoc Professor Rob Doughty

Department of Medicine, University of Auckland

*Individual patient meta-analysis of restrictive
diastolic filling in patients with heart failure
and post myocardial infarction sub-analyses*

\$15,000 for a period of 1 year.

Dr Jun Lu

School of Biological Sciences, University of
Auckland

*In vitro triethylenetetramine metabolism in
cytosol of liver and heart of humans and rats*

\$14,672 for a period of 1 year.

Dr Nigel Wilson

Department of Paediatric & Congenital Cardiac
Services, Starship Hospital

*Prevalence of rheumatic heart disease in
South Auckland children*

\$15,000 for a period of 18 months.

TRAVEL GRANTS

Dr Ralph Maddison

Clinical Trials Research Unit, School of
Population Health, University of Auckland

The Society of Behavioural Medicine
Annual Conference, Science to Impact;
the Breadth of Behavioural Medicine,
Washington DC, USA

Ms Enid Dorey

Department of Psychological Medicine,
University of Auckland

19th IUHPE World Conference on Health
Promotion and Health Education,
Vancouver, Canada

Dr Jane Elmslie

Canterbury Health Laboratories, Canterbury
District Health Board
*6th Conference on Homocysteine
Metabolism, Saarbruecken, Germany*

Ms Delvina Gorton

Clinical Trials Research Unit, School of
Population Health, University of Auckland

The Agencies for Nutrition Action
Nutrition and Physical Activity Public
Health Conference (Ngahuru), Rotorua

Dr Joanne Harrison

Department of Pharmacology & Toxicology,
University of Otago

European Society of Cardiology, Heart
Failure Congress, Hamburg, Germany

Dr Alexandra Chisholm

Department of Human Nutrition, University of
Otago

*25th Diabetes and Nutrition Study Group
Symposium, Kuopio, Finland, and the 10th
European Nutrition Conference, Paris,
France*

Ms Katrina Ellis

Christchurch Cardioendocrine Research Group,
Christchurch School of Medicine and Health
Sciences, University of Otago

*European Society of Cardiology congress
2007, Vienna, Austria*

Dr Sarah-Jane Guild

Department of Physiology, University of
Auckland

*Experimental Biology Annual Meeting,
Washington DC, USA*

Ms Helen Eyles

Clinical Trials Research Unit, School of
Population Health, University of Auckland

The Agencies for Nutrition Action
Nutrition and Physical Activity Public
Health Conference (Ngahuru), Rotorua

Mr Mat Walton

Department of Public Health, Wellington School
of Medicine and Health Sciences, University of
Otago

IUHPE Conference, Vancouver, Canada

Dr Mark Trew

Bioengineering Institute, University of Auckland

28th Heart Rhythm Society Meeting,
Denver, USA

Kelly Whiteford

Department of Human Nutrition, University of
Otago

10th European Nutrition Conference:
Determining Optimal Approaches for
Successful Maintenance of Weight Loss,
Paris, France

Dr Chris Charles

Christchurch Cardioendocrine Research Group,
Christchurch School of Medicine and Health
Sciences, University of Otago

Heart Failure 2007 Congress (European
Society of Cardiology), Hamburg,
Germany, and the XIXth World Congress
of the International Society for Heart
Research, Bologna, Italy

Dr Marie-Louse Ward

Department of Physiology, University of
Auckland

Electric Feedback and Arrhythmias,
Oxford University, UK

Dr Gillian Whalley

Department of Medicine, University of Auckland

The American Society of
Echocardiography Scientific Sessions,
Seattle, USA



Erratum

Sunita Azariah, Nicky Perkins. *Risk factors and characteristics of patients with gonorrhoea presenting to Auckland Sexual Health Service, New Zealand*. N Z Med J. 2007(April 13);120(1252). <http://www.nzma.org.nz/journal/120-1252/2491>

The authors advise that incorrect data was reported in the third sentence of the introduction:

“Population-based incident rates for gonorrhoea in the Auckland region during the January to March 2006 quarter were 167.4 (*not 1091*) per 100,000¹ for people aged 20–24.”

Please refer to the above URL to view the corrected copy of the article.



The other side of medicine

Peter Tate. Published by [Radcliffe Publishing Ltd](#) (Oxford, UK), 2006.
ISBN 1846191548. Contains 136 pages. Price £21.95

The author of this collection of articles and short stories worked in general practice for 30 years, and was an examiner and then convenor of the MRCGP over 25 years. It contains a mix of these experiences and his observations and thoughts about the human condition. There are many interesting anecdotes and perceptions about the practice of medicine. The shortcomings of our profession are not avoided, and there is much common sense in the discussions.

He emphasises the patient-centredness of general practice and the need for shared understanding with each patient. With the loss of continuity in care he feels that the quality of consultation needs to be of an even higher standard. He deals with some of our fads and fashions and the drift towards the medicalisation of some things that might be better dealt with in other ways.

The reliability of examinations and the training of assessors have concerned him. He points out that wide-ranging agreement is not a common human characteristic and any system of review and revalidation needs careful scrutiny. This has general importance in view of the proposals for revalidation in the UK and the legislative requirements to ensure competence in New Zealand.

The book is enjoyable to read and each chapter is self-contained. It reinforces the view that good medicine demands a good relationship with patients, an understanding of their backgrounds and an ability to listen.

Peter W Moller
Rheumatologist
Christchurch School of Medicine
Christchurch