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## Remember to communicate and communicate to remember

Judith Collett

“But what did the Dormouse say?” one of the jury asked.

“That I can’t remember,” said the Hatter.

“You **must** remember,” remarked the King, “or I’ll have you executed”.

Carroll, L. *Alice’s Adventures in Wonderland*

Just like the hapless Hatter, patients have trouble remembering. In the study presented by Turner et al in this edition of the Journal, very few patients remembered the potential complications of surgery that had been explained to them in an outpatient clinic.<sup>1</sup> But, in the morally hazardous world in which we practice (perhaps even more bizarre than Carroll’s Wonderland), it is the doctor who risks punishment when the patient cannot remember. Right 5 of the Code of Health and Disability Services Consumers’ Rights states that “information must be conveyed to the patient in a form, language and manner that ensures [my underscore] the patient understands the treatment or advice”.<sup>2</sup> Further, it is the doctor’s responsibility to ensure that the environment enables the patient to communicate “openly, honestly and effectively”. Frizelle can be forgiven for asking in a recent editorial whether the patient has any responsibility in this process, and why failure in communication always seems to be failure on the doctor’s part, not the patient’s.<sup>3</sup>

The early code of practice in medicine was based, as we all know, on the Greek Hippocratic tradition and on professional etiquette, and the patient’s role was a passive one. In the 1960s, however, there was a change in emphasis – philosophers, lawyers and patients’ representatives became involved. The sceptical among us might conclude that philosophy was dying, and the new topic of Bioethics resurrected it. This rebirth of medical ethics was influenced by American and northern European trends, and informed by rights-based thinkers. The paternalism of Hippocratic convention was anathema to the new autonomy-driven philosophy. Medical ethics veered away from traditional principles and became more focussed on context. There were now few absolutes, and concepts of harm, benefit and patients’ best interests were redefined.

This change in ethical thinking needs also to be understood in historical terms. Technology was having a major impact upon medicine, but with more knowledge came less certainty. The euphoria associated with the discovery of penicillin and prednisone was short-lived, and as chronic illnesses became more prominent in developed nations, it became apparent that many of the medical choices being made were in fact moral choices. Ethics was touted as a problem-solving tool. The whole issue of informed consent shifted from the Bolam principle of professional practice standard to the reasonable patient standard through medicolegal precedents.<sup>4,5</sup> This introduced uncertainty. In New Zealand, we now have the Code of Health and Disability Services Consumers’ Rights.<sup>2</sup> And things have got even tougher for

doctors, especially but not exclusively for those involved in interventionist or surgical specialties.

So what does Turner et al's study add to this already complex issue of informed consent? We often hear the complaint that patients are frequently not told enough about their clinical management. We know from this study, and from others, that even if they are given the appropriate information, patients do not assimilate it during a typical outpatient appointment.<sup>6</sup> What this paper adds, is that supplementing verbal information with clinically relevant pamphlets adds little to this process and does not aid patients' recall.

Rather than use this paper to fuel our paranoia and give us an excuse for not trying (because informed consent seems simply not possible), we can use it to guide us into making the process more fulfilling for patient and doctor. For those of us in busy hospital departments with continually expanding waiting lists for appointments, procedures and surgery, this will not be good news. There is a cost that comes with it. That cost is time – primarily doctors' time (although we should explore the use of general practitioners and nurse educators to help in the informed consent process). As Turner et al indicate in their paper, one outpatient appointment may not be enough for adequate communication with the patient. Patients contemplating surgery or an invasive procedure may need to go home, think about it, discuss it with their relatives and GP, and come back to ask more questions. Use of other modalities such as video and computer web sites also needs to be explored. The more complicated the procedure and the more risky, the more time this process will take.

However, it is clearly the public's expectation and that of regulatory bodies, that this level of communication will be the standard. Two recent disciplinary tribunal cases involving failure to obtain what the court considered reasonable consent highlight this issue.<sup>7,8</sup> How are we to avoid becoming the next case? I believe the answer lies in better communication – a two-way process through which patients can teach us about their preferences and priorities, and we can teach patients about the likely risks and benefits, and alternative options. Communication is not a talent we're born with although, like all things, some are better at it than others. It can be learnt, and it should be taught. There is also an onus on district health boards to provide the appropriate environment, and on government to provide adequate funding and staffing levels so that we can fulfil patients' expectations. The responsibility should not fall solely on individual doctors' shoulders. Unless we can improve this area, we risk losing skilled practitioners because of fear of litigation, or disillusionment and burnout.

All this may seem too complicated and onerous for the majority of us, but the issue may be even more complex. We may need to examine the language in which we convey risk and benefit information. Perhaps relative risk is unacceptable, and we should use only absolute risk, or numbers needed to treat/harm. Possibly, we should try harder to individualise this data according to the patient's other risk factors, using everyday comparisons to which they can relate. We need to be careful about how we frame mortality and survival data, so that we don't subtly influence patients to our way of thinking.

The balance of power has definitely shifted towards the patient – the consumer. How we deal with this shift in power may dictate our medical future. To quote Alice in

Wonderland, our world has become “curiouser and curiouser”. Welcome to the 21st Century. Enjoy the ride.

**Author information:** Judith Collett, Gastroenterologist, Christchurch Hospital

**Correspondence:** Judith Collett, Gastroenterology Department, Christchurch Hospital, Private Bag, Christchurch. Fax: (03) 364 0419; email:

[judith.collett@cdhb.govt.nz](mailto:judith.collett@cdhb.govt.nz)

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## **Informed consent: patients listen and read, but what information do they retain?**

Perry Turner and Chris Williams

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### **Abstract**

**Aim** To determine the percentage of knowledge retained immediately following an outpatient consultation for total hip and knee joint arthroplasty, and whether any improvement in that knowledge occurred after reading an information leaflet about the operation.

**Methods** Patients on the waiting list for joint replacement surgery were given verbal information during the consultation about basic operative details, post-operative programme, and potential complications. A questionnaire was completed asking them to recall these details. They were then given information leaflets to read. Six weeks later, they were contacted again and asked the same questions.

**Results** Immediately following a consultation, patients recall only a small percentage of information. In particular, retention of post-operative recovery time frames, and possible operative complications is poor. Despite an information booklet, patients' level of knowledge deteriorates from the initial consultation.

**Conclusions** Verbal and written information supplied to a patient may be understood, but it is easily and quickly forgotten. In an increasingly medicolegal environment, it is essential to gain informed consent from a patient when performing interventions. The provision of an information booklet may provide nothing more than proof for the surgeon of information provision to the patient.

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Informed consent is an important part of medical practice.<sup>1</sup> Modern-day medicine has seen a dramatic shift in public ethical attitudes towards the doctor-patient relationship.<sup>2,3</sup> Patients demand to be more informed about their condition, their proposed treatment, and possible complications.<sup>4-8</sup> They have an increasingly high level of expectation of a successful outcome.

Previously studies have shown that patients remain inadequately informed, even when extraordinary efforts are made to ensure their understanding.<sup>9-13</sup> To further reinforce what a patient is told at the time of an outpatient visit, an information booklet is given to them outlining basic operative details, post-operative management, and any possible complications of surgery. However it remains unresolved as to the most effective way to educate and inform patients pre-operatively.

Complications of surgery can lead to medicolegal complaints, with the patient alleging "they were not told". A signed informed consent form, and the word of the surgeon that potential complications were discussed, may not be enough proof of adequate information provision.

This study set out to ascertain the level of knowledge retained immediately following consultation for total hip and knee joint arthroplasty (with regard to the operation,

post-operative management, and possible complications of surgery), and whether any improvement occurred following time to read the information leaflet.

We suspect that, at the end of a lengthy consultation and discussion, few of the points and details of the consultation are actually remembered, and that despite our best efforts with information leaflets, the patient still retains very little information about their surgery.

## Methods

The study was carried out at Palmerston North Public Hospital Orthopaedic Outpatient Department, Palmerston North, over a four-month period (October 2001 – February 2002). The orthopaedic surgeon or registrar would see a prospective joint replacement patient in Outpatients, with a history and examination. If the patient was a candidate for surgery, the surgeon informed them on three main areas – basic operative information, post-operative management, and possible complications. The surgeon had a checklist attached to the patient's notes, to ensure all points were covered in a standardised way. Operative information included the name of the operating surgeon, the approximate duration of surgery (two hours), that antibiotics would be given during the procedure, and that there was the possibility of a blood transfusion.

Post-operative information included how many days the patient would be in bed (1); how many days in hospital (5–10); how long they would require crutches (6 weeks); how long it would be before they could safely drive their car again (6 weeks); and how long before they made a complete recovery and were back to normal (6–12 months). They were informed they would be on an anticoagulant post operation, and that their joint would last for approximately 10–15 years.

Complications were listed and individually explained to the patient, and included infection, blood clots, dislocation, bleeding, nerve damage, leg length difference, stiffness, and wear. At the end of the consultation, the patient was asked if they understood all that was said, and if they had any further questions.

Following the consultation, the patients that consented to take part in the study completed an open-ended questionnaire. It asked questions on each of the points covered. At the end of the questionnaire, the patient was asked to list as many complications (of surgery) as they could remember. The patient was not informed they would be filling in this questionnaire until the end of the consultation. Some leeway was given with answers, eg accepted time margins were: operative time of 1–3 hours; 5–10 days in hospital following the surgery, 3–8 weeks with crutches and driving; and complete recovery after 3–12 months.

After the initial questionnaire, two information booklets were given to the patient to read. One was designed by the New Zealand Orthopaedic Association (Wishbone Trust), and the other designed by a local surgeon, Mr Richard Lander. Both of these detailed the basic operative management, post-operative care and possible complications (concentrating specifically on infection, blood clots, loosening/wear, stiffness, dislocation and nerve damage).

Six weeks later, the patient was contacted by phone and asked the same open-ended questions as contained in the questionnaire.

Analysis was performed by percentage values, with McNemar's test used for significance ( $p = 0.05$ ), and chi-square tests used to compare responses with prior operation status, age, and sex.

## Results

The study involved 50 patients. Four were excluded from the study due to the checklist not being completed by the surgeon, leaving a total of 46. Of the remainder, six had been operated on by the time six weeks had elapsed. In these cases, the response to the first questionnaire only was analysed. In total, there were 40 patients who completed both the initial and the six-week follow-up questionnaire, having had an opportunity to read the information booklets given to them.

All patients read the information handouts and found them useful.

Analysis of demographics of 46 patients revealed 24 males (51%) and 22 females (49%). There were 27 (59%) hip joint replacements and 19 knee joint replacements

(41%). The mean patient age was 69.2 yrs (range 53–87). For 32 patients, this was their first joint replacement. No patients had experienced previous complications or problems from joint replacement surgery. Only two patients had experienced previous problems with other surgery.

**Operative information** (Table 1) Overall recollection of operative information was good, with 65–91% being able to recall the surgeon’s name, duration of surgery, antibiotic use, and the possibility of a blood transfusion.

**Table 1. Operative information percentage recall**

Details	Initial questionnaire (% recall)	Six-week questionnaire (% recall)
Surgeon’s name	91	85*
Duration of surgery	76	80
Antibiotic use	65	68
Blood transfusion	72	76

\*p <0.05

**Post-operative management** (Table 2) Again, overall there was good recall of duration of bed rest, hospital stay, joint longevity and anticoagulant use (70–95%). However, the time using crutches, the point at which patients could recommence driving, and the time until complete recovery were poorly recalled (51–63%). The majority of incorrect answers for complete recovery time estimated recovery sooner than the minimum three-month period.

**Table 2. Post-operative information percentage recall**

Details	Initial questionnaire (% recall)	Six-week questionnaire (% recall)
Days in bed	70	83*
Days in hospital	90	95
Weeks using crutches	61	59
Weeks before driving	51	57
Complete recovery time	63	63
Anticoagulant use	93	90
Longevity	85	88

\*p <0.05

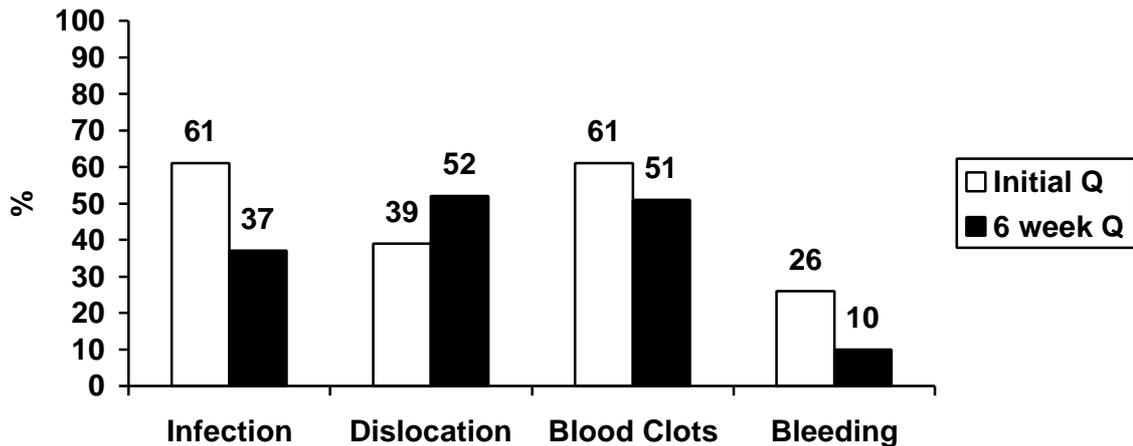
**Table 3. Complications percentage recall**

Details	Initial questionnaire (% recall)	Six-week questionnaire (% recall)
Infection	61	37*
Dislocation	39	52
Blood clots	61	51
Bleeding	26	10
Nerve damage	13	16
Loosening/wear	7	0
Stiffness	24	10*
Leg length difference	20	17

\*p <0.05

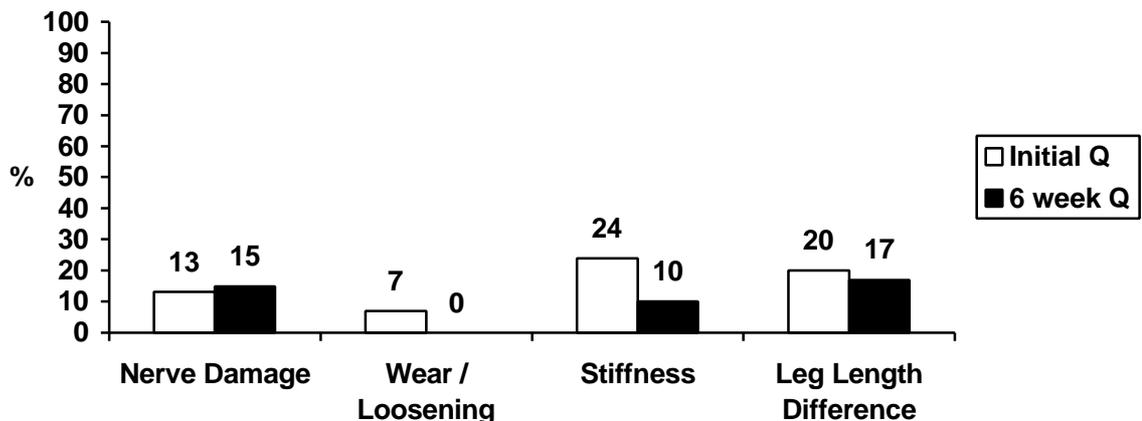
**Complications** Recollection of complications was poor. There were eight complications for a patient to remember (Table 3). The most commonly remembered complications were blood clots, infection, and dislocation, with percentages ranging from 37–61% (Figure 1).

**Figure 1. Complications percentage recall (infections, dislocation, blood clots and bleeding)**



The least remembered complications were bleeding, loosening/early wear, stiffness, nerve damage, and leg length difference, with percentages ranging from 0–26% at best (Figure 2).

**Figure 2. Complications percentage recall (nerve damage, wear/loosening, stiffness, leg length difference)**



Overall, fewer complications were remembered at six weeks compared to immediately after the consultation. The median number of complications remembered immediately after the consultation was three, compared to only one at six weeks.

Overall, there was no significant improvement in information retention following reading of the information booklet ( $p < 0.05$ ).

Using chi-square analysis, there was no significant difference between those having hip surgery and knee surgery, male and female, and those younger than 70 years old and older than 70. However, those who had had a joint replacement previously had significantly better results ( $p < 0.05$ ) across the board.

## Conclusions

Informed consent is a legal necessity for all elective surgical procedures.<sup>14</sup> The New Zealand Health and Disability Commissioners Regulations (1996) provide guidelines on information provision.<sup>14</sup> Other influences include international law, such as the Bolam principle in the United Kingdom, the “doctrine of informed consent” in the USA, and court rulings defining a “reasonable patient test” in Australia.<sup>1,4,15,16</sup> The goal of the consent process is to provide a mechanism for patients to participate in treatment decisions, with full understanding of the factors relevant to their proposed care.<sup>10</sup>

However, previous studies have shown that a signed informed consent form in no way guarantees that the patient is fully aware of the exact nature of their treatment, and that patients remain inadequately informed, even when extraordinary efforts are made to provide complete information and to ensure their understanding.<sup>10–13</sup> Robinson and Merav<sup>13</sup> found that only 29% of information was retained following consultation. Hutson and Blaha<sup>11</sup> showed that only 25% of complications could be recalled. Furthermore, patients have been shown to recall with authority, incorrect facts about a consultation, “frequently in error, but never in doubt”.<sup>13</sup>

Informed consent is often the source of complaint between a doctor and patient following a medical or surgical procedure.<sup>1,17</sup> It has been shown in Australian studies, that 13–22% of patients’ complaints were about poor communication. Patients have increasingly higher expectations of success, and are more inclined to seek legal redress for an unsatisfactory outcome.

In the past, it was thought that to allay increased anxiety levels, it was best to spare the patient the unnecessary details of the operation and unlikely event of possible complications.<sup>9,18,19</sup> Public attitudes have changed. There is now an increasing desire for information.<sup>5,7</sup> It has also been shown that an increase in the information provided before an operation does not increase anxiety levels.<sup>6,20</sup>

What does the public want to know? Patient satisfaction is a key factor in reducing misunderstandings, disputes and ultimately litigation.<sup>17</sup> Providing sufficient information to meet patients’ desires, needs, and wants (during the informed consent process) is an area in which patient satisfaction can be gained or lost. The aspects of pre-operative information that the public considers important include discussion of all the risks and complications of a procedure, basic operative technique, alternative treatment options, when they can expect to be back to normal activities, and aspects of outcome (quantity and quality of life).<sup>4,8</sup> Meeting the surgeon before the operation is

an extremely high priority.<sup>4</sup> This is all part of the process of gaining a patient's confidence.

Information sheets have been shown to improve the understanding of treatment irrespective of age, sex, and social class.<sup>6,21</sup> Patients vary considerably in the amount of information they think appropriate, with a moderate approach favoured over a more comprehensive detailed approach.<sup>6</sup> Small amounts of information are retained for longer than large amounts.<sup>20</sup>

Other factors involved include age,<sup>9</sup> the doctor's communication skills,<sup>22</sup> the patient's educational status, and bias from friends and family. An older age group has been associated with a poorer knowledge of the intended procedure.<sup>9</sup> This is likely to be due to a combination of factors, including cerebral atrophy, and a "spare me the details and just get on with it" attitude,<sup>5</sup> where there is less desire for information, and more desire to get back to walking free of pain again.

This study again proves that the percentage of information retained following a consultation is poor. It also shows that despite reinforcement with booklets, there is no improvement in retention. This emphasises the need to meet the patient pre-operatively, to once more go over details of the operation, post-operative recovery, and potential complications. It raises two important questions. Does the information booklet provide little more than proof of information provision by the surgeon in the event of litigation? And, do we need to again revisit the way we educate our patients prior to gaining informed consent?

**Author information:** Perry Turner, Orthopaedic Registrar; Chris Williams, Consultant Orthopaedic Surgeon, Palmerston North Hospital, Palmerston North

**Acknowledgements:** Mr Chris Frampton, Statistician, Christchurch; Sue Brougham and Robyn Perry, Clinical Nurses, Palmerston North

**Correspondence:** Dr Perry Turner, 51 Clissold Street, Christchurch. Email: [perry.turner@clear.net.nz](mailto:perry.turner@clear.net.nz)

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## Diabetes care by general practitioners in South Auckland: changes from 1990 to 1999

Tim Kenealy, Helen Kenealy, Bruce Arroll, David Scott, Robert Scragg and David Simmons

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### Abstract

**Aim** To compare self-reported practices and preferences for diabetes care by general practitioners (GPs) in South Auckland between 1990 and 1999.

**Methods** Mail questionnaires were sent to all GPs in South Auckland in 1990, and again in 1999.

**Results** The response rate was 88% (163/185) in 1990 and 76% (186/245) in 1999 ( $p = 0.3$ ). In 1999, compared with 1990, GPs had more diabetic patients (median 33 vs 20,  $p < 0.001$ ), more GPs screened for diabetes using a fasting laboratory glucose (33.6% vs 22.9%,  $p = 0.04$ ), more screened with capillary whole-blood testing meters (19.5% vs 1.3%,  $p < 0.001$ ), more felt confident to detect complications (95.1% vs 84.3%,  $p 0.001$ ) and probably more felt confident to initiate insulin in Type 2 diabetes. Women in both years, compared with male GPs, were more likely to refer newly diagnosed diabetic patients to secondary services (68.0% vs 42.8%,  $p < 0.001$ ) and more likely to prefer 'shared care' for ongoing care (74.7% vs 58.7%,  $p = 0.007$ ).

**Conclusions** There have been large changes in GP diabetes care in South Auckland from 1990 to 1999. GPs in 1999 seem more confident to care for larger numbers of diabetes patients. Significant differences in practice style exist between male and female GPs.

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Concern about an 'epidemic' of diabetes led New Zealand to develop a national strategy for diabetes in 1997.<sup>1,2</sup> The implementation of the national strategy, including free annual checks, could further increase the role of general practice (particularly practice nurses) in diabetes care.

However, during the 1990s the health system in New Zealand underwent major changes<sup>3</sup> with unpredictable effects on the ability of general practice to deliver the systematic and continuous care needed by diabetic patients. Community services cards probably improved access to GPs for poorer patients. Increased educational requirements to maintain vocational registration, mandated by the Medical Council and supported by the Royal New Zealand College of General Practitioners (RNZCGP) and the Independent Practitioners Associations, may have increased GP skills and confidence in diabetes care. On the other hand, short-lived patient charges for community laboratory glucose tests and outpatient visits may have altered diabetes screening practices and referral practices; decreased practice nurse subsidies may have interfered with their role; and the exit of GPs from obstetric practice has reduced continuity of care. Furthermore, in the cities, 'accident and medical' clinics took over most after-hours primary care and later an increasing amount of 'during hours' care.

Meanwhile, there were major developments in the management of diabetes. Publication in 1993 of the Diabetes Control and Complications Trial,<sup>4</sup> and later the United Kingdom Prospective Diabetes Study series of papers,<sup>5-7</sup> greatly strengthened the evidence base confirming the value of vigorous treatment of diabetes.

Postal questionnaires sent to all GPs and practice nurses in South Auckland formed part of a major study of diabetes in the area in 1990.<sup>8,9</sup> In repeating the questionnaires, the aim of this study was to compare self-reported practices and preferences for diabetes care by GPs in South Auckland between 1990 and 1999.

## Methods

The questionnaires were developed locally and piloted with small groups of GPs. The 1990 questionnaire consisted of 42 closed and open questions. For 1999, questions were eliminated if no longer relevant or the information could be obtained from another source, and new questions addressed topical concerns in implementing national diabetes guidelines. The final 1999 questionnaire contained 67 closed and open questions, including 38 of those asked in 1990.

In 1990, a list of all GPs known to work in South Auckland was compiled from Auckland Area Health Board records and by telephoning each practice. The questionnaires were mailed in June 1990. The responses were anonymous but tagged with a temporary identification code to track non-responders who were followed up by letter and then by telephone. The non-responding doctors came from the full range of practice sizes and localities.

In 1999, the list of GPs was obtained from a commercial mail-list company, and supplemented by phoning those in the current Telecom telephone directory but not on the commercial list. The questionnaires were posted in November 1999. We attempted to contact non-responders by phone, a second letter and a second phone call. The questionnaires were not anonymous.

To improve response rates, the questionnaires were kept as short and relevant as possible, multiple contacts were made by more than one method, and reply-paid envelopes were provided.<sup>10,11</sup> In addition, the 1999 questionnaire used coloured paper and offered a prize draw.<sup>12</sup>

SPSS 9.0 software was used for analysis. Means are compared by t-test for continuous data.

Proportions of categorical data are compared with chi-square and ordinal data with Mann-Whitney U. Percentages reported are the proportion of valid responses only. Statistical significance is cited at  $p \leq 0.05$ , and all tests are two-tailed. Ethics approval was given by the Auckland Area Health Board Ethics Committee in 1990 and the Auckland University Human Subjects Ethics Committee in 1999.

## Results

In 1990, 226 'GPs' were identified; 41 were unavailable (due to maternity or prolonged leave, retirement, having moved from the area, or not being a GP) leaving 185 GPs eligible. In 1999, 273 'GPs' in 149 practices were identified; 27 were unavailable for the same reasons, leaving 245 GPs eligible. The commercial list identified 72.2% of eligible GPs. The response rate in 1990 was 88.1% (163 in 101 practices), and was not significantly different from the 1999 rate of 75.9% (186 in 107 practices) ( $p = 0.3$ ). Almost half the 1999 respondents (49%) had worked in South Auckland for 10 or more years, so would have received the 1990 questionnaire.

GPs were asked which one method they use most often to screen for diabetes, shown in Table 1. Twenty six GPs in 1999 and one in 1990 nominated multiple methods so are not included in the analysis for Table 1.

Close to half the GPs in each year say they routinely refer those with newly diagnosed Type 2 diabetes for additional assessment or education (Table 2). Referrals in both years are almost exclusively to one or more public services, but it was not possible to determine which components of care would be provided. GPs in each year estimated that they provided sole medical care for diabetes glucose control over the previous

two years for about half their Type 2 diabetic patients, ie with no specialist physician or specialist nurse input.

**Table 1. Method most used for screening (results are percentages of valid responses)**

	<b>1990 (n 153)</b>	<b>1999 (n 149)</b>	<b>p*</b>
Random	51.0	43.6	ns
Fasting	22.9	33.6	0.04
Fructosamine	15.7	1.3	< 0.001
2hr post prandial	6.5	0.7	0.007
GTT	2.6	1.3	ns
Capillary and meter	1.3	19.5	< 0.001
HbA <sub>1c</sub>	not asked	1.3	-
Urine	not asked	0.7	-

\*Chi-square for individual comparisons. Overall 1990 vs 1999, excluding questions not asked in 1990, p < 0.0001 Mann-Whitney U

**Table 2. GP education, skills, confidence and preferred care arrangements (results are percentages of valid responses unless stated otherwise)**

	<b>1990 (n 163)</b>	<b>1999 (n 186)</b>	<b>p</b>
Had postgraduate diabetes education	27.7	31.7	ns
Want more diabetes education	89.7	78.2	0.005
Have means of patient recall	51.6	86.2	< 0.0001
Diabetic patients per GP (median)	20	33*	< 0.001
Glucose control solely by GP	50.5	45.8	ns
Manage obstetric patients	84.1	56.0	< 0.0001
screen all for diabetes	87.2	11.0	< 0.0001
Routinely refer newly diagnosed Type 2 diabetic patient to hospital or specialist clinic	52.5	47.3	ns
Like patients cared for:			
by self unless problems	37.9	36.3	ns
by shared care	62.1	63.7	ns
Prefer hospital clinic to continue follow up for:			
all	8.6	7.0	ns
none	2.5	4.3	ns
all type 1	39.9	37.3	ns
all with complications	67.5	63.8	ns
all poorly controlled	80.4	63.8	0.01
Confident to:			
start insulin	33.3	not asked	-
start insulin in Type 1 diabetes	not asked	28.0	-
start insulin in Type 2 diabetes	not asked	59.4	-
detect complications other than retinopathy	84.3	95.1	0.001
monitor insulin	85.0	90.7	ns
detect retinopathy	29.2	21.7	ns

\*includes a median of five patients with Type 1, and 30 with Type 2 diabetes

In 1999, 61.8% of GPs were recording their clinical notes on computer; of these, 61.2% reported that computerised clinical notes helped their diabetes care, 33% said it made no difference, and 5.8% said the computer hinders care.

Thirty seven respondents (22.7%) in 1990 were women, as were 60 (32.4%) in 1999 ( $p = 0.04$ ). The only difference found between women in 1990 and in 1999 was the number of patients with diabetes for whom they cared; median 10 in 1990, and 25 in 1999 ( $p = 0.002$ ). However, the number of diabetic patients also increased for men (who saw significantly more in each year, data not shown) and for women and men combined (Table 2). The difference between women and men each year is probably a reflection of the greater number of women working part time. Data on 'tenths' were not requested in 1990, but in 1999, 53.3% of women worked fewer than eight 'tenths', compared with 8.1% for the men ( $p = 0.001$ ). This data is also consistent with the number of total patients seen per doctor (data not shown).

There were, however, several differences between women and men GPs in each year and when both years were combined. Women GPs were much more likely than men to refer all newly diagnosed diabetic patients to a secondary service (68.0% women, 42.8% men,  $p < 0.001$ , years combined), and were much more likely to prefer routine shared care (74.7% women, 58.7% men,  $p = 0.007$ , years combined). Data were collected only in 1999 for women's position in the practice (principal/partner, employee, locum or other). The preference of women in 1999 for shared care was not statistically related to either tenths or position in the practice. Routine referral was not significantly related to position in practice but was significantly related to tenths; those preferring referral worked a mean of 7.3 (SE 0.41) tenths, while those not referring worked mean 5.9 (SE 0.56) tenths ( $p = 0.049$ ).

## Discussion

This study found that, compared with 1990, GPs in 1999 provided regular care for more people with diabetes and seemed more confident managing diabetes. Most GPs in both years felt confident to monitor insulin and detect complications (with a significant increase from 1990 to 1999). Fewer GPs preferred routine hospital clinic follow up. Probably more GPs in 1999 are confident to start insulin in patients with Type 2 diabetes, although the questions in 1990 and 1999 were not directly comparable. The number of GPs using fasting capillary glucose to screen for diabetes increased. There were differences in practice preferences between women and men, but these did not change from 1990 to 1999. Women were more likely than men to refer to secondary care patients with newly diagnosed diabetes, and to prefer shared care for long-term patient management.

The high response rates of 89% and 76% are a strength of this study, as validity can be limited by low response rates.<sup>13</sup> Our response rates are in line with other New Zealand general practice mail surveys,<sup>14-16</sup> and compare favourably with the average response rate of 61% in one British journal.<sup>10</sup> GPs are less likely to reply to surveys if they are older or are not active in the area of study,<sup>10,12</sup> though it was not possible to confirm these factors in this study. Postal surveys may be less susceptible to social desirability bias than interviews,<sup>10</sup> but do not overcome the known differences between self-reported and observed activity. Nevertheless, GP self perceptions of attitudes and behaviour are an important component of their willingness to learn and change their practice.

The number of diabetic patients per doctor has increased substantially from median estimates of 20 in 1990, to 33 per doctor in 1999. New diagnostic criteria for diabetes were published in New Zealand early in 1999.<sup>17</sup> While these criteria increase the number of people classified with diabetes,<sup>18</sup> the change was too late to explain the increased numbers of diabetic patients reported by GPs in 1999 compared to 1990. The number of people with diabetes is known to be climbing at an alarming rate.<sup>19,20</sup>

It is interesting to note that the GPs estimate they provide sole medical care for glucose control for about half their Type 2 diabetes patients. The only figure previously available is that they provide sole care for just over 60%, across all ethnic groups.<sup>21</sup> This later figure was obtained by analysis of sources from which patients were identified for a study in South Auckland in 1990–1, and is probably more objective than the GP estimates.

The unchanged and relatively low numbers of those who reported having ‘postgraduate education’ in diabetes appears anomalous in light of increasing diabetes-related activities. This could reflect inconsistent interpretations of the term – many GPs probably interpret postgraduate education as meaning formal university courses. We note that over three quarters of GPs in 1999 feel they need to learn more about diabetes (despite a statistically significant decrease from 1990 to 1999). During the 1990s, many GPs increased their participation in continuing medical education, facilitated by the Maintenance of Professional Standards (MOPS) programme of the RNZCGP, to meet the requirements for vocational registration with the Medical Council. However, topic choice was uncoordinated and learning on a specific topic was usually voluntary. We advocate a ‘compulsory’ component in the MOPS programme, covering developments in important areas such as diabetes, especially as GPs are not always good at ‘knowing what they do not know’.<sup>22</sup>

The differences in preferred practice style between men and women are related to known differences in consultation style.<sup>23</sup> Women develop experience and expertise in different areas of medicine<sup>24</sup> and in one study women felt less prepared in some areas than men (though this did not include diabetes).<sup>25</sup> Gender rates of patient referral to other services were not reported in the only study we located on GP referral patterns in New Zealand.<sup>15</sup> Male/female practitioner differences may have implications for future planning of primary and secondary care integration as the proportion of women GPs continues to increase. We have reported elsewhere on the implications of our surveys for continuity of care, especially those due to changes of practice composition and male/female GP differences.<sup>26</sup>

Practical recommendations for diabetes screening in New Zealand have recently been published.<sup>27</sup> When GPs request a laboratory test for either fasting or random glucose, they rely for interpretation on automated comments returning from the laboratory along with the glucose result. These comments were not standardised across the country at the time of these questionnaires. For example, in the year 2000 the upper end of the ‘normal’ random glucose reference range varied around the country from 7.5 to 9.5 mmol/l.<sup>2</sup> Furthermore, many GPs were screening for diabetes using meters that are principally designed for patients to self-monitor. However, these meters are arguably too inaccurate for routine screening purposes, and the new recommendations discourage their use. It is also interesting to note that fructosamine use had largely disappeared by 1999 without being replaced by HbA<sub>1c</sub> to screen for diabetes.

The apparent decrease in screening for gestational diabetes is confounded by a change in obstetric supervision, in which few of the GPs managing obstetric patients now have primary responsibility for pregnancy care in late second trimester when most screening is performed. Nevertheless, a South Auckland audit in 1994–5, which did not distinguish between care providers, confirmed screening rates for gestational diabetes were inappropriately low.<sup>28</sup>

The reason for asking GPs whether they thought that using computer records helped or hindered diabetes care was because of anecdotal concerns about increased difficulty of providing systematic care for diabetes patients when recording notes on computers without specific diabetes modules, compared with using available paper systems.<sup>29,30</sup> It is reassuring that few GPs thought the computers hindered care compared with whatever methods they previously used.

The GPs report a marked increase in availability of recall systems, which parallels their increased computerisation. In late 1999, 95% of GPs in South Auckland had a computer in the practice (personal communication, T Kenealy, 2002). For most of these practices, the diabetes registers were formed initially by the audit nurses from the Diabetes Care Support Service.<sup>9</sup> Given that registers are an essential first step to audit, and audit is a key part of the continuous quality-improvement cycle, the practices are in a much stronger position to improve quality of care than they were in 1990.

Yet more changes are currently facing primary care, including Primary Health Organisations and rearranged funding. It will be important to periodically monitor the impact of changes on the diabetes care provided by GPs and practice nurses.

**Author information:** Tim Kenealy, HRC Training Fellow; Helen Kenealy, Medical Student; Bruce Arroll, Associate Professor of General Practice, Division of General Practice and Primary Health Care, University of Auckland; David Scott, Physician and Diabetologist, Auckland; Robert Scragg, Senior Lecturer, Department of Community Health, University of Auckland; David Simmons, Professor of Rural Health, Department of Rural Health, University of Melbourne, Shepparton, Victoria, Australia

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**Correspondence:** Dr Tim Kenealy, Department of General Practice and Primary Health Care, University of Auckland, Private Bag 92019, Auckland. Fax: (09) 373 7006; email: [t.kenealy@auckland.ac.nz](mailto:t.kenealy@auckland.ac.nz)

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## Prevalence and correlates of irritable bowel symptoms in a New Zealand birth cohort

Gil Barbezat, Richie Poulton, Barry Milne, Stuart Howell, J Paul Fawcett and Nicholas Talley

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### Abstract

**Aim** To determine the prevalence and correlates of bowel symptoms and the irritable bowel syndrome (IBS) in a birth cohort of young New Zealanders.

**Methods** Participants in the Dunedin Multidisciplinary Health and Development Study at age 26 completed a validated Bowel Disease Questionnaire expressing their experience of clearly defined symptoms over the previous 12 months.

**Results** 980 participants (499 male, 481 female, comprising 96% of the birth cohort) completed the questionnaire. Sixty four per cent had at least one of the measured symptoms; abdominal pain was reported in 46.5%, chronic constipation in 9.1%, and chronic diarrhoea in 17.1%. A diagnosis of IBS could be made by using two or more of Manning's diagnostic criteria in 18.8%, three or more criteria in 10.3%, and more than three in 3.3%. Symptoms were more than twice as frequent and severe in females than males.

**Conclusions** Bowel-related abdominal symptoms, including those required for a diagnosis of IBS, are very common in 26-year-old New Zealanders; the prevalence of these symptoms is very similar to that recorded previously in Europe and the USA.

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Functional gastrointestinal disorders (FGID) are encountered frequently in clinical practice. They have been defined in very broad terms as a group of variable chronic or recurrent gastrointestinal symptoms for which no specific structural or biochemical explanation can be found.<sup>1</sup> Patients with FGID may present with challenging clinical problems; their symptoms require careful evaluation to differentiate those with functional disorders from those with organic disease. Irritable bowel syndrome (IBS) is a subset of the FGID, focussing on chronic or recurrent altered bowel habit and abdominal pain.<sup>2</sup> It has attracted much attention because of its importance relating to patient morbidity and cost to the community.<sup>3</sup>

As patients with IBS present with non-specific symptoms, there is no gold standard for diagnosis. However, significant advances have been made to define symptom complexes, which together with absence of clinical abnormalities on a careful full clinical assessment allow the diagnosis of IBS to be made with reasonable confidence. Manning et al defined four key symptoms that were useful in discriminating patients with IBS from those with organic gastrointestinal disorders.<sup>4</sup> These were distention, relief of pain with bowel movement, and looser and more frequent stools with the onset of pain. Mucus per rectum and a sensation of incomplete evacuation were also common in these patients. Others have subsequently confirmed these findings.<sup>5,6</sup> There have been a number of reports by expert committees that have attempted to clarify the symptoms most appropriate and accurate to act as diagnostic criteria for

IBS. The latest of these (known as Rome II) defines these as 'at least 12 weeks, which need not be consecutive, in the preceding 12 months of abdominal discomfort or pain that has 2 of 3 features: (1) relief with defecation; and/or (2) onset associated with a change in frequency of stool; and/or (3) onset associated with a change in form (appearance) of stool.'<sup>2</sup> However, many prefer to use the tried and tested Manning criteria, which incorporate a broader range of symptoms. It is no longer acceptable to regard IBS as a diagnosis of the destitute, acting as a waste basket for all inexplicable bowel symptoms.

Studies on population prevalence of gastrointestinal symptoms have centred predominantly in Europe and the USA.<sup>7-11</sup> The prevalence of IBS has been extrapolated from these data. It is suspected that gastrointestinal symptoms are as common in New Zealand as in those countries, but there are no reliable data to validate this presumption. Although the original symptom criteria were not designed for screening purposes, a validated questionnaire has been developed from them which has been useful in identifying patients with IBS.<sup>12</sup> This symptom-based questionnaire has been applied to participants in the Dunedin Multidisciplinary Health and Development Study.<sup>13</sup> This provided an ideal opportunity to study a large birth cohort of subjects at an age (26 years) when IBS is known to be prevalent from previous studies.<sup>9</sup>

## Methods

Participants were 499 male and 481 female (mean age 26.0 years) members of the Dunedin Multidisciplinary Health and Development Study, a longitudinal investigation of the health, development and behaviour of 1037 children born in Dunedin during 1972-73.<sup>13</sup> Cohort families represent the full range of socioeconomic status in the general population of New Zealand's South Island and are primarily of European descent. Ninety six per cent of the living sample (980/1019) participated in the 'age-26' assessment between March 1998 and July 1999. The basic procedure involves bringing participants to the Research Unit for a full day of individual data collection. As part of the day's assessments, participants were asked to complete the Bowel Disease Questionnaire (BDQ). The BDQ consists of 46 gastrointestinal symptom-related items, and has been shown to be an understandable, easily completed, and highly reliable (median  $k = 0.78$ ) diagnostic tool; it has also been shown to have adequate content, predictive and construct validity.<sup>12,14</sup> Partial information was available for 975 participants and complete information for 965 (an indication of the variation in sample size across items can be obtained from the sample numbers given in Table 1). Most participants completed the BDQ themselves, although those participants who were known from previous assessments to be below the 10th percentile in terms of reading ability had the questionnaire read to them and their answers recorded by an interviewer.

Participants were classified into several a priori symptom categories based on their responses to the questionnaire, which recorded their symptoms over the previous year.

**Abdominal pain** Persons who reported having had abdominal pain in the prior year, and who indicated that their pain was not due to an acute illness or side effect of medication, were defined as having abdominal pain. Pain was further subdivided into 'colonic pain', defined as pain relieved >25% of the time by defecation and/or associated with looser and/or more frequent stools at its onset. These symptoms comprise items from the Manning criteria that have been shown to be characteristic of IBS.<sup>1,4,5</sup> The remainder with pain were classified as having non-colonic pain.

**Chronic constipation** Persons who strained at stool and who passed hard stools and/or those whose bowel habit was <3 stools per week >25% of the time were defined as having chronic constipation. Painless constipation was defined as constipation in the absence of abdominal pain not due to acute illness or medication side effects in the prior year.

**Chronic diarrhoea** Persons who passed loose or watery stools and/or whose stool frequency was >3 stools per day >25% of the time were defined as having chronic diarrhoea. Painless diarrhoea was defined as diarrhoea in the absence of abdominal pain not due to acute illness or medication side effects in the prior year.

**Table 1. Prevalence of colonic symptoms in 26-year-old Dunedin Multidisciplinary Health and Development Study participants** (data represent prevalence per 100 (95% CI); often = >25% of the time)

Symptoms	Total n	Women	Men	Overall
Abdominal pain in prior year	975	56.5 (52.0, 61.1)	36.9 (32.5, 41.2)	46.5 (43.3, 49.6)
usually of moderate or worse severity	965	34.2 (29.8, 38.6)	14.6 (11.4, 17.8)	24.1 (21.4, 26.9)
lasted for at least a month	975	7.1 (4.7, 9.6)	4.8 (2.8, 6.8)	5.9 (4.4, 7.5)
lasted for at least 3 months	975	2.5 (1.0, 4.0)	2.4 (1.0, 3.8)	2.5 (1.4, 3.5)
relieved by defecation often*	965	18.3 (14.7, 21.9)	15.4 (12.1, 18.7)	16.8 (14.4, 19.2)
more frequent stools at onset often*	965	10.4 (7.5, 13.3)	9.5 (6.8, 12.2)	9.9 (8.0, 11.9)
looser stools at onset often*	965	14.2 (11.0, 17.5)	8.1 (5.6, 10.6)	11.1 (9.1, 13.1)
Lower abdominal pain in prior year	965	36.1 (31.6, 40.5)	16.6 (13.2, 20.0)	26.1 (23.3, 28.9)
Mucus in stools ever*	972	14.3 (11.1, 17.6)	3.2 (1.6, 4.9)	8.6 (6.8, 10.5)
<3 stools each week often	973	10.3 (7.5, 13.2)	5.2 (3.2, 7.3)	7.7 (6.0, 9.4)
>3 stools daily often	973	9.1 (6.4, 11.8)	11.4 (8.5, 14.3)	10.3 (8.3, 12.2)
Strains often	972	9.9 (7.1, 12.7)	4.2 (2.4, 6.1)	7.0 (5.3, 8.7)
Stools loose or watery often	973	10.3 (7.5, 13.2)	7.4 (5.0, 9.8)	8.8 (7.0, 10.7)
Stools hard often	973	10.1 (7.3, 12.9)	7.2 (4.8, 9.6)	8.6 (6.8, 10.4)
Feeling of incomplete evacuation often*	972	8.6 (6.0, 11.3)	6.0 (3.8, 8.2)	7.3 (5.6, 9.0)
Urgency often	972	7.6 (5.1, 10.1)	3.6 (1.9, 5.4)	5.6 (4.1, 7.0)
Bloating and distention often*	973	14.3 (11.1, 17.6)	3.2 (1.6, 4.9)	8.6 (6.8, 10.4)

\*Manning symptom criteria for IBS

**Identification of symptoms compatible with the irritable bowel syndrome (Manning criteria)** This category included persons who experienced abdominal pain not due to acute illness or medication side effects in the prior year, in combination with two or more of the following: 1) pain that was relieved by defecation >25% of the time; 2) looser stools when pain began >25% of the time; 3) more frequent stools when pain began >25% of the time; 4) abdominal distention >25% of the time; 5) feeling of incomplete evacuation >25% of the time; and 6) mucus per rectum. It has been shown that the more criteria that are present, the higher the probability of IBS.<sup>4,5</sup> Based on the available literature, we used a cut-off score of two or more criteria to identify symptoms compatible with IBS. This has a sensitivity of 94% and a specificity of 55%. The presence of three or more criteria has a sensitivity and specificity of 84% and 76% respectively.<sup>4</sup>

**Statistical analysis** Logistic regression analyses were used to assess the association between sex and symptoms, and the presence or absence of colonic pain, chronic constipation, chronic diarrhoea, and IBS. The estimated parameters for specific symptoms in the logistic regression models, which also contained sex as an independent variable, are used to estimate odds ratios (OR) and 95% confidence intervals (CI) for the symptoms. The  $\alpha$  level of significant was set at 0.05; all p values calculated were two-tailed.

## Results

Of the symptoms measured, 64% of the sample participants had experienced at least one in the prior year. The overall and sex-specific prevalence rates of individual symptoms are presented in Table 1.

**Abdominal pain** Abdominal pain was reported by 453 (46.5%) participants (Table 2). A logistic regression analysis, adjusting for sex, identified a number of characteristic features associated with colonic pain (n = 201) vs non-colonic pain (n = 242) (Table 2). Persons with colonic pain were significantly more likely than those with non-colonic pain to report pain in the lower abdomen, abdominal distention and a disturbance of defecation characterized by mucus per rectum, straining, loose or

watery stools, rectal urgency and frequent (>3 per day) stools. In contrast, persons with non-colonic pain were more likely to report pain in the upper abdomen. Severity and duration of pain were similar in those with colonic and non-colonic pain, as were the proportions reporting hard or infrequent (<3 per week) stools.

**Table 2. Characteristics of bowel symptoms in 26-year-old DMHDS participants with and without abdominal and colonic pain** (colonic pain = pain in prior year relieved by defecation, and/or associated with looser and/or more frequent stools at pain onset; often = >25% of the time)

Symptoms	Colonic pain* n = 201 (%)	Non-colonic pain* n = 242 (%)	No abdominal pain* n = 522 (%)	Colonic vs non-colonic pain (univariate p*)
Upper abdomen	35 (15.8)	79 (32.6)	—	<0.001
Lower abdomen	124 (62.8)	128 (52.3)	—	<0.05
Both upper and lower abdomen	42 (20.8)	35 (14.5)	—	0.08
Severe or very severe	16 (8.0)	28 (11.4)	—	>0.1
Pain lasted for at least 1 month	25 (12.4)	32 (13.2)	—	>0.1
Pain lasted for at least 3 months	13 (6.3)	11 (4.5)	—	>0.1
Abdominal distention often	39 (15.8)	27 (7.9)	18 (3.1)	<0.01
Mucus	33 (13.1)	27 (7.9)	23 (4.0)	<0.05
Feeling of incomplete evacuation often	34 (16.6)	10 (3.9)	27 (5.2)	<0.001
Straining at stool often	26 (11.8)	17 (6.0)	24 (4.6)	<0.05
Hard stools often	20 (9.7)	20 (7.9)	42 (8.2)	>0.1
Loose or watery stools often	50 (24.5)	10 (3.9)	25 (4.9)	<0.001
Urgency often	26 (12.0)	9 (3.2)	19 (3.7)	<0.001
<3 stools/week often	16 (7.3)	20 (7.2)	37 (7.2)	>0.1
>3 stools/day often	32 (16.2)	15 (6.4)	53 (9.9)	<0.01

\*Adjusted for gender from logistic regressions with abdominal pain (colonic abdominal pain, non-colonic abdominal pain, no abdominal pain) as the dependent variable

**Constipation and diarrhoea** Eighty nine (9.1%) participants reported chronic constipation and 166 (17.1%) reported chronic diarrhoea (Table 3).

**Table 3. Prevalence of symptom categories among DMHDS participants**

Symptom category	Total n	Women	Men	Overall
Abdominal pain in prior year	975	56.5 (52.0, 61.1)	36.9 (32.5, 41.2)	46.5 (43.3, 49.6)
colonic pain	965	25.9 (21.8, 30.0)	18.0 (14.5, 21.5)	20.8 (18.2, 23.4)
non-colonic pain	965	32.3 (27.9, 36.6)	18.2 (14.7, 21.7)	25.1 (22.3, 27.9)
Chronic constipation	973	12.4 (9.4, 15.5)	6.0 (3.8, 8.2)	9.1 (7.3, 11.0)
with pain	973	7.8 (5.3, 10.3)	2.2 (0.8, 3.6)	4.9 (3.5, 6.3)
painless	973	4.6 (2.6, 6.6)	3.8 (2.0, 5.6)	4.2 (2.9, 5.5)
Chronic diarrhoea	973	17.7 (14.2, 21.3)	16.4 (13.1, 19.8)	17.1 (14.6, 19.5)
with pain	973	11.8 (8.8, 14.8)	7.6 (5.2, 10.0)	9.7 (7.8, 11.6)
painless	973	5.9 (3.7, 8.1)	8.8 (6.2, 11.4)	7.4 (5.7, 9.1)
Manning criteria for IBS in those with abdominal pain >6 times				
2 or more symptoms	975	22.9 (19.0, 26.8)	14.8 (11.6, 18.0)	18.8 (16.3, 21.3)
3 or more symptoms	975	12.6 (9.5, 15.7)	8.0 (5.5, 10.5)	10.3 (8.3, 12.2)
4 or more symptoms	975	4.8 (2.8, 6.9)	1.8 (0.5, 3.1)	3.3 (2.1, 4.5)

A comparison of the symptoms in these groups is presented in Table 4. Those with chronic constipation and those with chronic diarrhoea were significantly more likely to report abdominal distention as well as other bowel symptoms, including mucus per rectum, a feeling of incomplete evacuation and urgency. Persons with diarrhoea, but not those with constipation, were more likely to report abdominal pain. In those with chronic constipation and diarrhoea, 28% and 41% respectively had two or more symptoms characteristic of IBS.

**Table 4. Characteristics of abdominal pain and bowel symptoms in subjects with and without chronic constipation and diarrhoea** (constipation = straining at stool and hard stools and/or <3 stools per week more than 25% of the time; diarrhoea = loose, watery stools and/or >3 stools/day more than 25% of the time)

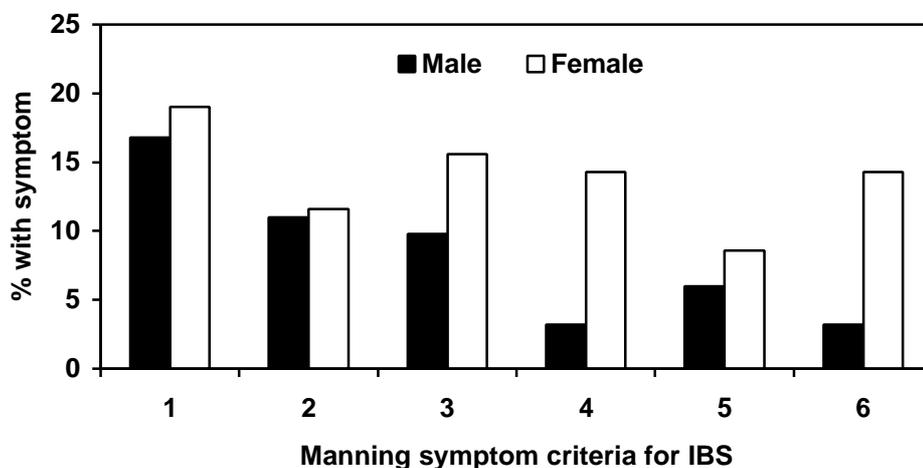
Symptoms	Chronic constipation* n = 89 (%)	No constipation* n = 884 (%)	Chronic diarrhoea* n = 166 (%)	No diarrhoea* n = 807 (%)
Abdominal pain in the past year	48 (51)	404 (46)	94 (57)	358 (44) <sup>‡</sup>
Abdominal distention	17 (13)	67 (6) <sup>‡</sup>	24 (12)	60 (6) <sup>‡</sup>
Mucus in stool ever	17 (13)	67 (6) <sup>‡</sup>	25 (12)	59 (6) <sup>‡</sup>
Feeling of incomplete evacuation often	23 (25)	48 (5) <sup>§</sup>	32 (19)	39 (5) <sup>§</sup>
Urgency often	11 (11)	43 (5) <sup>†</sup>	33 (19)	21 (2) <sup>§</sup>
Manning criteria for IBS (2 or more)	27 (28)	155 (17) <sup>†</sup>	68 (41)	114 (14) <sup>§</sup>

\*Adjusted for gender from logistic regressions with constipation or diarrhoea (vs no constipation or no diarrhoea) as the dependent variable; <sup>†</sup> p<0.05; <sup>‡</sup> p<0.01; <sup>§</sup> p<0.001

**Symptoms compatible with IBS** The prevalence rate for IBS in this sample is shown in Table 3. Of the six Manning symptom criteria for IBS, 33% of the sample reported one or more of the complaints. Defining IBS as two or more of the six Manning criteria in those with abdominal pain not due to acute illness or medication side effects in the prior year, the prevalence of IBS was 18.8% (95% CI, 16.3–21.3). The estimated prevalence rate decreased to 10.3% if three or more Manning criteria symptoms were required to fulfil the definition, and to 3.3% if four or more symptoms were required. Regardless of the definition used, prevalence rates were higher for women than men (two or more symptoms: OR = 1.7, 95% CI = 1.2–2.4; three or more symptoms: OR = 1.7, 95% CI = 1.1–2.5; four or more symptoms: OR = 2.8, 95% CI = 1.3–6.0). The sex-specific proportions for each of the Manning criteria are shown in Figure 1. There were elevated prevalence rates for women for each of the six criteria.

**Sex differences** Compared with men, women were more likely to report any IBS symptom (OR = 2.2, 95% CI = 1.7–2.9) and that they experienced abdominal pain (OR = 2.2, 95% CI = 1.7–2.9). Women also were more likely than men to report the following symptoms: moderate or worse pain severity (OR = 3.0, 95% CI = 2.2–4.2); looser stools at pain onset (OR = 1.9, 95% CI = 1.2–2.8); lower abdominal pain (OR = 2.8, 95% CI = 2.1–3.9); mucus per rectum (OR = 5.0, 95% CI = 2.9–8.8); infrequent (<3 per week) stools (OR = 2.1, 95% CI = 1.3–3.4); straining (OR = 2.5, 95% CI = 1.5–4.3); urgency (OR = 2.2, 95% CI = 1.2–3.9); bloating (OR = 5.1, 95% CI = 2.9–8.9); and chronic constipation (OR = 2.2, 95% CI = 1.4–3.5).

**Figure 1. The sex-specific proportions for each of six symptoms composing the Manning criteria for IBS in persons with abdominal pain not due to acute illness or medication side effects in the prior year**



1 = pain relieved by defecation often; 2 = increased stool frequency at pain onset often; 3 = looser stools at pain onset often; 4 = abdominal distention often; 5 = feeling of incomplete evacuation often; 6) mucus per rectum

## Discussion

This study has shown that abdominal symptoms are very common in a community cohort of young New Zealanders aged 26 years. As many as 64% of them had at least one symptom in the previous year. This is almost identical to an older American cohort studied with similar survey material (68%).<sup>7</sup> A significant number of these have symptoms fulfilling the well defined Manning criteria fitting a diagnosis of IBS.<sup>4</sup> In this birth cohort, 18.8% fulfilled at least two, 10.3% at least three, and 3.3% at least four of the six Manning criteria. These results are similar to those from a comparable study in the USA by Talley et al who found a prevalence of 17.0%, 12.8% and 8.7% for each of the frequencies of diagnostic criteria.<sup>7</sup> However, that study was performed by postal survey on an older group of subjects (30–64 years). A smaller, community-based study from the UK by Thompson and Heaton described 13.6% of subjects having symptoms compatible with IBS; when these were split into young (17–27 years), middle-aged (45–65 years), and older (60–91 years) age groups, the respective prevalences were 19.2%, 7.2% and 14.0%.<sup>8</sup> Another USA-based study by Drossman et al found 17.1% of 789 community subjects of mean age 24 years with bowel function suggesting IBS.<sup>9</sup> Population prevalence therefore appears very similar amongst New Zealanders when compared with that in the USA and UK.

Participants in this study comprise 96% of a complete birth cohort who have now been followed up for 26 years. Most of them are experienced in responding to questionnaires, with a small minority requiring additional help. This was provided by staff trained and experienced in this field.<sup>13</sup> Symptoms were defined clearly and the questionnaire used has been validated. We believe the results accurately reflect the pattern of clinical symptoms among young people in the general population. As there

is no gold standard for diagnosis of IBS, other conditions (eg inflammatory bowel disease, coeliac disease) cannot be excluded entirely. However, the prevalence of these disorders in the community is low and therefore unlikely to significantly distort the number thought to have IBS.<sup>6,15</sup>

The previously described female preponderance of IBS has been confirmed in this cohort of subjects. Not only were the features of IBS more common in females, but abdominal pain, loose stools, passage of mucus per rectum, urgency, straining at stool, infrequent stools and constipation were at least twice as common than in males. Bloating was even more common in females (OR 5.1, CI 2.9–8.9) but the reasons for this are probably multifactorial.

As confirmed in this study, there are a wide range of abdominal symptoms among those surveyed in the community. Interestingly, lower abdominal pain was more frequently related to disturbance in bowel habit, while upper abdominal pain was less likely to be related to alterations in bowel habit. This is consistent with IBS representing a spectrum of pathophysiological disorders that could be linked in their clinical presentation;<sup>16,17</sup> some of these have been linked to psychosocial factors.<sup>18,19</sup> These are to be reported in a further analysis of the extensive lifelong developmental data available on this cohort.

**Author information:** Gil O Barbezat, Professor of Medicine, Department of Medicine; Richie Poulton, Director; Barry J Milne, Research Fellow, Dunedin Multidisciplinary Health and Development Research Unit, Department of Preventive and Social Medicine, Dunedin School of Medicine, Dunedin; Stuart Howell, Research Fellow, Department of Medicine, University of Sydney, Sydney, Australia; J Paul Fawcett, Senior Lecturer, School of Pharmacy, University of Otago, Dunedin; Nicholas J Talley, Professor of Medicine, Department of Medicine, University of Sydney, Sydney, Australia

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**Correspondence:** Professor G O Barbezat; Department of Medicine, Dunedin School of Medicine, P O Box 913, Dunedin. Fax: (03) 474 7724; email: [gil.barbezat@stonebow.otago.ac.nz](mailto:gil.barbezat@stonebow.otago.ac.nz)

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## Prescribing for patients aged 65 years and over in New Zealand general practice

Isobel Martin, Jason Hall and Tim Gardner

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### Abstract

**Aim** To describe patterns of prescribing in general practice for New Zealanders aged 65 years and over.

**Methods** The computerised records of 139 359 consulting patients from 31 general practices from around New Zealand were examined. A subset of 17 497 consulting patients aged 65 years and over was selected and their prescribed medications examined. Utilisation was described in terms of demographic characteristics and health card eligibility.

**Results** 84.6% of all consulting patients received one or more prescriptions during the study period. Patients were prescribed a mean of 19.7 medication items per annum. Females were prescribed to significantly more times than males for patients aged 79 and under. Community services card (CSC) holders were prescribed to more frequently than patients without a CSC in all age groups. 29.5% of all medication items were from the cardiovascular system Anatomical Therapeutic Chemical (ATC) grouping.

**Conclusions** There is a high level of exposure to medication in populations of older people. This is a reflection of older persons' morbidity and also indicates an urgent need to examine the data further for potential drug interactions and side effects.

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There are important considerations in prescribing for the elderly. Normal ageing leads to deterioration in various organ functioning, and changes in metabolism, distribution and excretion of medications with renal and hepatic impairment.<sup>1-4</sup> There is an increasing incidence of chronic medical conditions, with a greater chance of multiple disease states with age. There is limited published data relating to prescribing for elderly populations in New Zealand.<sup>5,6</sup> However, many overseas studies have shown that more medications are prescribed for the elderly than for any other age group.<sup>7,8</sup> Polypharmacy (any one patient on more than five medications) also increases.<sup>9,10</sup>

All these factors (altered pharmacokinetics, pharmacodynamics, disease and medication interactions) may lead to an increasing incidence and severity of side effects. Iatrogenic illness is a serious and common problem. Inappropriate prescribing is a major cause of adverse medication reactions in the elderly.<sup>11</sup> One study claims that when any two medications are prescribed together, the potential for interaction is approximately 6%. This potential may increase to 50% with five medications and to 100% with eight.<sup>12</sup>

This retrospective descriptive study describes prescribing patterns for the population over 65 years of age in general practice in New Zealand over a 12-month period.

## Methods

General practices supply data to the Royal New Zealand College of General Practitioners (RNZCGP) Research Unit after running extraction programmes that expunge patient names, addresses and other identifying information in order to preserve patient confidentiality. Each patient is allocated a unique code which is individuating but non identifiable. Data are imported into a database (Microsoft Access 2000) at the Research Unit for further analysis.

Patient data from 31 computerised general practices from around New Zealand for the period from 1 January 2000 to 31 December 2000 were examined. The practices were selected on the basis of their recording full electronic clinical records. Data relating to each consulting patient including demographic details, government medical subsidy eligibility, consultation records and prescribed medications were included in the study data set. Age for each patient was calculated as at 1 January 2000 and patients aged 65 and over were identified. Age groups were defined in five-yearly intervals. Prescriptions were coded to the Anatomical Therapeutic Chemical (ATC) classification system as used in the New Zealand pharmaceutical schedule. A therapeutic group is defined as a set of pharmaceuticals that are used to treat the same or similar condition(s). A subgroup is defined as a set of pharmaceuticals that produce the same or similar therapeutic effect in treating the same or similar condition(s). The database includes information about some medications that do not receive Ministry of Health subsidies. However, we could not obtain information about drugs sold over the counter (without a prescription) for the study population. In addition, the study database may not include complete prescribing data for rest home residents as not all rest home prescribing is recorded at the practice level. Prescribed medication was calculated as a rate (number of prescriptions and medication items/consulting patient per annum) by age, sex and CSC status. The proportion of consulting patients who received at least one prescription per annum and those who received ten, twenty, and thirty or more prescription items were identified. We calculated the proportion of medication items of the five most frequently prescribed medications in each therapeutic group.

## Results

The total consulting population of the 31 practices was 139 359 patients for the period 1 January 2000 to 31 December 2000. This is approximately 80% of the estimated population base that is serviced by these practices<sup>13</sup> (approximately 4.5% of New Zealand's population as at 31 December 2000). The data are geographically spread, with 15.5% of the population coming from the Central region, 20.4% from Midland, 32.4% from Northern, and 31.7% from the Southern region.

**Table 1. Mean number of prescriptions and medication items per consulting patient per annum by age, sex and community services card (CSC)**

Age group	Females	Males	p value	CSC	No CSC	p value	All patients
<b>Mean number of prescriptions</b>							
65-9	4.6	3.7	p <0.001	4.7	3.3	p <0.001	4.1
70-4	5.1	4.4	p <0.001	5.2	3.9	p <0.001	4.8
75-9	5.7	4.9	p <0.001	5.7	4.2	p <0.001	5.3
80-4	5.4	5.0	NS	5.6	4.3	p <0.001	5.3
85-9	5.1	5.0	NS	5.4	4.1	p <0.001	5.0
90+	4.2	4.2	NS	4.4	3.5	p = 0.01	4.2
<b>Total</b>	<b>5.1</b>	<b>4.4</b>	<b>p &lt;0.001</b>	<b>5.2</b>	<b>3.8</b>	<b>p &lt;0.001</b>	<b>4.8</b>
<b>Mean number of medication items</b>							
65-9	17.9	14.2	p <0.001	18.8	11.8	p <0.001	16.1
70-4	21.5	17.8	p <0.001	21.9	14.4	p <0.001	19.6
75-9	23.6	20.8	p <0.001	24.4	16.7	p <0.001	22.3
80-4	23.6	21.8	p = 0.035	24.7	17.1	p <0.001	22.9
85-9	21.4	19.9	p = 0.233	23.1	14.7	p <0.001	20.9
90+	15.3	15.0	p = 0.820	17.0	10.7	p = 0.001	15.2
<b>Total</b>	<b>21.1</b>	<b>18.0</b>	<b>p &lt;0.001</b>	<b>22.1</b>	<b>14.2</b>	<b>p &lt;0.001</b>	<b>19.7</b>

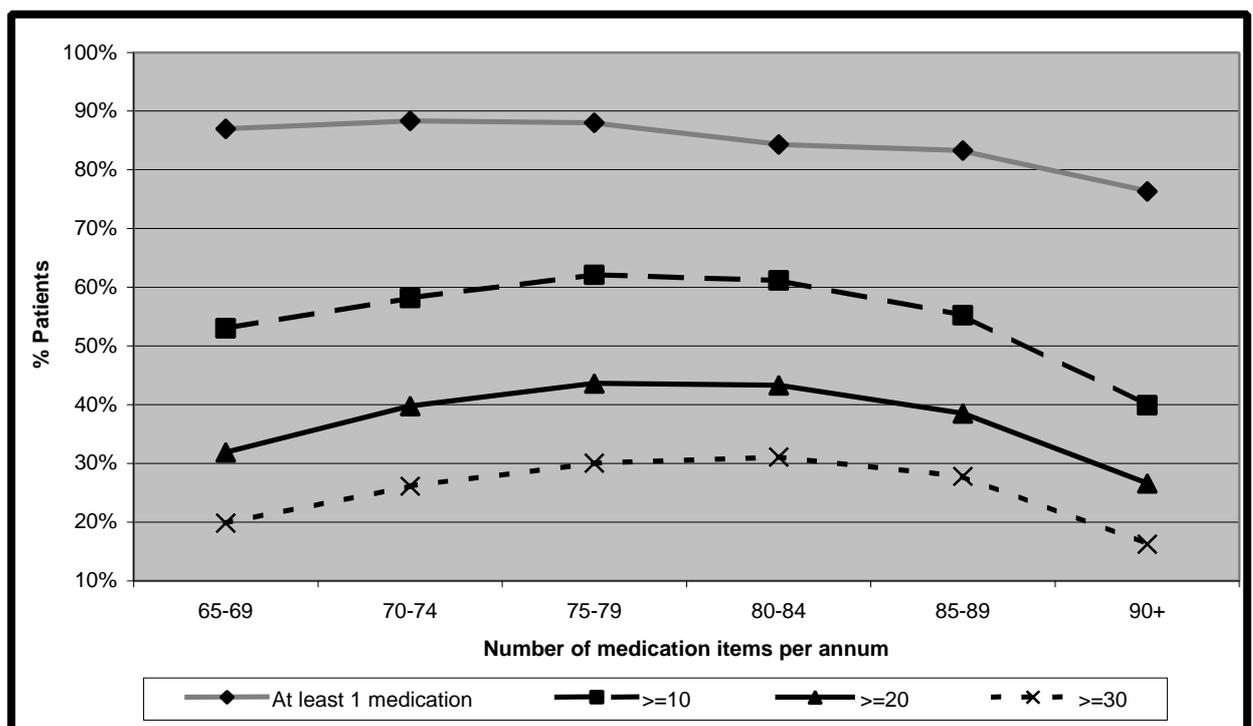
There were 17 497 patients aged 65 years and over (54.4% were female) who consulted 142 446 times and were prescribed medication 83 769 times. These prescriptions included 344 546 individual medication items, of which 135 610 were repeat medications. The mean rate of prescribing for all consulting patients was 4.8 prescriptions per person/year. Females were prescribed to significantly more times than males for patients aged 79 and under. Patients with a CSC were prescribed to more frequently for all age groups compared to patients without a CSC card. Patients were prescribed a mean of 19.7 medication items per annum. Females were prescribed significantly more medication items than males for patients aged 65–79, and patients holding a CSC were prescribed significantly more than those without for all age groups. (Table 1).

Overall, 69.6% of all patients were recorded as holding a CSC, with 76.2% of all patients aged 80–84 holding a CSC (Table 2).

**Table 2. Proportion of patients with community services card (CSC) vs no CSC by age group**

Age group	CSC	%	No CSC	%	Total
65-69	2754	61.5	1727	38.5	4481
70-74	3163	69.5	1386	30.5	4549
75-79	2770	73.2	1015	26.8	3785
80-84	1903	76.2	594	23.8	2497
85-89	1058	73.5	381	26.5	1439
90+	532	71.3	214	28.7	746
<b>Total</b>	<b>12 180</b>	<b>69.6</b>	<b>5317</b>	<b>30.4</b>	<b>17 497</b>

**Figure 1. Proportion of patients by frequency of prescribed items during the study period**



**Table 3. The most frequently prescribed medication items; proportion of therapeutic group by subgroup**

Therapeutic groups and subgroups	Age group						Total
	65-9	70-4	75-9	80-4	85-9	90+	
	% of medication in subgroup						
<b>Cardiovascular system (n)</b>	<b>20 314</b>	<b>26 367</b>	<b>24 651</b>	<b>17 816</b>	<b>9213</b>	<b>3301</b>	<b>101 662</b>
ACE inhibitors	22.1	20.0	18.3	19.8	19.6	23.1	20.0
Beta-adrenoceptor blockers	20.7	19.5	17.6	15.6	12.6	7.8	17.6
Thiazide and related diuretics	11.7	12.0	10.9	8.8	8.7	8.8	10.7
Loop diuretics	6.8	8.1	9.7	13.5	17.6	23.7	10.5
Nitrates	6.9	8.2	10.5	10.8	11.9	11.2	9.4
All others	31.8	32.2	32.9	31.5	29.6	25.2	31.7
<b>Alimentary tract and metabolism (n)</b>	<b>10 907</b>	<b>13 439</b>	<b>13 032</b>	<b>8412</b>	<b>4705</b>	<b>1899</b>	<b>52 394</b>
Proton pump inhibitors	17.7	18.1	21.3	17.8	17.8	13.9	18.6
Oral hypoglycaemic agents	15.5	17.6	10.6	10.1	7.1	5.6	12.8
H2 antagonists	12.8	13.2	12.1	11.1	11.4	12.3	12.3
Calcium	9.8	8.5	9.7	9.0	10.4	6.6	9.2
Glucose/blood testing	12.0	6.5	5.9	4.8	3.1	2.6	6.8
All others	12.0	6.5	5.9	4.8	3.1	2.6	6.8
<b>Nervous system (n)</b>	<b>8822</b>	<b>11 502</b>	<b>11 399</b>	<b>8764</b>	<b>4755</b>	<b>1820</b>	<b>47 062</b>
Antipyretics and non-opioid analgesics	15.9	19.0	19.0	20.7	21.1	29.8	19.4
Sedatives and hypnotics	14.8	14.0	16.8	15.9	17.1	20.9	15.8
Opioid analgesics	15.3	14.2	14.9	14.9	13.0	12.4	14.5
Cyclic and related agents	15.0	13.3	12.4	11.7	12.0	7.4	12.7
Anti-nausea and vertigo agents	6.9	6.6	7.5	7.0	7.3	7.0	7.0
All others	32.1	32.9	29.4	29.9	29.4	22.4	30.6
<b>Blood and blood forming organs (n)</b>	<b>8813</b>	<b>11 165</b>	<b>10 303</b>	<b>6512</b>	<b>3300</b>	<b>1168</b>	<b>41 261</b>
Antiplatelet agents	35.0	41.0	44.1	52.5	56.6	59.9	44.1
HMG CoA reductase inhibitors (statins)	28.1	23.4	19.1	10.4	1.7	0.0	18.9
Oral anticoagulants	11.0	10.5	13.0	12.0	7.0	6.6	11.1
Fibrates	12.1	11.5	6.2	3.8	0.8	0.0	7.9
Oral administration	5.5	6.2	7.5	8.7	17.2	13.9	7.9
All others	8.2	7.4	10.1	12.7	16.7	19.6	10.2
<b>Respiratory system and allergies</b>	<b>5862</b>	<b>7141</b>	<b>6838</b>	<b>3694</b>	<b>1536</b>	<b>370</b>	<b>25 441</b>
Beta-adrenoceptor agonists - long acting tablets - high dose	17.2	20.7	17.0	21.4	20.8	17.6	18.9
Beta-adrenoceptor agonists - long acting tablets - low dose	16.4	16.8	15.1	16.6	19.4	11.1	16.3
Allergy prophylactics	17.1	15.3	12.9	12.8	16.0	18.6	14.8
Inhaled beta-adrenoceptor agonist and anticholinergic agents - MDI	9.4	11.9	11.0	11.7	10.9	5.9	10.9
Inhaled corticosteroids - breath activated devices - very high dose	8.3	7.6	8.3	7.4	6.1	4.3	7.8
All others	31.6	27.7	35.7	30.1	26.9	42.4	31.3

Figure 1 shows the proportion of patients prescribed one or more medication items during the study period. 31.1% of patients aged 80–84 were prescribed 30 or more medication items per annum compared to 16.2% of patients aged 90 and over.

Table 3 shows the most frequently prescribed medication items from the ATC groupings by therapeutic subgroup. 29.5% of all medication items were from the cardiovascular system; 15.2% from the alimentary tract; 13.7% from the nervous system; 11.9% from blood and blood forming organs; and 7.4% from the respiratory system and allergies ATC groupings.

## Discussion

This study population reflects the New Zealand general practice elderly population and describes prescribing as it actually happens in this patient group.

A major strength of this research database is its size, covering a large sample of New Zealand's consulting population. The prescription data available on the database include medications that do not receive government subsidies and general practitioner prescribed over-the-counter medications. Importantly, the database provides individuation of data while maintaining patient confidentiality.

There are several limitations to this study. Firstly, while the demographics of people who are resident in old peoples' homes are included on each general practitioner's practice management system, it is not known which patient's records are maintained at the care facility. Likewise, it is not known how many of the general practitioners routinely include all prescribing data of these patients on their database. Some, for example, rely on pharmacy-derived prescriptions for all routine repeated medications.

The two units of measure are the number of prescriptions written and the number of prescription items. The electronic prescribing records currently collected do not record whether or not a medication is a long-term medication, and therefore the number of prescription items cannot be assumed to be the number of different medications being taken. As can be seen from Table 1, many of the medications would usually be prescribed long term. The next phase of this study is to identify the long-term concurrent medications being taken by each person.

The validity of research based on database records has been questioned for a variety of reasons. One central concern is that there are biases in selected data collections. This question has been addressed in a study that compared data from a group of randomly selected doctors that found no significant differences between the two groups.<sup>14</sup>

The design of medical software packages requires active management of patient registers – that is patients who have moved away, died or ceased to be patients of the practice must be removed from the system by the practice staff. It is therefore difficult to make inferences about patients who did not consult. Furthermore, some patients may see more than one general practitioner over the study period and so some prescriptions may not appear on the database. In addition, some patients may have specialist prescribed medications (personal communication, Jaye and Martin, 2002). This study had no way of measuring any non-prescribed over-the-counter medications taken during the study period. Prescription data come from general practice prescribing records not pharmacy dispensing records, and therefore failure to present or pick up a prescription was not measured. There are many different estimates for

non-dispensing and the rate differs between medication types, age groups, sex, general practitioner, and day of the week. Frequent medication regimes are also associated with decreasing compliance,<sup>15</sup> however compliance cannot be measured with existing data. Despite these limitations in our study design, clinical databases are increasingly used to examine utilisation and are a valuable tool for general practice research, as they record general practice activity as it actually occurs without influencing or altering performance or outcomes.

This paper demonstrates a high prescribing rate in the elderly population. There is a high potential for interactions among at least 50% of the elderly population (with 39.9% aged 90 and over and 62.1% of patients aged 75 to 79 being prescribed ten or more medication items per annum). The most frequently prescribed medications were for cardiovascular disease. There is a large literature on potential interactions with polypharmacy.

It is interesting to note that between 12% and 25% of elderly patients in this sample were prescribed no medication during the year. Furthermore, patients aged 90 and over took significantly less medication than those aged between 65 and 89. This last finding may be due to the fact that this group represents the 'healthy old', with those having significant morbidity being already deceased. In addition, it may be that they have less access to care due to immobility and isolation. Another possibility is that survivors in this group are proportionally more likely to be receiving rest home or hospital level care and the data thus skewed for the reasons outlined above.

In this study, females were prescribed more medication than males. Previous evidence has found that when gender-specific medications are excluded the differences are less pronounced.<sup>16</sup> When female-specific therapeutic groupings and treatments are removed, differences still exist between male and female prescribing. These are most marked with the nervous system ATC grouping. This is in accord with studies that indicate that females are prescribed more anxiolytics and antidepressants.<sup>17,18</sup>

There was a significantly ( $p < 0.001$ ) higher rate of prescribing for those with a CSC. This may indicate that those who have a better income keep better health, or that those people without a CSC do not have the same access to medication due to cost. Previous evidence suggests the CSC is a surrogate measure of health need, with holders of CSC cards having increased odds of certain chronic conditions.<sup>19,20</sup> The proportion of elderly in this study accurately reflects the proportion of those people who are eligible for the card based on income (Statistics New Zealand 1999).

In summary, there is a high level of exposure to medication in populations of older people. This is a reflection of older persons' morbidity and also indicates an urgent need to examine the data further for potential drug interactions and side effects.

**Author information:** Isobel R Martin, Director; Jason Hall, Junior Research Fellow, RNZCGP Research Unit, Department of General Practice, Dunedin School of Medicine; Tim Gardner, General Practitioner, Outram Medical Centre, Dunedin

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**Correspondence:** Dr Isobel R Martin, Department of General Practice, Dunedin School of Medicine, University of Otago, P O Box 913, Dunedin. Fax: (03) 477 2056; email: [imartin@gp.otago.ac.nz](mailto:imartin@gp.otago.ac.nz)

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## Spontaneous rupture of bladder presenting as peritonitis

Anuradha Jayathillake, Richard Robinson, Ahmed Al-Samarii and Murugesan Manoharan

Spontaneous rupture of the urinary bladder is a rare event regardless of the underlying cause. The incidence of spontaneous bladder rupture has been reported as 1 in 126 000 hospital admissions.<sup>1</sup> Since the first report by Glashan in 1967,<sup>2</sup> only five cases have been reported of spontaneous rupture of bladder secondary to squamous cell carcinoma. We report a case of a 72-year-old woman with peritonitis due to spontaneous rupture of the bladder.

### Case report

A 72-year-old woman presented to the emergency department with a 24-hour history of lower abdominal pain. She described a sudden onset of pain with progressive worsening in the past 24 hours.

In the recent past, she was seen by her general practitioner, presenting with a one-month history of frequency, malodorous urine, mild dysuria and intermittent haematuria. The patient had been on three different courses of antibiotics for a urinary tract infection. Her only other medical problem was glaucoma.

On presentation, she was afebrile (36.4°C), dehydrated and in obvious distress. Abdominal examination showed marked tenderness in the abdomen with guarding of the lower abdomen. Clinical diagnosis of acute peritonitis was made. A 20 Fr urethral catheter was inserted, which drained a small amount of pus and discoloured urine. Her haemoglobin was 156 g/dl, white blood count  $12 \times 10^9$ , neutrophil count  $9.4 \times 10^9$ ; serum electrolytes, liver function tests and amylase were within normal limits. Urine analysis showed  $>500 \times 10^6/l$  white blood cells,  $>200 \times 10^6/l$  red blood cells.

A computerised tomography (CT) scan of her abdomen and pelvis showed the finding of thick-walled bowel loops in the pelvis and a small amount of free fluid (Figure 1). The patient's general condition continued to deteriorate. She proceeded to have surgical exploration eight hours after admission. At laparotomy, the patient was found to have a localised 1.5 cm perforation of the bladder wall on the right side with surrounding necrosis. The bladder wall was found to be considerably thickened. There was a large amount of fibrinous exudate. A wedge excision biopsy was taken of the bladder wall.

A suprapubic catheter was inserted and the bladder perforation closed using mobilised broad ligament. She continued to deteriorate and developed multi-organ failure. The patient died from a respiratory arrest ten days from operation. Biopsy of the bladder showed presence of poorly differentiated squamous cell carcinoma with necrosis and ulceration.

**Figure 1. CT scan of patient's abdomen and pelvis**



## **Discussion**

Spontaneous rupture of the urinary bladder is a rare event and two detailed reviews of this subject have been published by Bastable et al in 1959 and Rasmussen in 1994.<sup>1,3</sup> Spontaneous rupture of the bladder secondary to a carcinoma is even more rare. Only five cases have been reported in the literature of squamous cell carcinoma causing spontaneous bladder rupture.<sup>2,4-7</sup>

Squamous cell carcinoma accounts for less than 5% of all bladder cancers. Of the malignancies causing spontaneous bladder rupture, this lesion seems to be over-represented. Since the review by Rasmussen of 17 cases, two further case reports have been published.<sup>8,9</sup> Of the 13 cases in which definitive histology was recorded, eight were due to transitional cell carcinoma, with the remaining five due to squamous cell carcinoma.

Patients with ruptured bladder present commonly with overt symptoms and signs of peritonitis.<sup>1</sup> Diagnosis is usually made at laparotomy. These patients have a high mortality rate. Four out of six reported cases (including present case) died within days of initial surgery.

A history of unexplained urinary tract symptoms prior to the onset of the acute event is common to most of these patients. Catheterisation usually leads to a small amount of urine high in white blood cells, or it may yield a small amount of frank pus. In all cases, repair was undertaken with closure of the visible defect and bladder drainage via a catheter.

Cystography has been recommended<sup>10</sup> although none of the reported cases quoted above had this investigation prior to laparotomy. As these patients present with peritonitis requiring surgical exploration, an awareness of the potential for the bladder to rupture is important. It is likely that most patients with spontaneous rupture of the

bladder will initially present to general surgeons rather than urologists, as preoperative diagnosis has been difficult.

**Author information:** Anuradha Jayathillake, Urology Registrar; Richard Robinson, Consultant Urologist; Ahmed Al-Samarri, Urology Registrar; Murugesan Manoharan, Urology Registrar, Department of Urology, Wellington Hospital, Wellington

**Correspondence:** Anuradha Jayathillake, Department of Urology, Hastings Hospital, P O Box 9014, Hastings. Fax: (06) 873 2105; email: [anuradha@xtra.co.nz](mailto:anuradha@xtra.co.nz)

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In all that has been said about disinfection of the hands it has been assumed that the hands were in a healthy state. It is necessary, therefore, at this stage of the discussion to refer to the possibility of sores on the fingers. All authorities who allude to this subject are emphatic that *no method of disinfection can pretend to protect a wound against an inflamed or suppurating hand*. Lockwood(13) says: "It would be most reprehensible to operate with a suppurating sore upon the hands; I have recently seen a terrible disaster follow the breach of this rule." The organisms are scattered broadcast throughout the wound during the course of the operation, with the inevitable result of extensive infection at the most dangerous time—*i.e.*, when the surfaces are raw. Slight cuts or grazes, if not inflamed, do not seem actually to contra-indicate a surgeon's operating, but they must be well covered up with collodion or, preferably, celloidin. This must be applied after the hands have been prepared, for spirit will dissolve and loosen either substance. Or a *firm* finger-stall should be used; the thin stalls are so apt to give way that they constitute a danger. From the evidence furnished by experiments the probability is that most surgeons have hitherto underestimated the danger of slight scratches on the hands and especially on the fingers. Thus Blumberg(14) was often able to obtain numerous colonies from the slightest scratches when no development could be obtained from other parts of the hands or fingers. Schæffer, again, made it a rule never to experiment upon hands on which there was the slightest visible injury or chap (*die kleinste sichtbare Verletzung oder Schrunde*).

This leads us to a most important precaution—*i.e.*, the preservation of the surface of the hands. Lockwood, Hägler, and others have drawn attention to the ease with which a smooth hand may be cleansed as compared with a rough one, and every-day experience confirms their conclusions. Hence the use of very powerful antiseptics, such as Lockwood's 1-500 of biniodide in spirit, Lister's 1-500 of corrosive sublimate in 5-per-cent. carbolic acid, or even 5-per-cent. carbolic acid, do more harm than good by roughening the hands and leading them to crack, except for the favoured few whose hands can stand them. Even the hot-water-alcohol method, which is so relatively unirritating, damages the hands by removing the natural fat of the skin. It is therefore necessary to compensate for this by rubbing into the hands some simple preparation of lanolin or oil at bed-time, and, if possible, also at the end of every operation. Hägler emphasizes the need for thus caring for the hands, and considers that it should be as regular a part of the surgeon's daily routine as the winding-up of his watch. In order to facilitate the cleansing of the finger-tips *the nails should be kept as short as possible*.



## **Privacy pitfalls in doctors' disclosures following an operation**

Alan Knowsley

Doctors need to be very careful when releasing any information about a patient. The burden of establishing exceptions to the Health Information Privacy Code is on them, and it is not an easy one to discharge.

A recent High Court decision<sup>1</sup> deals with allegations of breach of privacy by a surgeon following an operation. The surgeon telephoned the patient's husband three times: 1) to confirm completion of the operation; 2) to advise that the patient required emergency surgery and invite the husband to come to the hospital; 3) to advise that the patient was stable following a blood transfusion.

The patient claimed that there was no authority to release any information and that the releases 2 and 3 were a substantial cause of her marriage breakdown.

The Health Information Privacy Code prohibits the release of information about a person's health (R4(1)(a)). The prohibition is subject to the exceptions contained in R11.

This rule provides that information must not be released unless the agency (in this case the surgeon) reasonably believes (amongst other reasons not relevant here) that the disclosure is authorised by the individual or is general in terms of condition and progress in a hospital on that day and is not contrary to the express wishes of the patient.

The patient complained to the Privacy Commissioner who decided not to refer the matter to the Proceedings Commissioner. The patient brought her own complaint to the Complaints Review Tribunal.

The Tribunal dismissed the patient's claims and the patient appealed to the High Court. The Court held that the Tribunal had got the law wrong and so heard the matter itself. The High Court concluded that:

- the doctor had established that the disclosures to the husband fell within the exceptions to non-disclosure;
- even if they were in breach of the rules they did not interfere with the patient's privacy;
- even if they were a breach of privacy the patient was not entitled to any remedy.

The Court had this to say about the doctor:

“There is no suggestion that the respondent acted in bad faith or with any intention to harm the appellant. All of the evidence suggests that she went out of her way to accommodate, to the best of her professional and ethical ability, the demands of [the] patient...”

The Judge did not accept that disclosure of the existence of emergency surgery and a blood transfusion for the purposes of stabilising the appellant's condition (when the husband knew of the performance of the operation) resulted in any humiliation, loss of dignity, or injury to the patient.

In this case, significant issues of fact arose as to whether the doctor had been told not to communicate with the patient's husband. Doctors need to be very careful when releasing any information about a patient. The burden of establishing exceptions to the Code is on them and it is not an easy one to discharge.

**Author information:** Alan Knowsley, Solicitor, Rainey Collins Wright & Co, Wellington

**Correspondence:** Alan Knowsley, Rainey Collins Wright & Co, P O Box 689, Wellington. Fax: (04) 473 9304; email: [aknowsley@rcw.co.nz](mailto:aknowsley@rcw.co.nz)

**Reference:**

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## **Medical insurance crisis hits Australia's surgeons**

Up to 60% of Australia's surgeons are threatening to retire early and almost a third of trainees are planning to quit because of rising medical indemnity costs, a survey has found.

In the latest fallout from the continuing insurance crisis, the Royal Australasian College of Surgeons, which conducted the poll, warned that the mass exodus of surgeons would be catastrophic for the health system.

In April United Medical Protection, the country's largest medical indemnity insurer, went into provisional liquidation with a shortfall of \$A450m, leaving 32 000 members without cover.

The survey of 1100 of the college's 3700 member surgeons in Australia and New Zealand found that 70% of surgeons expected their insurance premiums to rise by between 25% and 50% this year. And almost one in five surgeons said that if they retired there was no one to continue their particular service.

In June the federal government guaranteed that doctors insured with United Medical Protection would have temporary malpractice cover until the end of 2002 and that it would work with doctors and the states to find a permanent solution.

BMJ 2002;325:510

## **Evolution update**

Charles Darwin's *The Descent Of Man And Selection In Relation To Sex*, published in 1871, in a sense completed the work he had begun in *The Origin of Species* in 1859. It had two main themes: the first, implied but never bluntly stated in *The Origin*, was that the human species had evolved from ape-like ancestors. The second was the proposal of a supplementary mechanism of evolutionary change, based not on natural but sexual selection. Why, Darwin had wondered, were the males and females of many species so strikingly different, and why in particular did the males often sport such seemingly improbable, and certainly unwieldy features as the peacock's tail, the turkey's wattles, or the stag's antlers?

Darwin proposed that the evolution of such features was driven by female choice from among a range of possible mates. He speculated that she chose on the basis of what passed for beautiful, or at least could be regarded as an extravagant sign of male virility and power (evolutionary psychologists claim that younger women's alleged preference for sex with older men wearing Rolex watches is similarly genetically driven). Female choice thus results in selection for ever more dramatic male addenda.

Guardian Weekly, 26 September – 2 October 2002

## **Sperm remember which way they swam**

If human sperm turn in one direction, they'll turn in the opposite direction at the next opportunity, Peter Brugger, a neurobiologist at University Hospital, Zurich, has found. "It's certainly not cognitive memory," he says. But they must have some kind of memory.

This kind of behaviour, known as spontaneous alternation behaviour, is found in a wide range of creatures. To see whether human sperm cells exhibit it, Brugger recorded which way 714 healthy sperm cells turned when confronted with a left or right choice in a T-shaped channel. As expected, half the sperm went left and half went right.

But in a maze that forced the sperm to turn right before they reached the T-junction, 58 per cent turned left. Brugger, whose work will appear in *Behavioural Brain Research*, thinks the percentage that "remember" which way to turn would be even greater if the maze were smaller. The sperm had to swim 10 times their body length after the forced turn, so some of them may already be "forgetting".

One simple explanation could be that each turn causes an asymmetry in the mechanism that controls a cell's tail, or flagellum. It then compensates by turning in the opposite direction next time. But it is also possible that the sperm are somehow communicating.

New Scientist, 31 August 2002

## **Managing acute appendicitis**

Laparoscopic appendicectomy comes into its own when there is diagnostic doubt – a special case is that of young women, in whom the diagnostic dilemma is often greatest and in whom endoscopic surgery can be performed if tubo-ovarian pathology is found at laparoscopy. One non-randomised study of parallel groups used the Alvarado score to select young women with suspected acute appendicitis for laparoscopy. Ten per cent were found to have normal appendixes and were spared a surgical incision, and the normal appendicectomy rate was 0%, compared with 18% in the control group treated on a different surgical unit. This effect in young women was borne out by systematic review.

What should now be recommended for the diagnosis and management of acute appendicitis? Clinical judgement still has a place, especially if an experienced clinician is prepared to re-evaluate doubtful cases at regular intervals: rapid, unexpected perforation is uncommon, and there is no case for rushing to operate in marginal cases. Laparoscopy has a definite place in women, and in others where there is diagnostic uncertainty, although perhaps it is best avoided where the suspicion of perforation is strong.

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## Assessment of snorers in primary care

The viewpoint put forward in the recent article by Sparks et al<sup>1</sup> is misleading and potentially harmful were its recommendations to be indiscriminately adopted by general practitioners in managing patients with snoring and/or obstructive sleep apnoea (<http://www.nzma.org.nz/journal/115-1155/57/>).

The article aims to provide a guideline for general practitioners as to how to group snorers assessed in a primary care setting, yet without providing an appropriate or rigorous evaluation of the proposed model. There were no outcome data in terms of diagnostic accuracy and treatment outcome. The authors should have compared their approach to the currently accepted or traditional model of care where the investigation and treatment pathways are determined.

The use of overnight oximetry as a screening tool for sleep apnoea is a legitimate but contentious issue, with wide variation in published sensitivities and specificities relating to variations in study design, equipment used, thresholds for desaturations and the population studied. The results of studies in which oximetry has been undertaken as part of attended inpatient polysomnography in subjects clinically selected for investigation of possible obstructive sleep apnoea syndrome cannot be generalised to the screening of snorers in primary care in an unattended home setting. Pre-test probabilities differ significantly. The sensitivity and specificity of oximetry in this setting are lower and will result in a higher rate of falsely positive and falsely negative cases.

The authors quote a small Australian study as justification for using an Epworth Sleepiness Score (ESS) of greater than 10 as a cut off for significant somnolence. However, New Zealand research indicates that age, gender, ethnicity and socioeconomic status have an independent effect on the ESS.<sup>2</sup> It must be recognised that this type of questionnaire-based assessment is easily manipulated. Clinicians working in this field will be familiar with the difficulty of using this scoring system in commercial drivers, who frequently under-report symptoms. Likewise, the statement that patients with an ESS less than 10 are unlikely to tolerate continuous positive airway pressure (CPAP) represents an unbalanced assessment of the literature. Kingshott et al showed that the change in ESS, not the absolute value of the ESS, correlated with CPAP use and this accounted for only 40% of the variance.<sup>3</sup>

Whereas one could argue that, based on an ESS and an oxygen desaturation index (ODI), sleepy hypoxic snorers without significant co-existing lung, neuromuscular or heart disease (Group B in the Sparks Chart) ought to be offered a trial of nasal CPAP without further ado, the converse (Group D in the Sparks Chart: non-sleepy snorers with an oxygen desaturation index of less than 20) cannot be justified. The authors' choice of threshold for the ODI (less than 20) is a "suggestion". No evidence to support this demarcation is presented. A thorough exploration of the relationship between ODI and respiratory disturbance index (RDI) is the very least that is called for in proposing their hypothesis, but is lacking.

There is an increasing body of evidence that undiagnosed and untreated obstructive sleep apnoea poses cardiovascular risks, and this is likely to be true for patients with an ODI less than 20. Use of the Sparks Chart as far as non-sleepy snorers are concerned is potentially misleading in this regard, and a much more robust and research-based argument should be presented before the authors' proposal can be safely adopted by general practitioners. The technology for domiciliary sleep studies that determines an RDI as well as a desaturation index is now readily available, and reliance on pulse oximetry alone is neither appropriate nor necessary.

Robin Taylor

Associate Professor of Medicine  
Dunedin School of Medicine

Alister Neill

Senior Lecturer in Medicine  
Wellington School of Medicine

Ken Whyte

Consultant Physician  
Green Lane Hospital, Auckland

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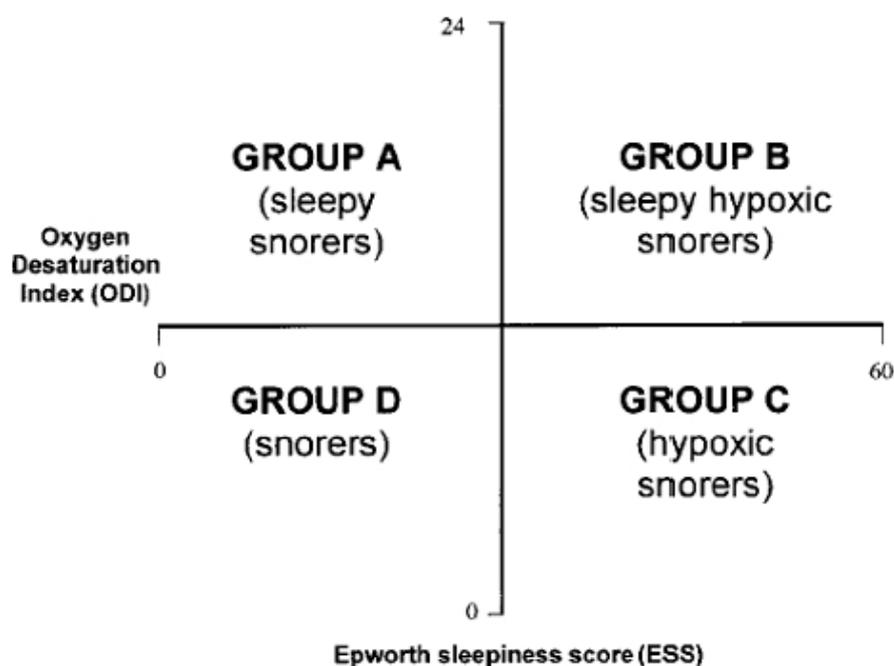
## Response

We would like to thank Drs Taylor, Neill, and Whyte for the interest they expressed in our viewpoint article. We emphasised that our model should not be used to diagnose obstructive sleep apnoea. We also pointed out that the 'cut off' for the desaturation index was not fixed and could be adjusted according to availability of local resources (Figure 1). Therefore, the suggested exploration of the relationship between oxygen desaturation index and respiratory disturbance index would be of academic interest only.

We do not suggest that oximetry be used as a screening tool for obstructive sleep apnoea. If our model were being applied in primary practice the *screening* tool might be the question 'Is snoring a problem for you?' In our viewpoint article, we suggested overnight oximetry and Epworth Sleepiness Scale could be used in conjunction with individual clinical assessment as tools for measuring two markers of clinically

adverse outcome in habitual snorers – daytime sleepiness<sup>1</sup> and cyclic nocturnal hypoxaemia.<sup>2</sup> The four groups created by *combining* the two dimensions of daytime sleepiness (Epworth sleepiness scale) and cyclic hypoxaemia (oxygen desaturation index) might better be thought of as describing ‘snorer’s syndrome’ or ‘heavy snorer’s disease’.<sup>3</sup>

**Figure 1. The Sparks Chart – grouping snorers according to combined Epworth Sleepiness Score and = 4% oxygen desaturation index**



The correspondents suggested we should compare our model to “the currently accepted or traditional model of care”. As far as we are aware, there is currently no systematic approach for primary practice management of problematic snoring. The Sparks Chart might assist selection of relevant outcome measurements for post-treatment review by primary care practitioners or specialists (otolaryngologists, dental specialists, respiratory physicians or sleep physicians) involved in treating snorers.

We concede that the best treatment pathways for sleepy snorers with low frequency desaturation (Group A in the Sparks Chart) or non-sleepy snorers (Groups C and D in the Sparks Chart) have yet to be determined. Outcome data from appropriately designed studies are needed before our model could be widely implemented in general practice, and indeed our own research activities are in this area. The correspondents might be correct in arguing that all snoring patients in groups other than Group B need polysomnographic investigation. However, recent public health research indicates that approximately 46% of New Zealand middle-aged men ‘often’ or ‘always’ snore (personal communication, R Harris), and over 16% are likely to report an Epworth Sleepiness Score >10.<sup>4</sup> The deficient service in New Zealand<sup>5</sup> currently endorsed by tertiary-based sleep specialists would struggle to meet the public demand suggested by those epidemiological findings.

There is a growing body of evidence that undiagnosed and untreated obstructive sleep apnoea poses cardiovascular risks.<sup>6</sup> That same body of evidence also suggests habitual

snoring in conjunction with daytime sleepiness might be a marker of adverse outcome.<sup>7</sup> We are concerned about the extensive public hospital waiting lists and limited availability of specialist sleep services outside the main centres.<sup>5</sup> The correspondents referred to domiciliary polygraphic technology, but access to that technology in New Zealand is currently restricted to specialist sleep laboratories.<sup>8</sup> Contrary to their claim, therefore, the technology is not readily available to the highly prevalent at-risk patient group targeted by our model. The suggestion that adopting such technology might supersede the need for primary-based management strategies for patients with problematic snoring is both misleading and potentially harmful.

The correspondents agreed with us that based on an Epworth Sleepiness Scale and an oxygen desaturation index, sleepy hypoxic snorers without significant co-existing lung, neuromuscular, or heart disease (Group B in the Sparks Chart) ought to be offered a trial of nasal CPAP without further ado – a straight path to treatment for at least *some* snorers assessed in primary care.

Bryn Sparks  
PhD Candidate  
Christchurch School of Medicine

Alex Bartle  
General Practitioner  
Sleep Well Clinic, Christchurch

Lutz Beckert  
Senior Lecturer in Medicine  
Christchurch School of Medicine

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## Informed consent

A colleague has sent me a copy of your recent paper<sup>1</sup> (<http://www.nzma.org.nz/journal/115-1162/181/>). I write to express praise and sympathy in equal measure.

I retired in 1988 after more than 20 years on the staff of Green Lane Hospital. Until then, we had been lucky in that nobody lectured us on our duty to provide relevant explanations to our patients. We just gave them as a natural part of our job, and I can't recall any complaints. 'Informed consent' was discovered, in the Cartwright Report, as a considerable novelty; to us it was rather old hat. I had been keenly interested in medical ethics since 1960; I was a foundation member of the Green Lane Ethics Committees, one for patients and another for experimental animals, from 1973 until my retirement.

Following Cartwright, such 'local' committees were abolished. I thought it a big mistake. Beyond that, it seemed to me that several provisions of the Cartwright Report were 'difficult to accept, insufficiently precise, or even contradictory'.<sup>2</sup> For example: 'The person seeking the patient's consent must be satisfied that she can read and understand it'. Yet, five lines on: 'It should never be assumed that the patient who appears to read and understand a form has in fact read and understood it'. Verbal explanations must surely court this very dilemma, but of course by then everything had to be written down as well, if only for our self-defence.

Then there was the question of what 'informed' meant. Arguably, consent can be admirably informed yet quite ignorant. I wrote about that.<sup>3</sup> Franz Ingelfinger had said something about it too.<sup>4</sup>

But of course all this writing went for nothing! Cartwright, flawed or not, carried the day! I don't want to discourage (far less depress!) you, but I fancy that you shouldn't expect much. 'There is a tide in the affairs of men, / Which, taken at the flood, leads on to fortune'. I obviously missed the tide. Seeing what's become of us, I now think, despite a most rewarding professional life, that I should have read Physics instead. I should have needed good doctors, but then I do now anyway! I await Next Time Round with interest.

Do keep going!

Edward Harris

Formerly Physician-in-Charge

Clinical Physiology Department, Green Lane Hospital

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## Deirdre M Airey

Deirdre Airey died at Coromandel on 16 August 2002. She was born in Christchurch on 9 December 1926, the only daughter of Bill and Isabel Airey. She was educated at Epsom Girl's Grammar School and Otago University, graduating MB ChB in 1951.



Following a year as House Surgeon at Auckland, Deirdre went to Britain for further experience, travelling as ship's surgeon on a cargo vessel. In Britain, she spent approximately two years each in hospitals at Newcastle and Durham, and at Great Ormond Street, London. She spent holidays with friends at Oxford, and there she converted to Catholicism, which was to have a profound effect on the remainder of her life. Travelling in Italy, she was impressed with the wealth and variety of art, and this kindled in her a lifelong interest in the visual arts.

Returning to New Zealand in 1960, again travelling as ship's surgeon, Deirdre was appointed to the position of part-time Medical Superintendent of Coromandel Hospital with the right of private practice. For this job she had to obtain her driving licence and her first car. She was for many years the sole practitioner in general practice at Coromandel, and, when the practitioner at Whitianga was absent, had to cover the entire Coromandel Peninsula north of Thames. This was in the era of shingle roads before car ownership was universal in the area, and doctors were obliged to make home visits at any hour. Her concern for the wellbeing of her patients, and especially the poor, kept her on the road at all hours. For this devotion and dedication to duty she was awarded the QSM.

Deirdre had a wide range of interests. Outdoors, she had a keen interest in gardening and was very supportive of moves to preserve the environment. Even in busy times she could find time for a daily swim at a nearby beach. Indoors, she was interested in spinning and weaving. She had a great love of reading, and was instrumental in the provision of a new library building for the town. She established with others a Shakespeare reading group which met regularly. She wrote articles for newspapers on religious topics, stories (unpublished), and at the time of her death was busy with an autobiography. With a small group of artists, she helped organise and exhibited in an annual Easter art show at Coromandel.

Perhaps the activity other than medicine for which she became most widely known was the making of terracotta wall tiles, mostly featuring biblical subjects. For these she would painstakingly work the clay, reworking it again and again until the tile was to her satisfaction. The firing of her work was done by Barry Brickell, a well known Coromandel potter. Even after the firing, some of the tiles would not be to her satisfaction, and she would return again and again over the years to the same subject to make a better version.

Shortly after her retirement from general practice in 1987, Deirdre developed rheumatoid arthritis which rapidly progressed until she was unable to walk. Despite the devastating effect this disease had on her hands, and the fact that for the last 3½ years of her life she was confined to a wheelchair, she continued working her clay tiles, and with the assistance of home help was able to remain in her own home.

The high regard with which Deirdre was held in the community was demonstrated at her funeral, for which the church was packed to capacity and the service relayed to twice as many mourners again outside.

I am indebted to her brother, Alastair, for much of the information in this obituary.

We are grateful to Mr Graham Power for this obituary notice



## Kevin Nicholas McNamara

Kevin McNamara was born in Auckland in 1915. His mother died when he was 12, leaving seven children. His father remarried and had a further nine children, making Kevin the oldest of 16 siblings.



Something must have motivated him towards medicine, as he persuaded his father to send him to Sacred Heart College so that he could do Latin – necessary then for entry into medical school.

He excelled as a student, matriculating at the age of 14. Proceeding later to Otago, he qualified in 1937 MB ChB aged 22, in the process being awarded the Colquhoun Prize in Medicine.

Following graduation, he commenced training in Pathology, first at Auckland Hospital and then at the North Shore Hospital in Sydney. In 1939, he volunteered for the Australian Army, but a chest X-ray revealed early TB and he was transferred to sanatorium care.

Tiring of the inactivity, he returned to New Zealand and was appointed Assistant Superintendent at Whangarei Hospital. Though not fully recovered from TB, he worked long hours there, as well as supervising a 300-bed emergency military hospital – duties made more onerous by a severe epidemic of both influenza and meningitis.

In 1943, he married Miss Gwen Boyd and moved to Greymouth as Chief Surgeon to the Greymouth Hospital. During this time, he studied for an MD, using for his thesis material gathered from meningitis cases dealt with earlier in Whangarei. This was submitted in 1945 and he obtained his MD – a somewhat unique event when followed a year later by an FRACS, and then in one further year by his English Fellowship. The study and travel for this final exam was aided by the prior award of the Gordon Craig Postgraduate Fellowship.

In 1946, Kevin McNamara was appointed surgical assistant to Sir Carrick Robertson in the public wards of the Auckland Mater Misericordiae Hospital. In 1955, he succeeded Sir Carrick as Senior Honorary Surgeon and was appointed Chairman of the Hospital Medical Executive. These public beds, together with the Nurses Training School, closed in 1945 but until then Kevin McNamara must have operated, without fee, on some thousands of cases. These, together with his private work and his Auckland Hospital duties, created a huge workload, made possible only by his extreme competence as a surgeon and the drive and stamina to allow him to cope with long hours and long lists.

He was an avid reader of surgical advances and was one of the first in the field in New Zealand in parotid, thyroid, gastric, pancreatic and colorectal surgery. All of this was accomplished with technical skill and great expertise in each field.

Kevin McNamara enjoyed teaching. He took the Auckland primary fellowship candidates on the anatomy of the salivary glands. Later, he was a clinical teacher with the Auckland Medical School. He was the Australasian College representative on the Education Committee of the NZ Medical Council and on the steering committee that led to the formation of the Southern Cross Medical Society, later serving as a Director and finally as Chairman. There he used his influence in setting up a trust to acquire and administer a series of Southern Cross Hospitals.

Kevin McNamara had interests outside surgery. New to the game of golf, he aspired to play in the forthcoming NZ Open, due to be played at his own club, Titirangi. His lay colleagues were sceptical, but without any professional help he got down to a handicap of three, and when he qualified for the Open, made more money from his friends' bets (£100) than the professional who won the tournament.

He purchased land in South Auckland and turned it into a town-supply farm of 350 acres with a 60 000-gallon quota and the most modern milking shed in the industry.

In 1956, he joined the Auckland Racing Club. In due course, he became a Steward, then a Committee Member and was finally elected President. Again he was largely influential in the most significant expansion of the Club facilities in all its 114-year history.

In the mid 1960s, Kevin McNamara's workload was such that he invited the author to join him in his surgical practice. He was an exemplary partner, hard working, always considerate and supportive. Later, the partnership expanded to include Mr John Allan, expert in the fields of endocrine, vascular and breast surgery. The partnership flourished, due to a great extent to Kevin McNamara's enthusiasm and organisational skills, ending only on his retirement in 1985.

Following his retirement, Kevin spent more time with his family and the Racing Club. He wrote a personal biography and in it noted that in 1985 he suffered the worst week of his life with the loss of his wife, Gwen, and his oldest son, Brian. This left him with four daughters and two sons, 15 grandchildren and two great grandchildren who survived his death on 15 August 2002.

Finally, it must be noted that in 1980, Kevin McNamara was justly honoured with a CBE, given for his contribution to medicine and the community.

We are grateful to Dr John Gillman for this obituary notice



## **Graham Aitken Nuffield Medical Postgraduate Travelling Scholarship**

Applications are invited from well qualified New Zealand medical graduates in the 25–35 age group for the above Scholarship.

The purpose of the Scholarship is to provide travel funds to enable New Zealand graduates to further their clinical medical training and research interests in the United Kingdom.

The Scholarship will provide up to three return air fares to the UK, together with allowances amounting to \$3000.

Candidates for the Scholarship must submit a training or research programme for approval together with the name of a person in the UK who will provide salary and facilities.

For further information please consult the Deans of the Schools of Medicine or write to:

Professor A D Campbell  
Honorary Secretary, Managing Trustees  
Graham Aitken Nuffield Trust  
C/- Department of Chemistry  
University of Otago  
P O Box 56  
Dunedin

Email: [adc@otago.net.nz](mailto:adc@otago.net.nz)

**Applications must be submitted to Professor Campbell by 31 March 2003**