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This Issue in the Journal

Doctoring New Zealand’s gay men
Jeffery Adams, Tim McCreanor, Virginia Braun

This research reported investigates gay men’s experiences of using general practitioner (GP) services. The key result is concerned with how men attempt to access high quality GP services. Participants reported two main ways they achieve this. The first is through selection of doctor; the second is through controlling disclosure of their sexuality to the doctor. While many men reported good healthcare experiences, others did not. In order to optimise quality of care, gay men carefully managed their relationship with their doctors. Doctors play a crucial role in facilitating an environment to allow disclosure. While a minority of men have disclosed sexuality and sexual behaviours to their doctors, most men have not, arguably to the detriment of their healthcare. We argue that doctors need to be cognisant of the health needs of gay men in order to provide high quality care and conclude that there is a need for medical practitioners and associations and gay men to jointly address these issues.

A 12-year review of gunshot injuries: Auckland City Hospital experience
Li Hsee, Ian Civil

Gunshot (GSW) wounds in Auckland are very uncommon comparing with other major cities worldwide. Because GSW are uncommon, trainees and specialists have little exposure to their management. The aim of this study is to look at a cohort of patients with gunshot injuries treated at Auckland City Hospital over a 12-year period in order to determine their incidence, presentation, severity of injuries, and outcomes.

Management of low-velocity, non-gunshot-wound penetrating abdominal injury: have we moved with the times?
Li Hsee, Ian Civil

The incidence of penetrating abdominal injuries in Australia and New Zealand is still low. We undertook this study to determine whether surgical practice and management have changed in this population of patients. Despite the availabilities of key-hole surgery and advanced imaging techniques, surgical practice in a major metropolitan New Zealand hospital had not changed in managing penetrating abdominal injuries.
Robot-assisted laparoscopic radical prostatectomy (RALP)—a new surgical treatment for cancer of the prostate
Liam C Wilson, Joanna Pickford, Peter J Gilling

The da Vinci surgical robot is a significant technological advance in the treatment of prostate cancer with over 70% of all men with prostate cancer now having this form of treatment. Developed by the US military, it has evolved into a state-of-the-art machine which allows the surgeon unparalleled access and vision inside the abdomen and pelvis. This enables surgical precision not previously possible with standard open or key-hole surgery. The nature of the robotic surgery means that men have a shorter hospital stay and faster return to work and normal activities. Our unit in Tauranga was the first centre to use the robot in New Zealand and our study looked at the first 30 men having RALP for prostate cancer. The outcomes were excellent, with the average length of hospital stay being 1.4 days. There were no major complications and the surgical outcomes compare very favourably to published series anywhere in the world.

A prospective study analysing the effect of pain on probe insertion, and the biopsy strategy, on the patients’ perception of pain during TRUS-guided biopsy of the prostate
Samarth Chopra, Edward W J Rowe, Marc Laniado, Anup Patel

With increasing use of prostate specific antigen (PSA) as a screening test for cancer of prostate, there is need for developing predictive nomograms to pick up patients who would develop complications from transrectal ultrasound (TRUS) and biopsy of prostate. This paper is part of screening study done to diagnose cancer of prostate and looked at predicting factors for patients who would benefit from use of anaesthesia/analgesia at time of biopsy, and change in technique of doing biopsies for prostate.

Who goes to a sexual health clinic? Gender differences in service utilisation
Jane Morgan, Jarrod Haar

Data from recent initiatives in the Waikato district to improve access to GP-provided sexual health care suggests most consults are by young women. Where do young men go with sexual health concerns, if anywhere? This audit of Hamilton sexual health clinic attendees suggests men aged 20 years and older are at least, if not more, likely than women of the same age to attend a sexual health clinic for sexual health concerns. However, in keeping with other New Zealand research, there appears to be under-utilisation by younger men. To improve sexual health for men and women, help-seeking must be timely and effective. We need to better understand and address sexual healthcare barriers for younger men.
Declining sperm quality in New Zealand over 20 years
Rebecca Shine, John Peek, Mary Birdsall

This is a study looking at the sperm test results from 975 men over a 20-year period (1987 to 2007) who volunteered to be sperm donors at Fertility Associates in Auckland and Wellington. We observed a significant drop in sperm counts over 20 years (110 million per ml to 50 million per ml) along with a reduction in volume. This is the first study of its kind in New Zealand and reflects similar observations seen in other countries such as Scotland, Denmark, and France. The cause of this decline in sperm counts is unknown, although many suggest an environmental influence.
Men and health

Stephen Neville

A search on men’s health in past issues of the New Zealand Medical Journal (NZMJ) yielded only a few articles—mostly on prostate cancer. In contrast, a search on women’s health yielded a substantial number of published works. Recently, however, there appears to be more interest in men’s health issues, in particular encouraging New Zealand men to be more active in their healthcare decisions\(^1,2\) hence the publication of men’s health articles in this issue of NZMJ.

This editorial will highlight the state of men’s health, the issues that impact on this group’s health, and men’s engagement with health and health professionals. The published articles raise the profile of men’s health, emphasise the heterogeneity of men (particularly gay men), and show that compared to women men are more likely to be victims of violent acts.

The relatively few available published works consistently show the poorer state of men’s health. It is widely acknowledged that men do not live as long as women. Moreover, although the following conditions are not exhaustive or exclusive to men, some of the common causes of male deaths include cancers, heart disease, cerebrovascular disease, as well as deaths from intentional and non-intentional injury.

Research demonstrates that men are more likely than women to present to healthcare organisations with intentional and non-intentional injuries resulting from self harm, violence, and accidents.\(^3\) This is further supported by Hsee and Civil in two featured articles on victims with gunshot\(^4\) or abdominal stab injuries\(^5\) presenting at Auckland City Hospital over several years. Although neither article directly focuses on men, the findings identify that men are more likely than women to present to trauma services with intentional or non-intentional gunshot or stab wounds.

Causes of death from the above conditions are both preventable and treatable, yet for some reason men continue to die prematurely. Gray attributes this to men having minimal knowledge about their health, being less likely to undertake health promoting activities, being poor users of health services (particularly primary health services), leaving symptoms associated with being unwell for some time before seeing a health professional, and finally being reluctant to ask for or accept help when offered.\(^6\) The article, in this issue of NZMJ, titled Men’s health and the health of the nation\(^6\) by Johnson, Huggard, and Goodyear-Smith supports these points.

Every year since 2006, The College of Nurses Aotearoa (NZ) and Age Concern New Zealand, through the development of a consumer alliance, have actively promoted men’s health by supporting International Men’s Health Week (IMHW). This annual event aims to increase awareness of men’s health issues and encourages the development of policies and services that meet men’s specific health needs. In addition, IMHW promotes the awareness of preventable health problems and encourages early detection and treatment of disease among men and boys.
Other organisations—like the Cancer Society of New Zealand and the Ministry of Health (MoH)—have also targeted men’s health as an area needing further attention. For example, the MoH has recently established The Men’s Health Innovations Fund to support community-based men’s health initiatives aimed at improving men’s health in New Zealand.

While the intentions of the above organisations have certainly contributed to raising the profile of men’s health issues, there is an underlying subtle assumption that the target male audience will be heterosexual and married. For example, at a recent men’s health event the host organisation repeatedly reinforced the important role men’s wives have in encouraging their husbands to regularly visit their health practitioner for a check-up. There is no doubting the good intentions meant by comments such as these, however it does highlight that unless otherwise stated men are categorised by default as heterosexual and married.

Health professionals are certainly aware of the health inequalities associated with ethnic communities within New Zealand such as Māori and Pacific Island peoples, and how these differ from the dominant pakeha ethnic group. However, health professionals are often much more ignorant of the cultural lives of people who do not exclusively identify as heterosexual. This is supported by Neville and Henrickson’s research identifying that healthcare contexts are shaped by assumptions of heterosexuality.7

As the New Zealand population continues to increase there will be a concomitant rise in the numbers of non-heterosexual men—also referred to as men who have sex with men (MSM)—seeking and expecting appropriate health care. It is therefore pivotal that all health professionals acknowledge the existence and rights of MSM.

The term MSM is used in public health, general, and specialist sexual health literature to describe men who identify as gay, as well as those who classify themselves as bisexual and/or heterosexual but report engaging in sexual activity with other men.8 Consequently, MSM may be married to women, have sexual relationships with both men and women, be in a long-term exclusive relationship with another man, or may be in a committed same sex relationship but not be sexually exclusive.

From the latter half of the 20th Century onwards, legislative changes in New Zealand have meant that people attracted to the same sex cannot be discriminated against on the basis of sexual orientation.

Despite an apparent acceptance of homosexuality in recent times, there remains a continuing and underlying stigma associated with living a non-heterosexual lifestyle.9 Consequently, a pervasive and often covert level of homophobia and heterosexism continues to be promulgated within society and throughout all healthcare contexts, which directly and negatively impacts on health and well-being. For example, not accessing primary healthcare services when feeling unwell and/or engaging in risk-taking behaviours (like not using a condom when engaging in anal intercourse) that have negative consequences on an individual’s future health status.

Consequently, Adams et al’s article published in this issue of the NZMJ titled Doctoring New Zealand’s gay men10 is timely and important as currently New Zealand is experiencing an increase in the number of HIV infections.11 Previous research and this current paper support the premise that if primary healthcare
providers are comfortable with working with people identifying as MSM (by providing this group of people with opportunities to disclose their sexual identity) then MSM are more likely to participate in primary healthcare programmes and seek healthcare when unwell.⁷

Both Adams’ and Johnson’s articles emphasise the importance of providing appropriate primary healthcare services to men. Johnson et al offers suggestions that primary healthcare providers could use to encourage men’s participation in health, including being non-judgemental in their approach. However, how might displaying a non-judgemental attitude be operationalised?

Firstly, being aware of and understanding the different subcultures that men inhabit. Secondly, knowing about the generic, as well as specific health issues that affect these different subcultures of men. Thirdly, when gathering subjective health data ask questions in a way that gives the consumer confidence that as a health professional you are serious about being non-judgemental. For example, instead of asking a person their marital status say “Do you have sex with men, women, both or neither?”

Finally, if health professionals are serious about addressing men’s health issues then the provision of a service that is appropriate and meets the needs of all men is paramount.

Competing interests: None known.

Author information: Stephen Neville, Postgraduate Programme Coordinator, School of Health and Social Services, Massey University, North Shore City, Auckland

Correspondence: Dr Stephen Neville, School of Health and Social Services, Massey University, Private Bag 102 904, North Shore City 0745, Auckland, New Zealand. Email: S.J.Neville@massey.ac.nz

References:

Doctoring New Zealand’s gay men

Jeffery Adams, Tim McCreanor, Virginia Braun

Abstract

Aims To investigate gay men’s experiences of using general practitioner (GP) services.

Methods A qualitative research methodology was used and transcripts obtained from 11 focus groups conducted in two large New Zealand cities were thematically analysed.

Results The key result is concerned with how men attempt to access high quality GP services. Participants reported two main ways they achieve this. The first is through selection of a doctor; the second is through controlling disclosure of their sexuality to the doctor. We also report participants’ positive and negative experiences of primary healthcare.

Conclusion While many men reported good healthcare experiences, others did not. To optimise quality of care, gay men carefully managed their relationship with their doctors. Doctors play a crucial role in facilitating an environment to allow disclosure. While a minority of men have disclosed sexuality and sexual behaviours to their doctors, most men have not—arguably to the detriment of their healthcare. We argue that doctors need to be cognisant of the health needs of gay men to provide high quality care, and we conclude that medical practitioners and associations and gay men need to jointly address these issues.

Gay men, like most other population groups, rely on general practitioners (GPs) to provide primary health care when they are unwell. However despite greater social and legal acceptance of homosexuality, sexuality remains one of the few minority status groups where socially sanctioned bigotry is accepted (and at times encouraged), resulting in heterosexism and anti-gay prejudice in many social institutions. In relation to healthcare provision, gay men’s anticipation and experience of negative experiences have contributed to the avoidance or delaying of medical visits.

In New Zealand the medical-related literature records a relationship between doctors and gay men that has not always been beneficial for gay men. For instance, much of the early interest in homosexuality framed it as pathology and tried to identify the causes of homosexuality. This focus was challenged by the removal of homosexuality as a mental disorder from the Diagnostic and Statistical Manual (DSM) in 1973, which contributed to a shift from the disease model to an acceptance of homosexuality and concern for the health of gay men. Since the identification of AIDS in the mid-1980s, HIV/AIDS has been the predominant health focus for gay men in New Zealand, and several related publications have appeared in this journal.

More recently, along with HIV/AIDS, there has been a shift internationally to consider a wider range of health issues as important for gay men. This has included
increased concern with the development of gay-focused health policy\textsuperscript{16} and attention being paid to the nature and quality of the doctor-gay patient clinical relationship.\textsuperscript{4} However, neither of these issues have been substantively addressed in the New Zealand context. Other jurisdictions such as Australia and America have issued significant position papers and developed targeted policy concerning gay men.\textsuperscript{17,18} Locally the limited formal documentation makes only passing references to gay men through requiring doctors to be aware of cultural factors, including gay culture,\textsuperscript{19} and not to let views about a patient’s sexuality prejudice treatment.\textsuperscript{20}

Concerning the relationship between gay patients and doctors there has been some local quantitative research which has investigated the health of non-heterosexual New Zealanders.\textsuperscript{21} These data confirmed that 71.5\% of the 2256 participants report their health as ‘excellent’ or ‘very good’, which appears broadly in keeping with self-reports of general health status by New Zealanders.\textsuperscript{22} Both men (gay and bisexual) and women (lesbian and bisexual) reported that the attitude of the healthcare professional to sexuality is important (although men report this less than women). Men (65.8\%) were less likely than women (83.2\%) to report that their healthcare provider assumes they are heterosexual, but men (64.7\%) were also less likely to be “out” to healthcare providers than women (71.7\%).

More men reported that the healthcare provider’s attitude influenced the care provided in a positive way (42.6\% vs 27.9\%). These data suggest that there are gaps in optimum service provision, in part because many gay and bisexual men have not disclosed their sexuality to their healthcare providers.

What is also missing from that study and field is any research on the nature and quality of gay men’s (or lesbian women’s) experiences with GPs.\textsuperscript{21} This paper responds to this call, and presents an analysis of issues that gay men identify as important in their healthcare interactions with GPs. A key focus is on gay men’s access to high quality GP services.

**Methods**

The qualitative data analysed are part of a wider study into gay men’s health issues, which has concerned itself with issues such as gay men’s health policy.\textsuperscript{8,16,23} The broader study is located within the field of critical health psychology\textsuperscript{24,25} and is concerned with the language-orientated investigations of health issues. All ethical issues associated with the present study have been attended to; ethical approval was obtained from The University of Auckland Human Participants Research Committee.

The dataset consisted of transcripts (and audiotapes) of 11 focus groups undertaken with a total of 50 self-identified gay men in two large New Zealand cities. The transcripts were not returned to participants for checking as this would have altered key language features of the data which were necessary for other analyses.

We employed thematic analysis which is an analytic technique that looks across an entire data set to find repeated patterns of meaning.\textsuperscript{26} Thematic analysis is a useful analytic approach that provides ‘thick descriptions’ of the common elements of a number of accounts and displays the richness and diversity of participants’ experiences, while respecting the integrity of particular stories.\textsuperscript{27} Our particular approach was inductive and data driven.

The first author repeatedly read the transcripts and coded for common themes. These initial codings were then reviewed and discussed by all the authors and further refinement of the coding and analysis undertaken until the salient patterns repeated across and within transcripts\textsuperscript{26} in respect of the men’s talk about GPs and primary health care were identified. Quotes presented have been slightly edited to facilitate ease of reading and names used are pseudonyms.
Results
The men’s main concern was accessing high-quality healthcare. They reported two different (related) strategies to achieve this:

- Careful selection of doctors they understood to be attuned and sympathetic to their needs; and
- Management of the disclosure of their sexuality according to their perceptions of their doctor’s position.

Both strategies resulted in a range of positive and negative experiences of healthcare.

Selecting a doctor—The overarching expectation among men was for high quality and appropriate healthcare from a competent doctor, regardless of the GP’s sexual orientation:

Phillip: You want a good doctor not necessarily a gay doctor.
(Group 9)

Although the desire for quality of care was clear among participants, there were contrasting views on whether this is best achieved through using a gay or a non-gay doctor.

For the minority of men who reported that having a gay doctor is essential, several benefits arising from this were articulated. The key advantage was seen to arise from a shared sexual orientation that facilitated communication between patients and doctors:

Jeff: Why is it essential for you to have a gay doctor?
Malcolm: Um ah I guess ah so that one can talk openly about I guess one’s practices and one’s attitudes to someone who knows where you’re coming from […].
(Group 2)

Malcolm’s account raised an implicit assumption that gay men cannot take it for granted that they will experience good communication with non-gay identified doctors, despite communication skills being an important core professional skill for doctors.\(^{28,29}\)

Potential benefits with respect to communication are thought to arise if patients and doctors are in a concordant relationship.\(^{30}\) As well as the important issue of enhancing face-to-face communication, a notion of shared cultural knowledge is desired. This parallels other research which reports that doctor-patient race (ethnic) concordance is associated with patient satisfaction with care.\(^{31}\)

Shared cultural knowledge involved both understanding the dynamics of gay life (such as ‘cruising’ for sex partners) and knowing how some health issues are central for gay men:

James: I can give you the most perfect example is when I went to my doctor and I said I feel like shit and he said oh you’ve got that flu, and I said I am really weak and he said oh well take a week and relax and I went back the following week, and I said I am really really really weak I don’t know why I am so sick and he said well just relax and come back and see me the following week. I went and saw the gay doctor and he said you have got hepatitis and I did, I had Hepatitis A but my doctor didn’t think of that because his client base isn’t gay men who are you know at risk of catching hepatitis and AIDS […].
(Group 5)
Shared cultural/sexual experiences were talked about as a way of assisting doctors to make a diagnosis. Although there is an expectation of competence amongst all doctors, the epidemiology of some illnesses and diseases means that doctors with a high number of gay patients are more likely than other doctors to have experience in dealing with the issue. For example, a currently prominent health issue for gay men is syphilis. Not only is this an infection that can be hard for doctors to diagnose, but many doctors have very little or possibly no experience in identifying and treating it. However, given out gay doctors typically have high numbers of gay patients (Dr Mike Pohl, personal communication, 2004), and that there has been significant publicity about syphilis outbreaks in the gay press, gay doctors are likely to be more sensitised to (and experienced with), syphilis than non-gay identifying doctors.

There were relatively few reports of downsides to having a gay doctor. One potential disadvantage related to doctors being in the same social circle as patients and potential (or actual) breaches of confidentiality that could arise from this:

**Wayne:** I don’t think I would want to go to a doctor knowing he was gay for the same reasons, probably know him on the social scene. Don’t really don’t really want to discuss my social activities with someone that may not be 100%.

**Cole:** Confidential.

**Wayne:** Respective of my rights and pass it on to someone else and that sort of thing [...].

(Group 8)

This type of breach is potentially an issue for any doctor who is a member of a specific community (e.g. a small town, member of a defined ethnic group), however it is implied that this is more of a problem for gay doctors. A second point implicitly questioned the professionalism of gay doctors:

**Murray:** [...] There is some criticism I’ve seen of gay doctors is that they say ‘you’re gay therefore you must have some gay-related condition’. Um and that can lead them to overlook um conditions which are a long way off being gay.

(Group 7)

Here the criticism is that gay doctors are/may be biased by their sexual orientation to see health only in gay terms which undermines their professional ability to diagnose and treat. As much as anything, this perhaps reflects current (and historical) heterosexism and homophobia within the medical profession. This worry about clinical competence was, however, not widespread.

Issues of confidentiality and competence, when taken together, point out that some gay men view gay doctors with suspicion, and expect basic standards they say gay doctors do not always reach. An alternative view, that you did not need a gay doctor and that healthcare did not need a gay-focus, was supported by a majority of the men:

**Martin:** [...] my present GP I think is really good so I wouldn’t I wouldn’t I don’t see the need to go to a gay GP because I think this guy would be just as open to whatever I told him or needed to discuss [...].

(Group 1)

In rejecting the need for a gay doctor, the men often employed a popular normalisation discourse, which is typically invoked by gay men do not want to appear different and special from the mainstream. Other men reported a doctor must at least be “gay friendly”: 
Wayne: No it doesn’t have to be a gay doctor, but you need one that is gay friendly at least […]

(Group 8)

Although the idea of gay-friendly was typically viewed positively, a more troubled take on this term is also available—it can imply that being ‘gay’ is not regarded equally with heterosexuality, and still requires ‘acceptance’ by doctors and others. A more affirmative view of homosexuality expected of doctors and others might be one of support, admiration, appreciation, or nurturance.

For those men who used non-gay doctors, a minority reported being able to discuss their sexuality openly, with neutral or positive experiences. In contrast, a few men reported negative experiences:

George: […] this lovely lady doctor she started out assuming that I was straight and then um then she started asking questions about my recent behaviour and she wanted to know how many sexual partners I’ve had in the last month.

Doug: Exactly.

George: And then it got up to 6 months and I was like 50 and she was just this absolute look of dumbfoundedness on her face […]

(Group 3)

The doctor’s assumption that the patient is heterosexual is common—nearly two-thirds of gay respondents’ healthcare providers always or usually presumed they were heterosexual. This doctor’s reaction to the number of sexual partners suggests a limited cultural knowledge of (some) gay men’s sexual behaviour, which links to why some men preferred a gay doctor.

Disclosure of sexuality—Many men reported the use of reasonably elaborate and considered strategies within primary health care encounters with non-gay doctors. Chief among these related to level of disclosure of sexual orientation to the doctor. Some participants claimed it was not important or not relevant to disclose this aspect of their identity to the doctor:

Martin: My GP doesn’t know that I am gay, well he might but I haven’t told him [laughter]. But I don’t know I mean it might be important but it’s I have never had an issue that I needed to bring up that made it necessary and it is one of those things you tell on a need to know basis really […].

(Group 1)

For men like Martin the disclosure of gay identity to their doctor was not routine. This may partially account for the finding from the Lavender Island study that identified over a third of gay men (35.3%) do not disclose their sexuality to healthcare providers. Disclosure was more likely if men thought it was relevant to the issue they are seeing the doctor about. It also raises the possibility that non-disclosure may potentially (negatively) affect the clinical experience. An issue-specific disclosure enables men to exert some control over their identity and health concerns. This lack of disclosure appears to draw on a discourse of normalisation and downplays ‘gayness’. While these participants report that they will not proclaim a gay identity, they report they will confirm a gay identity if specifically asked. Non-disclosure may also be about risk management, the need for which is likely to taint clinical encounters. For gay men to disclose sexuality is potentially physically and emotionally risky, meaning that some men may hide or not reveal their sexuality to doctors, or perhaps refrain from accessing services.
An alternative view on the need to disclose gay identity to non-gay doctors was evident among a minority:

Doug: Yeah the important thing is that you not only does your doctor know you’re gay but your doctor knows what sorts of things that can come with that and those are the sorts of things they need to be dealing with in your healthcare.

Scott: That’s a responsibility of us as people who go along as much as them though isn’t it.

Kevin: Yeah doctors can only help if they are provided with all the information.

(Group 3)

The argument here is that without full disclosure, clinical practices around medical history-taking, diagnosis, and treatment are potentially compromised. This position contrasts with the stance that disclosure is optional, and points to quite varied practice among the men with respect to their healthcare.

The benefits of disclosing identity are recorded in a range of literature and practice guidelines\textsuperscript{17,45–50} which suggest that doctors need to be aware of health disparities for gay men in order to provide multi-dimensional healthcare. The benefit of this multi-dimensional care is that health can be considered from a biopsychosocial perspective, rather than a narrower biomedical perspective. But disclosure is not a one way process: doctors need to provide an environment that enables disclosure\textsuperscript{41, 49}.

Among those men who do not disclose their sexuality, a couple of participants reported having more than one doctor to manage this:

James: Um I know that my doctor is not altogether up-to-date with ah things that might affect gay men more than they might affect straight men and their families and so that’s why I go to a different doctor for gay stuff but I wouldn’t say that he discriminates.

(Group 5)

By using at least two doctors the men claimed it was possible to partition the gay and non-gay aspects of their health needs. This practice implies that they have (or believe they have) sufficient knowledge of the risks and symptoms that are relevant to gay health issues, and which are not. The typical domain in which participants applied this strategy was STIs. This reinforces a narrow perspective of gay health needs that does not allow for clinical concerns for gay men to include more than sexual health\textsuperscript{51}.

\textbf{Discussion}

This research has provided data on gay men’s experiences of doctors. Overall, many participants reported positive experiences of their GPs, which reiterates a point made elsewhere in respect of Māori and GPs: that doctors, as a whole, have good intentions.\textsuperscript{52} However, several reported negative experiences confirm that some aspects of GP practice require improvement. In seeking to optimise outcomes from healthcare interactions, gay men reported a careful management of their relationship with doctors. Chief among these were the selection of the doctor, and level of disclosure of their sexuality to the doctor.

The process of selecting a doctor involved three different strategies – seeking a gay GP, seeking a ‘gay-friendly’ doctor familiar with knowledge of ‘gay lifestyles’ or seeking a ‘good doctor’. Different participants used different strategies—with all three being represented in the men’s accounts. For the most part this choice also interacted with the men’s disclosure of sexual orientation to their GP.
These decisions seemed to be very personal, and do not follow expected patterns such as ‘confident’ gay men making their sexuality known to their doctor. For example, Philip, an older gay activist and gay community spokesman, highly educated, is not out to his doctor.

What is clear however is that gay men selected doctors based on a range of factors—and that is probably not going to change. What is important is maintaining a range of gay and gay-friendly providers so non-disclosure from fear of reprisal is not a concern.

It was important for some men that gay GPs are available for them to consult with. However, the availability of publicly-identified gay GPs is fairly restricted and limited to certain city locations—e.g. in Auckland there are three gay GPs with a public profile (including advertising in the gay press). Two of these are located in the central city area where a disproportionate population of New Zealand’s gay men live. In other areas of New Zealand, gay GPs would have to be identified in other ways. This research could not identify why there are few openly gay GPs, but overseas the issue of heterosexism and homophobia in the medical profession has been addressed. We suggest it is incumbent on the medical profession here to consider such issues, and to ensure that gay GPs who wish to publicly declare their homosexuality are able to do so within a supportive medical fraternity.

Other participants just wanted a ‘good doctor’, typically characterised as a gay-friendly one. From this perspective it seems imperative that all GP practices are welcoming of gay men as patients—and according to some of the men’s accounts this was not the case. Being gay-friendly involves effective communication, between the GP and patient, and providing an environment which is welcoming to gay patients. To this can be added specific cultural knowledge: while gay GPs are likely to have this, some non-gay doctors may require specific training to adopt it. Numerous overseas produced resources can assist with this.

A majority of men are employing strategies to not disclose their sexuality/sexual practices to their doctors, which runs against a current idea that a doctor needs to know the sexuality or at least sexual practice of patients in order to provide optimal care. While some men report deliberately withholding this, others reported waiting for an opportunity to disclose their sexuality. As sexual identity is not always obvious, doctors are often in a position where they are required to take the initiative to find out such information.

One strategy around this is the need for non-heterosexist practice in medical encounters where sexuality/sexual practice should be something that is routinely asked about by doctors. This practice has been recommended by the American Medical Association and the Gay and Lesbian Medical Association. Such practice may facilitate patients disclosing sexuality and sexual practices to GPs.

In conclusion, this research has addressed key issues for gay men in their dealings with GPs an area that is fundamentally under-researched in the New Zealand context. Like all qualitative research a limitation of the findings is that it reflects the views of the participants who were interviewed, and cannot necessarily be generalisable to all gay men. Nonetheless, the paper provides a rich, in-depth account of these men’s experiences and it is offered as a starting point for medical practitioners, medical
associations and the gay community to have dialogue over optimising healthcare for gay men.

Competing interests: None known.

Author information: Jeffery Adams, PhD Candidate, Department of Psychology, The University of Auckland, Auckland, and Researcher, Centre for Social and Health Outcomes Research and Evaluation, Massey University, Auckland; Tim McCreanor, Senior Researcher, Whariki Research Group, Massey University, Auckland; Virginia Braun, Senior Lecturer, Department of Psychology, The University of Auckland, Auckland

Acknowledgment: The title for this paper is adapted from a UK study.¹

Correspondence: Jeffery Adams, Centre for Social and Health Outcomes Research and Evaluation, Massey University, PO Box 6137, Wellesley St, Auckland, New Zealand. Fax: +64 (0)9 3665149; email: j.b.adams@massey.ac.nz

References:


A 12-year review of gunshot injuries: Auckland City Hospital experience

Li Hsee, Ian Civil

Abstract

Objective To review gunshot injuries treated in Auckland City Hospital (Auckland, New Zealand) over 12 years (1995–2006) and to determine their intent, incidence, presentation, severity of injuries, and outcome.

Methods Retrospective review of patients with gunshot wounds (GSW) identified from the Auckland City Hospital Trauma registry over the 12-year period 1995–2006.

Results A cohort of 56 patients was identified. The majority of patients were male (91%). Fifty-two percent of patients suffered accidental injuries. The average age of the victims was 32. In the final outcome, 4 (7%) patients died, all due to GSW to the head, while all others were discharged alive.

Conclusion Gunshot injury is not a common presentation to Auckland City Hospital, the largest metropolitan hospital in New Zealand. Despite the small number of patients presented, the overall outcomes remain acceptable.

New Zealand is known to be one of the safest countries in the world.1 Gunshot (GSW) wounds in our major cities are very uncommon compared with other major cities worldwide. Although crimes do exist in New Zealand, most of the GSW are due to accidental or self inflicted injuries. This is probably due to the large farming and hunting community in this country.

Because GSW are uncommon, trainees and specialists have little exposure to their management. One might expect outcomes less satisfactory when compared to high volume centres in other countries.

To date, little data is currently available on GSW in the urban environment. The aim of this study is to look at a cohort of patients with gunshot injuries treated at Auckland City Hospital over a 12-year period in order to determine their incidence, presentation, severity of injuries, and outcomes.

Patients and Methods

Patients suffering GSW were identified from the Auckland City Hospital Trauma Registry2 over the 12-year period 1995–2006. Patients’ clinical details and electronic archives were reviewed. Data including patients’ age, gender, ISS score, TRISS score, LOS, ICU admission days, area of injuries, and final outcome.

Results

There were 15,945 patients admitted to Auckland City Hospital during this period, of which 1374 (9%) patients were admitted with penetrating injuries. Fifty-six patients suffered GSW (Figure 1). No numerical trends were apparent over the 12-year period.
Table 1 summarises the demographics of age and gender, cause of injury, length of hospital stay, ICU admission days, ISS, and TRISS. Post-emergency department destinations such as transfer to operating room, critical care, radiological procedures and surgical wards have also been included.

### Table 1. Demographics

<table>
<thead>
<tr>
<th>Age</th>
<th>Median: 32; range: 15–81</th>
</tr>
</thead>
</table>
| Gender       | Males: 51 (91%)
              | Females: 5 (9%)           |
| Intent       | Self inflicted: 14 (25%)
              | Inflicted by others: 13 (23%)
              | Unintentional: 29 (52%)
              | Shot by police: 5 (9%) |
| Length of stay (LOS) days | Range 1–54 days (mean 7.5 days) |
| ICU days     | Range 0–8 days (mean 0.5 day) |
| ISS          | 1–75 (median 10)         |
| TRISS        | 0.034–0.994 (median 0.944) |
| Post Emergency Department destination | DCCM 8 (14.2%)
                                               | OR 22 (39.2%)
                                               | Ward 23 (41%)
                                               | Radiology 2 (3.5%)
                                               | Morgue 1 (1.7%) |

DCCM=Department of Critical Care Medicine; ISS=Injury Severity Score; OR=Operating Room; TRISS (Trauma risk assessment utilising Revised Trauma Score and ISS).

Table 2 summarises the body cavity injured such as brain, head, and neck, chest, abdomen/pelvis, retroperitoneal space and extremities.

### Table 2. Body cavities injured

<table>
<thead>
<tr>
<th>Body cavity</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS (brain)</td>
<td>12 (21.4%)</td>
</tr>
<tr>
<td>Head + neck</td>
<td>4 (7.1%)</td>
</tr>
<tr>
<td>Chest</td>
<td>3 (5.3%)</td>
</tr>
<tr>
<td>Abdomen</td>
<td>9 (16%)</td>
</tr>
<tr>
<td>Retroperitoneum</td>
<td>1 (1.8%)</td>
</tr>
<tr>
<td>Extremities</td>
<td>21 (37.5%)</td>
</tr>
</tbody>
</table>
| Cross-body cavities | Abdomen/chest 4 (7.1%)
                                      | Abdomen/retroperitoneal 2 (3.5%) |

Table 3 is a breakdown of weapons used in this series of patients. Table 4 summarises the final outcome of patients at the time of discharge.
Table 3. Types of weapon

<table>
<thead>
<tr>
<th>Weapon</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hand gun (calibres: .22, .32, .38, .45, .9)</td>
<td>16</td>
</tr>
<tr>
<td>Rifles</td>
<td>3</td>
</tr>
<tr>
<td>Shotgun</td>
<td>7</td>
</tr>
<tr>
<td>Air gun/Air rifles</td>
<td>11</td>
</tr>
<tr>
<td>Pellet gun</td>
<td>1</td>
</tr>
<tr>
<td>Unspecified</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 4. Final outcome at the time of discharge

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alive</td>
<td>52</td>
<td>93%</td>
</tr>
<tr>
<td>Death</td>
<td>4</td>
<td>7%</td>
</tr>
</tbody>
</table>

The majority of patients were male (51:91%). Twenty-nine patients (52%) were classified as suffering unintentional injuries, 14 (25%) patients had self-inflicted injuries and 13 (23%) patients’ injuries were inflicted by others. The average age of the victims was 32 (15–81). Four patients (7%) died in hospital and 52 (93%) patients were discharged alive.

The four patients who died suffered penetrating trauma to the brain. Three of these had a Glasgow Coma Scale (GCS) of 3 on arrival and they died within 24 hours of admission. The other patient had a GCS of 11 on arrival. He died on the ward on day 3. All of the four patients were managed non-operatively and had self-inflicted injuries. These four patients’ ISS ranged from 25 to 75 and TRISS ranged from 0.034 to 0.45.

Discussion

Penetrating injuries presenting to Auckland City Hospital are uncommon compared with other similar-sized hospitals in more armed societies. Gunshot wounds are even
less common in New Zealand. This is probably due to strict hand gun control and lower availability of guns. While there has been a slight increase in the proportion of admissions resulting from penetrating injury in the last two decades, the number of cases remains small.

In this cohort of patients, most gunshot injuries were either self-inflicted or accidental. Violent crimes do occur in New Zealand, but intentional GSW are not a common mode of injury presenting to Auckland City Hospital.

While this study was not population-based, a recent population-based study in Auckland by Peng et al using regional data for deaths in the 2004 calendar year showed that there was only 1 death (0.5%, 1 out of 186) in that year caused by shooting.

Head injuries as a result of GSW are associated with a high mortality. Some studies have shown that low GCS scores, pupil dilatation, transhemispheric or bihemispheric trajectories and multiple lobar wounds are predictors of high morbidity and mortality. In this cohort of patients all mortality was a result of head injury by GSW.

Traditionally, GSW require exploration and debridement except in some CNS injuries. All of our patients had some form of exploratory operations except those with head injuries. In our series, the most common injuries were to the extremities. This included the soft tissues, vascular and neurostructure in the limbs.

Management of GSW to the neck can be controversial. Hirshberg advocates mandatory trans-cervical wound explorations while Demetriades reported mandatory wound exploration is not necessary when a combination of clinical and radiological techniques are used.

In our centre, although the numbers were small, angiography was used to exclude vascular injuries in two cases. All neck wounds had surgical exploration.

Despite the small number of GSW presenting to our hospital, the overall outcome is acceptable. Early decision-making and prompt surgical intervention are vital to ensure patients’ optimal outcomes.

**Conclusion**

High velocity injuries from GSW are uncommon in Auckland. Most injuries were accidental. Mortality is common with severe brain injuries. Patients presenting alive to Auckland City Hospital with gunshot injuries to body cavities other than the brain all survived during the 12-year period of our study.

**Competing interests:** None known.

**Author information:** Li Hsee, Trauma Fellow; Ian Civil, Director; Trauma Services, Auckland City Hospital, Auckland

**Correspondence:** Dr Li Hsee, Trauma Services, Auckland City Hospital, PO Box 92024 Auckland, New Zealand. Fax: +64 (0)9 3078931; email: lchsee@gmail.com

**References:**

Management of low-velocity, non-gunshot-wound penetrating abdominal injury: have we moved with the times?

Li Hsee, Ian Civil

Abstract

**Background** The incidence of penetrating abdominal injuries in Australia and New Zealand is low. Traditionally, low-velocity, non-gunshot-wound (GSW) penetrating abdominal injuries have been surgically explored. With advances in imaging modalities and laparoscopic techniques, more options now exist to determine the presence or absence of serious intra-abdominal injury. Surgical intervention can often be avoided. We undertook this study to determine whether these options had been reflected in surgical practice and management changed in this population of patients.

**Methods** Retrospective review of trauma patients over the 10-year duration 1996–2005 admitted to Auckland City Hospital Trauma Services. The population of patients were subdivided into two cohorts, an earlier group (1996–2000) and a later group (2001–2005) for comparison purposes.

**Results** No statistical significance existed between the two groups in their demographics and treatment approaches.

**Conclusions** Despite the availability of laparoscopic procedures and advanced imaging techniques, surgical practice in a major metropolitan New Zealand hospital had not changed. This may reflect both the success of the earlier treatment guidelines and failure of educational strategies to effect change of practice.

Traditionally in the Australasian context, penetrating injuries to the abdomen have been surgically explored. If there was evidence that there was a breach of peritoneum, laparotomy was mandatory.

Over the past decade, the availability of various imaging modalities, such as Focused Abdominal Sonography for Trauma (FAST), improved CT imaging, and improvements in laparoscopic techniques have influenced overseas practice in managing this population of patients.

While high volume penetrating trauma centres have generally used observation liberally, low volume centres have tended to have an invasive approach. Over recent years, a negative FAST/Diagnostic Peritoneal Lavage (DPL) or lack of CT evidence of intra-abdominal injury has resulted in a non-operative approach in many trauma centres.

In Auckland, New Zealand, where the case volume of penetrating abdominal wounds is small compared to other overseas trauma centres, and the working hours of the surgical residents are strictly controlled by safe working hour legislation, a more aggressive surgical approach has usually been undertaken.
Increased usage of imaging modalities such as CT and ultrasound scans and the acquisition of advanced laparoscopic skills in training has also occurred in New Zealand.

To determine whether the advances in surgical practice have affected our management of patients with penetrating abdominal injuries we undertook this retrospective study.

Patients and Methods

Patients were identified from the Auckland City Hospital trauma registry over a 10-year period (1996–2005). Patients with penetrating abdominal injury were identified using the relevant mechanism of injury and abdominal AIS codes. The anatomical description of the abdomen was defined from the level of fourth intercostal space to the groin.

Gun shot wounds were excluded. The medical files of these patients were retrospectively reviewed. Demographics including age, gender, ISS score, LOS, ICU admission days, location of injury, and initial vitals signs were recorded. All patients who had operative procedures had their operative notes, especially their intraoperative findings reviewed in detail.

The study population was subdivided into two groups for comparison purposes: the earlier group (1996–2000) and the later group (2001–2005). The number of patients who had observation only, laparoscopy only, laparoscopy converted to laparotomy, and laparotomy were recorded. In addition, the number patients who had negative laparotomy, and those who had therapeutic/non therapeutic surgery were noted. Statistical comparisons were performed using Fisher’s exact test.

Results

There were 13,366 trauma patients admitted to Auckland City Hospital during this period. 123 patients were identified who had sustained non-gunshot wound injuries to the abdomen. This represented of 0.9% of total trauma admissions. The earlier and later group consists of 63 and 60 patients, respectively. The characteristics of the two groups are listed in Table 1. There were no statistically significant differences.

Table 1. Characteristics of the two injury groups

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Median age (range)</td>
<td>32 (16–60)</td>
<td>33 (17–81)</td>
<td>NS</td>
</tr>
<tr>
<td>Gender:</td>
<td></td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>Male</td>
<td>54 (86%)</td>
<td>49 (81.6%)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9 (14%)</td>
<td>11 (18.3%)</td>
<td></td>
</tr>
<tr>
<td>ISS median</td>
<td>7</td>
<td>9</td>
<td>NS</td>
</tr>
<tr>
<td>Outcome:</td>
<td></td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>Alive</td>
<td>63</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>Death</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Median length of stay (range)</td>
<td>8 (1–48)</td>
<td>6 (1–29)</td>
<td>NS</td>
</tr>
<tr>
<td>Median ICU stay (range)</td>
<td>1.15 (0–8)</td>
<td>0.31 (0–3)</td>
<td>NS</td>
</tr>
<tr>
<td>Types of injury:</td>
<td></td>
<td></td>
<td>NS</td>
</tr>
<tr>
<td>Inflicted by others</td>
<td>35 (55.5%)</td>
<td>33 (55%)</td>
<td></td>
</tr>
<tr>
<td>Self-inflicted</td>
<td>16 (25.35%)</td>
<td>17 (28.3%)</td>
<td></td>
</tr>
<tr>
<td>Unintentional</td>
<td>9 (14.3%)</td>
<td>10 (16.7%)</td>
<td></td>
</tr>
<tr>
<td>Systolic blood pressure median</td>
<td>133</td>
<td>130</td>
<td>NS</td>
</tr>
<tr>
<td>Pulse rate median</td>
<td>95</td>
<td>91</td>
<td>NS</td>
</tr>
</tbody>
</table>

ISS=Injury Severity Score; ICU=Intensive Care Unit.
Treatment approaches are outlined in Table 2. Again, no statistical differences were recorded between the two cohorts.

**Table 2. Treatment approaches**

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation only</td>
<td>15 (23.8%)</td>
<td>7 (11.7%)</td>
<td>NS</td>
</tr>
<tr>
<td>Laparoscopy only</td>
<td>2 (3%)</td>
<td>3 (5%)</td>
<td>NS</td>
</tr>
<tr>
<td>Laparoscopy/laparotomy</td>
<td>46 (73%)</td>
<td>50 (83.3%)</td>
<td>NS</td>
</tr>
<tr>
<td>Negative laparotomy</td>
<td>8 (17.3%)</td>
<td>10 (20%)</td>
<td>NS</td>
</tr>
<tr>
<td>Therapeutic lap</td>
<td>27 (58.7%)</td>
<td>25 (50%)</td>
<td>NS</td>
</tr>
<tr>
<td>Non-therapeutic</td>
<td>11 (23.9%)</td>
<td>15 (30%)</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Table 3. Abdominal location of penetrating wound**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td>52 (82.5%)</td>
<td>53 (88.3%)</td>
</tr>
<tr>
<td>Posterior</td>
<td>3 (4.8%)</td>
<td>1 (1.6%)</td>
</tr>
<tr>
<td>Flank</td>
<td>5 (7.9%)</td>
<td>1 (1.6%)</td>
</tr>
<tr>
<td>Thoracic-abdominal</td>
<td>3 (6.3%)</td>
<td>5 (8.33%)</td>
</tr>
</tbody>
</table>

**Table 4. Associated injuries of study groups**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Omentum</td>
<td>3 (5.6%)</td>
<td>14 (28.6%)</td>
</tr>
<tr>
<td>Stomach</td>
<td>3 (5.6%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>Small bowel</td>
<td>9 (16.7%)</td>
<td>7 (17.3%)</td>
</tr>
<tr>
<td>Colon</td>
<td>7 (13%)</td>
<td>7 (14.3%)</td>
</tr>
<tr>
<td>Liver</td>
<td>15 (27.8%)</td>
<td>9 (18.4%)</td>
</tr>
<tr>
<td>Diaphragm</td>
<td>6 (11.1%)</td>
<td>3 (6.1%)</td>
</tr>
<tr>
<td>Chest/heart</td>
<td>4 (7.4%)</td>
<td>2 (4.1%)</td>
</tr>
<tr>
<td>Spleen</td>
<td>2 (3.7%)</td>
<td>3 (6.1%)</td>
</tr>
<tr>
<td>Kidney</td>
<td>2 (3.7%)</td>
<td>–</td>
</tr>
<tr>
<td>Gallbladder</td>
<td>2 (3.7%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Inferior vena cava</td>
<td>1 (1.9%)</td>
<td>–</td>
</tr>
<tr>
<td>Bladder</td>
<td>–</td>
<td>1 (2%)</td>
</tr>
</tbody>
</table>

**Discussion**

At Auckland City Hospital, clinical guidelines govern the management of low-velocity, non-GSW penetrating abdominal injuries. The protocol is outlined below (Figure 1). This is consistent with the protocol outlined by Sugrue et al\(^7\) (A *NZ J of Surgery*. 2007:77:616).
When a patient presented to the resuscitation room in the emergency department with cardiovascular instability, peritonitis or obvious evisceration of abdominal contents they are taken to the operating room for laparotomy. The group of patients that present with stable abdominal penetrating injuries are the group where investigation and management can be controversial.  

In our two cohorts of patients, basic demographic data are similar. All of the patients were discharged alive except for one patient in the second group who died of chemical poisoning as a part of his suicide attempt. They have similar ISS, pulse rate and systolic blood pressures on initial admission.

The types of injuries (intentional vs unintentional) and the anatomical locations of the penetrating wounds were also similar in the two groups. The length of hospital stay and ICU admission days tended to be shorter in the later group.

In the operative management of the two cohorts of patients, we have not identified any differences in terms of rate of laparoscopy and laparotomy. Despite the passage of time, increasing laparoscopic skills, and increasing non-operative management of trauma patients generally, laparotomy is still used frequently in the two cohorts of patients in our institution.

In the earlier and later groups 65% and 70% respectively of patients went straight to a laparotomy. Despite the increasing availability of laparoscopic instruments and expertise, we have not found a substantial increase in the utilisation of such procedures in these patients.
Three percent and 5% of patients had laparoscopy only to determine whether there was a breach of abdominal fascia. Eight and 12% of patients had laparoscopy converted to laparotomy in the early and late groups, respectively.

Despite the safety of laparoscopy in trauma, its use at the Auckland City Hospital has been limited. It has been suggested appropriate use of laparoscopy may avoid non-therapeutic laparotomy in up to 75% of patients rendering it cost-effective for the health organisation.

In our two cohorts of patients, there were 17.3% and 20% of patients who had negative laparotomy and a further 23.9% and 30% who had a non-therapeutic laparotomy. These numbers are high compared to other trauma centres.

We believe that this number of negative laparotomies and non-therapeutic laparotomies can be reduced if laparoscopic procedures were being utilised more frequently. Although all consultant general surgeons have acquired expertise in advanced laparoscopic techniques, most of these acute operations are performed by duty surgical registrars.

Auckland City Hospital provides an active educational programme for trainees and consultants. Monthly trauma rounds and fora, and an annual trauma conference, have been run for more than 10 years. A Definitive Surgical Trauma Care (DSTC) course has also been run annually during the second 5-year period. However, the laparoscopic abilities of surgical registrars vary and acute cases are often dealt with out of hours.

The educational efforts maybe targeting a more senior group than those who actual treat the patients. The result may be more laparotomies rather than laparoscopies in the management of these patients.

The usage of CT scans to diagnose hollow viscous injuries has its limitations. These diagnoses often rely on a high index of suspicion, presence of free gas and/or fluids on the scan. Because of the potential of such injuries being missed, operative exploration is the gold standard. However, in selected cases such as a right upper quadrant stab wound, a CT scan prior to theatre for operative planning is often useful especially when liver injury is considered likely.

In stable posterior and flank wound patients, CT imaging may also be helpful in determining the extent of injuries. While the “selective conservatism” approach makes good sense in theoretical practice, this concept is clinically challenging in Australasia. This is due to the shorter surgical resident shifts, lack of clinical consistency in doing serial examinations, and the fear of potential missed serious injuries when the abdomen is unexplored.

In conclusion, our study has shown two remarkably similar cohorts of patients. Their surgical management has also been remained similar. Despite the availability of laparoscopic procedures and advanced imaging techniques, we have not seen a change of practice in our surgical unit.

Reasons for lack of change maybe the generally small numbers of such patients, lack of relevant skills amongst junior staff, failure of supervision, or failure of educational process within the hospital. Although overall outcomes were satisfactory, additional costs and patient morbidity may have been incurred.
Competing interests: None known.

Author information: Li Hsee, Trauma Fellow; Ian Civil, Director; Trauma Services, Auckland City Hospital, Auckland

Correspondence: Dr Li Hsee, Trauma Services, Auckland City Hospital, PO Box 92024, Auckland, New Zealand. Fax: +64 (0)9 3078931; email: lchsee@gmail.com

References:
6. The Abbreviated Injury Scale 1990 Revision Update 98, Association for the Advancement of Automotive Medicine, Des Plaines, IL.
Robot-assisted laparoscopic radical prostatectomy (RALP)—a new surgical treatment for cancer of the prostate

Liam C Wilson, Joanna E Pickford, Peter J Gilling

Abstract

Aim To examine the safety and efficacy of robotic-assisted laparoscopic prostatectomy (RALP) in the early cases of this new technique from a single institution.

Method A prospective database was created to monitor perioperative and postoperative outcomes of men undergoing RALP for clinically localised carcinoma of the prostate.

Results The first 30 consecutive cases were followed prospectively. There were no conversions to open surgery, perioperative transfusions, re-operations, or major complications. The mean operating time was 280 minutes, with reductions in time between cases 1–10 and 10–20, and a smaller improvement between cases 10–20 and 20–30. The mean hospital stay was 1.4 days. There was one delayed discharge (4 days) due to an acute anxiety event. One patient required readmission for severe bladder spasm, and one patient had a failed trial of removal of catheter requiring re-catheterisation. One patient had a minor wound infection. The majority of patients had moderately-well differentiated, organ-confined disease on specimen histology.

Conclusion The early results suggest that RALP is a safe and oncologically effective procedure. The local results are at least comparable with other early series in the literature. It is an important addition to the armamentarium available for treating prostate cancer in New Zealand.

With the development of the serum prostate specific antigen (PSA) assay, the numbers of men undergoing treatment of early-stage prostate cancer has grown significantly. This has been accompanied by an increase in the range of treatments available, from open radical prostatectomy, external beam radiation, and brachytherapy, to more novel treatments such as cryotherapy and high intensity focused ultrasound (HiFU). However, the most significant recent development in the treatment of early-stage prostate cancer has been the advent of robotic-assisted laparoscopic prostatectomy (RALP).

From its first description in 2000, this procedure has surged in popularity worldwide and has become the mainstay of treatment in the United States (US), with 70% of all radical prostate surgery being performed in this fashion; 80,000 robotic prostate procedures are expected to be performed in the US in 2008.

The da Vinci surgical system (Intuitive Surgical, Sunnyvale, California) robot is a master-slave tele-manipulative device, whereby the surgeon sits at a console and controls the laparoscopic camera and three operative arms through the use of two “master handles” (Figure 1). It is linked to the “slave” via a telerobotic videoscopic
link. The “slave” is the robot itself, whose arms are attached to the laparoscopic instruments (Figure 2) via specialised ports.¹

Figure 1. The master handles (handpieces) are manipulated within the surgical console

![Figure 1](image1)

Figure 2. The robotic theatre—the surgical console, video ‘cart’, and robotic arms

![Figure 2](image2)
There are several advantages of RALP over conventional open radical or laparoscopic prostatectomy. Firstly, the “endowrist” allows 7 degrees of freedom of movement, in contrast to the 5 degrees with standard laparoscopic instruments. This makes complicated movements such as suturing and anastomoses far more simple, rapid, and precise. Secondly, the camera is actually two separate 3-chip cameras which magnify the image by up to 10 times, and is steerable, which provides a level of anatomical detail not possible with open or standard laparoscopic pelvic surgery.

For robotic prostatectomy, this has particular relevance for sparing of the erectile nerves necessary to maintain potency, as well as enabling the surgeon to perform a watertight vesico-urethral anastomosis with a continuous suture. The third advance is reconstruction of the image in three dimensions with hand-eye alignment, enhancing surgical precision and depth perception enormously. It also eliminates the counterintuitive movement of laparoscopic surgery, the instrument tremor (by the use of motion-scaling), and improves the ergonomics considerably.

All these features provide a surgical process which is significantly more intuitive, precise, and user-friendly than pure laparoscopic prostatectomy, (which has been mastered by a very small proportion of urologists), while maintaining the benefits of a minimally invasive approach. For these reasons the procedure of laparoscopic radical prostatectomy has been superseded and replaced by RALP at our institution.

Methods

Prospective data was obtained on the first 30 consecutive patients undergoing RALP by a single surgeon (PJG) at our institution. Preoperative data—including presenting PSA, clinical stage, biopsy histology, and patient BMI were obtained—as well as questionnaires pertaining to erectile function (Sexual Health Inventory of Men, SHIM), quality of life, and urinary function. Perioperatively, data was accrued regarding total and console operating time, blood loss, surgical technique, as well as postoperative analgesia requirements, length of hospital stay, and surgical complications. Serial PSAs, continence, erectile function, and quality of life continue to be assessed at 3,6,12, and 24 months.

The technique of RALP is very similar to that described by Menon, and modified by Patel. This is a transperitoneal procedure, with anterograde dissection of the prostate off the bladder neck after the dorsal vein has been ligated. Nerve sparing is performed in an anterograde fashion. The vesicourethral anastomosis is performed with a continuous 2/0 monocryl suture over a urethral catheter and both posterior and anterior reconstruction is performed. A drain is placed. The catheter is removed 1 week postoperatively.

Results

The cases were performed between September 2007–July 2008. Patient characteristics are described in Table 1. All men had clinically organ-confined cancer (Stage T1 and T2) on digital rectal examination and this was moderately well-differentiated on transrectal ultrasound (TRUS)-guided biopsy. Operative times are described in Figure 3. The mean operative time for the first 10 cases was 341.5 minutes, 254 minutes for cases 10–20, and 248 minutes for cases 20–30. The overall mean operative time (including anaesthesia) was 281 minutes (180–420), and mean ‘console time’ was 207 minutes (115–355).

Measured blood loss was 240 (50–750) ml and the mean hospital stay was 1.4 (1–4) days. One patient had a delayed discharge due to an acute anxiety episode (4-day admission).
Table 1. Patient characteristics

<table>
<thead>
<tr>
<th></th>
<th>64 (mean)</th>
<th>44–75 (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>64</td>
<td>44–75</td>
</tr>
<tr>
<td>PSA level (ng/ml)</td>
<td>7.62</td>
<td>3.6–16.9</td>
</tr>
<tr>
<td>Gleason Score</td>
<td>3+3</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>3+4</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>4+3</td>
<td>4</td>
</tr>
<tr>
<td>Clinical Stage</td>
<td>T1c</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>10</td>
</tr>
<tr>
<td>BMI</td>
<td>26.2</td>
<td>(20.76–37.2)</td>
</tr>
</tbody>
</table>

Perioperative morbidity—There were no intraoperative complications, no conversions to open surgery, no blood transfusions, and no re-operations. One patient failed a postoperative trial removal of catheter a week after surgery. A subsequent trial of void was successful. There was one readmission due to severe bladder spasm. One patient suffered a localised wound infection.

Postoperative pain relief—The mean amount of paracetamol required was 5.9 g (2–12 g); 4 patients had paracetamol as their only postoperative analgesia; 3 patients required IV morphine (2 patients required 2 mg, 1 patient 12 mg); while the remainder required a small dose of tramadol (mean 130 mg, range 0–560 mg).

Histology—Surgical specimen histology is described in Table 2; 3 patients had poorly differentiated cancer not present on preoperative prostate biopsy; 1 patient from who had biopsies performed at another institution had T0 on histology; and 5 patients had extra-capsular extension (ECE). The overall positive margin rate for organ-confined disease (OCD) was 16% overall, but only 5% for the last 25 cases.

Table 2. Final specimen pathology

<table>
<thead>
<tr>
<th>Gleason Score</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>3+3</td>
<td></td>
</tr>
<tr>
<td>3+4</td>
<td>8</td>
</tr>
<tr>
<td>4+3</td>
<td>4</td>
</tr>
<tr>
<td>4+5, 5+4</td>
<td>3</td>
</tr>
<tr>
<td>Pathological Stage</td>
<td></td>
</tr>
<tr>
<td>T0</td>
<td>1</td>
</tr>
<tr>
<td>T2</td>
<td>25</td>
</tr>
<tr>
<td>T3</td>
<td>5</td>
</tr>
</tbody>
</table>
Discussion

The first RALP in New Zealand was performed on 3 September 2007 at Grace Hospital in Tauranga. This early series documents the safety and early efficacy of this approach at this institution. The data from the first 30 patients compares well with initial RALP series in the urological literature.

An initial series of 50 RALPs from the UK demonstrated a conversion rate to open surgery of 8%, a transfusion rate of 12% and a median operative time of 370 minutes.\(^5\) A learning curve series by Menon, at a high volume unit, described an operative time of nearly 5 hours, the shortest time being 4 hours, and a transfusion rate of 7%.

The first Australian series, documented by Costello et al, described a perioperative complication rate of 15.5%, and a T2 positive margin rate of 18.2%. Our operative times, very low perioperative morbidity, length of hospital stay, and pathological outcomes are reassuring good, and are likely to improve.

The international standard for this type of surgery is set by the results from very high volume centres in the US, such as those from Orlando\(^4\) and Detroit.\(^6\) Patel et al perform over 80 RALPs per month, with current mean operative times of 105 minutes, 97% of patients discharged on the first postoperative day, an overall complication rate of 4.3%, and a T2 positive margin rate of 4%.\(^4\)

With the advent of PSA testing, there has been a downstaging of prostate cancer, increasing the detection of organ confined, potentially curable prostate cancer. Historically the options have been open radical prostatectomy or external beam radiotherapy. Conventional surgery has had excellent cure rates, but at the risk of requiring perioperative blood transfusion (5–30%), developing urinary incontinence (5–15%), and erectile dysfunction (25–100%) and having prolonged convalescence.\(^7\)
Radiation has a treatment time of up to 8 weeks with a small number of severe complications. Other less invasive options such as brachytherapy has limitations regarding patient selection (prostate size, grade, and stage) and also has the risk of significantly worsening pre-existing urinary symptoms.

RALP allows a minimally invasive approach, treating all comers, and minimises the perioperative risks of surgery. RALP now also supersedes laparoscopic radical prostatectomy (LRP), as recent evidence suggests that even in the best hands LRP cannot match the results of open surgery. In a very high volume centre, LRP was superior with respect to transfusion rate, equivalent with regard to potency, but inferior to open radical prostatectomy when examining readmission rates, and continence.8

Locally, when comparing the learning curve for LRP and RALP, the latter has been superior with regards to total operative time, perioperative transfusion rate, and length of hospital stay.7 Return to continence was also inferior for LRP.

While robotic technology is expensive, it is not prohibitively so and is comparable to other ‘high-tech’ pieces of medical equipment. After a slow start in the US, it is now the treatment of choice for men with localised prostate cancer. Robotic pyeloplasty is growing in popularity, and gynaecological and general surgical applications are rapidly expanding.

While the initial appeal of RALP was the minimally-invasive patient benefits and intuitively superior technical performance, it may actually confer advantages for oncological control, potency, and return of continence though this data has only been presented but not yet published. This cohort study documents the introduction of this important new technology into New Zealand.

Conclusion

RALP appears safe and effective. The operative time, hospital stay, perioperative complication rate, and oncological outcomes in this small series are at least equivalent to other early "learning curve" series.

Competing interests: None known.

Author information: Liam C Wilson, Consultant Urologist, Department of Urology; Joanna E Pickford, Registered Nurse, Department of Urology; Peter J Gilling, Consultant Urologist, Department of Urology and Bay of Plenty Clinical School; Tauranga Hospital, Tauranga, Bay of Plenty

Correspondence: Peter J Gilling FRACS, Consultant Urologist, Promed Urology, PO Box 56, Tauranga 3140, New Zealand. Fax. +64 (0)7 5784717; email: Peter@promed.co.nz

References:


A prospective study analysing the effect of pain on probe insertion, and the biopsy strategy, on the patients’ perception of pain during TRUS-guided biopsy of the prostate

Samarth Chopra, Edward W J Rowe, Marc Laniado, Anup Patel

Abstract

Objectives PSA testing has led to an increasing number of TRUS-guided biopsies being performed. These are well tolerated in the majority, but a minority of men find the procedure unacceptably painful. We have studied a cohort of men undergoing TRUS guided prostate biopsy to ascertain whether the biopsy strategy, or pain on probe insertion, can assist in predicting those who men most likely to suffer severe pain during prostate biopsy.

Method 162 men (screened and symptomatic) between 47 and 86 years of age (mean age 61.7 yrs) who attended for TRUS and biopsy were studied. The number of cores taken were governed by TRUS volume, ≤ 30cc = 6 cores, 30.1–39.9cc = 7–11 cores and ≥ 40cc =12 cores. Each completed a 10-point visual analogue pain score (VAS) immediately after procedure. All men were asked to describe their pain, on insertion of the TRUS probe, followed by the first and the last biopsy. All biopsies were taken with an 18G spring-loaded Tru-cut disposable needle. Severe pain (score of 8–10) was deemed unacceptable.

Results 22% (36/162) of the men biopsied experienced unacceptable pain in one or more of the three categories. There was a higher incidence of severe pain in those undergoing 12 cores compared to 7–11, or a standard sextant strategy (p=0.05, Chi-squared for linear trend). Severe pain was experienced by 6% (9/162) of men during probe insertion. Of this group 78% (7/9) also went on to find biopsies unacceptably painful, compared to 19% (29/152) of those who did not experience severe pain for probe insertion (p<0.0001, exact test for two independent proportions).

Conclusions Approximately 1 in 5 men experience unacceptable pain at some time during TRUS biopsy of the prostate. A high proportion of men (78%) in whom insertion of the TRUS probe was unacceptably painful, found subsequent biopsies equally painful. With trend towards saturation biopsies the need for predicting group of men who will need local/general anaesthesia is ever-increasing.

The advent of PSA as a tumour marker for early impalpable prostate cancer has inevitably led to an escalation in the number of transrectal ultrasound (TRUS)-guided biopsies of the prostate. For the majority of men, TRUS biopsy of the prostate seems to be well tolerated. However, previous studies have demonstrated that a significant proportion of men find the procedure painful.
One study of 104 men found that 24% experienced moderate to extreme pain when between 4 and 8 biopsies were performed, while others demonstrated that 19% of men would not wish to undergo the procedure again without some form of analgesia.

Avoidance of pain in men undergoing TRUS biopsy of the prostate is of course desirable, not only for the obvious concerns over patient well being, but there is also a danger that the procedure may be rushed or even abandoned in a patient experiencing a high degree of discomfort, along with a reluctance on the part of the patient to return for future biopsies when necessary. This has lead to some centres recommending the routine use of analgesia. However, the proposed benefits of the various forms of local anaesthesia for TRUS-guided prostate biopsy are neither universally accepted, nor widely available.

It could also be argued that giving local anaesthetic to all patients is unnecessary for a procedure that is well tolerated with minimal discomfort in the majority of men. In this study we considered those factors which may enable the clinician to predict which men are likely to suffer severe pain during the biopsy. There are studies suggesting that the degree of pain is directly proportional to the number of biopsy cores obtained, though these claims are refuted in a more recent prospective randomised trial.

In this prospective, non-randomised study we aimed to ascertain whether the proportion of men in whom the biopsies resulted in severe pain could be predicted on the basis of their reported pain on insertion of the biopsy probe alone, and also whether severe pain is directly related to the number of biopsy cores taken.

**Materials and Methods**

Consecutive men attending for prostate biopsy were recruited in this study, and included both screened and symptomatic patients. Each received a letter giving details of the procedure together with potential complications, along with a cleansing enema, and three day course of a prophylactic antibiotic (Levofloxacin 250 mg), commenced on the morning of the procedure.

The procedure was performed with the patient in the left lateral decubitus position. All samples were obtained using an 18G spring loaded disposable Tru-cut needle (Microvasive) under TRUS guidance using a Bruel & Kjaer Medical (Leopard, Type 2001) ultrasound scanner with a 6.0 to 7.5MHz endosonic multiplane transducer probe (Type 8551).

The number of biopsies taken were determined by the total prostate volume. A standard peripheral zone sextant biopsy was performed on prostates up to 30 cm. Those with a prostate volume between 30.1 and 39.9cm received between 7–11 (median 8) biopsies, and all men with a volume of >40 cm underwent a 12 core strategy consisting of the standard peripheral zone sextant regime with a further 6 laterally place cores.

The first biopsy was always taken from the right apex of the gland, and the last from the left base. All procedures were performed by ER (Research Fellow) 75.5%, or AP (Consultant Urologist) 24.5%. None of the patients received local anaesthetic or sedation.

Each patient completed a linear 10-point visual analogue score (VAS) within 2 to 5 minutes of the procedure indicating their pain at three time points:

- Pain on insertion of the TRUS probe;
- Pain after the first biopsy;
- Pain after the last biopsy.

An enquiry was made of current or previous perianal disease. There is no clear consensus on the exact definition of severe pain on the VAS. However, following observations and discussion with men who had previously undergone TRUS prostate biopsy, we arbitrarily defined severe pain (deemed unacceptable) as a VAS score of 8 to 10.
Chi-squared for trend was used to determine whether the number of biopsies was associated with severe pain. We also assessed the association of severe pain on insertion of the TRUS probe and subsequent pain scores during the biopsy process (Fisher’s exact test). (CI = 95% confidence interval).

**Results**

Men had a mean age of 61.7 years (SD 6.8 years). Indications for biopsy were abnormal total PSA (n=135), or DRE (n=27). Median PSA was 5.7 ng/ml. Of the 162 men biopsied, 22% (36/162) found the procedure unacceptably painful (VAS score 8 to 10) in one or more of the three categories.

There was a general increase in the incidence of severe pain scores from the first to the last biopsy, irrespective of the strategy employed (Table 1). There was also a higher incidence of severe pain overall for the whole procedure experienced by men undergoing a 12-core strategy compared to those receiving a 7–11 core or sextant biopsy.

**Table 1. Percentage of men experiencing unacceptable pain (VAS 8–10)**

<table>
<thead>
<tr>
<th>Biopsy Strategy</th>
<th>1st Biopsy (apical)</th>
<th>Last Biopsy (basal)</th>
<th>Overall For Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Cores</td>
<td>1.4% (1/69)</td>
<td>15.9% (11/69)</td>
<td>15.9% (11/69)</td>
</tr>
<tr>
<td>7–11 Cores</td>
<td>7.7% (2/26)</td>
<td>15.4% (4/26)</td>
<td>19.2% (5/26)</td>
</tr>
<tr>
<td>12 Cores</td>
<td>7.5% (5/67)</td>
<td>23.9% (16/67)</td>
<td>29.9% (20/67)</td>
</tr>
</tbody>
</table>

(p=0.05, Chi-squared for linear trend).

The increasing trend in mean pain scores from the first to the last biopsy, and with increasing numbers of biopsy cores obtained, did not reach statistical significance (Table 2).

A minority of men, 6% (9/162) found initial insertion of the TRUS probe unacceptably painful (None had a documented pre-existing painful perianal condition). Of this group, 78% (7/9, CI 40 to 97%) experienced severe pain later during the biopsy procedure itself, compared to 19% (29/152, CI 13 to 26%) who did not find probe insertion severely painful (difference = 59%, CI = 25% to 76%, p<0.0001, exact test for two independent proportions).

There were no differences in pain scores between the clinicians performing the biopsies.

**Table 2. Mean pain scores according to sampling**

<table>
<thead>
<tr>
<th>Biopsy Strategy</th>
<th>1st Biopsy (apical)</th>
<th>Last Biopsy (basal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Cores</td>
<td>2.8</td>
<td>4.4</td>
</tr>
<tr>
<td>7–11 Cores</td>
<td>2.8</td>
<td>4.6</td>
</tr>
<tr>
<td>12 Cores</td>
<td>3.5</td>
<td>4.9</td>
</tr>
</tbody>
</table>

(p=0.3; Chi-squared for linear trend).
Conclusions

This study has shown that one in five men have severe pain at the time of TRUS biopsy, there is a trend towards greater pain overall with the number of biopsies taken, and, for the first time, that pain on insertion of the TRUS probe is a significant predictor of severe pain overall.

The incidence of severe pain is consistent with previous studies in which 24% of men experienced moderate or extreme pain. Naughton et al found a significant increase in pain recall at 2 weeks following the procedure, which persisted at 4 weeks. It is therefore likely that number of men reporting severe pain during the procedure would have been even higher than our figure of 22% if completion of the VAS had taken place in the weeks following the TRUS biopsy. This has implications for future patient compliance when repeat prostate sampling is necessary.

Earlier randomised studies comparing 12 core sampling and the standard sextant technique, demonstrated a higher mean pain score in the 12 core group, but the differences between the two regimes did not reach statistical significance. Our results are consistent with this study in terms of mean pain scores. However, the incidence of severe pain is significantly higher when a biopsy strategy incorporating more cores is adopted. The finding of an increased incidence of severe pain from the first to the last biopsy would appear to further support the notion that the severity of pain is related the number of biopsies performed.

Of the men in whom insertion of the probe resulted in severe pain, a high proportion (78%) experienced unacceptable levels of pain during the biopsy process itself. To our knowledge this is the most reliable indicator of men likely to experience severe pain during the biopsy process. Real time VAS pain assessment would allow identification of this cohort of men.

The proposed benefits of local/general anaesthesia could then be discussed with the patient. This has the potential to reduce the incidence of severe pain during core acquisition in 20% (7/36) who might be expected to experience severe pain.

The form of analgesia and its efficacy remain controversial. One study analysing the effect of lidocaine gel found it had no impact on the tolerance of TRUS biopsy, while a more recent study of 63 men suggested it was a safe and efficacious method of providing satisfactory anaesthesia.

Though the use prostatic nerve blockade described in 1996 is disputed by some, there is recent evidence from randomised double-blind placebo controlled studies that periprostatic lignocaine infiltration is a safe and effective means of reducing pain at TRUS biopsy of the prostate.

As the majority of patients do not experience severe pain during the procedure, many studies have been underpowered to detect relevant reductions in severe pain if pain scores have been compared in all patients. Clearly not all men experience severe pain during the procedure, and a uniform policy of administering a local anaesthetic periprostatic nerve block risks over treatment of the vast majority of men undergoing TRUS biopsy, with associated cost implications.

Limitations of this study include the non-randomised structure and that the observers collecting pain scores were not blinded to the number of biopsies taken as were the
patients. Evidence for this is that more patients had severe pain at the first biopsy if they were about to have 12 biopsies than 6. This might explain why patients felt they had more pain overall if 12 biopsies were taken rather than 6.

TRUS prostate biopsy is becoming increasingly common. We have identified one group of men in whom prediction of severe pain is possible. With trend towards saturation Biopsies the need for predicting group of men who will need local/general anaesthesia is ever-increasing.

Competing interests: None known.

Author information: Samarth Chopra, Urology Registrar, Palmerston North Hospital, Palmerston North, New Zealand; Edward W J Rowe, Consultant Urologist, North Bristol Hospital, Bristol, England; Marc Laniado and Anup Patel, Consultant Urologists, St Mary’s Hospital NHS Trust, London, England

Correspondence: Mr S Chopra, 2 Celtic Court, Palmerston North 5301, New Zealand. Email: doctor_chopra@yahoo.com

References:

Who goes to a sexual health clinic? Gender differences in service utilisation

Jane Morgan, Jarrod Haar

Abstract

Aim Our aim was to review utilisation of the Hamilton Sexual Health Clinic (Hamilton, Waikato, New Zealand) with regard to gender differences.

Methods Notes of those attending during 9 months (1 February 2008–31 October 2008) were reviewed—and their demographic details, source of referral, reasons for attending, and diagnostic coding data were compared. In addition, Waikato Hospital laboratory provided Chlamydia trachomatis test results for the study period. Data was analysed for gender differences.

Results Overall, more women attended than men. By age bands, more 15–19 year old women than men attended (23.3% vs 12.5%, p<0.001) but, for all age-bands 20 years and older, men were at least as likely to attend as women. Further, for those aged 25–29 years (20.3% vs 17%, p<0.5) and 45 years and older (11.9% vs 7.4%, p<0.001), more men than women of the same-age band were seen. Men who attended were more likely to self-refer (58.5% vs 43%, p<0.001) and less likely to be asymptomatic (30.3% vs 38.4%, p<0.001).

Conclusions Our data suggest men aged 20 years and older are at least, if not more, likely than women to attend a sexual health clinic for sexual health concerns. However, there appears to be under-utilisation by younger men. To improve sexual health for men and women, help-seeking must be timely and effective. We need to better understand and address sexual healthcare barriers for young men.

Recent youth-health initiatives in the Waikato district have focused on improving access to primary sexual health care. This includes free sexual and reproductive health visits for registered under-25 year olds at general practices with more rural or lower socioeconomic populations. However, Waikato primary health-collated data suggests most fee-claims from these practices relate to young women.

Where do young New Zealand men go for sexual health concerns, if indeed anywhere? Our aim was to review current utilisation of the Hamilton Sexual Health Clinic, with regard to any gender differences.

Methods

Hamilton Sexual Health clinic provides urban-based publicly-funded services for a district population of approximately 340,000. All attendees are offered testing for sexually transmitted infections (STIs) if they have not previously been tested or had a new sexual partner since their last test.

Electronic notes of those attending during 9 months (1 February 2008–31 October 2008) were reviewed and their demographic details, source of referral, reasons for attending, and diagnostic codes were compared.
Diagnostic coding follows STI surveillance case definitions that, for *Chlamydia trachomatis* and *Neisseria gonorrhoeae*, include both ‘confirmed’ (laboratory detection) and ‘probable’ cases (all of the following: symptomatic and a contact of a confirmed case and non-laboratory confirmed).\(^1\)

In addition, Waikato Hospital Laboratory provided de-duplicated *Chlamydia trachomatis* test results (PCR, Amplicor CT, Roche Diagnostics) for the 9-month period. Data was analysed using SPSS for Windows (v16.0). Differences were tested using t-tests.

**Results**

In 9 months (1 February 2008–31 October 2008), there were 6838 consultations by 3416 individuals. Average age was 28.1 years, with 47.4% aged 15–24 years (Table 1). Overall, more women attended than men.

By age bands, more 15–19 year old women than men attended (23.3% vs 12.5%, \(p<0.001\)) but, for all age-bands 20 years and older, men were at least as likely to attend as women. For those aged 25–29 years (20.3% vs 17%, \(p<0.5\)) and 45 years and older (11.9% vs 7.4%, \(p<0.001\)), more men attended than women of the same age-band.

Clinic utilisation during this period was higher amongst Māori (26.7%) and lower amongst Pacific peoples (2%) than Census 2006 ethnicity rates for Waikato district population of approximately 20% Māori and 3.1% Pacific peoples. By ethnicity and gender, more Māori women than men (29% vs 23%, \(p<0.001\)) and more European men than women (65% vs 60%, \(p<0.01\)) were seen.

Men who attended were more likely to self-refer (58.5% vs 43%, \(p<0.001\)), with women more likely to be referred by another healthcare provider (28% vs 19.2%, \(p<0.001\)) or to have attended in response to a request by our clinic staff (6.7% vs 3.9%, \(p<0.001\)). Also, men were less likely to have noted this information in their registration details (19.4% vs 22.3%, \(p<0.05\)) (Table 1).

Men more than women attended with genitourinary symptoms or with specific STI-related concerns (62.5% vs 53.9%, \(p<0.001\)); this included a large number of dermatological consults in the context of sexual risk-taking behaviour. Significantly more asymptomatic women attended for “peace-of-mind” STI testing (38.4% vs 30.3%, \(p<0.001\)). There were no differences with regard to other reasons (Table 2).

The number of chlamydia cases managed during the period exceeded the number of clinic positive test results because of “probable” chlamydia cases and confirmed cases tested at other settings but referred to our service for treatment and partner management.

Overall, there was no significant gender difference in chlamydia test positivity rates (14% vs 16%, \(p=0.087\)) although, by age and gender, there were more positive tests in women than men aged 25 year and older. There was no gender difference noted for any ethnicity group.
Table 1. Demographics of clinic attendees (February–October 2008)

<table>
<thead>
<tr>
<th>Demographics of individuals</th>
<th>Totals</th>
<th>Men</th>
<th>Women</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of individuals</td>
<td>3416</td>
<td>1475</td>
<td>1941</td>
<td>T=67.037, p&lt;0.001</td>
</tr>
<tr>
<td>Number of visits</td>
<td>6838</td>
<td>2830</td>
<td>4008</td>
<td></td>
</tr>
<tr>
<td>Average age in years</td>
<td>28.1</td>
<td>29.7</td>
<td>26.9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age bands in years</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0–14</td>
<td>22</td>
<td>8</td>
<td>14</td>
<td>T=0.647, p=0.517</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.5%)</td>
<td>(0.7%)</td>
<td></td>
</tr>
<tr>
<td>15–19</td>
<td>637</td>
<td>184</td>
<td>453</td>
<td>T=8.151, p&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12.5%)</td>
<td>(23.3%)</td>
<td></td>
</tr>
<tr>
<td>20–24</td>
<td>982</td>
<td>425</td>
<td>557</td>
<td>T=-0.075, p=0.940</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28.8%)</td>
<td>(28.7%)</td>
<td></td>
</tr>
<tr>
<td>25–29</td>
<td>629</td>
<td>300</td>
<td>329</td>
<td>T=-2.533, p&lt;0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20.3%)</td>
<td>(17%)</td>
<td></td>
</tr>
<tr>
<td>30–34</td>
<td>404</td>
<td>181</td>
<td>223</td>
<td>T=-0.701, p=0.483</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(12.3%)</td>
<td>(11.5%)</td>
<td></td>
</tr>
<tr>
<td>35–39</td>
<td>251</td>
<td>123</td>
<td>128</td>
<td>T=-1.936, p=0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.3%)</td>
<td>(6.6%)</td>
<td></td>
</tr>
<tr>
<td>40–44</td>
<td>173</td>
<td>79</td>
<td>94</td>
<td>T=-0.677, p=0.498</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.4%)</td>
<td>(4.8%)</td>
<td></td>
</tr>
<tr>
<td>45+</td>
<td>318</td>
<td>175</td>
<td>143</td>
<td>T=-4.493, p&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(11.9%)</td>
<td>(7.4%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Self-reported ethnicity</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>2130</td>
<td>960</td>
<td>1170</td>
<td>T=-2.875, p&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>(62.3%)</td>
<td>(65%)</td>
<td>(60%)</td>
<td></td>
</tr>
<tr>
<td>Māori</td>
<td>911</td>
<td>339</td>
<td>572</td>
<td>T=4.256, p&lt;0.001</td>
</tr>
<tr>
<td></td>
<td>(26.7%)</td>
<td>(23%)</td>
<td>(29.5%)</td>
<td></td>
</tr>
<tr>
<td>Pacific*</td>
<td>69</td>
<td>33</td>
<td>36</td>
<td>T=-0.787, p=0.431</td>
</tr>
<tr>
<td></td>
<td>(2%)</td>
<td>(2%)</td>
<td>(1.9%)</td>
<td></td>
</tr>
<tr>
<td>Asians/Others</td>
<td>269</td>
<td>121</td>
<td>148</td>
<td>T=-0.622, p=0.534</td>
</tr>
<tr>
<td></td>
<td>(7.9%)</td>
<td>(8.2%)</td>
<td>(7.6%)</td>
<td></td>
</tr>
<tr>
<td>Not given</td>
<td>36</td>
<td>21</td>
<td>15</td>
<td>T=0.1846, p=0.1</td>
</tr>
<tr>
<td></td>
<td>(1.1%)</td>
<td>(1.4%)</td>
<td>(0.8%)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behaviour last 12 months</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Opposite sex partners only</td>
<td>1223</td>
<td>1706</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Same sex/bisexual</td>
<td>99</td>
<td>54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not clearly recorded</td>
<td>153</td>
<td>181</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of referral, if noted</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-referral</td>
<td>850</td>
<td>834</td>
<td>T=-8.506, p&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(58.5%)</td>
<td>(43%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provider-referral (by doctor, nurse, midwife)</td>
<td>283</td>
<td>544</td>
<td>T=5.977, p&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(19.2%)</td>
<td>(28%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinic request (contact tracing)</td>
<td>57</td>
<td>130</td>
<td>T=3.628, p&lt;0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(3.9%)</td>
<td>(6.7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not given</td>
<td>287</td>
<td>433</td>
<td>T=2.059, p&lt;0.05</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(19.4%)</td>
<td>(22.3%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Mostly of Samoan, Tongan, Niuean, or Cook Islands origin.
Table 2. Clinical data of clinic attendees* (February–October 2008)

<table>
<thead>
<tr>
<th>Main attendance reason</th>
<th>Men</th>
<th>Women</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Genitourinary symptoms or STI-related concerns</td>
<td>1738 (62.5%)</td>
<td>1991 (53.9%)</td>
<td>T=-7.026, p&lt;0.001</td>
</tr>
<tr>
<td>Asymptomatic STI testing</td>
<td>843 (30.3%)</td>
<td>1420 (38.4%)</td>
<td>T=6.768, p&lt;0.001</td>
</tr>
<tr>
<td>Other concerns (including information, sexuality, sexual dysfunction, etc)</td>
<td>198 (7.1%)</td>
<td>286 (7.7%)</td>
<td>T=0.926, p=0.355</td>
</tr>
<tr>
<td>Total visits</td>
<td>2779 visits</td>
<td>3697 visits</td>
<td></td>
</tr>
</tbody>
</table>

Coded cases of:

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>335</td>
<td>436</td>
</tr>
<tr>
<td>Gonorrhoea</td>
<td>81</td>
<td>106</td>
</tr>
<tr>
<td>Syphilis (any stage)</td>
<td>14</td>
<td>7</td>
</tr>
<tr>
<td>Genital herpes (1st diagnosis)</td>
<td>32</td>
<td>70</td>
</tr>
<tr>
<td>Genital warts (1st diagnosis)</td>
<td>323</td>
<td>459</td>
</tr>
<tr>
<td>Chronic hepatitis B (1st diagnosis)</td>
<td>13</td>
<td>5</td>
</tr>
<tr>
<td>Chronic hepatitis C (1st diagnosis)</td>
<td>10</td>
<td>5</td>
</tr>
</tbody>
</table>

Positive chlamydia tests (% of tests)

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>All positive tests</td>
<td>192 (14%)</td>
<td>314 (16%)</td>
<td>T=1.714, p=0.087</td>
</tr>
<tr>
<td>Under-25 year olds</td>
<td>98 (16%)</td>
<td>174 (16.4%)</td>
<td>T=-0.249, p=0.803</td>
</tr>
<tr>
<td>Those 25 years or older</td>
<td>94 (11.7%)</td>
<td>140 (15.7%)</td>
<td>T=2.391, p&lt;0.05</td>
</tr>
<tr>
<td>By European ethnicity</td>
<td>108 (12%)</td>
<td>158 (14.3%)</td>
<td>T=1.546, p=0.122</td>
</tr>
<tr>
<td>By Māori ethnicity</td>
<td>69 (18.7%)</td>
<td>132 (19.2%)</td>
<td>T=0.198, p=0.845</td>
</tr>
<tr>
<td>By Pacific† ethnicity</td>
<td>1 (3.1%)</td>
<td>3 (7.7%)</td>
<td>T=0.823, p=0.414</td>
</tr>
<tr>
<td>By Other ethnicity</td>
<td>12 (13.3%)</td>
<td>19 (15.3%)</td>
<td>T=0.406, p=0.685</td>
</tr>
<tr>
<td>By unknown ethnicity</td>
<td>2 (12.5%)</td>
<td>2 (20%)</td>
<td>T=0.498, p=0.623</td>
</tr>
</tbody>
</table>

*Excluding gender-specific reasons—e.g. termination of pregnancy, hormonal contraception, etc; †Mostly of Samoan, Tongan, Niuean, or Cook Islands origin.

Discussion

Our data show gender and age differences in sexual healthcare utilisation. For all age-bands 20 years and older, men were at least as likely, if not more likely, to use our service than women.

Men were more likely to self-refer and more likely to be symptomatic, thus suggesting help-seeking behaviour around specific concerns. This is encouraging, given other utilisation data suggests New Zealand men visit general practice less frequently than women.2

Of concern is that young men were less likely to use our service. This is in keeping with previous data showing that young sexually active New Zealand men seem less likely than women to access sexual health care.
Amongst a birth cohort at age 21, significantly more women than men (75.8% vs 50.7%, p<0.05) with five or more partners in the previous year had visited their own GP over that period and more sexually experienced women than men attended any setting appropriate for STI testing (93.6% vs 71.6%, p<0.001).  

New Zealand STI surveillance data also suggests gender differences in sexual health care. In 2007, North Island laboratories reported the rate of all chlamydia cases amongst females as being 2½ to 4 times that in males (Waikato 794 vs 325 per 100,000, Auckland 1002 vs 358 per 100,000 and Bay of Plenty 1552 vs 391 per 100,000 population, respectively). However, as Chlamydia trachomatis is often asymptomatic, opportunistic testing patterns affect detection rates and gender-testing inequities may explain some of the reported gender-rate variation.

In 2000, an Auckland laboratory reported the number of female tests as being approximately 10 times that of males. Similarly, in 2003 and 2004, 85% of Waikato community laboratory chlamydial tests (excludes hospital and sexual health clinic samples) were from women.

Lower primary care STI testing rates do not necessarily equate to less service utilisation, however. As men tend to be more symptomatic for STIs, syndromic primary care management may mean less testing. Likewise, men may receive STI treatment without testing if their partners are found to have an infection. Nonetheless, it remains a concern that younger New Zealand men are less likely to seek, or be offered, sexual health care.

Help-seeking practices and health service use are complex issues with biological, psychological, and sociological considerations. Although there is a risk of assuming homogeneity in male behaviour, recurrent published themes are the influence of masculine stereotypes and gender norms of risk-taking, resilience, and self-reliance.

Discussion on men's help seeking often infers negative behaviour, of "men behaving badly" with respect to their health. Yet, in keeping with our findings, a recent Australian study reports older men do have a keen interest in their health.

Our clinic data may not be representative of other sexual health clinics in New Zealand as many factors, including geographical proximity and clinic hours, may affect service access and hence utilisation. That said, general practice utilisation and laboratory testing data add support that younger men are missing out.

Perhaps it is time to reflect on how much the current health system and health promotion messages seem tailored to women. For example, the emphasis of the HPV vaccine as protecting young women risks further disengagement of young men.

To improve sexual health for men and women, help-seeking must be timely and effective, not least to limit further transmission of infections. It’s high time we understood better and addressed sexual healthcare barriers for young men.

Competing interests: None known.

Author information: Jane Morgan, Consultant Sexual Health Physician, Waikato Hospital, Hamilton; Jarrod Haar, Ngati Maniapoto, Ngati Mahuta, Associate Professor, Department of Strategy & Human Resource Management, University of Waikato, Hamilton
Acknowledgements: We are very grateful to Kay Stockman, Alison Idema, and Steve Holmes for their help in extracting and sorting the laboratory testing data.

Correspondence: Dr Jane Morgan, Consultant Sexual Health Physician, Waikato Hospital, Pembroke St, Private Bag 3200, Hamilton, New Zealand. Fax: +64 (0)7 8398892; email: morganj@waikatodhb.govt.nz

References:


Declining sperm quality in New Zealand over 20 years

Rebecca Shine, John Peek, Mary Birdsall

Abstract:

Aim To investigate whether semen quality has changed in New Zealand over the last 20 years.

Method A retrospective study from 1987 to 2007. The sperm concentration, volume of seminal fluid, and the percentage of motile sperm were analysed from the first semen sample of 975 men presenting as sperm donors in Auckland and Wellington.

Results Linear regression showed that the mean concentration of sperm decreased from $110 \times 10^6$ per millilitre in 1987 to $50 \times 10^6$ per millilitre in 2007 (p<0.001); an average reduction of 2.5% annually. The volume of semen also fell significantly from 3.7 ml to 3.3 ml (p<0.001). There was no concomitant change in the duration of abstinence.

Conclusion The decline in semen volume and sperm concentration in men presenting as sperm donors may indicate a reduction in the semen quality of New Zealand men over the past 20 years.

There have been recent concerns that male fertility is declining and continuing controversy over changes in sperm quality in the past 60 years. A meta-analysis\(^1\) reported a significant global decline in sperm concentration between 1938 and 1990. Swan et al\(^2\) reported an even greater reduction of sperm concentration from a compilation of 101 studies from 1934 to 1996, indicating an annual decline of 1.5% compared to 1% determined by Carlsen et al.\(^1\)

These conclusions have been supported by time series studies from Paris (France), Norway, Denmark, and Scotland\(^3\)–\(^6\) although similar studies from United States, Spain, and India have shown no decline in sperm quality.\(^7\)–\(^9\)

No study has been previously performed in New Zealand. In this study we have looked at the first sperm sample from men presenting as potential sperm donors to New Zealand’s largest fertility clinic to gauge whether there has been a change in semen quality in New Zealand men over the last 20 years.

Methods

Subjects—The first semen samples from 813 prospective sperm donors presenting at Fertility Associates in Auckland between 1987 and 2007 and from 162 potential donors in Wellington between 1992 and 2007 were analysed. Only clinic-recruited donors were included because of the possibility that some donors recruited by recipients might have been selected for known fertility. Donors were recruited by advertising in local newspapers and magazines. Proven fertility or marital status was not a prerequisite for donation. Most men were in their 30s or 40s, with an upper age limit of 55 for most of the period, later reduced to 50. Age was recorded for all men accepted as donors.

Semen analysis—Semen volume, sperm concentration, and percentage motile sperm were measured in each sample, from which were calculated total number of sperm and total number of motile sperm. All samples were collected by masturbation; 3 to 5 days abstinence was recommended.
Samples were liquefied by gentle rotation at room temperature and analysed within 120 minutes. Semen volume was measured by aspirating the whole liquefied sample into a 5ml or 10 ml graded pipette. Between 1987 to 2002, sperm concentration was determined using formalin-immobilised sperm in a hemocytometer, and motility on a slide with cover slip with sample depth of about 20 microns. In 2002, 20 micron deep counting chambers (MicroCell, Conception Technologies, San Diego, USA) were introduced for measuring both concentration and motility. At least 200 sperm were measured for both sperm concentration and motility.

Statistical analysis—For the initial analysis, volume, sperm concentration, motility, total number of sperm, and total of motile sperm were cube root transformed as recommended by Handelsman before multivariate linear regression to look at temporal trends. Since analyses of transformed and untransformed data gave similar results, untransformed data was used in this paper for simplicity.

Results

Median values for semen volume, sperm concentration, and motility over whole period and annual changes in these variables, as derived from linear regression, are shown in Table 1.

Table 1. Change in semen quality in 975 potential sperm donors between 1987 and 2007

<table>
<thead>
<tr>
<th>Variables</th>
<th>Volume (ml)</th>
<th>Sperm concentration (million/ml)</th>
<th>Motility (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>3.2</td>
<td>61</td>
<td>62</td>
</tr>
<tr>
<td>Upper quartile</td>
<td>4.4</td>
<td>108</td>
<td>73</td>
</tr>
<tr>
<td>Lower quartile</td>
<td>2.2</td>
<td>30</td>
<td>49</td>
</tr>
<tr>
<td>Annual change</td>
<td>-0.024</td>
<td>-2.92</td>
<td>+0.36</td>
</tr>
<tr>
<td>Annual percentage change</td>
<td>-0.6%</td>
<td>-2.5%</td>
<td>+0.6%</td>
</tr>
<tr>
<td>Significance by multivariate analysis</td>
<td>p&lt;0.001</td>
<td>p&lt;0.001</td>
<td>p=0.3</td>
</tr>
</tbody>
</table>

Mean semen volume fell from 3.7 to 3.3 ml over the 20 years (Figure 1), while sperm concentration fell from 110 to 50×10⁶/ml (Figure 2). Both changes were statistically significant (p<0.001) using multivariate linear regression. There was no significant change in the mean duration of abstinence from 3.7 days in 1987 to 4.0 days in 2007 (p=0.49).

Sperm motility appeared to increase over the period from a mean of 57% in 1987 to 63% in 2007 (Figure 3), but this was not statistically significant (p=0.39) when multivariate regression included the men’s age and duration of abstinence. The mean age of the men increased from 35.2 to 39.1 years over the period.

The proportion of men with sperm concentrations less than 20×10⁶/ml increased from 72/592 (12.2%) for 1987–1997 to 76/383 (19.8%) for 1988–2007; p<0.001.
Figure 1. Semen volume in 975 sperm donors recruited over 20 years

Figure 2. Sperm concentration in 975 sperm donors recruited over 20 years
Discussion

This study showed average sperm concentration halved over the 20-year period 1987 to 2007—from $110 \times 10^6$/ml to $50 \times 10^6$/ml in men presenting as potential sperm donors. Over the same period, semen volume decreased by 15%. Duration of abstinence, which strongly influences both sperm concentration and semen volume, did not change throughout the study.

The magnitude of the fall in sperm concentration in this study is similar to that reported by Auger et al for Parisian men, in which concentration declined 2.1% per year from $89 \times 10^6$/ml to $61 \times 10^6$/ml between 1973 and 1992. Similar falls of a lesser magnitude were seen in a Scottish study, where men born before 1959 had an average sperm count of $98 \times 10^6$/ml compared to $78 \times 10^6$/ml for those born after 1970, and in a Danish study, in which concentration declined from $73 \times 10^6$/ml to $54.5 \times 10^6$/ml between 1952 and 1972.

Several studies have failed to find a decline in sperm concentration over time, including an Australian study that looked at sperm donors recruited between 1983 and 2001 and found no change in either sperm concentration or semen volume.

Studies of the type reported here carry two potential limitations—the degree of consistency in methodology of semen analysis over extended periods of time and how representative potential sperm donors are of the male population.

The measurement of volume is objective and not prone to bias. We did change the methodology for measuring sperm concentration and motility in 2002 for convenience, to improve staff safety and to ensure a more uniform sample depth when measuring motility. Experiments undertaken at the time of the change and again while this paper was being prepared found the two methods to be very comparable. Omission of data from 2002 onwards did not change the magnitude or significance of any of the changes we observed.
Sperm donors were recruited by advertisement in local papers and magazines and there was no selection for proven fertility or marital status. The average age of sperm donors increased by four years between 1987 and 2007; similar to the increase in the average age at which New Zealand women gave birth over the same period, which rose from 27 to 31 years.\textsuperscript{13}

Whilst evidence shows that semen quality declines with age in men,\textsuperscript{14} it is unlikely that a 4-year increase in age could explain the changes we observed. Moreover, we included the man’s age as a potentially confounding variable in our analysis.

Handelsman\textsuperscript{15} has discussed the possible limitations of using self-volunteering donors as subjects to study semen quality of the male population. He has postulated that because the process of sperm donation is personal and potentially embarrassing, many men would be reluctant to volunteer unless they had some concerns about their potential fertility. His study found the sperm concentrations of volunteer donors to be significantly lower than those of men participating in a contraception study. The mean concentrations were 69×10^6/ml for the donors compared to 142×10^6/ml for participants in the contraception study. The value of 142×10^6/ml is at the high end of all the studies reviewed by Swan et al\textsuperscript{2}—it could be argued that participation in a contraception study might select men of higher than average fertility.

Although there are valid concerns about how well men volunteering to be sperm donors represent the general population, they are drawn from the general population, and so trends in this group would be expected to reflect trends in the whole population.

While the causes for the putative decline in sperm quality are likely to be multifactorial, many authors have suggested an environmental influence.\textsuperscript{3,16} One mechanism could be a reduction in the number of Sertoli cells and a resulting decrease in spermatogenesis\textsuperscript{16} arising from foetal exposure to environmental oestrogens or endocrine disruptors during sexual differentiation in early pregnancy.\textsuperscript{1}

Endocrine disruptors come from a variety of sources, including plastics, pesticides, and agricultural hormones.\textsuperscript{18,19} Recent studies finding that pesticides and diets high in meat can significantly reduce sperm quality support this hypothesis.\textsuperscript{19,20}

It has been suggested that a reduction in semen quality is just one manifestation of an underlying problem that is also associated with increased male genital tract abnormalities, such as cryptorchidism and hypospadias, and testicular cancer.\textsuperscript{18} There are no studies as to whether these conditions are becoming more prevalent in New Zealand, however. Additional factors which impact sperm quality are male obesity\textsuperscript{21} and smoking.\textsuperscript{22}

This study found a profound decline in sperm concentration from 1987 to 2007 in men volunteering to be sperm donors in New Zealand. This finding is in agreement with similar results from around the world which have raised concerns regarding possible trends in male fertility. The reason for declining sperm quality has yet to be determined but is obviously an area for further study in New Zealand, considering that the magnitude of the decline we have documented is among the largest recorded.
Competing interests: None known.

Author information: Rebecca Shine, 4th-year Medical Student1; John Peek, Chief Operating Officer2; Mary Birdsall, Medical Director2

1. University of Auckland School of Medicine, Auckland
2. Fertility Associates, Ascot Hospital, Auckland

Acknowledgements: The authors thank Dr Chris Frampton for advice on statistical analysis as well as the staff of Fertility Associates clinics in Auckland and Wellington for donor recruitment and semen analysis over the years. We also acknowledge the contribution of all sperm donors in our clinic.

Correspondence: Mary Birdsall, Fertility Associates, Ascot Central, 7 Racecourse Dr, Remuera, Auckland 1050, New Zealand. Email: mbirdsall@fertilityassociates.co.nz

References:


PSA testing and DRE, TRUS scanning with sector biopsy, improved histology, curative treatments, and active surveillance for prostate cancer: a success story for men’s health

Robin Smart

Abstract:

PSA, DRE, and TRUS sector biopsy have been used clinically internationally for almost two decades and have been available in New Zealand since 1993. The incidence of prostate cancer has approximately doubled. Many countries especially in Western Europe, North America and including Australia report decreases in prostate cancer mortality due to this change ranging from 10 to 39%. This has not so far occurred in New Zealand, however, and likely reasons for this are discussed. They include a negative approach encouraged by the New Zealand Guidelines Group and others, and more difficult access to investigations and treatments for New Zealand men than other countries. Technological advances in TRUS sector biopsy, histological diagnosis, and management are discussed. Changes in international prostate cancer mortality data and results from several clinical trials are also discussed. It is concluded that the weight of evidence in favour of PSA/DRE testing is now overwhelming and that potentially between 200 and 300 of the 600 men who currently die of prostate cancer in New Zealand could be saved by the application of current technology.

In 1979, Wang and associates identified prostate specific antigen (PSA), a protease produced by the columnar epithelium of the prostatic ducts. It is a glycoprotein of 28,400 Da with 237 amino acid residues and 8% carbohydrate in an N linked oligosaccharide side chain. It is found in seminal fluid in high concentration where it is involved in liquefaction of semen coagulum. A small proportion leaks into the bloodstream. Prostate cancer cells produce less PSA but more leaks into the blood due to secretion into the prostatic stroma. PSA exists in semen in five isoforms differing in carbohydrate content, only two of which are active.

PSA in present in serum in two forms: bound and free. It binds to several protease inhibitors including alph-1-antichymotrypsin, alpha-2-macroglobulin, and alpha-1-antitrypsin; the amount of free PSA is small in proportion. Total PSA in serum has a half life of 2 to 3 days.

Clinical application of the observed increase in serum PSA in men with prostate cancer was first proposed by Stamey in 1987. The use of PSA as a marker for prostate cancer mushroomed over the next few years internationally revolutionising diagnosis and treatment. PSA as a diagnostic tool became available in New Zealand in 1993.
There have been two clinical applications of PSA. It has been used for follow up of men with prostate cancer to monitor progress of the disease and treatments. And it has also been used to facilitate diagnosis of prostate diseases, especially cancer.

Diagnostic results have been dramatic. In New Zealand, the incidence of prostate cancer changed from 1100 per year to more than 2000 over a few years; it is now the most commonly diagnosed male cancer.

The rapid uptake of PSA testing internationally, including New Zealand, reflects concern in the community generally about prostate cancer. In 2002, there were 221,002 worldwide deaths from prostate cancer, including 600 in New Zealand. There were 679,023 new cases diagnosed in 2002 worldwide. The lifetime risk of diagnosis is about 12%, with a 4% lifetime risk of dying from it in New Zealand.

As men suffer from prostate cancer, their families and friends know having the disease and dying from it is not easy. Although the mean age of death due to prostate cancer is 76, significant numbers die from age 60. It causes significant loss of life expectancy (averaging 9 years) for affected men. Moreover, amongst cancers, prostate cancer is the third highest cause of life expectancy loss for men behind lung and colorectal cancers.

The high mean age of death does not tell the full story. This cancer naturally moves slower than others and is usually slowed further by androgen deprivation therapy. But this means that a man dying from prostate cancer may have suffered for many years from the disease and treatment. Indeed, the last 2 years are often a difficult burden marked by many medical interventions including radiotherapy, interventional radiology, surgery, hospice care, related in part to the propensity for skeletal metastases. It has been shown that curative treatment is cost-effective compared to drifting to this phase.

This widespread community-based drive to screen asymptomatic men for prostate cancer reflects the natural history of the disease in that if symptoms are awaited before the diagnosis is made approximately 70% will already have metastases. Similarly if PSA is omitted from initial screening and only digital rectal examination (DRE) performed, about two-thirds of cases will already have metastases.

While some have advocated using PSA alone as the initial screening test most advise combining it with DRE. This is useful, not only to identify the small number of (usually poorly differentiated) prostate cancers, which make little if any PSA, but also to detect other causes of a high PSA principally enlargement or infection.

Parallel to development and popularisation of PSA and DRE testing has been the development of transrectal ultrasound scanning of the prostate (TRUS) with sector biopsies. This advance, often overlooked by commentators on this subject, is at least as important as PSA. While PSA/DRE has reasonable sensitivity as an initial screening test it, as with other initial screening tests for cancer such as mammography and cervical screening, lacks specificity. This is provided by TRUS with biopsies. No patient is advised to have prostate cancer treatment without a histological diagnosis and in more than 90% of cases this is provided by TRUS biopsies.

With advances in scanners, rectal probes, needle biopsy guns (which take precisely aimed 18-gauge samples in four-hundredths of a second); improved analgesia by
periprostatic local anaesthetic injection and sometimes light sedation; improved prevention of infection by antibiotic prophylaxis especially with quinolones; TRUS biopsies have become one of the most common and safest invasive office investigations performed in the millions annually world wide.

Complications (usually infection) requiring hospital admission are reported in rates from nil to 1.6% in modern series, and an extensive literature search failed to identify reported mortality.\textsuperscript{12–19} The false negative rate of the test, a problem especially in large glands, has been reduced by increasing the number of sector biopsies taken from 6 to 12 or more with safety.\textsuperscript{20}

A further advance often overlooked by commentators concerns the histological information provided from the biopsies and its usefulness to clinicians advising affected men. The validity of the internationally applied Gleason score to assess the risk of advancement and aggressive behaviour of identified prostate cancer is well known. Indeed, it remains the most accurate predictor of long-term disease-free survival.

But less well known is that recent advances have meant that lesions previously considered to be low-scoring cancers, A tumour with a Gleason score of 4 or less is now classified as benign.\textsuperscript{8,21} In particular, many lesions previously graded Gleason pattern 1 and 2 adenocarcinoma have subsequently been found on high molecular weight cytokeratin immunohistochemistry to have a basal cell layer and therefore be now designated \textit{atypical adenomatous hyperplasia}.\textsuperscript{21} Further, a much quoted study on large numbers of post-mortem prostates in Detroit claiming incidence of occult cancer in 29% of men in the fourth decade and 32% in the fifth\textsuperscript{22} has been discredited by follow-up studies showing that the true incidence of occult cancer for men less than 50 is 5%.\textsuperscript{8,23}

The Detroit study is considered to have underestimated the effects of autolysis on post-mortem specimens.\textsuperscript{8} These changes have negated (partially at least) arguments that a large proportion of prostate cancers behaved innocently, and that therefore the disease was not worth looking for or treating. Other useful information for clinicians from the biopsy histology includes the number of affected cores and the length of core involvement.\textsuperscript{8,21}

Parallel to these advances facilitating early diagnosis prior to metastases have come major improvements in curative treatments. Radical nerve sparing prostatectomy, external beam radiation, and brachytherapy all have their place and offer high chances of cure and of a good quality of life.\textsuperscript{24}

Despite the foregoing arguments, there is justified concern that some men could undergo unnecessary treatment for low risk very slow growing lesions which otherwise would not have enough time to cause problems in their life span, and which in the absence of PSA/DRE testing would not have been detected. The elderly, those with comorbidities, and those with tiny amounts of low risk Gleason 6 or less cancers are in this group.

Watchful waiting, where curative treatments are foregone and treatment is symptomatic only, is a strategy long employed by clinicians for the elderly and comorbid groups. Active surveillance is a comparatively new strategy for the last group. Rather than move to immediate curative treatment a surveillance programme is
embarked upon consisting of regular PSA, DRE, and other tests (for example, TRUS biopsy) as indicated.

If there is no indication of threatening change, the man remains in surveillance and is spared the problems associated with curative treatments. Should such a change occur, curative treatment can then be carried out.

Studies of this method show that about two-thirds can remain in active surveillance and about one-third require treatment. The delay inherent in the method does not significantly affect curative outcomes. The method does carry the advantage that those men having treatment are certain they need it, but the disadvantage is that men have to “live with the cancer” which is not for everyone. As stated above, only those with very low risk disease, or tiny amounts of Gleason 6 or less (especially if older), are advised to consider this method.25–31

Recently there has been more recognition that prostatic infections (many of which are low grade causing little if any symptoms) are a common cause of about 40% of high PSAs. Treatment of suspected infections with appropriate antibiotics especially quinolones with a resulting correction of PSA may spare men unnecessary TRUS biopsies. There is also more recognition of the ability of recent heavy exercise or sex to increase PSA.32,33 This knowledge has (with the other improvements detailed above) helped to increase the cancer diagnosis rate in TRUS biopsy series from about 30% to about 45% in modern series.

PSA/DRE, TRUS biopsy, and curative treatments have been applied in large numbers in many countries for almost 20 years, especially in North America and Western Europe. It is therefore valid to ask what evidence there is that the approach has been worthwhile in decreasing prostate cancer mortality and morbidity, and at what cost?

Some representative evidence is reviewed below. As the volume of available evidence is very large this is far from comprehensive.

Some national cancer mortality changes

- National Cancer Institute (USA, 2003) and National Cancer Institute of Canada studies (2001)
  Prostate cancer death rates for about 10% of the US male population (SEER data) from 1975 to 1999 were studied. A 27% drop from 1991 to 1999 in white males and 17% in black males was found. The authors concluded: “These observations are consistent with the hypothesis that the decreasing prostate cancer mortality in the United States is caused by a stage shift (earlier diagnosis) resulting from earlier detection of cancer by PSA testing.”34 In discussion, the authors eliminated other explanations especially better treatment for those with spread and procedural changes in the way deaths are attributed in national records. They pointed to similar results from Canada.35

- Paper by Swiss and Italian research units on 24 European countries (2004)
  This paper studied prostate cancer death rates in 24 European countries from 1980 to 1999. In the European Union (EU), PSA testing and subsequent early curative treatment has been widespread, whereas in many other countries (for example Eastern European countries) it has not. In the EU, a 10% drop in
prostate cancer death rate was noted during the 1990s “consistent with a favourable impact of improved diagnosis, but mainly of advancements in therapy on prostate cancer mortality in Western Europe.”

Most EU countries had larger falls in the 65–74 age group—for example in the UK 15%, Italy 19%, Germany 13%, and Spain 17%. In the non-EU European countries, a rise in prostate cancer death rates was noted.36

- Studies in Queensland and Australia overall with comparisons with 24 other countries by the Viertel Centre for Research Cancer Control, Queensland (2005)

From 1982 to 1993 there was a 3.7% per year increase in prostate cancer death rates in Australia. Then, from 1993 to 2002, the rate fell by 2.6% per year—a 26% drop. While the exact reason for this change is not certain, it is possible it is due to better treatment aided by early diagnosis with PSA testing.5 These authors also studied international prostate cancer death rates in 24 industrialised countries using World Health Organization data. They noted decreases in 12 “suggesting the reduction in death rates was becoming more widespread”.37 (New Zealand was in the “other” 12).

- Austrian studies (2006)

In the Tyrol region of Austria, free PSA testing for men aged 45–74 was introduced from 1993 and there was a public campaign to encourage testing. More than 75% of men in this age group in Tyrol had PSA testing at least once, many more often. Any cancer found was treated by modern methods. A large number of radical prostatectomies were done.

In Austria generally, free annual check-ups including a DRE are available but PSA is not part of that. In 2003, after 10 years of the programme, analysis revealed a reduction in age-standardised prostate cancer mortality of 39% in Tyrol over the 10 years. The age-standardised incidence of metastatic prostate cancer declined 60%, and that for advanced cancer 54%. Compared to the rest of Austria the risk ratio of prostate cancer death determined by statistical modelling was 0.81.

The authors looked carefully for other explanations but felt that more frequent PSA testing in Tyrol compared with the rest of Austria “seemed to be the main factor”. They did not consider that their study was conclusive proof and they “wait for the results of large randomised studies”.38

Some randomised controlled trials


This trial was between 7348 men who were screened by initial PSA and rectal examination, then annual PSA, compared with 14,231 men who were not screened. Abnormal results were investigated by TRUS biopsy and any cancers found treated by modern methods. The trial was commenced in 1988 and results analysed in 1999, and again in 2003.
Results showed that the prostate cancer death rate was 62% less in the screened group compared to those not screened. They noted that in Quebec City generally there had been a 38% reduction in prostate cancer death rates from 1990 to 1999, similar to that seen in the USA and Canada generally.

This trial has been criticised because originally it was to have 30,000 men allocated to screening and 15,000 not screened. But only the numbers above accepted participation. This is considered by some to have introduced bias but not by others or the authors. Also there was crossover to screening of 1122 men from the non screened group and other problems with the trial. 39

The authors found that 97.4% of cancers diagnosed in the screened group were without spread and able to treated with curative intent. They concluded that only 7% of cancers found were of no threat to the man. Despite the problems of running the trial, they considered their results robust and consistent with other evidence pointing to a benefit from PSA testing.


This study is being carried out by University Hospitals in Uppsala and Helsinki, the Karolinska Institute in Stockholm, and the Epidemiology Department at Harvard University.

From 1989 to 1999, 695 men with early prostate cancer were randomly assigned to either watchful waiting, where no curative treatment is given, or radical prostatectomy curative surgery. Most of these men (77%) were detected by rectal examination and only 12% by PSA screening. The trial only included men with gentler (well and moderately differentiated) cancers; aggressive (poorly differentiated, Gleason 8, 9, 10) cancers were excluded.

Results were reported in the New England Journal of Medicine in 2005 when follow-up ranged from 16 years to 6 (median 8 years).

Key results are that 14% in the watchful waiting group died of prostate cancer compared with 8% of the curative surgery group. In addition, there was a 40% reduction in spread of cancer, a 67% reduction in the original cancer in the prostate progressing, and a 38% reduction in the requirement for hormone treatment to treat advancing disease in the curative surgery group compared to those in watchful waiting. All these differences were statistically significant. In addition there was a 26% reduction in overall (including all causes) death rate for the surgical group, just missing statistical significance (p=0.04).

The authors note that the differences between the two groups are getting greater as time passes. 40

The study is not of PSA screening versus no screening. Rather it is focused on attempting to cure early prostate cancer versus not doing so. But it is considered relevant to the PSA debate in that it provides insight into what the results are if early prostate cancer is not diagnosed in time to treat curatively; if PSA testing is not performed then usually the opportunity to cure is lost. The poor results in the watchful waiting group illustrate the difficulties
keeping unscreened groups intact for long periods in randomised control trials for prostate cancer.

If the aggressive cancers had been included (as would occur if there was no screening) then results in the watchful waiting group would be poorer. But no clinician can leave these men in watchful waiting, hence the exclusion. Conversely if more or all of the cancers had been diagnosed by PSA screening results in the curative surgery group would be expected to be better.

- **European randomised study of screening for prostate cancer (ERSPC) Trial**

  This is a major European Community sponsored trial involving eight Western European countries. It commenced in 1992 and had recruited 205,897 men by 2004; 95,247 are in intervention groups and 110,650 in controls. It is designed to see if prostate cancer mortality can be reduced by PSA, DRE, and TRUS intervention. The protocol differs across the various countries. There have been 270 publications already from the trial data, two important ones are cited here. The results were due to be released in 2008 but this has been delayed until 2010 or later.

- **ERSPC Rotterdam section provisional results (2007)**

  The value of these early results is limited as data on the non-screened group is not available under trial rules until completion in 2010. But the Rotterdam group compared their screened men, 19,970 in all, with other Dutch results finding a 15% improvement in prostate cancer survival in their screened group. They commented that the results are “in line with the literature and with the expected favourable outcome for a screened population.”

  Those in the not screened group receive routine treatment from their doctors. This may include PSA testing for some. The trial has been designed to accommodate 20% of these men being tested by PSA. This is one of the potential problems with the trial.

- **ERSPC Goteborg section results (2007)**

  These results were published by the prestigious group including Hugosson from the Sahlgrens University Hospital and Lilja from Memorial Sloan Kettering. Unlike the Rotterdam results, the control group was available for analysis. This trial was commenced in 1995 involving men from 50 to 66 and after 10 years there were 9972 in the PSA screened group and 9973 controls. The end point was a diagnosis of metastatic prostate cancer.

  Results showed that there were 24 men in the PSA group who had metastases and 47 in the controls—a 48% reduction for the PSA group, p=0.0084. Further analysis showed there were a large number (2456) of those in the PSA group who never had a PSA test because they declined the invitation to attend for testing. Meaning there were 7516 men who actually had PSA testing, not 9972. Only 11 of these had metastases. 13 of the non-responders had metastases, the same rate as the controls. This meant that there had been a 70% reduction in the rate of metastases in the group receiving PSA testing.
The authors concluded that PSA testing did reduce the chance of metastatic prostate cancer but advocated waiting for the final results of the overall ERSPC and PLCO trials which are designed to examine prostate cancer mortality.\textsuperscript{42}

- **USA National Cancer Institute Trial; Prostate, Lung, Colo-rectal and Ovarian cancer screening trial (PLCO trial)**

This very large trial is still proceeding. It commenced in 1993 and finished enrolling men in 2001. 76,000 men have been enrolled, half having annual PSA and rectal examinations and half routine care from their doctors. Some of these may also get PSA and rectal examinations as this is common in the USA, a potential problem with the trial. Again there have been some early results published but it is too soon for there to be results on prostate cancer death rates. Initial results are consistent with the ERSPC findings to date.\textsuperscript{3,43}

**Conclusions**

An overwhelming body of evidence shows that PSA/DRE testing leading on to TRUS biopsy and curative treatments (where indicated) has been a major advance for men’s health. Indeed, those with significant experience of dealing with men with this cancer in pre-PSA times appreciate the difference only too well. Then, 70\% had metastases at diagnosis and the mortality ratio was 41\%. Studying the fate of control group men in the various trials outlined above, especially those in Bill-Axelson and Holmberg’s trial, provides a chilling reminder of the potential for this cancer to ruin or end a man’s life in his later years.\textsuperscript{40}

It is true that these improvements in morbidity and mortality have come at a price of more investigation and treatment. Numbers of men diagnosed with prostate cancer have approximately doubled. But this is the inevitable price for better results. The first-line investigations of PSA, DRE, and TRUS biopsy have been shown to be well tolerated and safe in an office setting. It is important that men with insignificant cancer, or major comorbidity, or limited projected lifespan, get appropriate management including surveillance only or other minimal approaches. It is also important that men with threatening cancers get these recognised in time for curative treatment.

A special group are those with a family history of prostate cancer. The usual lifetime risk of 12\% doubles if one first-degree relative has prostate cancer and increases by 5 to 7 times if more than one has it.\textsuperscript{44,45} Therefore, potential benefit of PSA testing includes not just the individual but also his family, and there is evidence that the outlook for family members is improved by PSA/DRE testing.

Before PSA testing, the outlook was worse for those with a family history compared to the general population but now it is better. This is considered to be due to a greater awareness and earlier testing by relatives of those with prostate cancer.\textsuperscript{46}

The dramatic improvements in morbidity and mortality from prostate cancer in Western Europe, North America, and Australia outlined above have occurred because a very large proportion of the middle aged and older men in those countries have undergone PSA and DRE testing. The drive for this remarkable change has occurred
at community level amongst men, their families, and family doctors on learning about this technology as a way to avoid advancing prostate cancer.

Governments generally have been neutral or antagonistic about PSA testing. For example, the British National Health Service states: “Opportunistic screening (with PSA) should be discouraged” and the New Zealand Guidelines Group (NZGG) in 2004 stated several times in its information for practitioners that PSA “Not recommended as a screening test in asymptomatic men.”

New Zealand has not shared the improvements in prostate cancer mortality experienced by other advanced Western nations including Australia detailed above. Rather, our annual mortality has been static at about 600, similar to eastern European countries.\(^\text{37}\)

Large numbers (more than 2000) of men are now diagnosed with prostate cancer in New Zealand each year. But there have been powerful discouragements to men contemplating PSA testing and their family doctors resulting in uncertainty and confusion. This includes not just the efforts of the NZGG but also studies originating in the New Zealand Ministry of Health critical of general practitioners screening with PSA and DRE.\(^\text{47}\)

Many general practitioners are ambivalent about it as a result. Some have adapted by only referring on men with higher PSAs, for example 8 or more. This author’s experience has been that the most recent 300 TRUS Biopsies have a mean referral PSA of 11.1, and the last 100 radical prostatectomies—a mean referral PSA of 8.4.

Others actively discourage PSA testing and disseminate that view. A common argument used is that 450 men must be screened to save 1 from dying of prostate cancer (a figure which is disputed)—and that this is too large to make screening worthwhile. But the equivalent figure for breast cancer screening is 1700, and that for cervical cancer screening 8000.\(^\text{48}\) It seems likely that New Zealand men have not been tested as much, and perhaps sometimes been referred later (compared to men in Australia, North America, and Western Europe), to explain the difference.

Access to investigations and treatments may be poorer in New Zealand than the other countries, especially for the two-thirds of the population without health insurance. Of course, most New Zealand general practitioners exercise great care in dealing with this issue.

The NZGG this year formed an ‘advisory group’ comprising representatives of the Prostate Cancer Foundation, radiation oncologists, urologists (including this author), the Cancer Society, the College of Pathologists, general practitioner, and Māori to formulate more information material.

The “non-Ministry” members of this group strongly favoured the NZGG providing men contemplating PSA/DRE testing with information about the advances discussed above, including changes internationally in prostate cancer mortality and trials. It was considered that men making such a decision at this time were entitled to this information.

The institution of a national screening programme was not advised, but provision of this information to men was. But the draft containing this advice was rejected, the NZGG citing its contract with the Ministry and opting for neutrality. An opportunity
lost to improve prostate cancer results in New Zealand as has occurred in other countries.

To be fair to the NZGG other government authorities internationally have adopted a similar neutral or opposing stance. And, as with any field of human endeavour, papers continue to be published expressing scepticism about PSA/DRE screening. The long-awaited analysis of the ERSPC and PLCO trials, already put off from 2008 for a few years, and which have cancer mortality as end points, may resolve the debates. Or may not. There are many potential problems with these huge multicentre trials, not least of which is occult cross over from control to PSA groups. Initial results, as discussed above, support PSA/DRE testing.

The weight of evidence in favour of PSA/DRE testing is now overwhelming after almost two decades of international experience. To go back to the time before PSA testing would now be unthinkable.

Of course we hope for the perfect tests, perfect treatment, and continue to look for improvements. But New Zealand men today need the benefit of current technology which the evidence shows could save between 200 and 300 of the 600 who currently die of prostate cancer each year.

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Author information: Robin Smart, Urologist, Auckland

Correspondence: Dr Robin Smart, PO Box 26206, Epsom, Auckland, New Zealand. Fax: +64 (0)9 5309005; email: robinfsmart@xtra.co.nz

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Men’s health and the health of the nation
Lannes Johnson, Peter Huggard, Felicity Goodyear-Smith

Abstract
The health of the male population is a substantial contributor to the health of the nation. In general, men have a poorer health status and lower utilisation of health services than women. They have a lower life expectancy and are more likely to die from avoidable deaths than women. Men’s health is increasingly being recognised as a specialty area of health promotion and of clinical practice. Male-specific approaches may assist in maximising the positive outcome of interventions aimed at educating men about their health issues, attracting men into seeking clinical services, and establishing and maintaining a gender-orientation in health services that encourages men to engage. With appropriate training and resources, primary health care is ideally placed to provide accessible, male-friendly services with lead to reduction in gender inequalities in health.

Why is health, and men’s health, so important?
A person’s health is a foundation which enables or constrains his or her lifestyle, social, education, or employment choices. A decline in individuals’ health has significant ramifications for their employment status and participation in the workforce. Furthermore the idea of health as the foundation of individual wellbeing extends to the health of a nation.

Health is not simply a by-product of economic development, but is a substantial driver of economic development as well. The health of the population affects a country’s productivity, labour supply, education levels, and capital formation. Healthy people learn better, live longer—and work, earn, and save more.¹

The increasing cost of health care, fuelled by new technologies and an ageing population, itself places a substantial economic burden. This highlights the importance of improving the overall health status of the population rather than simply extending the average life expectancy of the population—adding life to years, rather than years to life. If health is important then, what is it about men’s health that is worthy of attention?

In New Zealand (NZ), men comprise 49% of the population and 52% of the labour force.¹ Building on the above arguments, the health of the male population is a substantial contributor to the health of the nation. However men’s health per se has received relatively little attention. While in some instances male subjects may have been assumed to be ‘generic’ for human beings, there has been little research specifically on the health of men.²

The United States (US) National Library of Medicine's controlled vocabulary MeSH (Medical Subject Heading) terms used for indexing articles for MEDLINE/PubMed has included the term “women’s health” (the concept covering the physical and
mental conditions of women) since 1991. The equivalent term “men’s health” was only introduced in 2008.

Moreover, a Medline search from 1980 to 1999 found 3667 articles using the keywords ‘women’s health’, compared to 89 using the keywords ‘men’s health’. A similar search in 2008 yielded 18,249 references for women’s health compared with 442 for men’s health.

This does not mean that men are healthier than women and hence require less attention. In fact, the health status of men appears markedly poorer and their utilisation of health services is lower than that of women’s. Without devaluing the importance of women’s health, this raises the issue that if greater health equality were to be achieved between the sexes, the impact on NZ’s economic and social wellbeing could be significant.

The importance of men’s health is not simply a utilitarian matter of the greater good in relation to the economic health of the country. If health inequalities between social and occupational classes or ethnic groups are considered to be a major issue of equity—or intrinsic fairness—then the poorer health status of men poses a similar challenge. It is difficult to diminish the importance of men’s health on the basis of either riskier/unhealthy behaviours, or as a function of occupational roles, when such issues are seen as being important factors to be addressed when confronting other forms of health inequality.

Although addressing inequalities in health in NZ is a key focus of health strategy and policy, men’s health does not specifically feature in this regard. Rather, the focus is more on addressing inequalities patterned by ethnicity and deprivation, and issues of men’s health within these groups appears at best in the margins.

**Health status of men and women**

In most modern societies, women tend to live longer than men. This has often been taken as a given and a reflection of improvements in health services for women over the last century, particularly maternity care, together with the generally higher exposure of men to occupational or environmental hazards. Yet an examination of data on the status of men’s health suggests that there are many issues specific to men that should justifiably concern health planners and policymakers, and for which a systemic or societal response may be required.

In developed countries, the evidence points to a substantial health inequality between men and women. A study of 17 European countries found men under 75 years have almost twice the number of deaths as women in the same age group in most disease states, with the exception of diseases of the musculoskeletal system, skin, and connective tissue.

Another study which analysed the World Health Organization Statistical Information Services Mortality Database for patterns of premature death in men and women aged 15–44 years across 44 countries found that more men than women died prematurely in all these countries, and in many cases, the causes of early deaths were avoidable.

The study focused on six potentially avoidable causes of death - accidents, suicide, malignant neoplasms, diseases of the circulatory system, homicide and chronic liver
disease and cirrhosis. It found that among men a median of 7.4% of all deaths from all causes in the age group 15–44 year olds, whereas the corresponding figure for women was 3.1.\textsuperscript{8}

The international literature has identified that men tend to have higher mortality rates, but that women tend to have higher morbidity rates, especially at advanced age.\textsuperscript{3} However the reduced quantity of life on the part of men does not appear to be offset by the reduced quality of life on the part of women. Rather, the emerging international literature on quality-adjusted life expectancy and disability adjusted life expectancy in developed countries indicates a persisting inequality of poorer lifetime health outcomes among men compared to women in the same community.\textsuperscript{3}

This pattern of inequality is reflected in NZ data. Although life expectancy has increased over the past half-century, women have consistently lived longer than men. Since the 1970s there has been a steady narrowing of the life expectancy gap between men and women, from 6.5 years in 1975–77, to 4.8 years in 2000–2002.\textsuperscript{9} In 2002–2004 the gap was still 4.3 years, with the average life expectancy at birth of 77 years for males and 81.3 years for females.\textsuperscript{10}

The \textit{Decades of Disparity} report focused on widening inequality between ethnic groups over the periods 1980–84 to 1996–99.\textsuperscript{11} Yet clear patterns of gender inequality also emerged, with life expectancy at birth showing lower life expectancy for males compared to females. More startling was that life expectancy for males in each of the three ethnic groups (Māori, Pacific, and non-Māori/non-Pacific) in the 1996–99 period was actually lower than life expectancy for females in each ethnic group in 1980–84, 15–20 years earlier.\textsuperscript{11}

This difference in life expectancy, patterned by gender, is reflected in NZ mortality data for major causes of death. These data indicate that males are more likely than females to die of most major causes, including coronary heart disease, cancer (all types), transport accidents, and intentional self-harm. Eighty-four percent of all fatal accidents are male, and males are more likely to die from injury than females at all ages.\textsuperscript{12} Almost 100% of occupational deaths are male.\textsuperscript{2}

In 2002–2004 men were 3.1 times more likely to commit suicide than females, and this rate was unchanged from 2001–2003.\textsuperscript{13} Females are more likely than males to die of hypertensive disease and forms of heart disease other than coronary heart disease, cerebrovascular disease, pneumonia and influenza, and falls.\textsuperscript{14}

\textbf{Health service utilisation}

The literature also points to men experiencing barriers to service, either as a result of apparent reluctance, or potential systemic barriers. US research has shown men with health problems are more likely than women to have had no recent contact with a doctor, regardless of income or ethnicity. United Kingdom (UK) data indicate that men tend to visit their general practitioner (GP) later in the course of a condition than women, a problem that is compounded by social inequalities.\textsuperscript{15}

A similar picture is evident in NZ. The 2002/03 NZ Health Survey found that GP utilisation in past 12 months was lower among men (75.7%) than women (85.5%).\textsuperscript{10} This could suggest men are generally healthier and have less need of seeing a GP. However, there were no conclusive findings in the survey to support this contention.
In terms of prevalence of most chronic diseases, apart from osteoporosis (higher among women), no significant differences emerged. In risk and protective factors, men were more physically active, but consumed fewer fruit and vegetables than women and there were no significant differences in obesity levels. Alcohol and marijuana consumption was higher among males than females, but there was no significant difference in tobacco smoking.\textsuperscript{10}

However, the data also indicate that a blanket category of men obscures important differences between ethnic and socioeconomic groups: Māori and Asian males tend to access GPs less frequently than European/Other, and males in the most deprived quintile are more likely to report needing to see a GP but do not do so, than those in the least deprived quintile.\textsuperscript{16}

The evidence suggests that men do care about health issues, but often find it difficult to engage with health services. This may be for a range of reasons, including:

- Lack of knowledge, either of services or of risk factors such as obesity\textsuperscript{15}
- Lack of motivation, or stoic predispositions\textsuperscript{17,18}
- Inappropriate opening times of services\textsuperscript{2,19}
- Inappropriate targeting of interventions or insufficient available services\textsuperscript{15,20}
- Perception that health services are not ‘male-friendly’ and are primarily for women.\textsuperscript{21}

An analysis of the way in which men see their place in their community and in their networks found that norms and values with which men associate their masculinity, such as self-sufficiency and self-control, may lead to difficulties in seeking out health care.\textsuperscript{22} This may be due to the perceived risk involved in discovering other’s reactions, leading to a potential threat to their identity as men.

**Emergence of an international men’s health movement**

Against a backdrop of a growing awareness of particular issues relating to men’s health is an emerging international men’s health movement.\textsuperscript{5} This is evidenced by “men’s health” becoming an indexed MeSH term in 2008. Although the field remains relatively small, notable advances are occurring in Europe, UK, US, and Australia.

Momentum has been generated and accelerated by the establishment of men’s health advocacy organisations in many countries, such as the Men’s Health Forum in the England and Wales (\url{www.menshealthforum.org.uk}), and the Men’s Health Information and Resource Centre in Australia. Such organisations have acted as focal points for national and local activity, developing and publicising initiatives, acting as clearinghouses for resources, and providing health and policy advocacy.\textsuperscript{23}

Conferences on men’s health have become regular events in many Western countries, providing opportunities to showcase initiatives and advocate for health planning and policy solutions. In 2006, Age Concern organised men’s health evenings in several localities in NZ as part of international men’s health week.
Evidence of benefits of men’s health awareness activities

The evidence base of the benefits of men’s health awareness programmes is sparse, reflecting its relatively recent emergence as a field of activity. However, there are some known benefits of activities that are targeted at men’s health. No single programme will cater for the needs of men across all ethnic or social groupings. Rather, programmes need to be developed according to the particular ethnic, social, or geographical circumstances within which men live.

There is a paucity of evaluation evidence of events such as ‘health weeks’, and none that would signal their health benefits. However such events cannot be evaluated merely in terms of their possible health benefits, which are too difficult to disentangle from the effects of any number of other policy or service interventions.

It is more appropriate to assess the impact on their more immediate aims of motivating action and raising awareness. A recent such event was attended by 350 men. Participants indicated that key requirements for ongoing men’s health care are that men want facts to be presented without fuss and provided with a simple pathway for them to follow for ongoing health care.

Other interventions shown to contribute to an improvement in men’s engagement in health services include men’s health clinics and special centres, and workplace interventions such as prostrate health awareness, nutritional knowledge, and diabetes.

Primary health care

The place of primary health care, as the delivery point for men’s health initiatives, has often emerged in the literature. Once awareness of men’s health issues is raised, the success of such initiatives lies with men to consult with their GPs. However, as noted in an Australian study, primary care is not always equipped to provide effective health promotion activities in the course of GP or nurse consultations. Adequate training and resources may be needed for primary care to be effective in this role.

Possible approaches include:

- Offering services at ‘work-friendly’ hours.
- Setting up health checks targeting at-risk men.
- Offering choice of female or male health professionals.
- Using more information or communication technology such as email or txting.
- Encouraging primary health care staff to work in wider community initiatives.

Personal health care approaches include:

- A primary care environment that is more responsive to men, including waiting room ambience.
- Specific health promotion resources on offer in surgeries.
- Avoiding language that is negative about masculinity.
• Following up on family difficulties.
• Avoidance of judgemental attitudes.²¹⁵

The appeal to many men of a ‘warrant of fitness’ analogy for accessing health services to receive a health check, has previously been reported.³⁰

These are ways of ensuring a male orientation in providing primary health care services for the identification of health risk. Many men have idiosyncratic issues about seeing their GP (or even enrolling with a GP), recognising their own health problems or risk of problems, and traditionally have a much lower number of contacts with GPs than NZ females. Additionally, there are ethnic differences in access to primary care that need to be addressed.

The place of screening programmes in primary health care is controversial. Some of this controversy is driven by confusion around terminology. Case finding, which is germane to general practice and involves identifying disease or risk of disease in individuals or families, is an activity that GPs manage every day.

Population health screening, which is germane to public health and the new area of NZ Primary health Organisations’ (PHOs) concern, population health, is when a particular disease or risk of disease is identified in sub-set(s) of the total population. For example when prostate cancer risk is identified by a GP (based on history, blood tests, and physical examination) this could be called “screening” the practice male population, but it is not “population screening”; rather, it is case-finding within a practice. In population screening for a whole population, the subset would be based on gender and age alone, and all would receive a screening test with no prior health consultation or examination.

The “case finding” approach applied to a personal health evaluation, particularly when recorded electronically, means that GPs and practice nurses use evidence-based guidelines to identify health risks in a population subgroup. This approach can be targeted, and based on age groups appropriate for the health risk being surveyed.

Conclusion

Only a paucity of interventions have been comprehensively monitored and evaluated, and which in turn have shown clear beneficial impact on men’s health. However there is potential for men’s health awareness activities to catalyse interest in health and to seek advice or support. Three possible benefits of men’s health activities are: raised awareness of health issues, connecting men with health or other support networks, and some degree of behaviour change.³¹

In his inaugural address at Leeds Metropolitan University upon taking up the first Chair in Men’s Health, Professor Alan White described his perspective on the current state of knowledge of men’s health.⁵ While he described men’s health as being problematic, the evidence base of knowledge as being incomplete, and our understanding of the theoretical issues as being unclear, he also portrayed changes and new approaches to care that are encouraging.

There is increasing academic activity around improved understanding of the important issues of men’s health and clinical interventions, as well as a greater acknowledgement that men’s health may be a specialised area of clinical practice. His
A view of a way forward includes a synthesis of clinical practice and research with sociological investigation into understanding men’s health beliefs and behaviours. This can guide the development of health policy to reduce gender inequities, as well as informing education programmes for health professionals and for men.

**Competing interests:** None known.

**Author information:** Lannes Johnson, Chief Medical Advisor, HealthWest PHO, Waitakere City; Peter Huggard, Senior Lecturer, Department of General Practice and Primary Health Care, School of Population Health, Faculty of Medical and Health Sciences, The University of Auckland; Felicity Goodyear-Smith, Associate Professor, Department of General Practice and Primary Health Care, School of Population Health, Faculty of Medical and Health Sciences, The University of Auckland, Auckland

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**Correspondence:** Dr Lannes Johnson, PO Box 9, Greenhithe, Auckland 0756, New Zealand. Email: lannes@healthwest.co.nz

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Hypocalcaemia and hypomagnesaemia: a complication of Crohn’s disease

Andrew P Kelly, Belinda J Robb, Richard B Gearry

Hypocalcaemia is a complication of severe Crohn’s disease (CD). In this case report we stress the importance of actively seeking other electrolyte and mineral abnormalities in the treatment of hypocalcaemia.

Case report

A 43-year-old Māori woman with 20 years of severe, stricturing CD presented to the Emergency Department with acute-on-chronic weight loss and fatigue. For 1 month she had experienced tetany and muscle cramps with perioral and peripheral paraesthesia. She also complained of intermittent severe colicky abdominal pain.

She had previously undergone two small bowel resections with removal of 125 cm of small bowel in total. Her CD was active despite receiving weekly subcutaneous methotrexate 25 mg with folate rescue 5 days later. She had previously experienced an allergic reaction to infliximab and had not responded to azathioprine or 6-mercaptopurine. Despite counselling, she was an active smoker.

Figure 1. CT abdomen showing small bowel stricture with proximal dilatation
On examination, she was cachectic with a body mass index of 16.8. She had positive Chovstek’s and Trousseau’s signs. Her abdomen was soft but generally tender. She had broken a molar during an episode of tetany.

Blood tests revealed hypocalcaemia 1.3 mmol/L (corrected 1.7 mmol/L), hypoalbuminaemia (19 g/L), hypomagnesaemia <0.3 mmol/L), and hypokalaemia (3.0 mmol/L). Phosphate (1.0mmol/L) and parathyroid hormone (4.5 pmol/L) concentrations were normal. Alkaline phosphatase concentration was increased (214 u/L). She was severely vitamin D deficient (plasma 25 hydroxy Vitamin D 3nmol/L).

She was treated for the effects of small intestinal failure due to active stricturing Crohn’s disease and short bowel syndrome—undergoing electrolyte replacement with intravenous calcium, potassium, and magnesium. Exclusive semi-elemental nasogastric feeding was commenced and vitamin D was replaced aggressively.

The anti-TNF alpha drug adalimumab was started and the methotrexate was continued at a reduced dose due a known pharmacokinetic interaction with adalimumab.

One month following discharge she continued to receive nasogastric semi-elemental feeding and calcium, magnesium, and vitamin D replacement.

Plasma electrolyte concentrations are now normal, she is gaining weight, and her symptoms of Crohn’s disease have improved.

Discussion

Severe Crohn’s disease with short bowel and intestinal failure due to extensive small bowel resection can lead to malabsorption of carbohydrates, proteins, fats, vitamins, minerals, and electrolytes.

The prevalence of vitamin D deficiency in CD is higher than that in healthy controls, with rates of up to 65%. Contributing factors include reduced intestinal absorption, a disrupted enterohepatic circulation of vitamin D, and possibly reduced nutrient intake.

Documented upper gastrointestinal tract involvement, winter season, and smoking increase risk. Other important factors to consider in any individual include age, ethnicity, BMI, and sunshine exposure.

Hypomagnesaemia may occur when upper gastrointestinal secretions are incompletely absorbed. This induces functional hypoparathyroidism by reducing parathyroid hormone (PTH) secretion and diminishing renal and skeletal responsiveness to PTH.

When hypocalcaemia results, calcium levels can be corrected by magnesium therapy alone but not by sole administration of calcium and vitamin D. In addition, administration of large amounts of parenteral calcium (without magnesium) is potentially dangerous because of the predisposition toward soft tissue calcification.

The route by which magnesium should be replaced depends on the severity of the clinical manifestations. With hypocalcaemic tetany, as experienced by our patient, intravenous magnesium should be administered. In asymptomatic patients, oral magnesium is appropriate.

The functional hypoparathyroidism impairs 1α-hydroxylation of 25 (OH)D and therefore 1,25 (OH)2D is prescribed initially. Calcium levels should be closely
monitored—and once electrolyte abnormalities have been corrected, 25(OH)D should be substituted for 1,25(OH)₂ D. Hypomagnesaemia also causes renal potassium wasting with hypokalaemia resolving when magnesium levels normalise.

This case illustrates biochemical abnormalities that can occur in CD. We highlight the prevalence of vitamin D deficiency in this group and emphasise the importance of measuring magnesium levels in patients with hypocalcaemia.

Author information: Andrew P Kelly, House Surgeon; Belinda J Robb, Endocrinology Registrar; Richard B Gearry, Consultant Gastroenterologist; Christchurch Hospital, Christchurch

Correspondence: Dr Richard Gearry, Senior Lecturer, Department of Medicine, University of Otago, Christchurch, PO Box 4345, New Zealand. Email: Richard.Gearry@cdhb.govt.nz

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MYH-associated polyposis—a new familial colorectal cancer syndrome without a family history

Graeme Dickson, Ian Wilson, Julie Arnold, Susan Parry

Familial colorectal cancer can be associated with multiple colonic adenomas, as is the case in Familial Adenomatous Polyposis (FAP). This condition has an autosomal dominant mode of inheritance so patients often have a positive family history.

We present a case of multiple colonic adenomas associated with a mutation involving the MutY Homologue (MYH) base-excision-repair gene.

MYH associated polyposis (MAP) is an autosomal recessive condition with different implications for familial screening.

Case report

A 36-year-old man presented with diarrhoea and was found to have polyps on sigmoidoscopy. A subsequent colonoscopy identified multiple adenomatous colonic polyps and he proceeded to total colectomy with ileorectal anastomosis—the provisional diagnosis being FAP. Histology revealed more than 50 colonic tubular/tubular villous adenomas. The larger polyps contained foci of high-grade dysplasia and invasive cancer, one being classified as Duke’s A cancer. Postoperatively, ongoing rectal surveillance by flexible sigmoidoscopy was planned.

As duodenal adenomas are present in 90% of individuals affected with FAP, surveillance gastroscopy was also recommended. The initial procedure revealed three discrete antral gastric adenomas and these were removed by submucosal resection.

There was no family history of cancer and his parents and four siblings were well. In approximately 25% of individuals presenting with FAP a spontaneous mutation will be present. Consequently, after appropriate counselling, genetic testing for this condition was requested.

The majority of cases of FAP are associated with mutations in the APC gene on the long arm of chromosome 5q21. However, sequencing of this did not identify a disease causing mutation. This is the situation in up to 20% of individuals with FAP. As FAP is a dominantly inherited condition, regular surveillance flexible sigmoidoscopy was recommended for his children from their early teens.

Given the negative genetic testing for FAP, and the recent description in the UK of the phenotypically similar MYH polyposis, blood samples were sent for MYH mutation testing. This detected a single mutation (G382D) and subsequent testing found a second frameshift mutation (c1092delC) confirming the diagnosis of MYH associated polyposis.

As this condition is associated with an autosomal recessive pattern of inheritance, as opposed to the autosomal dominant inheritance of FAP, the screening
recommendations for the family were dramatically changed. His children were no longer at risk and his siblings were offered genetic testing.

**Discussion**

MYH is a base-excision-repair gene. Mutations have been associated with recessive inheritance of multiple colorectal adenomas. The first report was in a British family in which three of seven siblings had either colorectal cancer or multiple adenomatous polyps.\(^1\) Importantly, no-one from the previous or subsequent generations was affected. Analysis of the APC gene in 11 tumours showed an unusually high proportion of a specific somatic mutation— the G:C to T:A transversion. This suggested a defect in the base excision repair mechanism in these patients (Figure 1). Reactive oxygen species, which occur during normal metabolism, cause damage to DNA forming 8-oxoguanine (8-oxoG). This pairs with cytosine during DNA replication but can also mispair with adenine thus resulting in conversion of G:C base pairs into T:A base pairs (transversion). Base excision repair is the cell’s mechanism for preventing this.

MYH is responsible for base pair excision of adenine mismatched with 8-oxoG allowing insertion of normal base pairs.

![Diagram of base excision repair](image)

All affected members of the family were found to be compound heterozygotes for MYH germline mutations. Subsequent studies have found that MYH mutations are associated with both multiple adenomas (>3 adenomas) and classical polyposis (>100 adenomas).\(^4\) The phenotype is typical for autosomal recessive inheritance with studies
demonstrating polyposis in approximately 1 in 4 siblings (27%) of affected biallelic MAP cases. 5

Heterozygotes do not appear to be at increased risk of cancer and studies have not found polyposis in these patients. Genetic testing for both FAP and MAP is recommended if colonic polyposis is present (>15 adenomas) without a family history of polyposis or cancer. If significant polyposis is present (>100) then gastroscopy should be performed to look for upper gastrointestinal polyps.

As MAP is an autosomal recessive condition, genetic testing should only be offered to siblings of affected patients with appropriate counselling through a genetic service. Patients should be managed as if they have attenuated or classical FAP. Further studies are needed to clarify the risk in heterozygotes.

**Author information:** Graeme Dickson, Gastroenterologist, Waikato Hospital, Hamilton; Ian Wilson, Gastroenterologist, Wakefield Hospital, Wellington; Julie Arnold, Co-ordinator, Familial Gastrointestinal Cancer Registry, Auckland City Hospital, Auckland; Susan Parry, Gastroenterologist & Clinical Advisor to the Familial Gastrointestinal Cancer Registry, Auckland City Hospital, Auckland

**Correspondence:** Dr Susan Parry, Gastroenterologist and Clinical Advisor to the Familial Gastrointestinal Cancer Registry, Genetic Services, Auckland City Hospital, PO Box 92024, Auckland, New Zealand. Email: sparry@adhb.govt.nz

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Splenic infarction secondary to subacute infective endocarditis

Amer A Alkhatib, Fateh A Elkhatib

A 32-year-old man with Glanzmann’s thromboasthenia presented with a 5-week history of bleeding gums and a 3-week history of left upper quadrant abdominal pain. His vital signs were normal. Physical examination was significant for a holosystolic murmur consistent with mitral regurgitation, and for a tender abdomen at the left upper quadrant.

Laboratory values were: WBC 14,600 cells/mm$^3$, neutrophils 84%, and ESR 98 mm/hr. A contrast CT of the abdomen showed a wedge-shaped hypodense splenic lesion, consistent with splenic infarct (Figure 1 and Figure 2).

Figures 1 and 2 showing wedge-shaped hypodense lesion in the spleen

What is the diagnosis?
Diagnosis

Blood cultures grew alpha *Streptococcus*, not *S. pneumoniae* and not *Enterococcus*. Transesophageal echocardiogram showed a vegetation attached to the posterior leaflet of the mitral valve. Patient was treated with IV penicillin/gentamicin and with topical aminocarporic acid to control gum bleeding which was thought to be the portal of entry of the infection.

Patient was later discharged home in good condition.

Discussion

Splenic infarctions frequently occur in patients with sickle cell anaemia, myeloproliferative disorders, and in approximately 40% of infective endocarditis cases.\(^1,2\) Splenic infarctions are often an incidental finding, but should be considered in patients complaining of abdominal, back, or flank pain.\(^2\) Physical examination may reveal splenomegaly in 30% of splenic infarcts secondary to infective endocarditis.\(^2\) The diagnosis is usually made by CT scan, which shows peripheral hypodense wedge-shaped areas (as shown in the figures).\(^2\)

Splenic infarction can be complicated with splenic abscess(5%) or splenic rupture and haemorrhage.\(^2\) Patient is usually treated with IV antibiotics. Failure of response should raise the suspicion of splenic abscess.\(^2\)

**Author information:** Amer A Alkhatib, Adjunct Clinical Assistant Professor, Department of Pharmacotherapy, Washington State University, Spokane, Washington, USA; Fateh Ahmad Elkhatib, Hospitalist, Department of Internal Medicine, Holy Family Hospital, Spokane, Washington, USA

**Correspondence:** Dr Amer A Alkhatib, Department of Pharmacotherapy, Washington State University, PO Box 1495, Spokane, Washington 99210, USA. Email: khatibamer@yahoo.com

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Lung metastases in adenocarcinoma

Emily Duncan, Lutz Beckert

A 65-year-old man presented to the respiratory clinic with 12 kilograms of weight loss over 6 months, lethargy, chronic cough, and bilateral nodular abnormalities on his chest X-ray. He underwent a bronchoscopy. Washings from the bronchoscopy revealed clusters of cells in keeping with an adenocarcinoma.

A computed tomographic (CT) scan of his chest showed a large number of pulmonary nodules scattered throughout the lungs measuring from a few millimetres to a few centimetres. There are associated enlarged mediastinal lymph nodes.

Images from the CT scan are shown below and are characteristic for metastatic adenocarcinoma. CT scan also suggested probable liver metastases.

The primary source has not been identified. Carcinogenic embryonic antigen (CEA) level was raised, which points towards colon carcinoma, though it is non-specific in the setting of metastatic disease. The patient did not wish to undergo further investigations to find the primary source.

Author information: Emily Duncan, Medical Registrar, Department of General Medicine; Lutz Beckert, Respiratory Physician, Department of Respiratory Medicine; Christchurch Hospital, Christchurch

Correspondence: Dr Lutz Beckert, Department of Respiratory Medicine, Christchurch Hospital, PO Box 4345, Christchurch, New Zealand. Fax: +64 (0)3 3640914; email: Lutz.Beckert@cdhb.govt.nz
The Medical Profession and the Friendly Societies

*Editorial published in NZMJ 1907;August:24–6.*

That the present position of the medical profession in its relations with the Friendly Societies is satisfactory, no one would venture to assert. While the scale of professional fees generally has been raised, not perhaps in proportion to the increased cost of living, but still appreciably; while the working man’s wages have increased by nearly one-half; the rate of pay to the Lodge Surgeon has remained the same or has even been cut down, and the conditions under which he works have become far more onerous.

To take one point only; the rapid growth of the suburbs of all the chief cities during the past five years, the greater part of this growth being on the heights around the towns, has entailed a great amount of additional work, and this work is not paid for.

It is true most lodges have some mileage scale of fees, but for all practical purposes this is a dead letter: to begin with, few Lodge Surgeons study the rules under which they work, fewer still insist on their being carried out: the worry and bother of insisting, is more than it is worth: the mileage rate is absurdly inadequate, it is so small in fact that few doctors ever think of claiming it, they prefer to shirk their long distance patients and risk a row with the Lodge or get the members to go on someone else’s list.

It seems quite certain that, however irresponsible individuals may act, the officials of the Friendly Societies and the great bulk of the members wish to deal fairly with the doctors.

They recognize that to a certain extent they are at our mercy; we could combine and refuse to attend anyone at less than the usual fee, but would it be in our own interest to do this? A large number of Lodge members cannot pay the full doctor’s fee for each visit, that is an undeniable fact, therefore all these would either be driven to seek charitable aid, that means that we should have to attend them for nothing as Hospital patients, or they would go to swell the doctor’s already long list of dead-heads.

But because we admit that Friendly Societies are good things and that it is right that a working man, whose income would otherwise stop when he was ill, should be able, by small weekly payments, to insure against sickness or accident, and should not be crippled by the expense of serious illness in his family, because we admit this it is no reason why we should not resist the growing tendency for persons of means, quite able to pay full fees, to belong to Friendly Societies.

Therefore we hold that a wage limit is an essential condition and the limit agreed upon in New South Wales, seems to meet the case fairly well. Roughly speaking the terms are as follows:—No one with an income of £200 per annum or over, to be allowed to join a Lodge, and no one already a member whose income rises to £300 per annum to enjoy medical benefits: these limits not to apply retrospectively. There is good reason to believe that this will be agreed to by the Friendly Societies in New Zealand.
This mutual concession with the other points that have already been agreed to in conference, and the adoption of the arbitration system which will enable each local centre or district to determine the scale of fees, payment for mileage and other matters, which local circumstances make it impossible to fix arbitrarily for the whole colony, will we believe, make it possible for an amicable settlement of the whole question to be arrived at.
Antipsychotics and risk of stroke

There are well known stroke risk factors—heart failure, atrial fibrillation, hypertension, diabetes, older age, and previous strokes. But what about the usage of antipsychotic medication? Interest was spurred in 2004 when the United Kingdom’s Committee on Safety of Medicines (CSM) recommended avoiding the use of atypical antipsychotic drugs among people with dementia. This report is on a self controlled case series involving 6790 patients and it appears to show a significant increase in strokes in patients using both typical and atypical antipsychotic medications (risk ratios 1.69 and 2.32 respectively). And the risk ratio is 3.50 for dementia patients. The authors who are epidemiologists feel that their findings are not caused by confounding factors.

However, one week later, a professor of psychiatry criticises the paper saying the methodology is unsound and confounding factors may explain the results.

BMJ 2008;337:647.

Phototherapy and the prevention of brain damage in infants with extremely low birth weight

Hyperbiliruninaemia damages immature brains and phototherapy is commonly used in treatment. In this paper the safety and proper usage is evaluated, with particular focus on the very small neonates (501–750 grams). And the authors also discuss the question of whether aggressive phototherapy is better or worse than conservative dosage (range 15–40 microWatts/cm²)—you will have to read the paper if more detail is required. However, the bottom lines appear to be that aggressive phototherapy did not significantly reduce the rate of death or neurodevelopment impairment and in the 501–750 gram subjects may have increased the mortality.


Helicobacter pylori and immune thrombocytopenic purpura (ITP)

ITP is considered to be an autoimmune condition in which the spleen removes damaged platelets leading to purpura, etc. Hence splenectomy is often recommended as treatment. However, studies in Japan have suggested a causal relationship with H. pylori. Hence H. pylori eradication is now recommended as an initial treatment for ITP patients in Japan. In this report from Australia the results of H. pylori eradication are evaluated. Nine of 16 ITP patients were H. pylori positive and they were treated with standard triple therapy, comprising clarithromycin 500 mg, amoxicillin 1000 mg, and oral esomeprazole 20 mg, all twice daily for 1 week. Four had good sustained remissions, one had a short-lived remission, and the remaining four showed no platelet response. Promising, but not excellent. However, easy to do and less troublesome than splenectomy.

Erythropoietin (EPO) for the anaemia of post-chemotherapy cancer patients?

EPO improves the haemoglobin and quality of life (QOL) in those with chronic renal failure. As it is very expensive, only nephrologists may prescribe it—should oncologists also have this right?

In this study, an Australasian group gave αEPO 10,000 IU thrice weekly to appropriate patients, which by my estimates would cost NZ$661/week. They report that the haemoglobin levels increased significantly and the number of transfusions decreased significantly. QOL also showed a significant improvement. So it seems to be a reasonable idea. As to the cost—an editorial commentator points out blood transfusions are not cheap. And a paper is quoted from the US demonstrating that αEPO treatment is more cost-effective than supportive care, measured either by haemoglobin or improvement in QOL.


Prevention or treatment of diabetic retinopathy with candesartan

Diabetes mellitus is a common disease and the associated eye disease, including retinopathy with macular oedema, remains the leading cause of blindness in people of working age. This is the problem addressed in two international studies, one in Type 1 diabetes, the other in Type 2 diabetes.

Blockade of the renin-angiotensin system has been shown to reduce risks for nephropathy and cardiovascular disease so it seems reasonable to consider that such treatment might mitigate diabetic retinopathy. In these large well conducted randomised placebo controlled trials, the effects of the long-term use of the angiotensin receptor blocker candesartan was evaluated.

At a median follow-up time of 4.7 years, the results were disappointing. In Type 1 cases the incidence was reduced (p=0.05) but progression was unaffected. In Type 2 subjects the researchers concluded that candesartan treatment might induce improvement of retinopathy. Encouraging but not a silver bullet.

A mechanism of reduced sperm count—exposure to endocrine disrupting chemicals

Reports in the popular press that the human sperm count in New Zealand is in decline is no surprise. Similar findings reported by Carlsen et al in the UK over a decade ago were rather more controversial because the underlying reason had not yet been proposed.

It is now accepted that humans are exposed to chemicals that mimic natural sex hormones via food, water, and the environment. Occupancy of hormone receptors means that these endocrine-disrupting chemicals (EDCs) have effects very similar to their natural hormone counterparts, albeit at orders of magnitude higher doses. For example, bisphenol-A (BPA), a monomer used in lacquers for lining food cans and in polycarbonate plastics, is approximately 4 orders of magnitude less active than 17β-estradiol. Genistein, a soy phytoestrogen has a similar activity.

The important point is that these chemicals are active at hormone levels (i.e. ng/L in biological fluids). Exposure to EDCs is thought to be responsible for a broad array of adverse effects in humans including precocious puberty in girls and reduced sperm count—there is no reason to believe that human exposure in New Zealand is different to other parts of the world.

The time of exposure to EDCs is important. Exposure during pregnancy might have irreversible effects on the offspring if exposure coincides with a key point in development whereas the effects of exposure on adults will probably be minor unless they accumulate over a long period. As a means of ensuring that human exposure does not result in pharmacological activity, regulatory authorities either set tolerable daily intakes (TDIs) or ban the use of the chemicals in food and other products that result in unacceptable exposure to vulnerable groups. For example, Canada is planning to ban polycarbonate plastic babies’ bottles.

A TDI is calculated from the no observable adverse effect level (NOAEL) derived from a toxicology study. An uncertainty factor (UF) is applied to compensate for any deficiency in knowledge concerning the accuracy of test results and the difficulty in estimating the health effects in animals studies and extrapolating these to humans; TDI = NOAEL/UF.

For BPA, the determination of the NOAEL utilises a toxicological endpoint from animal experiments. The selection of an appropriate toxicological endpoint is very important if the TDI is to be relevant to the pharmacological effects resulting from human exposure to the chemical. The NOAEL for BPA, based on a three-generation rat study, is 5 mg/kg body weight/day and the UF is 500 resulting in a TDI of 50µg/kg body weight/day.

Studies using non-hormonal endpoints (e.g. hepatocarcinoma) to determine the NOAEL give similar results (EUFSA, 2006). However it has been reported that precocious puberty in female animals occurs at doses as low as 2 µg/kg body weight/day which suggests that the TDI derived from non-hormonal endpoints is far
too high. The determination of an appropriate TDI has implications for human exposure and therefore long-term health effects; clearly we should reconsider the TDI for BPA and set a TDI that is more physiologically relevant.

It is also important to recognise that BPA is just one of many EDCs and that their effects are at least additive.

Professor Ian Shaw*, Dr Sally Gaw, Lisa Graham
Department of Chemistry, University of Canterbury, Christchurch
* ian.shaw@canterbury.ac.nz

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Greater regulation of complementary medicine therapists needed

I congratulate Dr Shaun Holt on a fascinating insight into the practice of complementary therapies in New Zealand. However, I would suggest that the real issue was not necessarily in suggesting the patients had an appointment with the practitioner, but rather the ethics of supplying a guarantee of cure.

The fact is that in some circumstances even some yet to be proven or ineffective treatments may be effective for some individuals. Even in conventional medicine, only 13% of treatments have definitive proof of efficacy. Medicine in any form is often as much art as it science. And it is the practitioners of this art and their actions, rather than the art itself, which requires greatest scrutiny.

I would also disagree with his suggestion that Professor Ernst's book *Trick or Treatment* is a definitive resource on this topic as even positive reviews have been critical on a number of issues from a lack of referencing to oversimplification of what is in reality an incredibly complex topic. This complexity is sadly also often forgotten in the development of appropriate policy responses to complementary medicine. The issue is not black and white and whilst caution is prudent in respect to complementary medicines and therapists, if utilised appropriately they may positively contribute to healthcare delivery.

Dr Holt suggests that a number of ethical, regulatory, and safety issues are raised by complementary therapists dispensing health advice. I would concur and would suggest that complementary therapists should endure the same regulation of accountability, minimum standards of training, and codes of conduct as any other practitioner charged with looking after the health of patients.

Whilst many complementary therapists are honourable professionals, until an appropriate regulatory framework is enacted, the public will continue to be placed at risk from the actions of unscrupulous or unqualified practitioners.

Further regulation seems an obvious solution to many of the issues raised by increasing use of complementary medicines. Unfortunately for the public it is an action governments on both sides of the Tasman seem to be reluctant to perform, however, even though they recognise the increasing role these therapists are playing in healthcare.

It has appeared that the public has decided that it wants complementary medicines to be part of the healthcare milieu in New Zealand. It is high time that policy caught up.

Jon Wardle
Research Scholar
School of Population Health
University of Queensland
Brisbane, Queensland, Australia
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Anson and anaesthesia

It was good to read Professor Beasley's editorial [NZMJ. 2008;121(1286). http://www.nzmj.com/journal/121-1286/3366] on New Zealand's progress in anaesthesia since Eric Anson's pioneer work.

The timeliness of my paper, which he noted in that journal issue, is appropriate for another reason as 2008 is the 60th Anniversary of the New Zealand Society of Anaesthetists.

Eric Anson was the Society's first president. This anniversary was celebrated in conjunction with our colleagues of the Australian Society of Anaesthetists in Wellington in October.

Basil R Hutchinson
Honorary Clinical Senior Lecturer
Department of Anaesthesiology, University of Auckland
Auckland
“One ticket to town and just letting you know I have syphilis.” Time to replace the Health Act 1956?

New Zealand’s major public health law is so out-of-date that citizens are legally required to inform bus drivers about their sexually transmitted infections (STIs). This provision applies to a long list of infections in addition to STIs (e.g. influenza, impetigo, scabies, etc) [Health Act 1956, Section 80 (1) (c)]. The law also applies to all “public conveyances” so this means a legal requirement to inform the staff of aircraft, trains and ferries. Other antiquated parts of the law abound, including it being an offence to return an un-disinfected library book or post a letter if it may have been sneezed on or even touched by a sick person (i.e. with the law referring to “any things” being exposed to “any communicable disease, unless they have first been effectively disinfected” [Section 80 (2) (a)]).

New Zealand is lucky enough to have two alternative solutions to this problem. Firstly, at least in Wellington, bus users could have their sexual health and medical history copied to their new electronic bus cards (the Snapper card) so the driver could be informed electronically within seconds! Secondly, we could consider updating the law and passing the Public Health Bill that was prepared during the last administration (but got caught up in the legislative log jam at the end of the last parliamentary term).

Passing the Public Health Bill into law should also be done promptly by the new government, not only to avoid bus driver embarrassment, but also to help New Zealand reach full compliance with the new International Health Regulations.¹ The new law also has valuable provisions to improve society’s response to non-communicable diseases,² which are many times more important in terms of health impact than the communicable diseases that public health law has traditionally dealt with.³

We hope that the new Minister of Health chooses to give this issue attention. Such action would avoid the Snapper card option and ensure the current fossilised legislation is speedily replaced with new law more suited to the 21st Century.

Nick Wilson*, Michael Baker, Caroline Shaw
Department of Public Health, University of Otago, Wellington
* nick.wilson@otago.ac.nz

References:
Geoffrey Howard Herd

08/11/1925 – 18/07/2008

Geoffrey Howard Herd was born in Harting, West Sussex, the eldest of three brothers. His father was a health inspector and his mother a nurse. Geoff's secondary education was at Shebbear College, Devon. He enlisted with the Royal Electrical and Mechanical Engineers (REME) and served in Egypt and Palestine.

In Egypt, the REME workshops were established in the quarries where the stone was obtained to build the pyramids. During this time he re-engineered radar sets so that they were suitable for deployment in field situations. He vividly remembered driving past the King David Hotel in Jerusalem just before it was bombed in 1946.

After demobilisation, Geoff studied medicine at The London (now The Royal London) Hospital in Whitechapel.

As a student, he volunteered to assist at the "lumps and bumps" clinic, this experience stood him in good stead for the rest of his career. He graduated MB BS in 1954 and was appointed as a House Surgeon in the Eye Ward at The London Hospital.

Geoff met Eleanor in 1953 and they were married a year later. In 1955–56, Geoff worked at Poole General Hospital as a house physician and later as a medical registrar.

In 1957, the family travelled to Kasama, Northern Rhodesia (now Zambia). It was here that he developed his skills in surgery, medicine, and obstetrics. Obstetric patients often needed Caesarian Section and sometimes emergency hysterectomy for obstructed labour. Patients would walk for days through the bush to receive treatment. After 3 years in Kasama, there were postings to other parts of Northern Rhodesia and these included appointments as medical superintendent at Kitwe and Lusaka Hospitals; the latter a 600-bed hospital.

Whilst in Lusaka he was a visiting medical officer to a leper hospital and was also involved in a smallpox epidemic in the early 1960s. Under the tutelage of Mr Malcolm Phillips, Geoff learned and practised cataract surgery at Lusaka Hospital.

In 1966, the family left Zambia and emigrated to New Zealand. Geoff was appointed as a medical officer at Dargaville Hospital where he also carried out emergency surgery with the skill and competence of a fully trained surgeon, testament to the
demanding role he played as doctor in Africa. He was respected by patients, nurses, and colleagues.

Geoff enjoyed music and read widely. He was a "shed man"—designing yachts and building and repairing radios, clocks, and watches. He also made and repaired toys and household items from recycled materials.

In 1980, Geoff moved to North Shore Hospital and worked in the Emergency Department until he retired in 1990. In retirement, Geoff continued with his interests in electronics and watches. He continued to be the "repair man" for family and friends and enjoyed sailing.

He was greatly loved by his family. Geoff died on 18 July 2008 after a long illness. He is survived by his wife Eleanor, three sons, a daughter, and six grandchildren.

Drs William J Sugrue (practising surgeon in Whangarei) and Maurice Matich (retired general practitioner in Dargaville) wrote this obituary.
Norman Walter Nisbet

Orthopaedic Surgeon and Researcher (1909–2007)

Norman Walter Nisbet who died in September 2007 was noted for his work in New Zealand and the United Kingdom in the fields of orthopaedic surgery and basic research.

Born in Edinburgh in 1909, Norman Nisbet as a child developed considerable practical ability with his hands and enjoyed “making things” but had a self-confessed difficulty with languages and maths. Prompted by this, his father, a science master, suggested that Norman should train in dentistry. This he subsequently did, winning a medal for practical skill along the way. At his father’s further suggestion he then studied medicine and surgery, graduating in Edinburgh in 1934.

In 1938 Nisbet took up a post as house surgeon at the well-known orthopaedic hospital in Oswestry founded by Dame Agnes Hunt and the doyen of orthopaedic surgery Sir Robert Jones.

At the outbreak of the Second World War, Nisbet was appointed resident surgical officer at the Robert Jones and Agnes Hunt Orthopaedic Hospital. The hospital in Oswestry was now essentially a military hospital and, as the resident surgeon, Nisbet developed a close working relationship with Agnes Hunt. Working with senior colleagues such as Sir Reginald Watson Jones, Sir Harry Platt, and Naughton Dunn and with a huge workload treating war casualties, Nisbet soon gained invaluable orthopaedic experience.

He recalled that following the invasion of Europe on D Day trainloads of wounded soldiers arrived at Oswestry resulting in continuous operating lists often extending through the night. Subsequently Nisbet served as a wing commander and consultant surgeon at an RAF Hospital in Wiltshire and following demobilisation in 1947 he held consultant posts in Coventry.

For many post-war doctors in the UK there was uncertainty about the way medical practice would develop following the introduction of the National Health Service. In 1950 Nisbet made the decision to move to New Zealand and in early March of that year he took over from Mr J Renfrew White as Head of the Orthopaedic Department at Dunedin Hospital.

Although initially having a part time private practice in Dunedin, Nisbet preferred a full time university and hospital post. This was granted and he was made an Associate Professor at Otago University. There was now time not only for clinical and administrative work but also time to develop research interests. As a surgeon, Nisbet had a deft and delicate touch. He was always concerned that tissues were handled
gently and always conscious of the changes happening at a cellular level before, during, and after surgery. He was also keenly aware of the importance of the blood/vascular system in tissue healing. Early research included a study of the vascular supply of tendon and bone and a Lord Nuffield Scholarship in 1955 allowed further study in this area, working with Joseph Trueta at the Nuffield Orthopaedic Hospital in Oxford.

Nisbet’s surgical skill, his strong interest in reconstructive surgery including bone and skin grafting, and his enquiring mind, resulted in a rewarding research partnership with Professor (later Sir Michael) Woodruff who had been appointed in 1952 as the first whole-time Professor of Surgery at the Otago University.

In 1956 Woodruff was appointed to Edinburgh as Professor of Surgical Sciences but before leaving Dunedin Nisbet had joined forces with him in the transplantation laboratories. After Woodruff’s departure Nisbet gathered a talented team together that continued to make important contributions in the rapidly emerging fields of immunology and transplantation. Although research became increasingly important to Nisbet he continued to be active as a surgeon. The month he arrived in New Zealand a group of seven surgeons had decided to form the New Zealand Orthopaedic Association.

At that time only 16 surgeons in the country were practising orthopaedic surgery exclusively. Four months later, at the first Annual Scientific Meeting of the Association, Nisbet presented a paper. He was subsequently an active and supportive member of the growing association and a regular contributor of papers to its scientific meetings.

He is remembered for his quick mind, a countenance that could be stern, and his crisp and to-the-point comments delivered in a Scottish brogue, more often than not accompanied by a twinkle in the eye. He was unstinting in his help and guidance for colleagues and students alike.

In the 10 years following Nisbet’s arrival in New Zealand the scope of orthopaedic surgery and volume of work had increased greatly. In spite of the support from his colleagues Walden Fitzgerald and Alan Alldred, Nisbet must have been frustrated by the increasing workload particularly in the clinical and administrative areas. Although a personal chair at Otago seemed assured, early in 1964, during a period of leave in Britain, Nisbet resigned and took up a newly created research post at his old hospital at Oswestry as Director of the Charles Salt Research Centre.

He no longer undertook clinical work but continued with productive research retiring as director in 1983 aged 74. The MRC continued to support him and his research into the origins of osteoclasts for a further 3 years.

Norman Nisbet retired to Bognor Regis on the south coast of England where he continued an active life enjoying a daily swim, joining a shooting party, and latterly, clay pigeon shooting. On reaching 95 his health gradually failed, and he died at the age of 98. His wife predeceased him in 2005 after a long illness. Norman is survived by his daughter, his son-in-law, and two grandchildren.

A Keith Jeffery (Emeritus Professor, Dunedin) wrote this obituary.
Additional Comments by Emeritus Professor Barbara Heslop

Soon after his arrival in Dunedin, Norman Nisbet contacted the histopathologists at the Medical School, and arranged to send them an assortment of tissues that he proposed to biopsy during surgical operations. This interest was unusual, as was the enthusiasm with which he turned up in the lab to look at the sections and to discuss the findings. This was where I first met him in the early 1950s.

When Michael Woodruff (later Sir Michael Woodruff FRS) was appointed to the first academic chair of surgery at Dunedin in 1953, Norman’s enthusiasm for the laboratory found an outlet in the new department, and later in its laboratories, which were lavishly equipped by the standards of the day. He fitted naturally and easily into Michael’s transplantation programme. Experimental transplantation was in its very early days in the 1950s, and clinical allografting as we know it today was nonexistent.

Research papers were often published in Transplantation Bulletin, a small section at the back of Plastic and Reconstructive Surgery. This no doubt seems a strange juxtaposition today, but experimental transplantation had been triggered by the need for skin grafts during the war.

Professor Peter Medawar FRS, the founding father of experimental transplantation, and a future Nobel prize winner (for immunological tolerance), spent some time in Dunedin as Chaffer Lecturer in 1956, at the instigation of Michael Woodruff. Medawar’s elegant experiments in the 1940s had established that graft rejection was an immunological phenomenon.

His visit to Dunedin could scarcely have come at a better time for Norman Nisbet. When Michael Woodruff left Dunedin to take up the chair of surgical sciences in Edinburgh in 1957, Norman took over the Dunedin transplantation laboratories. He gathered together a small group of people who happened to be available—Irmgard Zeiss, a PhD agricultural scientist from Giessen, myself as a pathologist recently returned from the UK with a young child, and a couple of Michael’s former technicians. There were no worries about money. The MRC (today’s HRC) had not yet instituted personal grants—the dean simply approved the research expenditure.

We started off studying various aspects of the tissue response to bone grafts, an appropriate choice for an orthopaedic surgeon. But every transplanter is ultimately committed to understanding the genetic interrelationship between donor and host. The major histocompatibility complex—later destined to occupy a position right at the centre of immunology—was very obtrusive in experimental transplants, although at the time almost nothing was known about it. Not surprisingly, transplantation, immunology, and immunogenetics grew up side by side.

In Dunedin we were lucky to have a large colony of partially inbred rats, so like every other transplantation group of the day, we set about establishing our inbred strains and defining their histocompatibility interrelationships. Immunological tolerance had recently been demonstrated for the first time by Medawar’s group, as had the graft versus host reactions that were an unexpected complication of tolerance induction. We worked some strange hours, as tolerance induction entailed injecting neonates shortly after birth. Norman always relished his time in the lab, and his enthusiasm was infectious.
And of course there is the wonderful “Wow” factor that goes with a new field in its early days, even when one is a long way from most of the action. Norman might have stayed in New Zealand had the university not been so slow to make him a full professor. While he was on sabbatical leave in the UK in the mid 1960s, he was offered and accepted a job at Oswestry. Norman’s Oswestry unit was in many ways fairly similar to his Dunedin laboratories. But the need to practise orthopaedic surgery was considerably less, and his preference for experimental work was now clearly established. He virtually gave up clinical surgery. Transplanters and immunologists in those early days came from a variety of backgrounds; orthopaedic surgery would have to be one of the more unusual of them.

I saw Norman and Mary fairly often after they left Dunedin—at Oswestry, which always entailed visiting his favourite pubs near the Welsh border, and at Bognor Regis after his retirement, where he took a great pride in serving up freshly caught fish for lunch.

Irmgard Zeiss’s return to Germany, to the Max Planck Institute in Freiburg, shortly after Norman’s departure, brought an era in the Dunedin department to an end. By chance it coincided with the beginnings of the new era of cellular immunology—we were now finding out for the first time what lymphocytes did.

On a personal note, I recall that at a time when the attitude to women doctors in Dunedin could, as Dorothy Page* recently put it, come “perilously close to the patronising”, Norman Nisbet saw his female colleague as a future professor and, in his forthright non-nonsense manner, he said so. In this he belonged to a very small and much appreciated minority.


Barbara Heslop (Emeritus Professor, Dunedin) wrote these additional comments.
National Heart Foundation: 2009 Grant Applications

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Central Office
P O Box 156
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Gastroenterology and Hepatology: A Clinical Handbook


Clinical gastroenterology and hepatology continually change and there is an ongoing need for a quick reference-style textbook that medical staff can use to easily access algorithms for management of gastroenterological problems. Some of these problems are commonly seen in general practice (e.g. nausea and vomiting, constipation, irritable bowel syndrome, and NAFLD); other problems are more specific to hospital practice. Specific chapters on “anaesthesia for endoscopy” and “how to prepare patients for endoscopic procedures” are not commonly found in traditional gastroenterology texts, yet contain essential information for junior hospital medical staff.

This “pocket” book has an emphasis on practical management, and is laid out in a format that lends itself to being used as a quick reference in clinical practice. It is clear and easy to read, with frequent use of bullet points, tables, and lists of differentials, as well as algorithms to facilitate rational investigation of clinical scenarios such as malabsorption, ascites, or acute hepatitis. The text is precise, evidence-based, and up-to-date with relatively little emphasis on pathophysiology; rather the emphasis is clearly placed on what is immediately relevant for practical patient management.

There are some significant discrepancies with regards to the amount of treatment-related information given in particular chapters. For example, the chapter on hepatitis C includes treatment scenarios with pegylated interferon and ribavirin, common adverse events, and individualisation of therapy. In contrast, the chapter on hepatitis B concentrates on hepatitis B serology and natural history with very little practical information on hepatitis B treatment. I found this somewhat disappointing—although to be fair this is a very rapidly evolving field of hepatology.

Overall, this book should form an excellent resource for a wide range of medical students and practitioners, including hospital-based junior medical staff and general practitioners.

Catherine Stedman
Gastroenterologist/Clinical Pharmacologist and Clinical Senior Lecturer in Medicine
Gastroenterology Department, Christchurch Hospital and University of Otago, Christchurch