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This Issue in the Journal

On the receiving end: young adults describe their parents’ use of physical punishment and other disciplinary measures during childhood
J Millichamp, J Martin, J Langley

In this study, 962 young New Zealanders reported their experiences of punishment and discipline in childhood. Results showed that most interviewees (80%) received physical punishment as children. Girls were more likely to be smacked whereas boys were more often hit with an object. Physical punishment was used less as children got older. Nonetheless, 47% of interviewees reported being hit in adolescence. As disciplinarians, mothers were more likely to use non-physical punishments. In the 6% of cases involving extreme physical punishment, fathers were the most common punishers.

Domestic violence as witnessed by New Zealand children
J Martin, J Langley, J Millichamp

This research from the Dunedin Multidisciplinary Health and Development Study records study members’ perceptions of domestic violence they witnessed or heard about between their parents. One-quarter witnessed such acts or threatened acts; 13% from father to mother, 4% mother to father, and 7% bi-directional. Study members reported being extremely upset by the violence they witnessed, regardless of who carried it out. Frequent violence was the most upsetting, whether it was physical or threatened.

Contraceptive use by Maori youth in New Zealand: associated risk and protective factors
T Clark, E Robinson, S Crengle, P Watson

Maori youth in New Zealand are a vulnerable group that has poor sexual health outcomes. The resilience paradigm and existing empirical literature suggest that a dual strategy of supporting protective factors and reducing risk are likely to be more effective. We investigated the risk and protective factors associated with consistent contraception use by sexually active Maori youth. We found Maori youth who use contraception consistently are more likely to report getting enough time with a parent, and are less likely to report weekly marijuana use.
Pacific healthcare workers and their treatment interventions for Pacific clients with alcohol and drug issues in New Zealand

A discovery-based ‘bottom-up’ approach captured experiences of 31 Pacific staff, generating an overview of treatment interventions of Pacific alcohol and other drugs (AOD) services. Assessment, treatment, outcome measures, service structure, and resources were explored. An effective AOD worker was described as a person of Pacific ethnicity with good knowledge of AOD issues and Pacific culture, and skills to integrate these for a range of Pacific AOD clients. It is not enough to simply be ‘Pacific’ to work with clients; formal training and skills are required. Conversely, approaching Pacific clients from a purely European and/or clinical approach is also ‘not enough’.

Pacific Islands Families: First Two Years of Life Study—design and methodology
J Paterson, C Tukuitonga, M Abbott, M Feehan, P Silva, T Percival, S Carter, E Cowley-Malcolm, J Borrows, M Williams, P Schluter

Pacific people are an ethnically diverse, rapidly growing, and integral subpopulation of New Zealand. However, Pacific people are frequently over-represented in multiple adverse health and social statistics. The Pacific Islands Families: First Two Years of Life (PIF) Study was instigated to explore and understand the reasons why Pacific people experience the heath outcomes they do so that interventions and future health policy can be implemented to reduce these negative health and social outcomes. This paper describes how the PIF study was conducted.

Differences in health-related socioeconomic characteristics among Pacific populations living in Auckland, New Zealand
G Sundborn, P Metcalf, D Schaaf, L Dyall, D Gentles, R Jackson

This article compared health-related socioeconomic characteristics of the four largest Pacific groups surveyed in the Auckland Diabetes, Heart and Health Survey (DHHS). The Pacific population is commonly regarded as a single homogenous ethnic group. This distorts the analysis and outcomes of research and initiatives developed to address Pacific peoples health needs. From the health-related socioeconomic profiles observed in this study, the Niuean and Cook Island groups have a more favourable profile (implying better health status) than Samoans and Tongans. The primary mechanism that drives the observed differences is most likely to be average length of residence in New Zealand.
Gestational diabetes mellitus: time for consensus on screening and diagnosis

David Simmons, Louise Wolmarans, Wendy Cutchie, Elizabeth Johnson, Alastair Haslam, Corli Roodt, Janet Rowan

In 1998, the Australasian Diabetes in Pregnancy Society (ADIPS) published its consensus guidelines on the management of gestational diabetes mellitus (GDM). The criteria for diagnosing GDM in Australia were based upon a report from a working party in 1991, and differed from those in New Zealand, which were decided in 1992 by a majority decision at a meeting of the New Zealand Society for the Study of Diabetes.

Both countries recommend a non fasting, 50 g or 75 g, 1-hour glucose challenge test at 26–28 weeks gestation, with a post-load glucose of ≥7.8 or 8.0 mmol/L respectively, leading to a full 75 g 2-hour oral glucose tolerance test (OGTT). Furthermore, both countries have agreed that GDM is present if either the fasting glucose or 2-hour glucose concentration are elevated.

There has been agreement on the fasting criterion for diagnosis (5.5 mmol/L); but in New Zealand, the 2-hour cut-off is 9.0 mmol/L, whereas in Australia it is 8.0 mmol/L. From New Zealand community laboratory data, the latter would be associated with approximately double the number of women diagnosed with GDM (personal communication, M. Becker, 2005).

At the time, there was little evidence for either one or other criterion. A recent survey of New Zealand diabetes in pregnancy centres showed that all were using the 9.0 mmol/L cut-off. An international prospective cohort study among 25,000 women, the Hyperglycaemia and Adverse Perinatal Outcomes (HAPO) study, is currently underway and will attempt to identify the optimal 2-hour cut-off, post 75 g glucose load. It had been felt that any change to criteria should await the findings from this study.

The recent publication of the findings of the Australian Carbohydrate Intolerance Study in Pregnant Women (ACHOIS) demonstrate (for the first time) the efficacy of screening all pregnant women for gestational diabetes mellitus (GDM). The study involved screening women, predominantly of European descent and many without risk factors, for GDM using the ADIPS approach and then randomising those with a fasting glucose of <7.8 mmol/L and 2-hour post-load glucose of 7.8–11.0 mmol/L to either current GDM management or to no GDM treatment unless an indication arose suggestive of GDM.

The obstetricians for the control group were unaware that the criteria for GDM had been achieved. This blinding was felt justified at the time in view of the controversy over screening for GDM, indeed the ADIPS guidelines called for such a trial. The findings have been impressive. Women who were screened and treated had a 0.33 (0.14–0.75) risk of a composite of serious perinatal complications including stillbirth, neonatal death, shoulder dystocia, bone fracture, and nerve palsy; a 0.47 (0.34–0.64) risk of a macrosomic baby; 0.70 (0.51–0.95) risk of antenatal pre-eclampsia and post-
partum; and lower rates of maternal depression with improved health status. There was no difference in cesarean delivery rates, although induction and admission to the neonatal nursery rates were higher. Clearly, the intervention was successful.

There are several important implications from this study for New Zealand. The first relates to the diagnostic OGTT results of the women who were randomised in ACHOIS. Their median fasting glucose was 4.8 mmol/L and 2-hour glucose was 8.6 mmol/L. The current criteria for diagnosing GDM in New Zealand would therefore have missed diagnosing the majority of women who were randomised to intervention in ACHOIS.

The 2-hour cut-off used by ACHOIS was that recommended by the World Health Organization. Published national and international guidelines from the United States, United Kingdom, Japan, and the International Diabetes Federation have a 2-hour glucose cut-off of between 7.8 and 8.6 mmol/L. Only the Canadian criteria approximate those in New Zealand (8.9 mmol/L).

In view of the findings from ACHOIS, and the fact that our criteria are more conservative than any other national or international criteria, it is clear that the current New Zealand criteria need to be urgently reviewed ahead of the findings from HAPO (expected in 2007 at the earliest).

The second issue that needs review in New Zealand is whether all pregnant women should be offered screening for GDM, or whether this should only be offered to those at high risk. Currently, the New Zealand College of Midwives, which include the majority of Lead Maternity Carers, recommends screening of women from high risk ethnic groups (i.e. all non Europeans) and with a variety of other risk factors. The College is due to review its Consensus statement this year (personal communication, N Campbell, 2005).

We have previously reported that there are a range of reasons for offering all pregnant women screening for GDM from a public health viewpoint, at a time of increasing prevalence of obesity and Type 2 diabetes. Screening allows identification of women with undiagnosed Type 2 diabetes, and women at increased risk of developing type 2 diabetes in the future. Women who have had GDM have the potential to benefit not only their own long-term health, but also that of their children through intervention. The current selective approach may reduce the likelihood of even high-risk women being screened, and will certainly miss women in whom obvious risk factors are not present. ACHOIS now provides conclusive evidence that offering screening to all pregnant women in New Zealand will also be associated with benefits in perinatal outcomes.

Currently the majority of women already have at least one risk factor for diabetes and the additional costs of extending the offer of the 1-hour glucose challenge test to all women are negligible.

Preventing progression from GDM to Type 2 diabetes is already considered cost-effective. The numbers with GDM diagnosed will clearly increase, and currently would be referred for specialist care. This may require a review of the current approach to the management of GDM. It may be that women with GDM are referred for education and assessment at an appropriate diabetes in pregnancy clinic, but if they are considered at lower risk of maternal or fetal harm, can be managed
predominantly in the community\textsuperscript{11} with clear guidelines regarding additional surveillance\textsuperscript{12} and re-referral.

What is clear, is that the current criteria and selective approach to screening for GDM need to be reviewed. We look forward to agreement on how best to proceed.

**Author information:** David Simmons, Professor of Medicine, Waikato Clinical School, University of Auckland, Hamilton; Louise Wolmarans, Endocrinologist, Waikato Hospital, Hamilton; Wendy Cutchie, Specialist Diabetes Midwife, Otago District Health Board, Dunedin; Elizabeth Johnson, Diabetes Nurse Specialist, Waikato District Health Board, Hamilton; Alastair Haslam, Clinical Director, Women’s Health, Waikato District Health Board, Hamilton; Corli Roodt, Professional Advisor – Midwifery, Waikato District Health Board, Hamilton; Janet Rowan, Obstetric Physician, National Women’s Health, Auckland

**Correspondence:** Professor David Simmons, Waikato Clinical School, University of Auckland, Waikato Hospital, P O Box 934, Hamilton. Fax: (07) 834 3615; email: simmonsd@waikatodhb.govt.nz

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Family violence in New Zealand: we can do better

Ian Hassall, Janet Fanslow


Undoubtedly, family violence is a leading cause of suffering and lost potential in this country. How can its prevalence and impact be reduced? The Dunedin team’s carefully designed questions and the study cohort’s frank responses and loyalty to the study have made a solid contribution to finding better answers to this question.

For example, Millichamp et al reinforce the point made in Dobbs’ study, that physical punishment is much more about expression of adult anger than correction of children’s behaviour. They found no correlation between the seriousness of the child’s misdemeanour as perceived by the child and the severity of punishment. Also, age and gender had no bearing on the proportion of children subjected to extreme violence. It may surprise some readers that physical punishment continued into the teen years in almost half of the 80% of children who had been subject to it in earlier childhood.

Witnessing violence between their parents can have a significant impact on children. Martin et al found the great majority of children recalled having been upset ‘a lot’ or ‘extremely’ at their parents’ fighting. Indeed, many of the adult interviewees were visibly upset when recalling the experience.

The combined proportion (24.4%) of study members who recalled witnessing physical (18.8%) or verbal (5.7%) violence between their parents is relatively low compared with the proportion of adults experiencing physical violence in other New Zealand study populations. For example, 33% of women in Fanslow and Robinson’s study had experienced at least one episode of physical or sexual violence—although we are comparing a population of women (Fanslow and Robinson’s study) with a population of children (Martin et al’s study), this suggests that violence between parents is usually (but not always) apparent to their children.

The prevalence of family violence varies considerably between countries and communities. Some of this can be attributed to differences between countries in assignment of cause of death but not the larger part of the 30-fold difference in child maltreatment mortality across the OECD countries. In some communities, injury of intimate partners is rare.
Many New Zealanders have long been aware that we could and should do better in reducing family violence. A succession of child deaths beginning with Delcelia Witika’s have been highly publicised. The National Collective of Independent Women’s Refuges’ annual campaign has raised awareness of assaults on women.

We have a national family violence prevention strategy (Te Rito) and currently 24 government initiatives for prevention of family violence. They include the Ministry of Health’s programme for establishing screening and a brief intervention for family violence in the health sector. We also have an elaborate system for tertiary prevention involving the Courts, the Police, the Department of Corrections, the health services, the Child Youth and Family Service, and a range of additional private and voluntary agencies.

Despite this and the work of many dedicated service providers and volunteers we have, as the Governor-General has remarked, some of the best legislation in the world (the Children, Young Persons and Their Families Act 1989 and the Domestic Violence Act 1995) and among the worst of performances. This realisation matches increasing worldwide concern that investigative/punitive approaches, while a necessary part of the official processes for dealing with violence, have grown out of proportion to supportive/therapeutic interventions.

It is essential that we continue to develop laws, policies, and programmes aimed at tertiary and secondary prevention; but if we are to have substantially less violence in our homes, it will be achieved by primary prevention. Our endeavours must begin with the question—what is it about New Zealand and similarly afflicted countries which leads to high levels of family violence?

There is a substantial body of evidence which answers that question by pointing to differences in levels of violence between equitable and inequitable societies. Violence seems to be an inevitable part of societies in which dominance hierarchies are established and maintained by individuals and groups over one another. The reverse is true of societies in which a sense of participation on a more equal footing is maintained. In the inequitable societies, claims to entitlement tend to be based on gender, age, income, class, and ethnicity.

The processes which generate violence in such societies are complex. There is the violence required to establish and maintain rank; the violence that comes from a ‘nothing-to-lose’ attitude when one is at the bottom; the ‘kick-the-cat’ syndrome arising from oppression and frustration; and so on. These processes are perpetuated through their contamination of child-rearing and institutional practices.

If we are to have less family violence then we must head in the direction of equitability by whatever means available. Some New Zealand communities have made a start by initiating community-wide programmes for reducing violence. Wairarapa’s Rise Above It campaign is an example. Such campaigns have adopted a saturation approach employing programmes for parenting, youth, gender equity, service-linking, policing, and neighbourliness. They can draw on programmes such as Early Start and Safe Dates that have a proven record in reduction of child abuse and intimate partner violence.
To be fully effective, such violence-prevention programmes should:

- Reach every member of the community;
- Equip members with the necessary interpersonal skills;
- Assure members that they have a respected place in the life of their family and community;
- Have staff and services that members can rely on; and
- Ensure that any violence by or toward members will be known and acted upon.

Author information: Ian Hassall, Senior Researcher, Institute of Public Policy, AUT University, Auckland; Janet Fanslow, Senior Research Fellow, Social & Community Health, School of Population Health, University of Auckland, Auckland

Correspondence: Dr Ian Hassall, Institute of Public Policy, AUT University, Private Bag 92006, Auckland 1020. Email: ian.hassall@aut.ac.nz

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On the receiving end: young adults describe their parents’ use of physical punishment and other disciplinary measures during childhood

Jane Millichamp, Judy Martin, John Langley

Abstract

Aim To investigate the prevalence, nature, and context of physical punishment and other forms of parental discipline, as reported by study members (SMs) of the Dunedin Multidisciplinary Health and Development Study.

Methods 962 26-year-old adults (born in Dunedin, New Zealand) were interviewed about their experiences of discipline in childhood. Study members were asked about the usual forms of punishment received in primary and secondary school years, as well as the worst punishment they ever received. Details regarding the study members’ reactions to different punishments were collected. Variables related to the person administering the punishment were also investigated.

Results Of the study members providing data, 80% reported receiving physical punishment at some time during childhood: 29% identifying smacking; 45% reporting being hit with an object; and 6% reporting extreme physical punishment as the most severe form. Physical punishment on a regular basis was reported by 71% of study members. Results varied by age with more study members reporting physical punishment in primary school years. However, the number of study members experiencing physical punishment in adolescence was still high, at 47%. Significant gender differences were found in reported punishment, with more girls smacked, and more boys hit with an object in primary school years. Punisher-related reports showed that mothers were significantly more likely to employ non-physical forms of punishment whereas fathers were significantly more likely to use extreme physical punishment.

Conclusion For many New Zealanders, experiences of physical punishment during childhood are very much the norm. These findings have implications for the young adults studied as they now enter the parenting years and for efforts aimed at prevention and early intervention for at-risk groups.

The topic of child punishment has generated considerable emotion and debate amongst members of the public, doctors, educators, and politicians as well as those from different religious, cultural, and ethnic groups. Even members of the same family may hold opposing views about the use of punishment with children. The research literature appears to mirror the public debate with academics differing in their views and interpretations of the available findings. A particular issue of contention centres around whether smacking of children should be legally permitted.

Prevalence research on the topic of childhood punishment can be grouped into three broad areas: studies of public attitudes; parental reports of punishment use; and recipient reports of punishments experienced in childhood.
Public attitudes

Several studies have been conducted in New Zealand to determine public views regarding the physical punishment of children and adolescents. Such research has indicated that between 80% and 87% of respondents agree that a parent should be able to smack a child with an open hand. A smaller proportion of respondents (15%; 31%) endorse the use of more severe methods, such as hitting a child with a wooden spoon or belt, hitting a teenager, or thrashing a child. Researchers in the United States have documented similar community attitudes towards the use of physical punishment.

Parental reports

New Zealand research conducted in the 1990s has shown smacking to be a prevalent disciplinary method, as reported by parents. Ritchie found that about half of parents surveyed reported hitting their child once a week or more. Maxwell found that 70% of parents reported smacking their children; 11% had hit them with an object such as a strap, and 2% reported giving their child a thrashing. Maxwell noted that these numbers may be artificially low due to memory demands, the young age of some respondents’ children, and media coverage of a child murder case at the time, which may have influenced respondents’ willingness to report the use of physical punishment.

North American studies have also shown that the vast majority of parents report spanking or smacking their children, with prevalence figures ranging from 70% to 95%. The age of the child is an important factor and smacking is most prevalent during early childhood. Straus (1990) found that 95% of toddlers were smacked. More severe forms of physical punishment, such as hitting the child with an object, appear to be less common with one study indicating a prevalence rate of 17%.

Recipient reports

Fergusson and Lynskey (1997) presented their findings related to young New Zealanders’ reports of physical punishment. Of the 1025 18-year-olds in the Christchurch-born sample, 78% reported having received physical punishment on an infrequent basis, 8% on a regular basis by at least one parent, and 4% reported parental use of physical punishment that was overly frequent, harsh, or abusive. Only 11% of the sample reported no physical punishment by parents.

Consistent with New Zealand rates, North American studies have shown prevalence figures ranging from 80% to 95% for those reporting being smacked. However, these studies provide little information about the different types of physical and non-physical punishment used, the identity of the punishers (e.g. mothers, fathers, step-parents), and the respondents’ views or emotional reactions to punishments received.

The role of contextual factors has largely been examined in relation to broader family and individual characteristics rather than the immediate circumstances in which the punishment was administered. Two research teams have used large community samples to show correlations between physical punishment and family characteristics such as single parenting, young maternal age, and low socioeconomic status. Woodward and Fergusson (2002) examined data from their earlier study and identified additional factors associated with harsh or severe treatment in childhood,
including child variables (conduct or attention problems, lower IQ), maternal characteristics (difficulties with own mother, history of depression, alcohol/drug abuse), and contextual features (high marital conflict, child witnessing of interparental violence, stressful life events).

A criticism of contextual studies has been that they have generally focused on:

- Mothers as disciplinarians to the exclusion of fathers and step-parents;
- Young children as the recipients, as opposed to those in middle childhood through to adolescence;
- Physical abuse or alternatively, all types of punishment, from spanking to abuse, lumped together.\(^{2,17}\)

In summary, studies on child punishment have indicated that physical punishment (particularly smacking) is widely endorsed and much-used by parents in many Western countries,\(^{8-11,13-16}\) with a small percentage of children subjected to severe violence.\(^{13,19}\) However, some gaps in the research literature have been noted, such as the limited information available on situational factors associated with childhood punishment.\(^{17}\)

The present study provides information about the prevalence, forms, and context of physical punishment from early childhood to late adolescence, as well as the recipients’ views regarding the punishments received. Gender differences are compared for both recipients and punishers in order to give a clear picture of who is most likely to be responsible for, or recipient of, the various types of physical punishment.

**Methods**

Participants were members of the Dunedin Multidisciplinary Health and Development Study (DMHDS), a longitudinal investigation of the health, development, and behaviour of 1037 young New Zealanders. All children born at Dunedin’s only obstetric hospital between 1 April 1972 and 31 March 1973 and still living in Otago at 3 years of age were eligible for inclusion in the study.

Study members (SMs) have been assessed at regular intervals since birth. A wide range of demographic data, physiological measures, and parent/family variables have been collected at different stages of the study. A detailed description of the DMHDS is provided by Silva and Stanton (1996).\(^{20}\) The SMs have been shown to be more frequently of European descent and higher socioeconomic status than the New Zealand population as a whole. However, the high retention rate has resulted in a full cross-section of the sample being represented. Ethical approval was granted for Phase 26 of the study, including the current assessment.

980 SMs participated in a 1-day DMHDS assessment in 1998/1999. SMs were 26 years old at the time. A 10-minute face-to-face interview on family violence was completed by 962 SMs (92.8% of the original sample). Interviewers were female health professionals trained and supervised by the Principal Investigator (Judy Martin).

Most of the interview was related to parental disciplinary methods. SMs were given the following introductory statement:

> Looking back at your childhood, I would like to ask about punishment or discipline in your home. By punishment I mean everything that happened when your parents were angry with you, not just hitting.

This was the first time since birth that SMs were asked about physical punishment.
Parental discipline questions covered three main areas:

- What parents usually did when angry with the SM in primary school years;
- What parents usually did when angry with SM during secondary school years; and
- The worst punishment ever received.

SMs were allocated to one of four groups according to the most severe physical punishment reported at any time during the interview. These groups were:

- No physical punishment;
- Being smacked with open hand;
- Being hit with an object;
- Extreme physical punishment.

SMs were assigned to the *No Physical Punishment* group if there were no reports of physical punishment at any stage of the interview.

The *Smacking* group consisted of those SMs who reported parental smacking with open hand on legs, hand, or bottom, as the most severe physical punishment ever received.

The *Hit with Object* group involved SM reports of being hit with an object such as a wooden spoon or strap, being slapped on the face, or being clipped around the ear, none of which entailed injury or lasting bruises.

*Extreme physical punishment* was recorded when SMs reported more than one instance of the following parental behaviour: hitting with a strap or a hard object that left cuts, lasting bruises, or welts; “beating up” (i.e. out-of-control hitting; punching; knocking-out); choking; sitting on; throwing on floor or against wall etc; sexual violation.

All four categories were derived from reports that SMs had made at any time during the parental discipline interview (i.e. either “usual” or “worst” punishment).

For questions about worst punishment, SMs were asked to describe the worst punishment they had ever received from either of their parents. If the first answer involved a non-physical form of punishment, the SM was prompted for any physical punishment. Worst ever punishment responses were similarly assigned to one of the four groups (non-physical, smacking, hit with object, and, extreme).

SMs were included in the appropriate category for worst-ever punishment, even if they had experienced a particular punishment only once. SMs could nominate more than one worst punishment, but they were assigned a severity level based on the most severe of the worst punishments mentioned. All SMs were asked who carried out the worst punishment, how often it occurred, and how much it upset them.

Details of the extent of injury and the site of punishment (target area) were gathered for physical punishments more severe than a smack. In addition, all SMs were asked how old they were when last hit and how much they were hit compared to other children their age.

Reasons stated by the SMs for the worst punishment received were compared across the four severity levels of punishment. For every SM in the extreme physical punishment group (n = 58), equal numbers of comparison SMs were randomly selected from the three other punishment groups. This was achieved by using the identification number closest to that of the SM from the extreme group.

232 SMs were included in this analysis. Content analysis was used to categorise the reasons for punishment.

Reasons were divided into six categories:

- Minor misdemeanors (e.g. teasing a sibling, lateness, making a mess);
- Medium-level misdemeanors (e.g. wagging school, underage smoking, or drinking alcohol);
- Parental characteristics (e.g. alcoholic parent, violent/bad tempered parent);
- Defence of self or others;
- No reason given;
- Can’t remember.

SMs were asked at age 26 to report retrospectively on family composition, with nuclear families defined as comprising the two birth (or adoptive) parents and non-nuclear families comprising a single parent and/or step-parent. The quality of the parental relationship was assessed by asking SMs at age
whether their parents got on well/had lots of rows. Other variables such as parents’ ages at SM’s birth were gathered at earlier phases of the study.

Interviewers monitored all SMs for signs of emotional distress during the interviews and offered the assistance of a clinical psychologist when appropriate. (A clinical psychologist was available on site during all interviews.) The interviewer made notes of any signs of distress or emotion (e.g. tears in eyes, shaking) and recorded details in a separate section.

Data were analysed using SPSS v11 software. Cross tabulation was used for categorical variables and comparison of means for continuous variables.

Results

Table 1 presents the four severity levels of physical punishment in relation to a number of demographic and family variables. The results show that a total of 80% of SMs reported receiving physical punishment at some time during childhood. One-fifth of the SMs (20%) did not report any physical punishment, 29% said they had been hit with an object, and 6% reported extreme physical punishment involving injury or lasting bruises.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total (%)</th>
<th>No Physical (%)</th>
<th>Smacking (%)</th>
<th>Hit with object (%)</th>
<th>Extreme Physical (%)</th>
<th>P value (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total N</td>
<td>962</td>
<td>191 (19.9)</td>
<td>282 (29.3)</td>
<td>431 (44.8)</td>
<td>58 (6.0)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Female</td>
<td>470 (48.9)</td>
<td>98 (20.9)</td>
<td>164 (34.9)</td>
<td>179 (38.1)</td>
<td>29 (6.2)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Male</td>
<td>492 (51.1)</td>
<td>93 (18.9)</td>
<td>118 (24.0)</td>
<td>252 (51.2)</td>
<td>29 (5.9)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Nuclear family</td>
<td>648 (67.4)</td>
<td>128 (19.8)</td>
<td>218 (33.6)</td>
<td>274 (42.3)</td>
<td>28 (4.3)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Non-nuclear family</td>
<td>313 (32.6)</td>
<td>62 (19.8)</td>
<td>64 (20.4)</td>
<td>157 (50.2)</td>
<td>30 (9.6)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Parents had lots of rows</td>
<td>169 (18.2)</td>
<td>24 (14.2)</td>
<td>39 (23.1)</td>
<td>77 (45.6)</td>
<td>29 (17.2)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Parents got on really well</td>
<td>238 (25.6)</td>
<td>63 (26.5)</td>
<td>81 (34.0)</td>
<td>89 (37.4)</td>
<td>5 (2.1)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal age at SM’s birth</td>
<td>25.56 (4.97)</td>
<td>25.85 (5.13)</td>
<td>24.94 (4.88)</td>
<td>23.28 (4.95)</td>
<td>0.002 (5.13)</td>
<td></td>
</tr>
<tr>
<td>Paternal age at SM’s birth</td>
<td>28.77 (6.22)</td>
<td>28.56 (6.04)</td>
<td>28.13 (5.92)</td>
<td>26.60 (5.34)</td>
<td>0.086 (2.21)</td>
<td></td>
</tr>
</tbody>
</table>

More women than men reported smacking as the most severe physical punishment; more men than women reported being hit with an object. Both genders had similar reported rates of extreme physical punishment. There was a significant difference in reported levels of physical punishment when nuclear and non-nuclear families were compared. SMs in nuclear families experienced lower levels of severe punishment than SMs from non-nuclear families. A positive association was also found between inter-parental conflict and reports of extreme physical punishment.
Of the SMs in the extreme punishment group, 17% reported exposure to frequent parental rows, versus only 2% who reported that parents got on really well. When parents’ ages were compared across punishment levels, it was found that SMs with younger mothers (mean age: 23 years) were more likely to report receiving extreme physical punishment in childhood.

Usual forms of discipline

Table 2 presents the SMs’ responses to the question *What did your parents usually do when they were mad at you?* for both primary and secondary school years. SMs gave unprompted answers to this question, with more than one response being possible. The results show that for primary school age, smacking was the most commonly cited punishment with 55% of SMs reporting this, followed by telling off (47%), yelling (36%), and being hit with an object (35%).

Both categories of physical punishment showed significant gender differences at primary school age: females were more likely to report being smacked than males, and males were more likely to report being hit with an object.

<table>
<thead>
<tr>
<th>Table 2. Usual forms of discipline compared by gender</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary school age</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Reasoning/Discussion</td>
</tr>
<tr>
<td>Telling off</td>
</tr>
<tr>
<td>Yelling</td>
</tr>
<tr>
<td>Emotional abuse†</td>
</tr>
<tr>
<td>Physical isolation</td>
</tr>
<tr>
<td>Loss of privileges</td>
</tr>
<tr>
<td>Smacking</td>
</tr>
<tr>
<td>Hit with an object</td>
</tr>
</tbody>
</table>

| **Secondary school age** | **Type of punishment** | **Total (%)** | **Male** | **Female** | **P value** |
| | | | | | |
| Reasoning/Discussion | 201 (21.0) | 94 (19.2) | 107 (22.8) | <0.102 |
| Telling off | 388 (40.5) | 218 (44.6) | 170 (36.2) | <0.005 |
| Yelling | 271 (28.3) | 123 (25.2) | 148 (31.5) | <0.018 |
| Emotional abuse† | 34 (3.5) | 13 (2.7) | 21 (4.5) | <0.090 |
| Physical isolation | 84 (8.8) | 38 (7.8) | 46 (9.8) | <0.161 |
| Loss of privileges | 456 (47.5) | 211 (43.1) | 245 (52.1) | <0.003 |
| Smacking | 112 (11.7) | 47 (9.6) | 65 (13.8) | <0.027 |
| Hit with object | 49 (5.1) | 23 (4.7) | 26 (5.5) | <0.331 |

*Types of punishment are not mutually exclusive (SMs could name more than one); †Emotional abuse involved excessive use of sarcasm or criticism, emotional blackmail, public humiliation, deliberate destruction of property, and ridicule.

For secondary school years, the most commonly reported forms of punishment were (in order of prevalence) loss of privileges (48%), telling off (41%), yelling/shouting (28%), and reasoning/discussion (21%). Smacking ranked fifth in order, with 12% of SMs citing this as a usual form of punishment in secondary school years.
Four categories of parental discipline showed significant gender differences for secondary school years. Males more frequently reported a telling off from parents whereas females more frequently cited incidents of yelling, loss of privileges and smacking.

Changes from primary to secondary school years

With the exception of the more extreme forms of punishment, there was a general trend for physical punishment to abate in secondary school years, when compared to primary years. For both smacking and being hit with an object, there were four times as many SM reports (both male and female) in primary years versus secondary years.

When SMs were asked for their views about whether they were hit more, the same, or less than other children, their perceptions accurately reflected the prevalence data across the four groups. For example, the majority (80%) of SMs in the no physical punishment group said they were hit less than others and the majority (72%) of those who received extreme physical punishment said they were hit more. The vast majority (98%) of those in the smacking group thought they were hit about the same or less than others.

Study members’ views of worst punishment

Table 3 presents the SMs’ responses regarding the worst ever punishments received. A wide range of physical and non-physical punishments were described, with many SMs naming more than one punishment each. Punishments were collapsed into four broad categories. The category most frequently cited as the worst punishment was non-physical punishment (50%), which mostly comprised grounding and loss of privileges. The next most frequently cited worst punishment was being hit with an object (48%), followed by smacking (24%) and finally, extreme physical punishment with 9% of SMs naming this as the worst.

Punisher characteristics

The four categories of worst punishment were compared according to the person who had carried out the punishment (see Table 3). At the mild end, non-physical forms of punishment were significantly more likely to be carried out by mothers ($\chi^2=34.76$, [3], $p<0.001$). As the severity of punishment increased, there were fewer reported instances of both parents administering the punishment ($\chi^2=34.86$, [3], $p<0.001$). At the extreme end, fathers were significantly more likely to be cited for administering extreme punishment ($\chi^2=69.25$, [3], $p<0.001$).

Only a small proportion of SMs lived with stepfathers (15%). Within “stepfathered” families, stepfathers were responsible for extreme punishment at a similar rate to fathers in “fathered” families (7% stepfathers cf 6.3% fathers).
### Table 3. Characteristics of worst-ever punishment

<table>
<thead>
<tr>
<th>Type of punishment named as worst</th>
<th>N* (%)</th>
<th>Who administered punishment?</th>
<th>How often?</th>
<th>How upset was SM?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Father</td>
<td>S/F</td>
<td>Mother</td>
</tr>
<tr>
<td>Non-physical</td>
<td>435 (50.3)</td>
<td>123 (28.3)</td>
<td>10 (2.3)</td>
<td>189 (43.4)</td>
</tr>
<tr>
<td>Smacking</td>
<td>207 (23.9)</td>
<td>99 (47.8)</td>
<td>4 (1.9)</td>
<td>67 (32.4)</td>
</tr>
<tr>
<td>Hit with object</td>
<td>412 (47.6)</td>
<td>196 (47.6)</td>
<td>22 (5.3)</td>
<td>158 (38.3)</td>
</tr>
<tr>
<td>Extreme</td>
<td>81 (9.4)</td>
<td>58 (71.6)</td>
<td>10 (12.3)</td>
<td>10 (12.3)</td>
</tr>
</tbody>
</table>

*Numbers and percentages may vary due to missing data

Categories are not mutually exclusive (SMs could name more than one form of punishment)

S/F=Stepfather; S/M=Stepmother; SM=Study member (interviewee).
Table 3 also presents results for how often the worst punishment was carried out and how upset SMs were about the punishment received. Reports from all four groups of SMs showed that occurrences of worst punishment were generally low, with most SMs experiencing their worst-ever punishment on the rare occasion. In contrast, the degree of distress reported by study members was high, with the majority stating that they were very upset by the experience. Of the four groups, the highest proportion of “very upset” SMs was found in the extreme physical punishment group.

Data relating to the extent of injury were collected for all SMs reporting punishment more severe than smacking. Of these 351 SMs, 60% reported no injury, 25% reported bruising, and 13% reported other forms of injury. Results related to the part of body targeted for physical punishment showed that SMs who reported punishment in the extreme range were significantly more likely to be hit on the head (75% vs 24%; OR 9.29; 95% CI: 4.80–17.99) or the torso (54% vs 12%; OR 8.86; 95% CI: 4.69–16.72) than those reporting lower-level punishment.

When SMs were asked how old they were when they received their last physical punishment, 47% reported being 12 years or more. Physical punishment ceased for most SMs at ages 10 and 12 years, with approximately 12% of SMs citing each of these ages. However, of the SMs who reported physical punishment, 40% were still being hit between the ages of 13 and 18 years.

**Reasons for punishment**

Content analysis of reasons for worst punishment (n=232) revealed there was no appreciable difference in the seriousness of the misdemeanor in relation to the severity of physical punishment meted out.

Only one difference was found in the reasons SMs gave as the cause of their punishment. This was attributing the punishment to characteristics of the parent (e.g. parental bad temper, alcoholism); this reason was offered by 17% (10/58) of the SMs who reported extreme physical punishment and 4% (2/58) of those reporting hitting with an object. No SMs in the other two groups (no physical punishment and smacking) cited parental characteristics.

**Evidence of distress in study members**

Analysis of interviewer notes relating to SM distress during the interview showed that a higher percentage of SMs in the extreme physical punishment group (22%) showed signs of emotional distress than those in the hit with object (2%), smacking (1%) or no physical punishment (1%) groups.

**Discussion**

This study showed that the large majority of SMs (80%) were exposed to physical punishment during childhood. Reported prevalence was highest for primary school years, with large reductions in reports of regular physical punishment for secondary school years. Nonetheless, nearly half of all SMs were hit as teenagers, if only on an occasional
basis. American researchers, Straus and Donnelly (1993) reported similar figures for the use of physical punishment with adolescents.21

The present findings are based on retrospective reports of events that took place in the 1970s and 1980s. This raises questions about the fallibility of memory and the applicability of findings to the present day. However, the prevalence figures obtained in this study are very consistent with those of recent studies both in New Zealand and North America6–8,11,13–16 suggesting that in some populations at least, rates of physical punishment have not altered greatly over the past few decades.

Another potential weakness of the present study relates to the fact that the main focus was placed on physical punishment with questions about what parents did when angry. Limited information was gathered about positive disciplinary methods (e.g. rewards and praise) and emotional abuse. This information was recorded only when SMs volunteered it spontaneously.

Significant gender differences were found for those reporting physical punishment. In particular, at primary school age, more girls were reportedly smacked and more boys hit with an object. Other studies have shown similar results for boys in terms of the greater prevalence and severity of physical punishment.7,16

This study provided new information regarding punisher characteristics. No previous studies were found which investigated disciplinary behaviour of step-parents in a community population (child abuse studies excepted). The present findings indicated that, when the proportions of parented versus step-parented families were taken into account, stepmothers and stepfathers were no more likely than their mother/father counterparts to administer physical punishment, contradicting a popular negative view of step-parents.

Of the few studies which have investigated mother/father punishment ratios, the findings have been mixed with several studies showing similar rates8,11,22 and several indicating that mothers dispense most of the punishment6,7 when all forms of physical punishment were considered together. However, these findings need to be tempered with the fact that many mothers spend a greater proportion of time with children, increasing the probability of discipline use.

This study showed differential use of punishment procedures by parents, with mothers cited more often for the use of non-physical methods such as loss of privileges, and fathers and stepfathers more frequently associated with the use of extreme punishment. One reason for the predominance of males in physical punishment categories might be related to prevailing sex stereotypes regarding whose duty it is to administer physical punishment. In a separate strand of the DMHDS which investigated beliefs about parenting, many SMs at age 15 voiced the opinion that fathers should take responsibility for punishing children’s bad behaviour.20 Furthermore, the tendency for some fathers to punish on behalf of their partners (i.e. mothers) has been noted in one study.22

The identification of male caregivers as more likely to deliver extreme punishment adds to the research findings and presents a more complex picture than previous research has indicated. It now appears that different caregivers are linked to different forms of punishment, with fathers and stepfathers more commonly associated with extreme
punishment. Two small-scale studies have provided limited evidence to support the present findings. In the first study, a subset of respondents receiving high levels of corporal punishment reported that the most severe physical punishment was delivered by their fathers.\textsuperscript{16}

A second study showed a difference (albeit non-significant) in parental use of severe physical punishment, with fathers outnumbering mothers.\textsuperscript{22} Preventive efforts may be more effective if focused on fathers and stepfathers specifically, facilitating the use of non-physical methods of disciplining children, as well as techniques for conflict and anger management.

The fact that there was no relationship found between reason cited for punishment (i.e. extent of misdemeanor) and severity of punishment administered, suggests that parents do not apportion punishment to fit the “crime”. It may be that parents fall back on one or two forms of discipline regardless of the particular child behaviour. If this is the case, then educative methods may be beneficial in assisting parents to use non-physical methods and/or restitution more appropriate and effective for the specific misdemeanor.

This study adds to the research knowledge regarding recipients’ views about the punishments received, given that no previous community-based studies on this topic could be identified. An unexpected finding was that non-physical punishment was most frequently regarded as the worst punishment ever received, with 50% of SMs naming at least one non-physical punishment method such as privilege loss. This figure is in contrast to the much smaller percentage (20%) of SMs who reported receiving only non-physical punishment during childhood. This finding could be due to the recency effect in that SMs interviewed at 26 years might be more likely to recall events occurring closer in time (i.e. in adolescence) to their current age.

Nonetheless, the fact that many SMs stated explicitly that methods such as grounding were far worse than any physical punishment received during childhood, suggests that these methods may have aversive qualities in their own right which make them memorable. The potent nature and aversive qualities of privilege loss (as deemed by the SMs) make it a more effective punisher in behavioural terms.\textsuperscript{23} This finding has implications for parents in terms of the choice of punishment methods for use in late childhood and early adolescence. A further advantage of such methods is that they do not involve physical intervention or force, with the inherent risks of negative modelling, escalation, retaliation, and injury.

One negative side effect of physical punishment (i.e. emotional distress) was clearly evident in this study. Not only did 79% of SMs in the extreme physical punishment group indicate verbally that they were “very upset” at the time of punishment, but also, nearly a quarter showed physical signs of emotional distress, such as tearfulness, during the interview. This finding suggests that severe physical punishment can result in strong emotional reactions, even when the punitive events occurred 10 to 15 years earlier.

The present study sheds light on the category of physical punishment labelled as “extreme” with results indicating that this form of punishment is quite different from less severe forms (i.e. smacking, hitting with an object). Whereas lower-level physical
punishments are more often directed at younger children (primary school age) and are gender-specific (with girls generally receiving milder physical punishment), extreme physical punishment appears to be administered indiscriminately—on girls and boys, and both younger and older children.

In addition, the present results suggest that extreme punishment is more frequently:

- Administered by males (fathers/stepfathers);
- Directed at the head or torso (as opposed to the buttocks or limbs);
- Associated with signs of emotional distress for the recipients.

Outcome research has indicated unequivocally that extreme or abusive punishment has harmful negative consequences.\textsuperscript{13,24,25} For this reason, it is crucial that research continues to identify the significant factors associated with its use. A paper examining more closely the relationship between levels of punishment and outcomes in early adulthood is currently in preparation.

Parental use of punishment appears to be influenced by many contextual factors including gender, age, parent/family characteristics, and environmental conditions. While this study provides additional information on contextual factors, there is still much to be learned about punishment use and misuse. For instance, little is known about parents’ concurrent use of positive disciplinary procedures (e.g. positive feedback, physical affection) and the effects these techniques might have on measures such as emotional distress.

In addition, further research is warranted to delineate clearly between different types of punishment. Two groupings used in the present study may have contained a wide range of acts with either negative or positive implications for recipients. Specifically, the Hit with Object punishment category included being hit with a slipper through to being hit with a jug cord, and No physical punishment could have included a range of experiences from parental reasoning and privilege loss through to psychological abuse and neglect. This may have caused ambiguity in a number of SM reports.

The use of punishment with children is a complex issue involving specific practices ranging from mild (e.g. verbal disapproval, reasoning) to extreme (e.g. physical assault, emotional abuse) and with the potential to result in injury, emotional harm, and death. All evidence to date suggests that it is triggered and maintained by a wide range of factors. It is hoped that the courage of study members (in New Zealand and world wide) to share their experiences and divulge personal information from the past will promote further research and enable the development of effective and positive parenting strategies for the future.

**Author information:** C Jane Millichamp, Lecturer; Judy Martin, Senior Teaching Fellow, Department of Psychological Medicine; John Langley, Director, Injury Prevention Research Unit; Department of Preventive and Social Medicine, Dunedin School of Medicine, University of Otago, Dunedin
Acknowledgements: The Dunedin Multidisciplinary Health and Development Research Unit is funded by the NZ Health Research Council (HRC grant 98/1408). We thank Vinita Mathew, Dr Judy Trevena, Natasha Pomeroy, the Psychological Medicine Research Group, Peter Herbison, Anita Admiraal, and Assoc Prof Richie Poulton for their assistance and helpful comments on this paper. Thanks also to the two anonymous reviewers for their helpful feedback. We are very grateful to the Dunedin Multidisciplinary Health and Development Study Members and their families who have given their time and shared their personal information over many years.

Correspondence: Dr C Jane Millichamp, Dept of Psychological Medicine, Dunedin School of Medicine, PO Box 913, Dunedin. Fax: (03) 474 7934; email: jane.millichamp@stonebow.otago.ac.nz

References:
Domestic violence as witnessed by New Zealand children

Judy Martin, John Langley, Jane Millichamp

Abstract

Background This study reports on domestic violence in New Zealand families witnessed by members of the Dunedin Multidisciplinary Health and Development Study.

Method Questions on the witnessing of father to mother and mother to father physical violence and threats of harm up to the age of 18 were included in a retrospective family violence interview carried out when the cohort was interviewed at age 26. Study members who reported violence between parents were asked about the nature, context, and consequences of this violence.

Results One-quarter (24%) of the sample reported violence or threats of violence directed from one parent to the other. Nine percent reported infrequent assaults while one in 10 reported more than five acts of physical violence. In violent families, 55% reported violence by fathers only, 28% by both partners, and 16% by mothers only. Almost 90% of the exposed group witnessed violence between natural parents, and 80% were exposed to violence before the age of 11. The gender of the study member or parent did not predict how upset study members were, but frequency of violence did. Witnesses were more likely than non-witnesses to have diagnoses of anxiety and depression at age 21. Socioeconomic status and age of parents were related to violence patterns, but not the mother’s education or employment status.

Conclusion This study suggests that a quarter of young adults have been exposed to acts or threats of violence carried out by one parent toward another parent, and the majority found such witnessing to be a very upsetting experience. Public education programmes should emphasise that all violence carries risk of harm to all family members.

Domestic violence or partner violence (i.e. physical or emotional abuse directed from one adult in a partnership to another) has been recognised as a major social and economic burden in New Zealand for more than a decade. An increasing number of epidemiological studies in New Zealand show a pattern of domestic violence that parallels that shown in other countries.

Milestone research includes:

- Fergusson and colleagues’ 1986 report showing that 9% of mothers from Christchurch Health and Development Study reported violence from their partners over a 6-year period;
- Leibrich’s 1995 community survey on male violence to female partners which showed 4% of men admitting ever kicking, biting, or hitting a partner with a fist, and 2% admitting “beating up” and “choking or strangling” a female partner;
- Reports from the Dunedin Multidisciplinary Health and Development Study showing how reporting of assault by partners can vary according to the assessment used;
• 1996 and 2001 national surveys of crime victims which provided New Zealand-wide data on domestic violence for both men and women for the first time; and most recently,

• Fanslow and Robinson’s random community survey of women in Auckland and Waikato showing one in three ever-partnered women reporting physical or sexual violence from partners.

Over the previous decade, much discussion has taken place on the nature and prevalence of domestic violence, particularly on the substantially different rates and patterns that result from community surveys conducted in the context of relationship conflict, and from studies that emphasise violence victimisation.

In the partner conflict studies, women are often identified as more frequent instigators of acts of physical violence, whereas men are more often reported as carrying out the violence in victimisation surveys. A consensus is slowly emerging that at least two broad types of relationship violence are being measured, which partially accounts for differences between studies.

First is what has been called “common couple” or situational violence arising in the context of a mutual disagreement, during which one or other of the partners may verbally or physically attack the other. This is the most frequent type of violence measured in community samples by multi-item measures such as the Conflict Tactics Scale (CTS), and is as often or more often carried out by female partners. Such studies usually result in a high prevalence rate for violence by and to both genders.

Second, attempts have been made to operationalise a more severe form of partner violence, more likely to be reported in victimisation surveys. Johnson and Ferraro, for example, have focussed on control as the central issue in severe violence, defining “intimate terrorism” as attempts by one partner to control another’s behaviour by a range of methods including physical violence. In contrast, Ehrensaft and colleagues used a range of outcome variables to separate out what they call “clinically abusive” partner violence. These comprised injury and medical treatment; and police involvement and related help-seeking, including use of refuge and restraining orders. They found a 9% prevalence rate of such violence between ages 24 and 26 in the relationships of the members of the Dunedin Multidisciplinary Health and Development Study. The nature and overlap of the two broad typologies and their relative distribution and effect on participants, victims, and witnesses is a matter for ongoing research and debate.

Maxwell’s data from 528 incidents reported by the Hamilton Abuse Intervention Pilot Project gives an indication of the distress felt by children who are witnesses to their parents’ violence. The potentially damaging effect on children of witnessing of violence from one parent to another has long been recognised, although there is no clear indication of the number of children thus affected.

Figures from the Department of Justice website report 30,000 children in families affected by domestic violence protection orders between 2000–2003, and 9241 children using Women’s Refuge services with their mothers 2000–2001, but the under-reporting of family violence makes it certain that this under-represents the proportion of children affected.
A local study by Fergusson and Horwood explicitly assessed exposure to violence between parents;\textsuperscript{15} nearly 40% of the Christchurch-born longitudinal sample reported at least one violent act by one or more parent. The majority of these were from acts of psychological aggression (name-calling and criticism) and symbolic violence (property damage and threats of violence), but approximately 6–10% of 18 year olds reported parents pushing and shoving or hitting or punching the other partner. They found an increased level of psychosocial adjustment problems in sample members reporting parental violence, although a follow-up study on panic disorder suggests that the levels of anxiety measured may be partially attributable to exposure to coexisting forms of violence in childhood.\textsuperscript{16}

The current study was designed as part of the Dunedin Multidisciplinary Health and Development Study (DMHDS) to gain retrospective information not gathered when the study members were children, of their experiences and reactions to violence directed from one parent (or step-parent) to the other. This paper reports on the prevalence and nature of this witnessed violence, and some of the family and social contexts in which it occurred.

\textbf{Method}

\textbf{Background}

The Dunedin Multidisciplinary Health and Development Study (DMHDS) is a longitudinal study of the health and development of 1037 children born in Dunedin’s only obstetric hospital between 1 April 1972 and 31 March 1973, and still resident in Otago at 3 years of age. Study members have been assessed every 2 years between the ages of 3 and 15; and since then, every 3 to 6 years. The DMHDS sample and study has been fully described elsewhere.\textsuperscript{17} The sample as a whole is more exclusively white and more economically advantaged than the New Zealand average, but a high retention rate has ensured the inclusion of a full cross-section of social classes. The data on domestic violence on which this article is based was collected when the study members were aged 26.

The Family Violence Interview was a 10-minute face-to-face interview carried out as part of a day-long assessment. It included questions asking for retrospective reports about parents’ potentially violent behaviours to the study member as well as to each other. Such questions had not previously been asked of study members directly because the earlier need for parental consent for participation restricted the use of sensitive questions that might lead to withholding of consent. Before the assessment, pre-testing on the suitability of the topic among a random sample of both study members and their parents established that such questions would be acceptable at this stage of the study members’ lives, and a pilot questionnaire among a volunteer sample tested the suitability of specific questions.

\textbf{Domestic violence questions}

Study members were asked about interparental violence in the context of parents’ arguments. The questions came after a sequence on discipline in the family, and were introduced as follows:

\begin{quote}
We’ve talked about what happened when your parents were mad with you. Now I want to ask you about what happened when your parents used to argue with each other.
\end{quote}

All study members were asked first how their parents got on, with a range of possible answers from “really well” to “lots of rows.” They were then asked whether they had seen or heard of their mother being hit or hurt by their father. As a separate question they were asked whether the mother had been threatened with harm. These two questions were repeated with relation to the father being hit or hurt or threatened by the mother. This briefer screen was used instead of a multi-item checklist such as the CTS because of the short time available.

We focussed on physical or threatened acts as being behaviours more easily identifiable by witnesses than the subtleties of purely psychological violence, although several study members questioned our omission of this aspect, believing it central to their parents’ experience.
All study members who gave a positive answer to any of the four prevalence questions were asked to provide a brief description of what happened, including specific details:

- Frequency (of violence);
- Whether the incidents were witnessed directly by the study member;
- Whether the police were ever involved, and whether either mother or father left as a result of the violence;
- The study members’ age at the time of the first incident;
- Which parent the study member thought was more at fault for the violence; and
- How upsetting the children found the incidents at the time.

If the study member had lived with a step-parent at any time, the same screening questions were repeated for the subsequent relationships, and brief contextual details then collected.

The interviewers (both health professionals) noted any signs of distress or comments the study members made about the interview content and process. A psychologist was available as part of the Unit team if participants needed to discuss issues raised by the interview. Study members’ descriptions, typically two or three sentences, were noted on the interview form and used to validate study member’s responses to the prevalence questions. They were later transcribed and content-analysed to identify patterns of assaultive behaviours, injury levels, and alcohol involvement.

A subgroup who reported obviously severe physical violence was identified. These study members either volunteered information about one parent being injured by the other, or used descriptions such as punching, “beating up”, choking, throwing down, threatening with a weapon, kicking, or hitting with something likely to cause injury, and rape. These are the behaviours that rate as severe violence in the revised CTS, and were also designated as severe violence by Fanslow and Robinson.

**Categorisation of family violence experiences**

On the basis of their responses to the assessment, study members were placed in one of four categories:

- Those reporting neither physical violence nor threats;
- Those reporting threats of harm only;
- Those reporting infrequent physical acts (up to 5); and
- Those reporting physical violence that happened at least 5 times.

The two dimensions of physical versus threatened violence and frequency of physical violence were chosen because they were the qualities that child witnesses could most easily identify and report on. Because of the varying age of the children as witnesses, as well as the environment of secrecy in which most family violence occurs, it was thought that study members would not be in a position to reliably assess the degree of injury involved. As explained above, many study members did in fact describe injuries and severe assaults, but because this information was volunteered, rather than asked systematically, neither was used as a measure of severity in our statistical analysis.

The following variables were used in the cross-sectional analyses (brackets indicate study members’ age at the time specific information was obtained):

**Demographic information**

- Study member’s gender;
- Parent’s age at time of study member’s birth;
- Father’s socioeconomic status (age 5);19
- Mother’s paid working status (age 7);
- Mother’s educational level (age 13);
- Family composition—particularly whether the study member lived with his birth parents throughout his childhood. (Retrospective report at age 26.)

**Study member mental health**

- Anxiety and depression diagnoses (age 21);
At age 21, study members participated in the DIS, a structured psychiatric interview based on DSM-IV criteria. The multiple categories of anxiety disorders were combined into a single binary variable for the purposes of this analysis, identifying those who had experienced any anxiety disorder in the previous 12 months, and the same process was used to identify those experiencing any depressive disorder.

**Family-related**

**Family Environment Scale, (age 7)**—This validated interview (measuring aspects of overall family functioning) was given by the primary caregiver. Subscales used in this analysis were:

- Cohesion, measuring the level of shared activities within the family;
- Expression, measuring levels of communication between family members; and
- Conflict, measuring levels of conflict with such questions as “we fight a lot in this family”.

Questions and answers related to the family as a whole, not to specific family members. Higher scores indicate more favourable conditions—i.e. high cohesion, high expression and low conflict.

**Results**

962 of the 980 study members participating in phase 26 completed the interview on family violence—equivalent to 94% of the original sample of 3 year olds and 96% of the living cohort. Three-quarters (n=726) reported no violence between parents or step-parents; 55 (6%) reported threats as the most severe form of violence; 86 (9%) reported 1 to 4 incidents of physical violence; and 95 (10%) reported 5 or more such incidents.

Descriptions provided showed that “threats” included a range of verbal and non-verbal behaviours, including “constant put-downs”, “ranting and raving”, threatening with a wide range of objects, throwing and smashing objects, and threats of injury or death. Physical assaults included examples of slapping, hitting, shoving or pushing over, as well as the more severe forms of assault such as punching, kicking, beating up, hitting with something hard, throwing around, and sexual assault.

Table 1 shows demographic, family and individual characteristics associated with these categories of violence. For 90% of the study members witnessing parental violence, the first violence reported was between natural parents.

Table 2 shows a summary of the characteristics and contexts of the parental violence reported by study members in response to direct questioning. Of the 236 study members who reported parental violence, 69% witnessed it directly. The others either heard the sounds of fighting (18%) or were told about it afterwards (13%). Eighty percent of the study members reported violence beginning before they reached the age of 11 (mean age: 7.5). Police were involved at sometime in 12% of the non-physically violent families and only 6% of families with infrequent violence, but 45% of those involving frequent assaults. Two-thirds of this last group had one partner leave at least temporarily as a result of the violence.
Table 1. Categories of interparental violence reported by study members by demographic and family factors

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total N</th>
<th>No violence</th>
<th>Non physical violence</th>
<th>Infrequent physical violence (up to 4 times)</th>
<th>Frequent physical violence (5 times or more)</th>
<th>Significance (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number</td>
<td>962</td>
<td>726 (75.5)</td>
<td>55 (5.7)</td>
<td>86 (8.9)</td>
<td>95 (9.9)</td>
<td></td>
</tr>
<tr>
<td>Gender of SM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- male</td>
<td>471</td>
<td>345 (72.6)</td>
<td>32 (58.2)</td>
<td>39 (45.3)</td>
<td>55 (57.9)</td>
<td>0.114 (3)</td>
</tr>
<tr>
<td>- female</td>
<td>491</td>
<td>381 (77.6)</td>
<td>23 (41.8)</td>
<td>47 (54.7)</td>
<td>40 (42.0)</td>
<td></td>
</tr>
<tr>
<td>Lived only with natural parents</td>
<td>648</td>
<td>514 (79.3)</td>
<td>35 (53.6)</td>
<td>44 (51.2)</td>
<td>28 (29.5)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Parents got on well</td>
<td>237</td>
<td>228 (32.8)</td>
<td>3 (5.5)</td>
<td>6 (7.0)</td>
<td>–</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Parents had rows</td>
<td>169</td>
<td>57 (8.2)</td>
<td>22 (40.0)</td>
<td>26 (30.2)</td>
<td>64 (67.4)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Father’s SES at age 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- SES groups 1–2</td>
<td>187</td>
<td>156 (26.2)</td>
<td>10 (22.7)</td>
<td>16 (24.6)</td>
<td>5 (8.5)</td>
<td>&lt;0.001 (6)</td>
</tr>
<tr>
<td>- SES groups 3–4</td>
<td>449</td>
<td>347 (72.8)</td>
<td>28 (53.6)</td>
<td>42 (64.6)</td>
<td>32 (54.2)</td>
<td></td>
</tr>
<tr>
<td>- SES groups 5–6</td>
<td>128</td>
<td>93 (73.1)</td>
<td>6 (19.6)</td>
<td>7 (10.8)</td>
<td>22 (37.3)</td>
<td></td>
</tr>
<tr>
<td>Mother worked, age 7</td>
<td>167</td>
<td>128 (76.1)</td>
<td>10 (6.1)</td>
<td>16 (12.1)</td>
<td>13 (17.8)</td>
<td>0.969 (3)</td>
</tr>
<tr>
<td>Mother’s education level, SM age 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Degree or similar</td>
<td>297</td>
<td>220 (73.8)</td>
<td>22 (56.2)</td>
<td>28 (44.4)</td>
<td>27 (40.9)</td>
<td>0.346 (6)</td>
</tr>
<tr>
<td>- School qual</td>
<td>170</td>
<td>131 (76.5)</td>
<td>8 (20.5)</td>
<td>15 (23.8)</td>
<td>16 (24.2)</td>
<td></td>
</tr>
<tr>
<td>- No qualification</td>
<td>276</td>
<td>224 (81.3)</td>
<td>9 (23.1)</td>
<td>20 (31.7)</td>
<td>23 (34.8)</td>
<td></td>
</tr>
<tr>
<td>SM Dx anxiety age 21</td>
<td>189</td>
<td>113 (60.0)</td>
<td>21 (38.2)</td>
<td>26 (30.2)</td>
<td>29 (31.9)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>SM Dx depression, 21</td>
<td>167</td>
<td>98 (58.6)</td>
<td>22 (40.0)</td>
<td>19 (22.1)</td>
<td>28 (30.8)</td>
<td>&lt;0.001 (3)</td>
</tr>
<tr>
<td>Mean (SD)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother age at SM’s birth</td>
<td>25.73</td>
<td>24.35 (1.71)</td>
<td>23.62 (4.41)</td>
<td>23.35 (4.65)</td>
<td>&lt;0.001 (f=10.7)</td>
<td></td>
</tr>
<tr>
<td>Father age at SM’s birth †</td>
<td>28.62</td>
<td>28.08 (5.09)</td>
<td>25.36 (4.48)</td>
<td>27.41 (6.06)</td>
<td>&lt;0.001 (f=9.8)</td>
<td></td>
</tr>
<tr>
<td>Family cohesion, age 7</td>
<td>7.73</td>
<td>7.65 (1.37)</td>
<td>7.23 (1.80)</td>
<td>7.49 (1.50)</td>
<td>0.023 (f=3.2)</td>
<td></td>
</tr>
<tr>
<td>Family expression, age 7</td>
<td>6.04</td>
<td>6.06 (1.77)</td>
<td>6.28 (1.74)</td>
<td>6.07 (1.94)</td>
<td>0.714 (f=4.5)</td>
<td></td>
</tr>
<tr>
<td>Family conflict, age 7</td>
<td>3.27</td>
<td>3.88 (2.08)</td>
<td>4.13 (1.86)</td>
<td>3.78 (1.88)</td>
<td>&lt;0.001 (f=6.4)</td>
<td></td>
</tr>
</tbody>
</table>

*Percentages vary because of missing data; †birth fathers only; df=degrees of freedom; SD=standard deviation; SES=socioeconomic status; SM=study member; Dx=diagnosis.
### Table 2. Categories of interpersonal violence by violence-related variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Total n*</th>
<th>Non physical violence</th>
<th>Infrequent physical violence (up to 4 times)</th>
<th>Frequent physical violence (5 times or more)</th>
<th>Significance (df)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother was threatened</td>
<td>171</td>
<td>34 (61.8)</td>
<td>47 (54.7)</td>
<td>90 (94.7)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Father was threatened</td>
<td>78</td>
<td>25 (45.5)</td>
<td>21 (42.4)</td>
<td>32 (33.7)</td>
<td>Not significant</td>
</tr>
<tr>
<td>Mother hit by partner</td>
<td>158</td>
<td>–</td>
<td>69 (80.2)</td>
<td>89 (93.7)</td>
<td></td>
</tr>
<tr>
<td>Father hit by partner</td>
<td>69</td>
<td>–</td>
<td>34 (49.3)</td>
<td>35 (36.8)</td>
<td></td>
</tr>
<tr>
<td>SM witnessed directly</td>
<td>150</td>
<td>38 (71.7)</td>
<td>45 (59.2)</td>
<td>67 (74.4)</td>
<td>0.119 (4)</td>
</tr>
<tr>
<td>Violence first occurred before age 11</td>
<td>168</td>
<td>36 (76.6)</td>
<td>51 (68.0)</td>
<td>81 (94.2)</td>
<td>0.001 (4)</td>
</tr>
<tr>
<td>Police ever involved</td>
<td>49</td>
<td>6 (12.0)</td>
<td>4 (5.5)</td>
<td>39 (46.4)</td>
<td>&lt;0.001 (2)</td>
</tr>
<tr>
<td>Either parent left because of violence</td>
<td>95</td>
<td>15 (30.0)</td>
<td>22 (28.9)</td>
<td>57 (67.4)</td>
<td>&lt;0.001 (2)</td>
</tr>
<tr>
<td>Thought mostly father’s fault</td>
<td>98</td>
<td>18 (37.2)</td>
<td>33 (43.4)</td>
<td>47 (54.0)</td>
<td>0.264 (6)</td>
</tr>
<tr>
<td>Thought father and mother’s fault</td>
<td>97</td>
<td>28 (56.0)</td>
<td>35 (46.1)</td>
<td>34 (39.1)</td>
<td></td>
</tr>
<tr>
<td>Thought mostly mother’s fault</td>
<td>14</td>
<td>4 (8.0)</td>
<td>6 (7.9)</td>
<td>4 (4.6)</td>
<td></td>
</tr>
<tr>
<td>SM was “a bit” upset by violence</td>
<td>43</td>
<td>16 (31.4)</td>
<td>24 (27.9)</td>
<td>13 (14.0)</td>
<td></td>
</tr>
<tr>
<td>SM was upset “a lot” or “extremely” by violence</td>
<td>143</td>
<td>28 (54.9)</td>
<td>44 (51.2)</td>
<td>74 (79.6)</td>
<td>0.001 (4)</td>
</tr>
</tbody>
</table>
Study members were asked in separate questions about their mothers being “hit or hurt”, or threatened and then their fathers “hit or hurt” or threatened by the other partner. Of the 236 exposed to violence, 171 (73%) reported mothers being threatened, and 158 (67%) reported mothers being physically assaulted by the male partner.

One-third (33%) of those exposed to violence reported threats to the father, and 29% reported that the father was physically assaulted by the female partner. Altogether, 39 (16%) of the exposed group reported violence by the mother only, 67 (28%) by both partners, and 130 (55%) by the father only. When physical assaults only were considered, 23/181 (13%) were by women alone, 46 (25%) involved both, and 112 (62%) were by men only.

Characteristics of families were compared for the four categories of violence exposure identified. (See Table 1 for details.) Domestic violence was less common in families who remained intact. Only 37% of families with frequent physical assaults between the birth parents had parents who remained together, compared to 75% of the families where no violence was reported (Chi squared=49.65; df=3; p<0.001).

Study members reporting violence were much less likely to say that the parents got on well together. Violence was related to father’s socioeconomic-status, with more study members reporting repeated violence if their fathers were in SES groups 5–6 (manual and unskilled). In families reporting violence (especially physical violence) both the mothers and fathers were significantly younger than the mean age. Families where violence occurred rated lower on the family cohesion scale and higher on the family conflict scale. Rather than demonstrating a “dose-response effect”, it was families with infrequent violence that reported slightly worse cohesion and conflict.

There was no significant relationship between gender of the study members and of the type of conflict they witnessed, although there was a trend for men to report relatively more infrequent violence and less threatened and frequent violence (p=0.114). Violence was not associated to the mother’s employment status (age 7), mother’s education (at age 13), or the level of family expressiveness reported.

When the study members were asked to reflect on whose fault they thought the fighting was, 46% said just or mostly father, 45% attributed blame to both father and mother, and 7% to just or mostly mother. Four study members said “neither”. When only the father was hitting or threatening, 61% considered he was solely or mostly to blame. When the mother was reported as threatening or hitting the father, whether or not he was violent as well, the proportion blaming the father more fell to 27%. There were gender differences between attribution of blame, with female study members more likely than males to hold the father responsible overall (52% compared to 40%), and 54% of men thinking the violence was a joint responsibility compared to 39% of women, (Chi-squared=32.24; df=6; p <0.001).

Regardless of who carried out the violence, the study members remember being upset by the conflict they witnessed; 64% described themselves as being upset “a lot” or “extremely”, with another 23% nominating “a bit” upset. Logistic regression modelling showed that the violence related variable that was most strongly associated with being very upset was the frequency of violence (adjusted 95% CI=2.34–8.34), with blame attributed to both parents acting as a slight protective factor against upset (95% CI: 0.257–0.875).
Levels of distress were not predicted by the other variables in the model: the gender of either the perpetrator or victim; the age of the study member when the violence was witnessed; and whether the violence was physical or threatened.

When less immediate forms of distress (anxiety and depression diagnoses) were examined (Table 1), differences between study members exposed to different types of violence were less marked than the contrast between those who witnessed violence, and those who did not. Neither diagnosis was itself associated with being very “upset” at the violence in cross-tabulation (p values 0.986 and 0.755 respectively). Repetitions of the logistic regression modelling of violence related variables with anxiety and depression as the dependent variables showed that female gender of the study member was the only variable that predicted anxiety and depression (adjusted 95% CIs=1.27–4.61 and 2.15–9.26 respectively).

**Study members’ contextual reports on parental violence**

Study members were asked to describe briefly the violence they witnessed, heard, or were told about. Some gave descriptions that were general in nature, but patterns emerged from specific information given by the majority. The most common single element mentioned by study members was the involvement of alcohol (mentioned by 22% of the reporters [53/236]), most commonly in relation to father’s drinking. Injury, ranging from bleeding noses to prolonged hospitalisation, was mentioned in one-fifth of the reports (n=46), but many others detailed acts such as punching and “beating up” that carried a high probability of some injury. The element of controlling or emotionally abusive behaviour was specifically mentioned by only 14 study members, half of whom were commenting on relationships without physical violence.

About half of the study members who described physical violence (43% of those reporting infrequent physical violence, and 55% of those reporting frequent violence [89/181]) gave accounts which either fitted the revised CTS criteria for severe violence, or referred to some degree of injury. Forty-three percent of the dyads where the mother alone was physically assaultive mentioned such severe violence (n=10), as did 48% of those where the father was responsible (n=54), and 54% of the partnerships where both partners assaulted the other (n=25).

Narratives by the 46 study members where both father and mother were reported to have hit or hurt the other partner were examined to see if the precipitating actions for violence and its relative severity could be determined. Levels of violence were equivalent or unable to be determined in over half of the descriptions, fathers were described as responsible for more severe violence in 37% of the accounts, and mothers in 2%. Mothers were described as initiating the dispute in some way in 24% of cases, and fathers in 7%, but 46% of the fathers and 17% mothers were identified as being the first to use physical violence. Two couples were specifically held equally responsible, and direction was not specified in the other reports.

**Discussion**

This New Zealand study identified a quarter of the participants as witnesses to physical or threatened violence between their parent or parent-figures. It demonstrated a high level of family conflict and the potential for upset to younger family members.
The strength of this study is its ability to identify and describe (in a community sample) the range of violent acts that children witness; the contexts in which they occur; and consequences for family members. The quality of the representative community sample with high participation rates and availability of prospectively gathered data allows a clearer and more accurate identification of the nature of violent families.

The information was gained retrospectively when the study members were adults, and so recall and reporting cannot be considered completely independent of biases conferred by later experiences. However, this difficulty must be weighed against the alternative problem of trying to get sensitive information about parents from children when they are still dependent on the consent of the people they are reporting on, as well as the more subtle influences of close physical and emotional ties on disclosure.

The retrospective nature of this data could also limit its epidemiological relevance. The cohort were children during the 1970s and 1980s, before widespread public education on domestic violence was underway, so it is unwise to project from these figures what rates of violence may be witnessed by children in today’s families. However the high rates of violence reported by surveys in the 1990s and later suggest that the prevalence would still be substantial.

The use of reports from child witnesses to violence is both a strength and a weakness of this study. As a negative, it probably does not record the full prevalence of domestic violence in families, by missing violent acts that were not carried out in front of the children, or not reported afterwards. It is likely that hidden violence occurred in more families than of the 29 study members who were unaware at the time but had found out by the age of 26.

On the other hand, the exposure of children to domestic violence is a serious public and mental health concern, and questioning relying on the reports of the witnesses themselves is the most direct measure of impact of this particular facet of violence. Our main focus was on the experience of the exposed children, and we wanted their reports to be unprompted where possible. It is probable that some minor incidents, threats, and psychological aggression passed unnoticed by the children, but we were surprised at the level of detail and insight provided in the retrospective narrative comments, all the more compelling for being undirected.

Information volunteered about a wide range of assaults, injury, and psychological dynamics appeared to contradict our initial belief that study members would not be able to provide information about such details. Unfortunately, because the severity measure we developed from volunteered information was not based on systematic inquiry, we were not able to use it as an independent variable in analysis. A greater confidence in our study members would have resulted in a wider range of assault parameters being measured.

Our study fits more clearly into the “violence victimisation” thread of domestic violence research rather than the “partner conflict” thread, despite the introduction of the screening questions in the context of parental disagreement. The factors that match the “victimisation” methodology are: introduction to the study members as an interview on family violence; use of a short prevalence screen rather than a multi-itemed checklist such as the CTS; the use of the terms “hit or hurt” and “threatened with harm” which may have led some study members to screen out minor incidents.
they did not consider harmful; and the exclusion of verbal aggression with the exception of threats.

Thus, it is not surprising that our witnessed prevalence rate of 24% is closer to that of the national crime victims survey than the 40% reported using a modified CTS by Fergusson and Horwood. The high prevalence rate for physical violence in Fanslow and Robinson’s study, which used a multi-item scale in the context of a victimisation survey suggests that the number and range of screening questions, rather than the way they are presented, is the dominant influence on prevalence rates.

The studies carried out within the Dunedin and Christchurch longitudinal studies (and the National Surveys of Crime Victims) are the largest New Zealand community surveys that have examined men’s experience of domestic violence at the same time as women’s. Like the crime victim surveys and the assault victimisation study in the DMHDS at age 21, our study found that women were more often victims of partner assault than men. These three studies also relied on fewer screening questions.

The greater proportion of male perpetrators is in keeping with police and health figures, but different to the CTS-based surveys of Magdol et al and Fergusson and Horwood which have a more equal gender balance. It is more useful to explain the divergent findings fully and examine the parameters which contribute to differences than to question the value or validity of either methodology. While debate continues, domestic violence research should assess both men and women where possible.

This study found fewer female perpetrators, rather than a greater number of assaultive fathers. This may be because study members disregarded a proportion of violence they witnessed from mothers as being less forceful and therefore not “harmful”. Interestingly, although the number of reported women perpetrators in our study was relatively low, 43% of those cases were rated as serious by our informal severity measure, which is a similar proportion to the 48% of male-only physical assaults. In addition, the proportion of study members who described assaults where both parents hit or hurt as serious rose to 54%.

Whether reciprocated violence acts as a trigger to greater severity is a potentially important public health question that deserves further study. In the mutual violence group, although unwise to interpolate too much from the incomplete self report data, it is interesting to note that mothers were more often noted as beginning the conflict (at least verbally), while fathers more often were physically violent first, and their violence was often described in more severe terms. Of the 14 parents who were specifically described as being controlling or emotionally abusive, 12 were fathers.

A study that relies on witness reports provides a different perspective than one relying on self-reports from either victim or perpetrator, but some differences reported by male and female study members highlight the possibility of reporting bias. It is unlikely that the parameters of violence witnessed by male and female study members varied substantially, so it is probable that differences in violence details reported by men and women reflect perceptions rather than actual differences.

Of particular interest is the tendency of male study members to more often share the attribution of blame between both parents. Women were much more likely to blame the father exclusively, but still this was only in about half the instances of witnessed violence. Study members in general seemed able to take a nuanced view of family
violence, perhaps influenced by their intimate knowledge of family dynamics. Both males and females were less likely to place exclusive blame on the parent of their own sex. Interestingly, those who did perceive both parents as at fault were less upset by the violence.

Study members typically reported being very or extremely upset at the time by the violence in their families. This perception of the emotional impact of the conflict was unrelated to their previous mental health status, as measured by depression and anxiety scores. Subjective distress and possible mental health outcomes have long been recognised as separate (but clinically important) consequences of childhood abuse. It is likely that many other coexisting factors influenced the levels of depression and anxiety in those witnessing violence, but an examination of those is beyond the scope of this paper.

Those working with all aspects of domestic violence should note the very high proportion of the study members who reported being very or extremely upset by the experience regardless of the type of violence. It has been acknowledged previously that victims of domestic violence often find non-physical violence equally as distressing as physical assaults, and the same is true of witnesses in this sample. The finding that the factor that contributed most strongly to being upset was the frequency of the violence, and not who carried it out, or whether it was physical or threatened carries a strong message about the potentially damaging nature of any violence between adults in the home. There has been a tendency to discount the harm attributed to violence carried out by women (Morris et al have a useful discussion on this topic in chapter 5 of their report). But the argument of the relative benignity of female violence does not match our data on distress, nor our informal data on severity.

Another useful aspect of the study is the ability to distinguish between families where physical violence was a rare occurrence, and those where it occurred more frequently. The two groups differ in various ways, including the degree to which mothers are involved as perpetrators, the proportions of parents who separated temporarily or permanently and other reports of family functioning.

Johnson stresses the need to disaggregate family violence into two main typologies—common couple violence and “intimate terrorism” where violence is a tactic deliberately used by one partner, in a pattern of control. It was not often possible to make this distinction from the brief narratives given by the study members, but those identified as controlling were almost exclusively frequent users of violence as were those who used severe physical violence as a response to everyday situations such as mealtimes and child management. From this evidence, the commonsense approach of using frequency as a marker for severity has some merit, especially considering its contribution to greater distress in the child.

A follow-up paper from this study will provide a fuller examination of the long-term impact of domestic and other family violence on children in the context of other personal and family factors, both positive and negative. Future research could investigate possible associations between children’s attitudes to their parents’ violence and their own experience of partner violence in later life. In the meantime, the negative reactions to both the threats and physical assaults the children witnessed reinforce the potential for harm and distress for all concerned when adults in families fight.
Author information: Judy Martin, Senior Teaching Fellow, Department of Psychological Medicine; John Langley, Professor, Injury Prevention Research Unit, Department of Preventive and Social Medicine; Jane Millichamp, Lecturer, Department of Psychological Medicine; Dunedin School of Medicine, University of Otago, Dunedin

Acknowledgements: This research was funded by NZ Health Research Council grant 98/140. The Dunedin Multidisciplinary Health and Development Research Unit is funded by the NZ Health Research Council. The authors thank Deborah Clarke for help with data management; Peter Herbison for statistical support; Richie Poulton for support; and the members of the Dunedin Multidisciplinary Health and Development Study for their ongoing commitment and participation.

Correspondence: Judy Martin, Dpt of Psychological Medicine, Dunedin School of Medicine, University of Otago, PO Box 912, Dunedin. Fax: (03) 474 7934; email: judy.martin@stonebow.otago.ac.nz

References:


Contraceptive use by Maori youth in New Zealand: associated risk and protective factors

Terryann Clark, Elizabeth Robinson, Sue Crengle, Peter Watson

Abstract

**Aims** To identify risk and protective factors associated with consistent contraception use by sexually active Maori youth.

**Methods** Secondary analysis was undertaken utilising Youth2000, an anonymous nationally representative secondary school health and wellbeing survey, undertaken in 2001. We describe the self-reported sexual health and contraceptive use behaviours of Maori students. A multiple logistic regression model was utilised to identify risk and protective factors associated with consistent contraception use by sexually active Maori students.

**Results** Half of the Maori students have had sexual intercourse (54% males; 48% females) and a third are currently sexually active (33% males; 34% females). Most Maori youth who have ever had sex use condoms for contraception (82%) and most sexually active Maori youth reported consistent use of contraception (71% males; 70% females). Maori youth who use contraception consistently are more likely to report getting enough time with a parent (OR 1.50; 95% CI 1.05–2.14; p=0.03) and less likely to report weekly marijuana use (OR 0.53; 95% CI 0.37–0.76; p=0.0006).

**Conclusions** Consistent use of condoms is a common self-reported contraceptive practice by many young Maori. However this behaviour is not universal, and in view of the significant sexual and reproductive health disparities that exist for Maori youth, sexual and reproductive health programs should examine a broader strategy of promoting protective factors such as strengthening youth-parent relationships and reducing risk factors, such as minimising substance misuse. Together with existing efforts in education, whanau (family), and community based programs, these strategies may support healthier sexual health outcomes for Maori youth.

Sexual maturation and behaviour are significant components of the developmental process of adolescence and important determinants of the health and wellbeing of young people. Of concern to many families and communities are young people who suffer negative sexual and reproductive health outcomes as a consequence of their sexual behaviour.¹⁻³

For sexually active young people, avoiding these negative consequences of sexual behaviour in adolescence is most effective when contraception (to avoid pregnancy) and barrier protection (to prevent sexually transmitted infections) are consistently used correctly.⁴ This can often be achieved through the consistent and proper use of condoms.

Like many of the World’s indigenous people, Maori youth in New Zealand are a particularly vulnerable group that bears greater than expected poor health (including sexual and reproductive health). Previous research has identified Maori youth as
initiating sexual activity earlier than their New Zealand European peers,\textsuperscript{5–7} and they are more likely to become pregnant during their teenage years.\textsuperscript{3,8,9} Maori youth are also more likely than other youth to acquire a sexually transmitted disease.\textsuperscript{10,11} Given these sexual health indicators, relatively little is known with regard the true population prevalence of sexual health indicators for Maori youth. Data sources are often incomplete and there are no systematic surveillance systems for gathering this data in a reliable manner.\textsuperscript{1,11} Indeed, to date there is a paucity of research literature that explores the use of contraception by Maori youth.\textsuperscript{1,12}

In recent years, youth health research has gone beyond the identification of risk factors to the examination of protective factors that promote good outcomes or resilience. The resilience framework seeks to understand and identify factors that protect vulnerable youth, and encourages them to thrive.\textsuperscript{13–18} The resilience framework also acknowledges that behaviour is influenced by the complex interplay of individual, biological, social, cultural, environmental, societal, and historical influences.\textsuperscript{19,20} A dual strategy of supporting protective resources and minimising risks is a central tenet of promoting resilience in public health.\textsuperscript{21} For Maori communities, this framework seems very consistent with Maori aspirations for development of capacities and self-determination.\textsuperscript{22,23}

Using a dataset from a nationally representative secondary school survey, this research sought to identify risk and protective factors associated with consistent contraceptive use among sexually active Maori youth.

**Methodology**

New Zealand’s first national cross-sectional population-based youth health and wellbeing survey (Youth2000) was conducted in 2001. The study method is described in detail elsewhere.\textsuperscript{24} In brief, 9570 randomly selected secondary school students completed the survey, accounting for 4% of the total secondary school population in New Zealand. Response rates for schools and students were 86% and 75% respectively. The anonymous comprehensive 523-item survey questionnaire was administered by Multimedia Computer-Assisted Self-Interview (M-CASI) on laptop computers.\textsuperscript{25} Ethics approval was gained from the University of Auckland Human Subjects Ethics Committee.

For the purposes of this study, a sub-sample of 2340 participating students (24.7% of Youth2000 sample) who reported that they belonged to the Maori ethnic group was identified. Of the Maori students 52.9% were male and 76.1% were 15 years or younger.

For the purposes of these analyses, the outcome variable for Maori sexually active youth who use consistent contraception is defined by two survey questions:

- Students who were currently sexually active (had sexual intercourse within the past 3 months); and
- Students who answered they ‘always’ or ‘mostly’ used contraception when they have sex (to prevent pregnancy).

The independent variables are 14 hypothesised protective factors and 12 hypothesised risk factors previously identified in the literature (Table 3).\textsuperscript{13–18,26–31} An instrument measuring depressive symptoms (Reynolds Adolescent Depression Scale\textsuperscript{32}) and conduct-related behaviour problems were are also used to investigate risk factors.

Control variables were age, gender, and socioeconomic status. Socioeconomic status was measured by the variables: school decile (a proxy socioeconomic variable at the school level incorporating a scale of 1 [poorest] to 10 [richest]; overcrowding; being in a two-parent family; family owning a car and telephone; and whether someone in the home was in paid employment.

Students were recruited using a clustered sample design with unequal probabilities of selection. In all analyses, the data have been weighted and the variance of estimates adjusted to allow for correlated data from the same school. Chi-squared tests were used to test for differences in proportions. Multiple logistic regressions were used to investigate the associations between risk and protective factors and consistent contraception use. All analyses have been conducted using SAS (version 9.1) software.
Results

Approximately half of the Maori students (54% males; 48% females) reported ever having had sexual intercourse. As Maori students got older they were more likely to have ever had sexual intercourse (Table 1).

Table 1. All Maori students’ sexual intercourse by age and gender

<table>
<thead>
<tr>
<th>Maori</th>
<th>N</th>
<th>Ever had sexual intercourse N (%)</th>
<th>N</th>
<th>Currently sexually active N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤13 years</td>
<td>235</td>
<td>76 (32%)</td>
<td>225</td>
<td>46 (20%)</td>
</tr>
<tr>
<td>14 years</td>
<td>296</td>
<td>144 (50%)</td>
<td>287</td>
<td>94 (34%)</td>
</tr>
<tr>
<td>15 years</td>
<td>227</td>
<td>113 (50%)</td>
<td>223</td>
<td>80 (36%)</td>
</tr>
<tr>
<td>16 years</td>
<td>160</td>
<td>103 (63%)</td>
<td>156</td>
<td>68 (43%)</td>
</tr>
<tr>
<td>≥17 years</td>
<td>97</td>
<td>65 (67%)</td>
<td>94</td>
<td>38 (40%)</td>
</tr>
<tr>
<td>All</td>
<td>1017</td>
<td>514 (50%)</td>
<td>987</td>
<td>328 (33%)</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤13 years</td>
<td>299</td>
<td>81 (27%)</td>
<td>288</td>
<td>44 (15%)</td>
</tr>
<tr>
<td>14 years</td>
<td>318</td>
<td>119 (37%)</td>
<td>316</td>
<td>77 (25%)</td>
</tr>
<tr>
<td>15 years</td>
<td>282</td>
<td>162 (57%)</td>
<td>273</td>
<td>123 (45%)</td>
</tr>
<tr>
<td>16 years</td>
<td>186</td>
<td>117 (63%)</td>
<td>184</td>
<td>90 (48%)</td>
</tr>
<tr>
<td>≥17 years</td>
<td>97</td>
<td>66 (68%)</td>
<td>95</td>
<td>53 (56%)</td>
</tr>
<tr>
<td>All</td>
<td>1184</td>
<td>637 (46%)</td>
<td>1148</td>
<td>389 (34%)</td>
</tr>
</tbody>
</table>

*2 males and 2 females did not have data on age; 30 males and 36 females did not have data on current sexual activity.

All students who had ever had sex were asked what type of contraception they used to prevent pregnancy. Condoms (82%) were the most common method of contraception used, followed by the oral contraceptive pill (36%), and then the emergency contraceptive pill (morning-after pill) (14%). The least common methods of contraception used by Maori students were the rhythm method (2%), Depo-Provera (6%), or the withdrawal method (7%). No contraception to prevent pregnancy was reported by 5% of students.

One-third (33.3% males; 33.7% females) of the Maori students reported being currently sexual active (having had sexual intercourse in the previous 3 months). Consistent use of contraception was reported by the majority of currently sexually active Maori students (males 71%; females 70%) (Table 2).

Table 2. Consistent* contraception use by currently sexually active students by age and gender (N=717). (*Consistent defined as always or usual use of contraception)
There were no significant differences by age or gender for consistent contraception use. Table 3 describes the associations between consistent contraception use and previously identified risk and protective factors controlling for age and gender.

Table 3. Associations between consistent contraceptive use and selected risk and protective factors amongst sexually active Maori youth (adjusting for age and gender)

<table>
<thead>
<tr>
<th>Protective factors</th>
<th>N</th>
<th>OR adjusted for age and gender (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important to family to attend school</td>
<td>697</td>
<td>1.20 (0.55–2.64)</td>
<td>0.6</td>
</tr>
<tr>
<td>Parents care about you</td>
<td>705</td>
<td>1.23 (0.81–1.87)</td>
<td>0.3</td>
</tr>
<tr>
<td>Spend enough time with parents</td>
<td>696</td>
<td>1.74 (1.24–2.45)</td>
<td>0.002*</td>
</tr>
<tr>
<td>Extended family care about you</td>
<td>704</td>
<td>1.15 (0.84–1.58)</td>
<td>0.4</td>
</tr>
<tr>
<td>Can talk about problems with family</td>
<td>703</td>
<td>1.13 (0.82–1.55)</td>
<td>0.5</td>
</tr>
<tr>
<td>Have a family meal together</td>
<td>698</td>
<td>1.54 (1.03–2.31)</td>
<td>0.03*</td>
</tr>
<tr>
<td>Teachers care about you</td>
<td>696</td>
<td>1.66 (1.10–2.51)</td>
<td>0.02*</td>
</tr>
<tr>
<td>Teachers get to know you</td>
<td>692</td>
<td>1.09 (0.75–1.58)</td>
<td>0.6</td>
</tr>
<tr>
<td>Have friend to talk to about serious problems</td>
<td>618</td>
<td>1.43 (0.85–2.43)</td>
<td>0.2</td>
</tr>
<tr>
<td>Have other adults to talk to</td>
<td>597</td>
<td>1.68 (1.17–2.36)</td>
<td>0.005*</td>
</tr>
<tr>
<td>Feel neighbourhood is safe</td>
<td>590</td>
<td>1.89 (1.18–3.03)</td>
<td>0.008*</td>
</tr>
<tr>
<td>Spiritual beliefs are important</td>
<td>582</td>
<td>0.85 (0.59–1.23)</td>
<td>0.4</td>
</tr>
<tr>
<td>Comfortable in Maori surroundings</td>
<td>707</td>
<td>0.84 (0.58–1.21)</td>
<td>0.3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>N</th>
<th>OR adjusted for age and gender (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>*RADS above cut off</td>
<td>689</td>
<td>0.71 (0.47–1.06)</td>
<td>0.09</td>
</tr>
<tr>
<td>Depressed for 2 weeks in a row</td>
<td>700</td>
<td>0.76 (0.49–1.07)</td>
<td>0.21</td>
</tr>
<tr>
<td>Depressed for 2 weeks in a row in last 4 weeks</td>
<td>700</td>
<td>0.55 (0.37–0.82)</td>
<td>0.004*</td>
</tr>
<tr>
<td>Thought about suicide in last month</td>
<td>690</td>
<td>0.67 (0.46–0.98)</td>
<td>0.04*</td>
</tr>
<tr>
<td>Thought about suicide in last year</td>
<td>691</td>
<td>0.91 (0.62–1.34)</td>
<td>0.64</td>
</tr>
<tr>
<td>Attempted suicide in last year</td>
<td>702</td>
<td>0.58 (0.38–0.88)</td>
<td>0.01*</td>
</tr>
<tr>
<td>History of sexual abuse</td>
<td>636</td>
<td>0.72 (0.49–1.01)</td>
<td>0.1</td>
</tr>
<tr>
<td>Drink alcohol weekly</td>
<td>640</td>
<td>0.95 (0.65–1.39)</td>
<td>0.8</td>
</tr>
<tr>
<td>Smoke cigarettes weekly</td>
<td>628</td>
<td>0.85 (0.60–1.22)</td>
<td>0.4</td>
</tr>
<tr>
<td>Use marijuana weekly</td>
<td>618</td>
<td>0.47 (0.34–0.65)</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Currently use other drugs</td>
<td>566</td>
<td>0.74 (0.43–1.27)</td>
<td>0.3</td>
</tr>
<tr>
<td>Conduct problems</td>
<td>551</td>
<td>0.63 (0.35–1.12)</td>
<td>0.1</td>
</tr>
<tr>
<td>Victim of violence</td>
<td>689</td>
<td>0.99 (0.72–1.36)</td>
<td>0.9</td>
</tr>
<tr>
<td>Have a chronic illness</td>
<td>710</td>
<td>0.99 (0.72–1.38)</td>
<td>0.98</td>
</tr>
</tbody>
</table>

*RADS=Reynolds Adolescent Depression Scale; *Statistically significant with a p<0.05

Protective variables that demonstrated statistical significance were: getting enough time with parents (p=0.002); having a family meal together (p=0.03); feeling teachers cared about them (p=0.02); having an adult they could talk to (p=0.005); and feeling neighbourhoods are safe (p=0.008).

Risk factors associated with inconsistent contraception were: depressed for 2 weeks in the last 4 weeks (p=0.004); thoughts about suicide in the last month (p=0.04); attempted suicide in the last year (p=0.01); and weekly marijuana use (p<0.0001).
Protective factors associated with consistent contraception use (Table 3: getting enough time with parents; feel their teachers care about them; feel their neighbourhoods are safe; having an adult to talk to) were included in a logistic regression model along with risk factors (depressive symptoms in the last 4 weeks and weekly marijuana use); and the potential confounders age and gender and school decile (a proxy socioeconomic variable at the school level) (Table 4).

Table 4. Consistent contraception use among Maori youth in logistic regression model (controlling for age, gender). N=536

<table>
<thead>
<tr>
<th>Effect</th>
<th>Odds ratio</th>
<th>95% confidence limits</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (13 vs 17)</td>
<td>0.64</td>
<td>0.27–1.51</td>
<td>0.5</td>
</tr>
<tr>
<td>Age (14 vs 17)</td>
<td>1.12</td>
<td>0.55–2.27</td>
<td>0.6</td>
</tr>
<tr>
<td>Age (15 vs 17)</td>
<td>1.02</td>
<td>0.51–2.02</td>
<td>0.1</td>
</tr>
<tr>
<td>Age (16 vs 17)</td>
<td>1.42</td>
<td>0.71–2.82</td>
<td>0.03</td>
</tr>
<tr>
<td>Sex (F vs M)</td>
<td>0.90</td>
<td>0.59–1.38</td>
<td>0.09</td>
</tr>
<tr>
<td>Teachers care (yes vs no)</td>
<td>1.45</td>
<td>0.91–2.32</td>
<td>0.03*</td>
</tr>
<tr>
<td>Enough time with parent (yes vs no)</td>
<td>1.50</td>
<td>1.05–2.14</td>
<td>0.0006*</td>
</tr>
<tr>
<td>Family meal together (yes vs no)</td>
<td>1.48</td>
<td>0.94–2.32</td>
<td>0.09</td>
</tr>
<tr>
<td>Depression in the last 4 weeks (yes vs no)</td>
<td>0.73</td>
<td>0.44–1.20</td>
<td>0.2</td>
</tr>
<tr>
<td>Use marijuana weekly (yes vs no)</td>
<td>0.53</td>
<td>0.37–0.76</td>
<td>0.03</td>
</tr>
<tr>
<td>Neighbourhood is safe (yes vs no)</td>
<td>1.46</td>
<td>0.82–2.60</td>
<td>0.2</td>
</tr>
<tr>
<td>An adult to talk to (yes vs no)</td>
<td>1.35</td>
<td>0.92–1.99</td>
<td>0.1</td>
</tr>
</tbody>
</table>

*Statistically significant with a p<0.05

Only one depressive variable (depressive symptoms in the last 4 weeks) was utilised to avoid problems with collinearity in the model (Table 4). There were 536 students who were currently sexually active and had full information; thus they could be included in the model.

The results of the model reveal that sexually active Maori youth attending secondary school are more likely to consistently use contraception when they report getting enough time with a parent or someone who acts as a parent (p=0.03) (Table 4). Moreover, Maori youth who report weekly marijuana use are significantly less likely to use contraception consistently (p=0.0006).

Discussion

Half of Maori youth aged 13 to 17 years in a nationally representative sample of secondary school students report having sexual intercourse, and over 80% of these students report using a condom as their method of contraception to prevent pregnancy. About one-third of Maori students in secondary school are currently sexually active (sexually active within the past 3 months), and 70% of this group report consistent use of contraception. Consistent contraception use did not differ by age or gender. Sexually active Maori students who consistently use contraception are more likely to report getting enough time with a parent and less likely to report regular marijuana use.

Little published research has investigated the role of protective factors and resilience for Maori or other indigenous youth, particularly with regard to sexual and reproductive health. Our findings support previous authors who suggest strong
positive and caring family connections are a significant protective factor for safer sexual behaviour.\textsuperscript{17,33–36} Ecological theories tell us that making responsible sexual decisions and being resilient is not solely an individual trait, rather it is mediated by multiple domains in the wider family, social, economic and political environments.\textsuperscript{19,37}

The holistic beliefs of Maori about the interconnectedness of health to the broader whanau (family) environment are consistent with the resilience framework, and a move from blaming individuals to understanding that multiple systems and contexts influence health behaviours of individuals and groups. This positive contextual concept is a vital foundation when promoting the sexual and reproductive wellbeing of Maori youth to avoid the stigma and shame frequently associated with sexuality.

Consistent contraception use is a useful public health concept, as it frames the sexual development and behaviour of Maori youth as a normal developmental task, and the use of contraception as a normal adult behaviour to be learned and mastered. Condoms are a popular choice amongst Maori youth; in addition to affording protection against pregnancy condom use, condoms protect against many sexually transmitted infections. Public health activities that aim to reduce barriers to condoms such as lowering cost, and increasing knowledge and education should be considered vital strategies for Maori youth.

Whanau (families) should be supported so that they spend time and talk to their tamariki (children) about sexuality as a normal part of growing up for the child. Moreover, clinicians have a role in supporting and educating parents to communicate effectively about sexuality, mental health, substance use, and other risky behaviours with their children. Indeed, research on effective pregnancy prevention programs tell us that programs must go beyond sexual health knowledge and skills to involve multiple components including substance use, mental health, family relationships, education, and the broader social and political contexts.\textsuperscript{32}

Maori youth who are the most vulnerable for negative sexual health outcomes (unintended pregnancy and sexually transmitted infections) are the 29% who do not consistently use contraception. No significant differences by age or gender amongst youth who use contraception inconsistently were found in this study, which suggests that a broad-based public health program which addresses all Maori youth may be appropriate to address this vulnerable group.

This study indicates how programmes, which influence a broader set of risk and protective factors, are worthwhile avenues for public health intervention. Substance abuse has previously been highlighted as a significant risk factor associated with inconsistent contraception use.\textsuperscript{38,39} In this study, marijuana-use is a significant risk factor for Maori youth who do not use contraception consistently. The use of other drugs and alcohol, however, was not found to be significant in this study so may require further investigation in this population.

This study’s finding that weekly marijuana-use is associated with inconsistent contraception-use, highlights (for Maori youth) the importance of addressing substance-abuse amongst Maori youth as well as its associations with other risky health behaviours.
This study’s strength is this data comes from the largest randomly selected sample of young Maori ever surveyed on their health and wellbeing. The study’s acceptability to young people and its anonymity promote honest responses to personal and sensitive questionnaire items. A limitation of this study is the ability of the questionnaire items to provide reliable and valid measures of complex concepts such as socioeconomic factors and risk and protective factors for Maori youth. Although these factors and question items were identified from relevant literature and research, there is little research to guide the applicability of these factors to young Maori. A further limitation is missing data for some variables in the multiple regression models, which reduce the statistical power to detect differences.

The most frequent missing variables were marijuana-use, feeling safe in your neighbourhood, and having an adult to talk to (reducing the number of students in the model to 536 out of 717 sexually active Maori students). Finally, the youth who were absent from school the day the survey was administered, or who have dropped out of school, are not represented in this data. Therefore this study is likely to underestimate the prevalence of risky sexual behaviours in the youth population.

The existent disparities in negative health outcomes for Maori youth underline the challenges facing contemporary New Zealand sexual and reproductive health programmes. This study has significant implications for those responsible for addressing this important public health issue. Furthermore, its findings support a broad strategy of promoting protective factors such as strengthening youth-parent relationships, and reducing risk factors such as substance-misuse in addition to enhancing specific sexual health knowledge, skills, and access.

These comprehensive strategies will strengthen Maori whanau (families) and communities, and ensure that Maori youth have healthier sexual and reproductive health outcomes.

**Author information:** Terryann Clark, Adolescent Health Fellow/Nursing Doctoral Student, University of Minnesota, Minneapolis, USA; Elizabeth Robinson, Biostatistician, School of Population Health, University of Auckland, Auckland; Sue Crengle, Head of Discipline, Maori Department of Maori and Pacific Health, School of Population Health, University of Auckland, Auckland; Peter Watson, Senior Lecturer, School of Population Health, University of Auckland, Auckland (all authors are members of the Adolescent Health Research Group)

**Acknowledgements:** This research was supported by grant 00/208 from the Health Research Council of New Zealand while Portables Plus Ltd and the Starship Foundation provided support with laptop computers. We also thank the participating school students (and schools), project workers, project advisory groups, and other members of the Adolescent Health Research Group. Terryann Clark also acknowledges support from HRC Maori PhD scholarship, Nestle Training Fellowship and the Kidzfirst South Auckland Foundation. Finally, our gratitude goes to Professor Lyn Bearinger, School of Nursing and the adolescent health fellows, and Division of Adolescent Health staff (at the University of Minnesota) for their thoughtful feedback on earlier drafts.

**Correspondence:** Terryann Clark, School of Nursing, University of Minnesota, 6-138 Weaver Densford Hall, 308 Harvard Street SE, Minneapolis MN 55455, USA. email: clar0574@umn.edu
References:


Pacific healthcare workers and their treatment interventions for Pacific clients with alcohol and drug issues in New Zealand


Abstract

**Aim** To provide an overview of the treatment interventions and practices of Pacific alcohol and other drugs (AOD) services in New Zealand.

**Methods** Face-to-face interviews were conducted with 31 Pacific staff members from 13 services registered with the Alcohol Advisory Council of New Zealand National Directory. Issues around assessment, treatment interventions, outcome measures, service structure, and resources were explored.

**Results** Overall, the practices in District Health Board (DHB) and Non-Government Organisation (NGO) Pacific services were found to be similar. The clinical concepts of assessment, treatment, and outcome measures were not clearly understood by Pacific workers. This was due to the lack of attention towards Pacific concepts and practices and values. A holistic approach was viewed to be the best approach when working with Pacific clients based on health belief models, such as the Fonofale model.

**Conclusions** The findings of this study provide baseline data of treatment interventions and service practices of Pacific AOD services. There appears to be a Pacific way of working with Pacific clients. The most effective worker for Pacific people is someone who has sound knowledge of AOD, Pacific cultures and processes, and has the ability to integrate both Palangi (European) and Pacific knowledge to help the client.

Pacific peoples are an integral part of the New Zealand society with a presence throughout the country. According to the 2001 Census, 231,801 people in New Zealand were of Pacific ethnicity with two-thirds living in Auckland. The majority are Samoan whose numbers have increased by 34% since the 1991 census, followed by Cook Island Maori, Tongans, Niueans, Fijians, Tokelauans, and then Tuvaluans. The median age for Pacific peoples was 21 years, with an increasing number of New Zealand-born Pacific peoples. Pacific peoples’ achievements are becoming increasingly known (particularly in sports) but so are their health-related statistics including alcohol and other drug (AOD) use.

Changing family and community structures triggered by migration and modernisation have resulted in altered patterns of AOD use as well as the population using them. These shifts are likely to have produced adverse consequences and increasing AOD related problems. Rapid social changes are clearly linked to these changing patterns and incidence of AOD use amongst Pacific people. In addition, Pacific peoples living in New Zealand are exposed to both Western and traditional cultural influences and problems often arise from the coexistence of these two sets of values.
The general AOD literature supports the inclusion of social, psychological, and cultural factors in the assessment and treatment of AOD-associated problems amongst indigenous people. This is endorsed by New Zealand documents on Pacific issues, which recommend that services designed for Pacific peoples must be responsive to their needs (based on consultation with Pacific communities) and have involvement of Pacific staff in the delivery.

There is a paucity of both quantitative and qualitative research in relation to AOD treatment interventions with Pacific peoples. Maori models of health and wellness such as the te whare tapa wha model incorporating te taha wairua (spiritual dimension), taha hinengaro (mental dimension), te taha tinana (physical dimension), te taha whanau (family dimension), are more consistent with the Pacific belief systems and cultural practices. These models include key concepts that are integral to Pacific cultures such as the relation/connectedness between the individual, family, and community; and the holistic links between the mind, body, environment (social and physical), and spirituality.

The approach to treatment is often viewed by Pacific people as a collective concept that is understood not simply as a clinical event but as part of the experience of the whole ‘family’. For example, for Samoan families, the reciprocity between the family and the wider Samoan community is the key to maintaining cohesion and communal ties. Also the reciprocity between the family and the service provider is the key to satisfactory outcomes. It emphasises the family and how it cannot be separated from ‘culture’ and ‘caring’, given that wellness and illness is perceived as a collective experience within the family.

The primary aim of this study was to initiate the process of evaluating the effectiveness of alcohol and drug treatment services for Pacific peoples in New Zealand. It documents and reports on current treatment interventions for Pacific clients across these services. This paper reports on information gathered from clinicians regarding current assessment and treatment models, outcome tools, and processes being utilised.

Methods

The method chosen for a particular piece of research depends on several variables. The first set of considerations concern the research question. Who or what are you researching? What do you want to find out? And what do you want to use the information for?

The characteristics of services ‘by Pacific’ ‘for Pacific’ people are intricately tied up with beliefs about health, family, and community. According to Glaser “the time has come for a methodology that focuses on the interest of the participants in favour of that of the researcher”. The ambition of this research is to document and interpret from the frame of reference of the Pacific people the nature of treatment interventions for alcohol and drug issues. The researchers did not begin with a pre-determined hypothesis that would be ‘proved’ or ‘disproved’ within a positivist framework.

The methodology chosen for this research is rooted in Glaser’s ‘grounded theory’ and the method: ‘qualitative inquiry’. This in turn is heavily influenced by the paradigm of symbolic interactionism. Symbolic interactionism gives the tools to social psychologists to recognise what common set of symbols and understandings have emerged to give meaning to people’s interactions, and systems theory asks “how and why does this system function as a whole?”.

It consists of three basic premises: people act towards things because of the meanings these things have for them; meanings are produced via social interaction; and these meanings are modified through an interpretive process used by people in managing the signs they encounter.

The research team for this study was largely Pacific in origin and locate themselves in the role of ‘empathic neutrality’. This is a term coined by Patton who argued that the terms objectivity and subjectivity have lost their utility and he simply asks that the investigator adopt “a stance of neutrality

NZMJ 27 January 2006, Vol 119 No 1228
URL: http://www.nzma.org.nz/journal/119-1228/1809/ © NZMA
with regard to the phenomenon under study”. This means that the investigator has no pre-determined results to support; no particular perspective to push; and “does not manipulate data to arrive at predisposed truths.” This credible qualitative inquiry is based on three elements: rigorous techniques and methods at each stage of the research process; the credibility of the researcher; and a philosophical belief in the phenomenological paradigm. Thus, the research team adopted a discovery-based method, a ‘bottom-up’ approach to research that is developed from participant’s experiences. It is this function of generating participant-led data that led to its selection as a method for this project.

**Identifying a sample**—31 Pacific staff members from 13 services—registered with the Alcohol Advisory Council of New Zealand (ALAC) National Directory of Alcohol and Drug Services for Pacific People—were interviewed. These included services provided both by District Health Boards (DHBs) and Non-Government Organisations (NGOs). Care was taken to ensure that differences within the pan Pacific population in New Zealand were fairly represented. A ‘purposive’ (i.e. not randomly selected) sample of participants were identified based on their gender, age, ethnicity, Pacific Islands- or New Zealand-born, language fluency, geographical location of the participants, and the core business of the service.

**Interviewing processes**—Interviews were conducted by Pacific interviewers with individuals and groups depending on the way participants chose to give their information. All interviews were face-to-face and organised in a semi-structured way around the concerns of the participants. Key areas of interest included assessment, treatment interventions, and outcome measures from a Pacific perspective.

**Data analysis**—Information from the participants was recorded on tape then transcribed, and analysis began with line by line coding of each interview. A second round of analysis moved the data from a descriptive level to an aggregation which was then analysed thematically. This aggregated data was used to create a set of base-line information of assessment and intervention practices and outcome measures amongst Pacific providers. As a means of triangulating the reliability and validity of the data, a second researcher analysed a range of interviews to compare with that of the primary researcher, and material was fed back to participants for confirmation.

**Results**

**Participants**

More participants were male (61%), with 55% of the participants being Samoan; within this group, 19% were of mixed Samoan ethnicity (Samoan/Tongan, Samoan/Palangi (European), Samoan/Tokelauan, or Samoan/Maori).

Sixty-one percent of the participants were born in the Pacific Island (PI) nations. The current sample reflects the three main categories into which Pacific identities are often grouped: those born in the Islands and immigrated to New Zealand in their adult years; those born in the Islands and raised in New Zealand from childhood; and those born and raised in New Zealand.12

Just over half (55%) of the participants were over 40 years of age. All participants spoke fluent English with 81% fluent in one other Pacific language; 12% of this group being fluent in two Pacific languages. The majority reported that they conduct counselling and/or interventions in both Pacific and English languages. For the 19% who did not speak a Pacific language, they all reported that they understood much of the language but were unable to reply. One Samoan author referred to this as ‘tautala New Zealand born’, a linguistic condition amongst New Zealand-born Samoan where they understand the Samoan language but are unable to converse in Samoan fluently.8

The majority (77%) of participants were from NGO providers and 65% of the participants were from Auckland-based services. Most participants (74%) were from AOD-related services. However, 39% of this sample was specifically from AOD services (16% of this sample catered for Pacific dual diagnosis clients), and almost an
equal number of participants (35%) were from AOD combined social services. About a quarter of the participants (26%) worked in mental health services. The findings differ depending on whether the participant worked within an AOD specific service, an AOD-related service or a mental health service.

Participating services were mainly organised into Pacific teams, with 5 of the 11 AOD services being managed by Samoan staff catering primarily for Samoan clients. Staff described a range of time spent working within the AOD field, from 6 months to 12 years with the majority being full-time employees. Most participants had some form of tertiary education though not always related to the addictions field.

Official job titles for those employed in AOD services varied widely despite there being little discernable difference between the actual work undertaken by ‘counsellors’. More than 50% of staff had roles specific to working with Pacific youth (who speak English predominantly), therefore workers capacity to fluently speak a Pacific language was not vital. Alternatively, fluency is a requirement for working with an ethnic-specific group.

Some services have ethnic-matched, gender-matched, and/or age-group-matched roles while the majority of participants have integrated roles where they cater for a combination of either a particular ethnic group, age group (youth or adult), or gender. Matching clients and counsellor based on gender, age group, and ethnicity is important within the Pacific context as male counsellors have common experiences and understandings that are differentiated from women and vice versa.

Caseloads for AOD service participants were between 12 and 25 at any one time, but this incorporated interventions with both the individual and their family.

Mental health services participants estimated 30%–70% of their current Pacific clients had addiction problems; mainly younger males under 30 years of age, especially those presenting with psychosis. Discussions with these participants revealed that whilst there is a stigma associated with AOD and mental illness, Pacific communities and families appear more accepting of AOD issues than mental health issues, as addiction is seen to be preventable and external whereas the cause of mental illness is often attributed to the family.

Assessment

Many participants perceived that current assessment practices were ‘foreign concepts’ due to the emphasis on the ‘individual’ and the lack of attention to the process of collecting this information, such as establishing connection and building trust with the client within a Pacific context.

“Assessment is new to many PI, we have to keep in mind that we’re seen to have power, you’re a stranger so clients are suspicious and fearful, that’s why you have to develop trust, without it clients will block things and not tell the truth”

“We’re relationship based people, the client will only open up if he thinks he’s connected with the clinician, this is not a Palangi or PI idea, it’s a human thing, we need to relate to the person we’re talking to if we want them to open up”

All Pacific services adapted assessment forms into Pacific contexts. Dissatisfaction with the lack of cultural focus led participants to conduct their own cultural assessments when seeing Pacific clients.
Commonly reported useful frameworks for Pacific clients included the timeline, genogram/family tree, and the *Fonofale* model as they take into account the cultural and family contexts as well as presenting issues.

A typical session was reported to be between 1 to 1½ hours with the assessment process taking one to four sessions to complete. Participants reported that clients were often seen where they felt most comfortable not necessarily at the service itself. Some preferred seeing clients at their home because this allowed them to assess the physical environment and family dynamics.

Whilst there was variation between services and regions, all participants reported using a specific format and process for assessment. DHB services had specific assessment forms and structured routines whereas NGOs were more flexible in their assessment process, but the requirements for NGOs appeared to mirror that of DHBs.

Tools predominantly used by DHB services were the Leeds Dependence Questionnaire (LDQ) and Alcohol Use Disorders Identification Test (AUDIT). Concerns about the current AOD assessment forms included difficulties in adapting *Palangi* assessment concepts to Pacific clients; barriers to building rapport; their time-consuming nature; and the fact that forms were designed mainly for adults and not for youth.

Forms were believed to be useful for agency requirements, accountability to funders and as guidelines for staff accountability. Despite the negative opinion, however, all participants agreed that assessment forms were necessary (particularly as a guideline) although they were unable to specify alternatives to current recording methods.

Some staff believed that the therapeutic relationship should have a deeper or ‘spiritual’ connection and not be just a ‘surface’ relationship where the client is connected with the worker mentally and cognitively. This is supported by Pacific writers who described spirituality amongst Pacific people as centred on the essential quality of relationships, and then Pacific therapy can be acknowledged as a spiritual process.

Working with families was a more common practice amongst mental health workers as well as older Pacific workers within NGOs. This was mainly due to mental health services’ specific expectations of community support workers and established community roles.

“When we deal with A&D we deal with family and the home environment, we need to look at what systems that this person belongs to, it can explain their A&D behaviour”

Three-quarters of the participants, mostly older Pacific workers, had commitments within their community and many felt that some roles were part of their duty (e.g. matai/chief, church, and family roles).

Whilst all younger participants (<30 years) acknowledged the need to work with families, they also believed they were not well equipped to deal with older Pacific adults. Recognition of one’s limitations due to the intergeneration gap is highly regarded, and it establishes that the young counsellor has knowledge of his or her Pacific culture.
Treatment interventions

“The Pacific way of working means working with the whole person and whatever they bring to the table and helping them with the confidence to deal with it”

Treatment intervention was better understood by the majority of participants as another stage of ‘helping’ the clients and their families. Whilst participants perceived that some Palangi interventions can be readily adapted, all participants felt that treatment interventions with Pacific clients need to integrate knowledge from both Palangi and Pacific approaches. This perception is largely influenced by the obvious factor that Pacific people live in a Palangi society and are influenced by modernisation and Palangi systems in New Zealand. In addition, participants reported that many of their Pacific clients are either New Zealand-born, in a mixed relationship, or are of mixed Palangi ethnicity.

Many participants reported that they are either trying to develop a Pacific framework or have developed their own Pacific models for AOD interventions, which they trial and adapt to their working environment. The most commonly reported Pacific model that participants found useful in informing their approach was the Fonofale model. Whilst this model was originally developed for the mental health field, it is simple and captures key Pacific values, relevant to the AOD field.

The Fonofale model promotes a holistic view of health care. It utilises the metaphor of a house (a fale) to symbolise the wholeness of a Pacific person. The ‘physical’, ‘spiritual’, ‘mental’ and ‘other’ parts of a Pacific person make up the four pillars of the fale, while the aspects of ‘culture’ and ‘family’ make up the roof and base of the fale.

The majority of participants saw working with the client as a ‘spiritual journey’. Spiritual approaches are not easily measured, but are seen as a process of ‘inner healing’ for the client. Participants perceived that an essential aspect of therapeutic conversation includes discussing dreams, feelings, intuition, Christian principles, or conducting prayers during sessions. Spiritual approaches may have been expected more from older Island-born participants, but this was not the case. In fact, the spiritual approach was just as common amongst young, New Zealand-born, or Palangi/Pacific mixed participants.

All participants reported the need for the counsellor to be transparent and clear about the stages of intervention with the client. The counsellor needs to explain their role, what counselling means, and why the client has to see a stranger (counsellor). Roles such as ‘counsellor/therapist’, ‘psychologist’, ‘social worker’, or ‘community support worker’ are commonly viewed as Palangi roles and are often indistinguishable to many Pacific people. All participants acknowledged that many of their clients are unsure of what therapy is about and often they are naturally suspicious. This supported their argument for the need to develop rapport, connection, and trust prior to any meaningful AOD work being done.

All participants argued that Pacific staff are the most appropriate people for Pacific clients, based on the belief that a Pacific worker has in-depth knowledge of Pacific processes and meanings that the client can identify with or relate to. Whilst the advocacy for Pacific workers was well emphasised, many participants accept the reality that some Pacific clients may not want to access a Pacific service, see a Pacific
worker, or have the choice to see a Pacific worker. In this case it was felt consultation by non-Pacific staff with Pacific workers was crucial.

Both mental health and AOD services identify following-up the client as a fundamental process in monitoring progress. Mental health services appear to have more structured follow-up processes partly due to the nature of mental illness, but also due to the roles of community support workers who focus on implementing continuing care plans. This process was less structured for AOD services. Whilst Palangi systems compartmentalise assessment, treatment, and follow-up, the majority of participants simply see this stage as a natural continuation of the counselling sessions.

Overall, an average AOD treatment intervention ranged from 3 to 4 months (about 6–10 sessions) with one to two follow-up sessions within a month after the last counselling session. On average, clients were initially seen weekly, reducing to fortnightly if the client was showing good progress. Clients who do not attend tend to be those mandated by agencies such as Community Corrections.

NGOs were more flexible to operate in a ‘Pacific way’, most NGO participants described continuing to do more interventions than those expected from funders (e.g. working with families and not just individuals, conducting more sessions than expected). This is mainly due to their perception that funding does not cover ‘holistic approaches’ and their experience of what works with Pacific clients.

Bilingual workers described that translating between languages is not only time-consuming but a skill that is not often acknowledged in the Palangi clinical field. It is widely recognised that many treatment-related concepts cannot be fully translated between cultures and often the essence of the meaning is lost when translated, hence the value of ethnic-specific workers.

Youth were recognised as a group that requires a specific approach. All participants reported that the involvement of parents or caregivers is crucial in the intervention process. The approach to youth and especially New Zealand-born youth was more consistent with the approach to youth in general. Discussions revealed that New Zealand-born Pacific youth try and integrate what they perceive as the Pacific culture taught by their parents and grandparents, but the Pacific culture that they experience is ‘adapted’ to New Zealand culture. Often this can cause conflicts and difficulties between parents and their children who are highly influenced by the Palangi culture.

Participants working with Pacific youth commented that client ‘confidentiality’ is contradictory with the Pacific expectation of involving significant others. Many acknowledged that session details were confidential, and that frequently youths did not want their parents involved but that it was beneficial for the youth in the long term if they gained the support of their parents. It was seen as a skill of the counsellor to assess the home environment and family circumstances (e.g. for the youth’s safety) and engage parents positively from a cultural and educational angle without revealing session details.

The participants describe education programmes as an integral part of treatment intervention with Pacific clients, particularly as a prevention strategy. These programmes targeted not only the clients (psycho-education), but equally importantly the families and Pacific community (education programmes) with the aim of raising
awareness but also for families and community to take responsibility by actively managing AOD issues.

Educational programmes are thought to be most effective when people are in their most ‘natural’ environment such as programmes delivered in churches, schools, or through Pacific media such as Pacific radio programmes. A significant number of participants have delivered at least one AOD programme on Pacific media or are currently running health programmes in their respective Pacific language on radio.

All participants described that traditional healing practices are useful for a variety of physical and mental health issues. Many had either direct or indirect experience with traditional healers, and a few reported that they practiced traditional healing themselves. The majority of participants described that using traditional methods to heal AOD issues in particular was ‘uncommon’ or that they were unaware of clients utilising healers; however, most participants supported the idea of utilising traditional healers for mental health issues.

**Outcome measures**

Unlike the assessment and treatment concepts, the majority of participants appeared puzzled by the concept of ‘measuring’ the effects of their treatment intervention with the individual. The idea of objectively ‘measuring’ the way a worker ‘helps’ an ‘individual’ was viewed as foreign. If measured, participants believed the process is equally important as the actual outcome of intervention.

Many described that measuring the true effectiveness of their intervention cannot be fully captured during the treatment intervention period—as change is long term and there are a variety of factors that could influence change in the client, some which could be attributed to the treatment intervention. Despite this, participants readily understood the concept of measuring the worker’s performance to ensure they are effective with clients, but again the difficulty was in the translation of the Palangi performance tools and practices into Pacific contexts within the workplace.

Despite the lack of formal outcome measurements for Pacific people, all participants described a combination of informal processes that they utilise to evaluate the effectiveness of their work with clients. Observation and verbal feedback from the client was the most reported method of gaining information and was usually conducted at the end of treatment. Given that many participants work with families, their ongoing feedback was also crucial in gauging the client’s progress.

Rapport with families from the beginning (assessment stage) is especially important given that their honest feedback and co-operation is needed at all stages of treatment. The key client changes that participants looked for were primarily positive behavioural changes and changes in relation to the client’s treatment goals. Given that other areas of the client’s life may be affected, all participants described that it is not sufficient to simply look at a reduction of AOD use as a measure of progress but other areas of the client’s life needs to be equally addressed.

With regard to feedback processes, the participants felt that Pacific people are uncomfortable with, and can feel threatened by, written materials (questionnaires) because they may have negative connotations and imply that they too (client) are being evaluated. Despite being told that their responses are anonymous or
confidential, clients may feel obligated and often record a more favourable response out of respect or shame.

**Discussion**

This piece of work represents the first stage of a larger more comprehensive review of treatment interventions with Pacific clients with alcohol and drug issues in New Zealand.

AOD workers see evaluation as crucial, and are keen to improve the content and intervention processes for capturing AOD assessment, treatment intervention, outcome measures, and service delivery to Pacific people.

The most effective assessments are those conducted by skilled Pacific staff with sound knowledge of AOD, Pacific cultures and processes, and ability to integrate *Palangi* and Pacific knowledge in a manner that would help the client.

The findings imply the need for clearly defined performance and outcome measures that accurately reflect Pacific processes and interventions. For instance, assessment is actually the first phase of ‘helping’ in the treatment intervention and needs to be recognised as this. The establishment of rapport is vital to the development of ongoing engagement with the client, and makes the initial stage more than merely completing an assessment form.

Clients should be encouraged to inform workers about the meaningfulness of interventions. Alternatives to written questionnaires given to Pacific clients should be considered, as questionnaires do not always accurately reflect their true opinions, even if questionnaires are translated to Pacific languages.

Client progress can be measured at different stages of the client’s journey especially at the beginning (assessment stage) and at the end of treatment (after the follow-up period). Client-based outcomes should take into account social and environmental factors by recording verbal feedback from the client, families (as identified by clients), referrers and any relevant others involved with the client. A set of simple tools would be useful to capture this information.

Funders and other relevant agencies need to recognise and understand the clinical and cultural needs of Pacific workers in their approach to Pacific clients and families. This approach does not focus only on AOD problems and the individual; often interventions need to be intensive, longer, and incorporate families and significant others. Steps can be taken to empower Pacific workers to utilise Pacific processes and interventions that are ‘effective’ with their clients. These issues are not always included in the current funding contracts but are particularly important for the development of services and in building Pacific capacity and capability within the AOD field.

There is clearly an identifiable ‘Pacific’ way of working with Pacific clients. All participants applied elements of both Pacific and *Palangi* understandings of alcohol and drug issues to their practice. The degree to which this occurred depended on the age, gender, birthplace, and preferred language of the worker and the client.

Whilst there appeared to be no significant difference between Pacific interventions offered by NGO and DHB providers, there were differences in resourcing and service structure. Reporting and record-keeping requirements in DHBs were seen to take time away from ‘Pacific processes’ (in particular ‘rapport’ building) and inclusion of...
family in treatment. Any outcome measurement system needs to incorporate Pacific principles and processes.

There are a wide range of Pacific people who access services for AOD issues; and in order to provide appropriate interventions, Pacific AOD workers need to be competent in a variety of skills to meet these various needs. An effective alcohol and drug worker was described as someone who is of Pacific ethnicity with sound knowledge of AOD issues and Pacific culture, and has the skills to integrate this knowledge in the most appropriate way with the diversity of Pacific people accessing AOD services.

It was acknowledged that it is not enough to simply be ‘Pacific’ to work with clients. It is important to also have formal training and skills development. Conversely, approaching Pacific clients from a purely Palangi and/or clinical approach is also ‘not enough’.

Whilst this study has limitations, it does provide baseline information which will enhance understanding and may support current intervention practices for Pacific people with AOD-related issues.

Author information: Gail Robinson, Co-director and Psychiatrist, Clinical Research and Resource Centre (CRRC), Waitemata District Health Board and Department of Social and Community Health, University of Auckland, Auckland; Helen Warren, Senior Researcher and Lecturer, CRRC, Waitemata District Health Board and Department of Social and Community Health, University of Auckland, Auckland; Kathleen Samu, Pacific Researcher, CRRC, Auckland; Amanda Wheeler, Co-director, CRRC and Department of Pharmacy, University of Auckland, Auckland; Havila Matangi-Karsten, Clinical Pacific Researcher, CRRC, Auckland; Francis Agnew, Clinical Director, Pacific Mental Health Alcohol and other Drugs Services, Waitemata District Health Board, Pacific Mental Health Services, Auckland District Health Board, Auckland

Acknowledgments: We thank the Alcohol Advisory Council of New Zealand (ALAC) who funded this project. (Any findings, conclusions, or opinions are those of the authors and are not to be attributed to ALAC.) We also thank our Advisory Group for their support and advice.

Correspondence: Dr Gail Robinson, Clinical Research and Resource Centre, Pitman House, 50 Carrington Rd, Pt Chevalier, Auckland. Fax: (09) 815 5896; email: gail.robinson@waitematadhb.govt.nz

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Pacific Islands Families: First Two Years of Life Study—design and methodology

Janis Paterson, Colin Tukuitonga, Max Abbott, Michael Feehan, Phil Silva, Teuila Percival, Sarnia Carter, Esther Cowley-Malcolm, Jim Borrows, Maynard Williams, Philip Schluter

Abstract

Aims Knowledge about the health, psychosocial, and behavioural characteristics of Pacific peoples with young children resident in New Zealand is limited. The Pacific Islands Families: First Two Years of Life (PIF) Study was designed to redress this knowledge gap. This paper describes the design and methodology of the PIF Study.

Methods Mothers of Pacific infants born at Middlemore Hospital between 15 March and 17 December 2000 were recruited. Maternal home interviews covering sociodemographic, cultural, environmental, child development, family and household dynamics, childcare, lifestyle, and health issues were undertaken at approximately 6-weeks, 12-months, and 24-months postpartum. Paternal home interviews and child development assessments were conducted at approximately 12-months and 24-months postpartum. Information from Middlemore’s Hospital Discharge Summary records and Plunket’s 6-week and 6-month assessments was also captured.

Results 1708 mothers were identified, 1657 were invited to participate, 1590 (96%) consented to a home visit; and, of these, 1,477 (93%) were eligible for the PIF study. Of those eligible, 1,376 (93%) participated at 6-weeks, 1224 (83%) participated at 12-months, and 1144 (77%) participated at 24-months. No important differential attrition was observed. Paternal interviews and child assessments were conducted on 825 fathers and 1241 infants at 12-months and on 757 fathers and 1064 children at 24-months.

Conclusions The PIF study is a large, scientifically and culturally robust longitudinal study that has achieved respectable participation rates in a historically hard-to-reach population. We believe that results from this study will inform future policy development within New Zealand.

Following the Second World War, links between Pacific Island groups and the countries around the Pacific Rim intensified and mobility within the region increased substantially.1 Migration, sometimes supported by intergovernmental agreements, was fuelled by the search for employment and a higher standard of living2, resulting in 400,000 people of Pacific Islands ethnicity living in the Rim countries of the Pacific by the mid-1990s.3

Migration to New Zealand has been historically popular since the 1960s, due mostly to its proximity to the Pacific Islands but also due to labour demands resulting from economic growth in the New Zealand economy.4

As one of the fastest growing population subgroups in New Zealand, Pacific peoples (those residents with a Pacific Islands heritage) form an integral part of New Zealand
The Pacific population in New Zealand is now estimated to exceed 284,000, comprising 6.8% of the New Zealand population, and Auckland is the preferred region of domicile. Samoans constitute the largest group (50%), followed by Cook Island Maori (23%), Tongan (18%), Niuean (9%), Fijian (3%), Tokelauan (3%), and Tuvalu Islanders (1%). This ethnic diversity is manifest in differing cultures, languages, strength of acculturation, and corresponding access to (and utilisation of) health and social services.

Despite better employment opportunities in New Zealand, Pacific peoples remain relatively socioeconomically disadvantaged. Their labour force participation and annual median income are lower than in the total population. Pacific people are more likely to be living in poor circumstances with restricted access to higher education, home ownership, and access to functional amenities such as automobiles and telephones. They are also over-represented in multiple adverse health and social statistics.

Furthermore, the health of Pacific infants continues to be an issue of concern with the Pacific infant death rate being higher than the national infant death rate since 1997. Pacific infants have high rates of hospitalisation (particularly for respiratory illnesses) and present at hospital with higher severity of illness than New Zealand children of other ethnicities.

In an effort to explore and understand both positive and negative facets of Pacific families’ life in New Zealand, the Pacific Islands Families: First Two Years of Life (PIF) Study was instigated. This prospective longitudinal study follows a cohort of Pacific children and their families in order to track the children’s development and wellbeing.

Several theoretical and research perspectives (focussing on individual, family, community, and societal influences on development, health, and wellbeing) underpin this study. These include infant development, temperament, attachment, mutual regulation of infant and caregiver behaviours, parenting, home environment, social support, acculturative stress, and the ecological approach emphasising the role of macro-level economic, social, and cultural factors.

In addition to broader contextual factors, parenting and lifestyle behaviours develop according to different cognitive, linguistic, motivational, and social competencies that are relevant to each culture. The ‘transactional model’ of human development, acknowledging the interaction between various influences, will form the basis for the testing of more specific models to account for how the child develops within the context of a Pacific family.

The PIF study’s initial focus is on the key developmental stage of early infancy and the influence of the sociocultural context and family environment on Pacific children at ages 6 weeks, 12 months, and 24 months. The PIF study design is multidisciplined, broad-based and inclusive—capturing information from mothers, fathers, and infants.
General aims of the PIF study are to:

- Identify and characterise those individuals and families experiencing both positive and negative health outcomes;
- Understand the mechanisms and processes shaping the pathways to those outcomes; and
- Make empirically-based strategic and tactical recommendations to improve the wellbeing of Pacific children and families and thereby benefit New Zealand society as a whole.

The specific aims of the PIF study (separated by the major health, psychosocial, and behavioural domains) appear in Table 1.

**Table 1. Specific aims of the PIF study partitioned into major health, psychosocial, and behavioural domains**

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<td>positive and negative outcomes for infants,</td>
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<td>parents, and families.</td>
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<tr>
<td>Health issues</td>
<td>Identification of health-related factors</td>
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<td>surrounding childbirth, including utilisation</td>
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<td>and satisfaction with antenatal and</td>
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<td>postnatal services. Determination of how</td>
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<td></td>
<td>such factors individually and interactively</td>
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<td></td>
<td>influence positive and negative outcomes for</td>
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<td></td>
<td>infants, parents, and families.</td>
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</table>

The study will provide ethnic-specific information to a variety of end-users on which to base interventions and inform policy development to help address many negative health and social issues that face Pacific children and families.
Methods

Design—Mothers of a cohort of live Pacific Islands infants born at Middlemore Hospital, South Auckland, between 15 March and 17 December 2000 were recruited. An infant was deemed eligible if at least one parent identified themselves as being of Pacific Islands ethnicity and was a permanent resident of New Zealand. Presentation of study information to mothers and subsequent recruitment was completed within the hospital setting. Maternal home interviews were undertaken at approximately 6-weeks, 12-months, and 24-months postpartum; and paternal home interviews were conducted at approximately 12-months and 24-months postpartum.

At 12-months and 24-months, a developmental assessment of the child’s adaptive functioning was also undertaken in the family home. Prior to the commencement of the main study, extensive community consultation, staff training, and piloting was undertaken. Formal community liaison commenced in 1996; ethical clearance was received in May 1999; formal consent to recruit mothers at Middlemore was obtained on 10 June 1999; and all 60 mothers giving birth to Pacific infants between 12 July and 24 July 1999 were approached for recruitment into the pilot study.

Participant tracking databases and contact strategies for both mothers and fathers were developed; interview questionnaires were tested and timed; and data entry and management systems established during this piloting phase.

Recruitment—Promotional material was made available through various sources prior to hospital admission—including media, community meetings, antenatal classes and Lead Maternity Carers (LMCS). Eroni Clarke, a former New Zealand All Black rugby player born in Samoa, featured on posters and brochures to raise awareness of the study.

Participant eligibility identification was made through the Birthing Unit in conjunction with the Pacific Islands Cultural Resource Unit that provided a daily printout of Pacific admissions. These were checked for Pacific births and crosschecked with the daily records held in the Birthing Unit. Under the supervision of Middlemore clinical staff, the Auckland University of Technology (AUT) Pasifika Development Manager (PDM) or the Pacific Liaison Officer (PLO) made the initial approach to identified potential participants; provided brief information about the study; and obtained permission for later contact.

Informed consent was not sought at this point. For potential participants who were not seen at Middlemore Hospital, either because they were discharged home early or transferred to one of the two satellite hospitals, the initial visit was made by the PLO at a location convenient for the mother. Approximately 6-weeks postpartum, potential participants were allocated to a team of female Pacific interviewers fluent in both English and a Pacific language. In most cases, the interviewers were ethnically matched to the potential participant. The interviewers visited the potential participant in their own homes, fully described the study with the parent(s), and obtained the mother’s informed consent. Once consent was obtained, the interview was carried out in the mother’s preferred language.

When the children reached their first and second birthdays, all maternal participants were re-contacted and revisited by a female Pacific interviewer. Again, consent was obtained before the interview was conducted in the mother’s preferred language. At the time of the interview, mothers were asked to give permission for a male Pacific interviewer to contact and interview the father of the child. If permission and paternal contact details were obtained, then a Pacific male interviewer contacted the father to discuss participation in the study. Once informed consent was obtained from the father, the interview was carried out in the father’s preferred language.

Data collection—Survey instruments are considered relevant and appropriate by both researchers and the Pacific community. Pacific researchers have considerable input into the general measurement framework and specific measures employed to ensure their content acceptability and validity. Where possible, standardised internationally developed measures and scales are used or adapted for the PIF study. The use of such scales ensures constructs (universal across cultures) are measured and information considered important to child health and development is elicited. Measures employed during the pilot phase that had unsatisfactory reliability and/or validity were removed. Some measures underwent focus group examination to check wording of items and testing procedures. However, the psychometric properties of most standardised measures used in the pilot were acceptable, and few modifications were required. Table 2 includes the specific dimensions and instruments employed in the main PIF study.
Table 2. Dimensions and measurement instruments employed (indicated by a ‘•’) for the elicitation or acquisition of information from the mother (M), father (F) and child (C) over the three measurement points: 6-weeks (6-wk), 12-months (12-mth), and 24-months (24-mth) postpartum

<table>
<thead>
<tr>
<th>Variable</th>
<th>6-wk</th>
<th>12-mth</th>
<th>24-mth</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sociodemographic, cultural, and environmental factors</strong></td>
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<tr>
<td><strong>Infant:</strong> gender, date of birth, ethnic group(s)</td>
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<tr>
<td><strong>Parental demographic profile:</strong> gender, age, marital status, ethnicity, country of origin, years in NZ, religion, church involvement, education, employment, income, economic problems</td>
<td>•</td>
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<tr>
<td><strong>Household composition:</strong> family composition and relationships (e.g. other children parents/parents, extended family, pets)</td>
<td>•</td>
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<tr>
<td><strong>Housing:</strong> type, facilities, appliances, heating, quality, cost, satisfaction, privacy, and perceived crowding. Adapted Housing Issues Scale</td>
<td>•</td>
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<tr>
<td><strong>Neighbourhood problems:</strong> Neighbourhood Problem Scale</td>
<td>•</td>
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<tr>
<td><strong>Transport:</strong> mode, ownership, use of car seat in private vehicle</td>
<td>•</td>
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<tr>
<td><strong>Cultural orientation:</strong> adapted General Ethnicity Questionnaire</td>
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<tr>
<td><strong>Traditional gift giving:</strong> type and amount of traditional gifts</td>
<td>•</td>
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<tr>
<td><strong>Child development</strong></td>
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<tr>
<td><strong>Temperament:</strong></td>
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<tr>
<td>(1) subset of Revised Infant Temperament Questionnaire (RITQ) and infant state</td>
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<tr>
<td>(2) Toddle Temperament Scale</td>
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<tr>
<td><strong>Child behaviour:</strong></td>
<td></td>
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<tr>
<td>(1) Parents as First Teachers (PAFT) Evaluation Study</td>
<td>•</td>
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<tr>
<td>(2) Child behaviour checklist, attitudes and beliefs about child behaviour</td>
<td>•</td>
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<tr>
<td><strong>Childhood activities and experiences:</strong></td>
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<tr>
<td>(1) Activities Scale and the Experiences Scale</td>
<td>•</td>
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<tr>
<td>(2) child involvement in Pacific cultural activities</td>
<td>•</td>
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<tr>
<td><strong>Cognitive, motor, psychosocial and language child development:</strong></td>
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<tr>
<td>(1) American Academy of Pediatrics’s development milestones</td>
<td>•</td>
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<tr>
<td>(2) Bayley Toddler Neurodevelopment Screener, Personal/Social subscale from the Australasian Development Screening Test</td>
<td>•</td>
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<tr>
<td>(3) Child Development Inventory-language (CDI) subscale</td>
<td>•</td>
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<tr>
<td>Variable (continued)</td>
<td>6-wk</td>
<td>12-mth</td>
<td>24-mth</td>
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<td></td>
<td>M</td>
<td>F</td>
<td>M</td>
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<tr>
<td>(4) the Australasian Development Screening Test\textsuperscript{46}</td>
<td></td>
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<tr>
<td><strong>Child anthropometric measures</strong>: weight, height, head circumference</td>
<td>•</td>
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<tr>
<td><strong>Language</strong>: Reynell Developmental Language Scales III\textsuperscript{48}</td>
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<tr>
<td><strong>Family and household dynamics</strong></td>
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<tr>
<td><strong>Sharing/support</strong>: support from family/others, sharing of baby care</td>
<td>•</td>
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<tr>
<td><strong>Social support and recent life events</strong>: Accessibility and effectiveness of important relationships\textsuperscript{49}</td>
<td></td>
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<tr>
<td><strong>Partner relationships</strong>: the Conflict Tactics Scale (CTS)\textsuperscript{50}</td>
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<tr>
<td><strong>Parent childhood history</strong>: Exposure to Abusive and Supportive Environments Parenting Inventory (EASE-PI)\textsuperscript{51}</td>
<td></td>
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<tr>
<td><strong>Fathering roles</strong>: attitudes to parenting, list of general tasks performed or not performed by father in the family, expectations and protectiveness of the child, perceptions of parenting</td>
<td></td>
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<tr>
<td><strong>Childcare</strong></td>
<td></td>
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<tr>
<td><strong>Parent participation in childcare</strong>: Child Care Activities Scale (CCAS),\textsuperscript{52} childcare activities, direct/indirect care activities and play</td>
<td>•</td>
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<tr>
<td><strong>Parental investment</strong>: Parental Investment in Children (PIC)\textsuperscript{53}</td>
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<tr>
<td><strong>Childcare arrangements</strong>: main caregiver, regular non-parental childcare arrangements, extended family and/or other arrangements</td>
<td>•</td>
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<tr>
<td><strong>Discipline and nurturing</strong></td>
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<tr>
<td>(1) Parent Behaviour Checklist\textsuperscript{31}</td>
<td>•</td>
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<tr>
<td>(2) attitudes towards physical discipline</td>
<td></td>
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<tr>
<td><strong>Care-giving environment</strong></td>
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<tr>
<td>(1) Short form of Home Observation Measurement of the Environment (HOME-SF)\textsuperscript{54}</td>
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<tr>
<td>(2) Home Observation Measurement of the Environment: Infant Toddler (HOME-IT)\textsuperscript{54}</td>
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<tr>
<td><strong>Sleeping</strong>: child’s arrangements (adopted from Plunket National study)</td>
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<tr>
<td><strong>Feeding</strong>: child nutrition, feeding methods, problems and advice</td>
<td>•</td>
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<tr>
<td><strong>Sudden Infant Death Syndrome (SIDS)</strong>: awareness of risk factors</td>
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<tr>
<td><strong>Lifestyle factors</strong></td>
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<tr>
<td><strong>Family nutrition</strong>: food choice, provision, financial constraints</td>
<td>•</td>
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<tr>
<td><strong>Alcohol consumption</strong>: adapted from Alcohol Use Disorders Identification Test (AUDIT)\textsuperscript{55} eliciting amount and frequency</td>
<td>•</td>
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<tr>
<td><strong>Smoking</strong>: cigarette numbers smoked daily, other household smokers\textsuperscript{56}</td>
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</table>
### Variable (continued)

<table>
<thead>
<tr>
<th>Variable</th>
<th>6-wk</th>
<th>12-mth</th>
<th>24-mth</th>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>M F</td>
<td>M F C</td>
</tr>
<tr>
<td><strong>Illicit drug use:</strong> frequency of illicit drug use in last 12-months</td>
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<tr>
<td><strong>Gambling:</strong></td>
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<tr>
<td>(1) frequency, financial expenditure, and attitudes towards gambling</td>
<td>•</td>
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<tr>
<td>(2) South Oaks Gambling Screen – Revised (SOGS-R)</td>
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<tr>
<td><strong>Parental cultural activities:</strong> participation in Pacific events/activities</td>
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<tr>
<td><strong>Parent and child health issues</strong></td>
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<tr>
<td><strong>Maternal contraceptive practices:</strong> knowledge, planning, utilisation</td>
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<tr>
<td><strong>Utilisation of antenatal and postnatal maternity services:</strong> classes, services, satisfaction with services/care, access, culturally appropriate</td>
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<tr>
<td><strong>Preparation and decisions made for childbirth:</strong> involvement in decision-making, support, culturally appropriate, mode of delivery</td>
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<tr>
<td><strong>Maternal mental health:</strong> Edinburgh Postnatal Depression Scale and Maternal General Health, major illnesses suffered and medication taken</td>
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<tr>
<td><strong>Parental mental health:</strong> General Health Questionnaire</td>
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<tr>
<td><strong>Life events in past 6-months:</strong> modified from a NIH study, USA</td>
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<tr>
<td><strong>Parental spiritual health:</strong> adapted from Multidimensional Measurement of Religiousness/Spirituality</td>
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<tr>
<td><strong>Child immunisation:</strong> immunisations received, reasons and attitudes</td>
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<tr>
<td><strong>Child illness episodes:</strong> frequency and reason, from whom advice was sought (e.g. doctor, traditional healer) and treatment satisfaction</td>
<td>•</td>
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<tr>
<td><strong>Otitis media with effusion (OME) screening and ear health assessment:</strong> Tympanometry assessment, number of coughs/colds/ear infections in past year, from whom advice was sought and action taken</td>
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</tbody>
</table>

*The child was assessed using these tests at 12-months.*
The interview protocol used at the 6-weeks phase was translated into Samoan, Tongan, and Cook Island Maori and checked by fluent speakers of these Pacific languages for clarity of exposition and concept integrity. Only 174 (13%) mothers utilised a non-English version, the majority of these being Tongan. As such, the interview protocols used at the 12-month and 24-month phases were made available in English and Tongan only.

With mother’s consent, supplementary information was obtained from both Middlemore Hospital and Plunket. Maternal obstetric history, delivery details, and infant measures of birth weight for gestational age, head circumference, Apgar scores, and neonatal care were obtained from Middlemore’s Hospital Discharge Summary records. Information about infant’s physical status was obtained from the comprehensive physical assessment carried out by Plunket at 6-weeks and 6-months postpartum.

Data accuracy—Various systems were implemented to ensure data accuracy and consistency. These included: manual coding of each interview protocol to check consistency within the individual interview; accompanying interviewers to check on rapport, informed consent and on the undertaking of standard procedures; and post-interview random phone checks with participants to clarify and confirm specific details of the interviews.

Data entry and security—Two researchers developed codes based on the first 50 cases for the open-ended questions and interviewer observations. All data are double entered into an electronic database (SPSS Data Entry Builder 2.0) that employs comprehensive data validation and checking rules. This database includes no personal identification and is held in secure password protected storage under the responsibility of the PIF study’s Co-Directors in accordance with the requirements of the New Zealand Privacy Act (1993) and the Health Information Privacy Code (1994).

Participant labelling in this database is made by reference number only. Identification information is stored on a separate computer in a password-protected file. All interviews are confidential, and only PIF study staff authorised by the Co-Directors have access to computerised data. All information is treated as sensitive data. Participants own their data and reserve the right to withdraw it at any time.

Sample size—Balancing the competing demands for increased statistical power in longitudinal studies against conducting a feasible, efficient, and cost-effective study, a final cohort of approximately 1000 mothers of Pacific infants at 24-months was targeted. To compensate for likely attrition (assumed to be 10% per measurement wave), it was determined that approximately 1400 eligible mothers needed to be recruited. This sized cohort would generally have adequate power for inter-ethnic comparisons of major groups such as Samoan, Tongan, and Cook Islands Maori. However, it is recognised that power will not always be adequate for analyses involving smaller ethnic groups; for the detection of small differences between groups; or for more complex analyses involving a greater number of categories (e.g. different feeding methods in Islands-born versus NZ-born Tongans).

Statistical analyses—in terms of the more general analytic approach, cross-sectional analyses at each assessment time will be undertaken, allowing the prevalence of key outcomes to be estimated, as well as the association between risk factors and key outcome variables. Longitudinal analysis techniques will be used in the modelling of developmental pathways including structural equation modelling, mixed linear models, and generalised estimating equations. The gathering of data from mothers, fathers, and secondary sources allows the concordance between reports of child outcomes and parental functioning to be assessed.

Fisher’s exact test was employed to determine whether differential attrition existed over time for a selection of basic sociodemographic variables. Differential attrition would have occurred if both 12-month and 24-month distributions of participation and non-participation were significantly different to the 6-week distributions, using a significance level $\alpha=0.05$ to define statistical significance.

Ethics—Careful consideration is continually given to the ethical aspects of this longitudinal study with Pacific peoples. Ethical approval for the pilot and main PIF study was obtained from the Auckland Branch of the National Ethics Committee, the Royal New Zealand Plunket Society, and the South Auckland Health Clinical Board.
Results

Of the mothers with Pacific infants who had been born at Middlemore Hospital between 15 March and 17 December 2000, 1590 gave consent to the 6-week postpartum home visit. The recruitment and participation rate at the 6-weeks, 12-months, and 24-months interview schedule is depicted in Figure 1.

From the 1376 primary respondents of the cohort at 6-weeks, there were 1368 biological mothers, 1 foster mother, 6 adoptive mothers, and 1 grandmother. For ease of exposition, we shall refer to this group collectively as ‘mothers’ hereafter. Twenty-three of the 1376 mothers gave birth to twins, but as one twin member was stillborn the overall number of children forming this cohort totalled 1398. Of these, 374 (27%) infants were first-born and 1339 (96%) infants were discharged with their mothers from hospital. Middlemore hospital records revealed that the mean birth weight was 3584 grams (SD: 613 grams) with a range of 650 to 5390 grams.

The mean age of all mothers was 27.9 years (SD: 6.2 years), the range was 14 to 57 years, and 8% of mothers were younger than 20 years (see Table 3). Most (1107 [80%]) mothers were living together in married or de facto partnerships. 454 (33%) mothers were New Zealand-born. In terms of schooling, 535 (39%) mothers had no formal educational qualifications, 464 (34%) had secondary school qualifications only, and 377 (27%) had post-school qualifications.

Ethnicity of mothers was self-identified and also coded according to the sub-groupings of the 1996 Census. Of the cohort mothers, 650 (47%) self identified their major ethnic group as Samoan; 289 (21%) as Tongan; 232 (17%) as Cook Islands Maori; 59 (4%) as Niuean; 47 (3%) as Other Pacific (this includes mothers identifying equally with two or more Pacific groups, equally with Pacific and Non-Pacific groups, or with Pacific groups other than Samoan, Tongan, Cook Island, or Niuean); and 99 (7%) as Non-Pacific. These frequencies are broadly similar to those seen in the New Zealand Pacific Island population.

No important differential attrition was observed for any of the sociodemographic variables investigated in Table 3. While the distribution of participants was statistically different to non-participants at 12-months for ethnicity (p=0.001) and years lived in New Zealand (p=0.007), no such difference existed at 24-months (ethnicity, p=0.20; years lived in New Zealand, p=0.15).

999 of the mothers interviewed at 12-months had partners who met eligibility criteria to act as collateral respondents, of whom 825 (83%) were interviewed. Most (820 [99%]) fathers interviewed at 1 year were the biological fathers of the children, with five adoptive or stepfathers. Again, for ease of exposition, we shall refer to this group collectively as ‘fathers’ hereafter. Most (786 [95%]) fathers were living with the biological mother of the child in a married (77%) or de facto (18%) relationship. The mean age was 32.1 years (SD: 7.3 years), the range was 17 to 65 years, and 1% of the fathers were younger than 20 years.
Figure 1. Recruitment characteristics of the PIF study

Mothers identified  
N=1,708

Invited to participate  
N=1,657 (97%)

Excluded  
N=51 (3%)  
Reasons: baby died (15), non-NZ residents (36)

Consented to home visit  
N=1,590 (96%)

Refused consent  
N=67 (4%)

Eligible for PIF study  
N=1,477 (93%)

Indeterminate eligibility  
N=103 (6%)  
Reasons: left Auckland (26), untraceable (36), other (41)

Ineligible  
N=10 (1%)  
Reasons: baby died (3), non-NZ resident (7)

Participated  
N=1,376 (93%)

Failed to participate  
N=101 (7%)  
Reasons: refused consent (101)

Participated  
N=1,224 (83%)

Failed to participate  
N=253 (17%)  
Reasons: refused consent (101), left Auckland (49), untraceable (47), refused interview (11), child not with mother (6), child died (2), other (37)

Participated  
N=1,144 (77%)

Failed to participate  
N=333 (23%)  
Reasons: refused consent (101), untraceable (93), left Auckland (72), refused interview (35), child not with mother (6), child died (3), other (23)
Table 3. Frequencies (percentage) of basic sociodemographic variables measured at 6-weeks for participating mothers at 6-weeks, 12-months, and 24-months postpartum

<table>
<thead>
<tr>
<th>Variable</th>
<th>6-weeks (N=1376)</th>
<th>12-months (N=1224)</th>
<th>24-months (N=1144)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (years)</strong></td>
<td></td>
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<tr>
<td>&lt;20</td>
<td>111 (8)</td>
<td>91 (7)</td>
<td>84 (7)</td>
</tr>
<tr>
<td>20-24</td>
<td>354 (26)</td>
<td>314 (26)</td>
<td>282 (25)</td>
</tr>
<tr>
<td>25-29</td>
<td>366 (27)</td>
<td>325 (27)</td>
<td>306 (27)</td>
</tr>
<tr>
<td>30-34</td>
<td>324 (24)</td>
<td>291 (24)</td>
<td>275 (24)</td>
</tr>
<tr>
<td>35-39</td>
<td>176 (13)</td>
<td>161 (13)</td>
<td>158 (14)</td>
</tr>
<tr>
<td>≥40</td>
<td>44 (3)</td>
<td>41 (3)</td>
<td>38 (3)</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married/de facto</td>
<td>1107 (80)</td>
<td>992 (81)</td>
<td>927 (81)</td>
</tr>
<tr>
<td>Single</td>
<td>269 (20)</td>
<td>232 (19)</td>
<td>217 (19)</td>
</tr>
<tr>
<td><strong>Smoking status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-smoker</td>
<td>1029 (75)</td>
<td>921 (75)</td>
<td>867 (76)</td>
</tr>
<tr>
<td>Current smoker</td>
<td>343 (25)</td>
<td>299 (25)</td>
<td>273 (24)</td>
</tr>
<tr>
<td><strong>Highest educational qualification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No formal qualifications</td>
<td>535 (39)</td>
<td>467 (38)</td>
<td>429 (38)</td>
</tr>
<tr>
<td>Secondary</td>
<td>464 (34)</td>
<td>415 (34)</td>
<td>391 (34)</td>
</tr>
<tr>
<td>Post-secondary</td>
<td>377 (27)</td>
<td>342 (28)</td>
<td>324 (28)</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Samoan</td>
<td>650 (47)</td>
<td>589 (48)</td>
<td>545 (48)</td>
</tr>
<tr>
<td>Tongan</td>
<td>289 (21)</td>
<td>242 (20)</td>
<td>242 (21)</td>
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<tr>
<td>Cook Island Maori</td>
<td>232 (17)</td>
<td>214 (17)</td>
<td>190 (17)</td>
</tr>
<tr>
<td>Niuean</td>
<td>59 (4)</td>
<td>57 (5)</td>
<td>52 (5)</td>
</tr>
<tr>
<td>Other Pacifica</td>
<td>47 (3)</td>
<td>37 (3)</td>
<td>33 (3)</td>
</tr>
<tr>
<td>Non-Pacifica</td>
<td>99 (7)</td>
<td>85 (7)</td>
<td>82 (7)</td>
</tr>
<tr>
<td><strong>Years lived in New Zealand</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5</td>
<td>273 (20)</td>
<td>228 (19)</td>
<td>217 (19)</td>
</tr>
<tr>
<td>6-10</td>
<td>147 (11)</td>
<td>135 (11)</td>
<td>127 (11)</td>
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<tr>
<td>&gt;10</td>
<td>953 (69)</td>
<td>858 (70)</td>
<td>797 (70)</td>
</tr>
<tr>
<td><strong>English fluency</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proficient  851 (62)  765 (63)  714 (62)
Otherwise  525 (38)  459 (38)  430 (38)

Parity\footnote{19 observations missing.}
\begin{align*}
1 & \quad 374 (28)  \quad 331 (27)  \quad 306 (27) \\
2-4 & \quad 768 (57)  \quad 684 (57)  \quad 634 (56) \\
\geq 5 & \quad 215 (16)  \quad 191 (16)  \quad 186 (17) \\
\end{align*}

Household income (NZD)
\begin{align*}
\leq \$20,000 & \quad 457 (33)  \quad 398 (33)  \quad 364 (32) \\
\$20,001-\$40,000 & \quad 710 (52)  \quad 639 (52)  \quad 600 (52) \\
>\$40,000 & \quad 161 (12)  \quad 146 (12)  \quad 143 (13) \\
Unknown & \quad 48 (3)  \quad 41 (3)  \quad 37 (3) \\
\end{align*}

\textit{a} includes mothers identifying equally with two or more ethnic groups.
\textit{b} includes non-Pacific mothers who were eligible through the Pacific ethnicity of the father.
\textit{c} 1 observation invalid.
\textit{d} 4 observations missing.
\textit{e} 3 observations missing.

Approximately one-quarter (203 [25%]) of the fathers were born in New Zealand. 440 fathers (53\%) self-identified their major ethnic group as Samoan; 199 (24\%) as Tongan; 73 (9\%) as Cook Islands Maori; 26 (3\%) as Niuean; 28 (3\%) as Other Pacific (this includes fathers identifying equally with two or more Pacific groups, equally with Pacific and Non-Pacific groups, or with Pacific groups other than Samoan, Tongan, Cook Island or Niuean); and 59 (7\%) as Non-Pacific.

In terms of education, 481 (58\%) fathers had no formal educational qualifications, 220 (27\%) had a secondary school qualification only, and 122 (15\%) had a post-school qualification.

Of the 757 secondary respondents interviewed at 24-months, almost all (754 [99\%]) were the biological fathers of the children in the cohort with three adoptive or stepfathers. There were no significant differences in age, martial status, smoking status, highest educational qualification, English fluency, and household income demographics of this group compared to that interviewed at 12-months. However, there were fewer Tongan fathers interviewed at 24-months (20\% vs 24\%, \(p<0.001\)), and more who had lived in New Zealand for over a decade (42\% vs 40\%, \(p=0.002\)).

Birth mothers served as respondents for all child assessments at 12-months and for 97\% of 1,064 child assessments at 24-months postpartum. Mean height and weight of the children at 24-months was 89.0 cm (SD: 4.4 cm) and 14.4 kg (SD: 2.2 kg) respectively.
Discussion

The PIF study is a large, scientifically and culturally robust longitudinal study that has achieved respectable participation rates over the first 24-months of its life. Both maternal and paternal figures have the opportunity to participate, something that has been rarely undertaken in previous longitudinal studies of this nature. Both parental figures have been highly responsive and receptive to our invitation to participate in each of the measurement waves despite the many demands upon their time.

We believe this stems from several important design attributes embedded within the PIF study, including: the integration of Pacific people in all aspects of the study; the single-based hospital design; and having home-visits conducted by ethnic and gender-matched interviewers.

The integral involvement with Pacific people in the consultation, design, development of the interview protocols and instruments, recruitment, elicitation, and interpretation of information and governance of the study is critical. Such input gives credibility, cultural appropriateness, and Pacific community involvement and ownership of the study. These features coupled with the perceived importance and relevance of the study’s contents by the participants themselves should ensure that response rates remain respectable throughout.

The PIF study directors are guided by the Pacific Peoples’ Advisory Board who monitored the general direction of the study. The Board’s primary responsibility is to protect and enhance the study to maximise benefits for Pacific communities. In addition, through the sharing between Pacific and non-Pacific researchers, the PIF study serves as a useful platform for the advancement and training of Pacific researchers and field staff.

A single hospital-based recruitment catchment enabled the target population to be easily identified and accessed; streamlines and enhances the cost-effectiveness of procedures for the approach and recruitment; and increases the ‘health’ credibility of the study for the participants. Also, this institutional sampling frame lends itself to a ‘study champion’; a person or persons with considerable passion and vigour, who understands the local system and ensures smooth running of study. Both the PDM and PLO performed well in this capacity for the PIF study.

Instrumental in the PIF study’s recruitment and retention success to date are the research base for fieldwork staff and the home visits by ethnic and gender matched bilingual or multilingual Pacific interviewers. The research base was a readily identifiable ‘home’ for the field workers—where they engaged, learnt, and developed with fellow colleagues and the study investigators. In terms of home visitations, participants find them convenient and comfortable, particularly for those without private transportation. Moreover, they find the experience less disruptive for the family especially if they have other children who need attention.

The ethnic and gender-matched bilingual or multilingual Pacific interviewers facilitates the development of a rapport between themselves and the participants, and language barriers or difficulties are circumvented. The availability of survey instruments in English, Samoan, Tongan, and Cook Island Maori, in the first instance, probably contributed to the strong participant response.
Other design efficiencies included the utilisation of data from alternative available sources, such as Middlemore Hospital Discharge Summary records and Plunket’s records including the comprehensive physical assessment. The capture and use of these data decreases participant burden and thereby is likely to increase participation rates. Additionally, use of the data ‘value-adds’ to the records collected by each of these organisations themselves.

While also a strength, a weakness of the PIF study is that it only included infants born at Middlemore Hospital in the sampling frame. It could be opined that this may impinge on the representativeness and generalisability of the study’s findings. However, more Pacific infants are born at Middlemore than any other New Zealand hospital and we demonstrate that the proportions of Pacific ethnic subgroups enrolled were broadly similar to national proportions which suggest that any inherent biases due to this recruitment strategy are likely to be small.

Although not a weakness in the PIF study itself, the lack of equivalent contemporaneous data for other non-Pacific ethnic groups means that interethnic group comparisons cannot be readily made. Recognising this deficiency, the Ministry of Social Development and Heath Research Council of New Zealand recently called for proposals for a longitudinal study of New Zealand Children and Families.

Because of the success of the PIF study, the Pacific Islands Families Study: Transition to School (PIF: TTS) was conceived and launched in 2004. This successor study follows the PIF cohort of Pacific children and their families, and aims to assess the children’s development and wellbeing at ages 4 and 6 years. In particular, this study will focus on the cohort and their families as they negotiate critical developmental transitions, notably the transition to school.

The PIF study has been designed to advance scientific knowledge in a number of disciplines and provide public benefits through the provision of good quality information. It is envisaged that findings from this study will inform policy development and assist programme implementation for a variety of stakeholders working towards maximising the potential of Pacific families and communities within broader New Zealand society. With the large, scientifically and culturally robust study that has achieved respectable participation rates, we believe these aims will be met.

**Author information:** Janis Paterson, Associate Professor and Co-Director, Pacific Islands Families: First Two Years of Life Study; Colin Tukuitonga, former Co-Director, Pacific Islands Families: First Two Years of Life Study and Pacific Health Research Centre, Department of Maori & Pacific Island Health; Max Abbott, Pro Vice-Chancellor and Dean; Michael Feehan, Adjunct Associate Professor and Co-President; Phil Silva, Adjunct Professor and Founding Director, Dunedin Multidisciplinary Health & Development Research Unit; Teuila Percival, Paediatrician; Sarnia Carter, Research Fellow, Pacific Islands Families: First Two Years of Life Study; Esther Cowley-Malcolm, Manager, Pacific Research Workforce Development, Pacific Islands Families: First Two Years of Life Study; Jim Borrows, Research Manager; Maynard Williams, Senior Research Fellow and Statistician; Philip Schluter, Professor of Biostatistics.

1. Faculty of Health and Environmental Sciences, Auckland University of Technology (AUT), Auckland
2. University of Auckland, Auckland
3. Observant LLC, Wellesley, USA
4. Dunedin School of Medicine, University of Otago, Dunedin
5. Kidz First Children’s Hospital and Community Service, Auckland

Acknowledgements: The Pacific Islands Families: First Two Years of Life (PIF) Study is supported by grants awarded from the Foundation for Science, Research and Technology; the Health Research Council of New Zealand; and the Maurice and Phyllis Paykel Trust. The authors also gratefully acknowledge the families who participated in the study; the Pacific Peoples Advisory Board; and the other members of the PIF research team.

Correspondence: Professor Philip Schluter, Faculty of Health & Environmental Sciences, Auckland University of Technology, Private Bag 92006, Auckland 1020. Fax: (09) 921 9877; email: philip.schluter@aut.ac.nz

References:


Differences in health-related socioeconomic characteristics among Pacific populations living in Auckland, New Zealand

Gerhard Sundborn, Patricia Metcalf, David Schaaf, Lorna Dyall, Dudley Gentles, Rodney Jackson

Abstract

Aim To describe, compare and contrast the health-related socioeconomic characteristics of the different Pacific ethnic groups surveyed in the Auckland Diabetes, Heart and Health Survey (DHHS).

Methods The DHHS was carried out in Auckland in 2002–2003. Electoral roll based sampling and cluster sampling strategies were used to recruit a representative sample of Auckland Pacific populations. Participants answered a self-administered questionnaire about their demographic and socioeconomic position.

Results The study surveyed 1011 Pacific people aged between 35–74 years of age. Of the 1011 Pacific participants, 484 were of Samoan, 255 Tongan, 116 Cook Island, 109 Niuean, 26 Fijian, and 21 were of ‘Other Pacific’ ethnic groups. Samoans were least likely to have no children, and most likely to hold a certificate qualification. Tongans were least likely to be born in New Zealand (NZ) and had the shortest residence time in NZ. Tongans were most likely to be married and had the largest families. Cook Islanders were most likely to be NZ-born and had the highest household income. Niueans were most likely to be in paid employment, to hold a diploma qualification, to own their own homes, and have the smallest families.

Conclusions In conclusion, a distinct pattern (continuum) emerged from the results. The Cook Island and Niuean ethnic groups generally had a similar and more favourable socioeconomic profile compared to the Samoan and Tongan ethnic groups. These differences are most likely to be related to the length of residence in NZ. As differences existed, each Pacific ethnic group should be investigated separately when there are sufficient numbers.

Pacific people comprise 6.5% of New Zealand’s (NZ) total population and have the highest fertility rates of any population group. ¹ NZ’s Pacific population is not one homogenous ethnic group. Indeed, there are more than 12 Pacific Island nations represented in NZ’s Pacific community. However, the terms ‘Pacific Islanders’, ‘Polynesians’ and ‘Pacific People’ are used to describe these groups collectively. The collective label fails to acknowledge many differences that exist between Pacific ethnic groups, and creates the assumption of one homogenous group. Previous research has found that significant differences exist in cardiovascular disease (CVD) risk factors between the Pacific ethnic groups and suggested the appropriateness of ethnic specific analysis of Pacific health data. ²

Many socioeconomic variables reviewed in this article are commonly recognised determinants of health and have clear relationships to health outcomes; these include dwelling (housing), income, employment, education,³ marital status, length of residence in NZ, place of birth, and family/household size. These determinants are
known to moderate many health outcomes that include infectious diseases (meningococcal B, respiratory infections), cardiovascular diseases (heart disease, obesity, diabetes), and mental health problems (depression). A knowledge of these determinants should aid the development of any strategies used to maintain and improve the health of populations they intend to serve. There do not appear to be any accounts of the determinants of health that address individual Pacific groups in NZ.

Since 1981, many studies conducted in NZ have investigated general population health. Many of these studies sampled small numbers of Pacific participants which meant that findings relevant to Pacific people were not always reliable or representative. The size and ethnic composition of Pacific participants sampled in the DHHS, allows for findings to be generalised to NZ’s Pacific population and for comparisons to be made among the more established Pacific ethnic groups. Few other studies of this type (CVD risk, adults aged 35–74 years) are large enough for this purpose.

Methods

The DHHS was a cross-sectional study that surveyed 1011 Pacific people (aged 35–74 years) between January 2002 and December 2003. All participants were selected from within the Auckland region. Adults were recruited from two sampling frames: one was a cluster sample where random starting point addresses were obtained from Statistics New Zealand and the probability of selection was proportional to the number of people living in that mesh block; and the other was a random sample taken from the November 2000 Auckland electoral rolls stratified into 5-year age bands and included all people living in the Auckland area, but excluding Franklin and Rodney.

For the electoral roll sample of Pacific people, a program was written that excluded surnames that contained characters not used in standard Pacific alphabets. Then these names were viewed by a person knowledgeable of Pacific languages, and any names that were clearly not Polynesian were excluded. Ethical approval was obtained from the Auckland Ethics Committee.

Participants who indicated belonging to more than one Pacific ethnic group were assigned to one ethnic group only. Those who were of Pacific and non-Pacific or non-Maori were assigned into their respective Pacific ethnic group. Those who belonged to more than one Pacific ethnic group were assigned to the smaller Pacific group as done by census 2001. This gave priority firstly to Niuean, followed by Cook Island, Tongan, and lastly Samoan ethnicity. Small numbers of Fijian (n=27) and ‘Other Pacific’ (n=27) participants meant that analysis of their results could not generate reliable findings.

All demographic data was self-reported. Participants were interviewed in places close to where they lived and all filled in a self-administered questionnaire about their socioeconomic position.

Statistical analysis was undertaken using SAS (version 9.1) software. Participant data were weighted according to the sampling frame that they were obtained from and means, standard errors and prevalences calculated using dual frame sampling methodology. SAS survey procedures (SURVEYMEANS, SURVEYREG AND SURVEYFREQ) were used to calculate weighted means, adjusted means and percentages. The Rao-Scott modified Pearson Chi squared test was used where appropriate with the reference category being the Samoan ethnic group, because it constituted the largest sample.

Results

Ninety three percent of the sample reported sole ethnicity. Of those who reported multiple ethnicities (7%), half identified also with European ethnicity (3.5% of total), while 41% identified with another Pacific ethnicity (2.9% of total). The remainder identified with Chinese ethnicity (0.6% of total).

Table 1 shows the percentages of participants surveyed by Pacific ethnic group and the ethnic composition of both Auckland and NZ Pacific population. A comparison of
the Pacific ethnic composition of the participants to that of Auckland’s Pacific population found no significant difference (p=0.0921). Fijian and ‘Other Pacific’ ethnic groups comprised 26 and 21 participants respectively. These numbers were too small for statistically reliable findings and were therefore excluded from further analysis.

Table 1. Comparison of number (% of total survey sample) in each Pacific ethnic group with the Auckland and NZ Pacific population aged 35–74 years

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Sample (%) n=1011</th>
<th>Auckland Pacific Population* (%) n=42,486</th>
<th>NZ Pacific Population* (%) n=64,209</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>46 %</td>
<td>49%</td>
<td>47%</td>
</tr>
<tr>
<td>Tongan</td>
<td>24%</td>
<td>19%</td>
<td>15%</td>
</tr>
<tr>
<td>Cook Island</td>
<td>11 %</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>Niuean</td>
<td>10 %</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>Fijian</td>
<td>5%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Other Pacific</td>
<td>4%</td>
<td>1%</td>
<td>3%</td>
</tr>
</tbody>
</table>

*Aged 35–74 years.

The place of birth and average length of residence in NZ is shown in Table 2. Of the total sample, 84% of participants were born in their home nation, 11% were born in NZ, and 5% were born elsewhere. Tongan participants were significantly less likely to have been born in NZ than Samoans. Cook Island and Niuean participants were significantly less likely to have been born in their home nations than Samoans. Niuean had the longest average residence in NZ for non-NZ born participants of 30.5 years. Tongans had the shortest average length of residence in NZ of 14.2 years.

Table 2. Place of birth (%) and average length (SE) of residence in New Zealand if born overseas

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>(% born in Home Island n=820)</th>
<th>(% born in NZ n=108)</th>
<th>(% born elsewhere n=36)</th>
<th>Mean† stay in NZ (years) of non-NZ born (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>82.4%</td>
<td>13.1%</td>
<td>4.5%</td>
<td>22.9 (0.96)</td>
</tr>
<tr>
<td>Tongan</td>
<td>98.4%‡</td>
<td>0.4%‡</td>
<td>1.2%</td>
<td>14.2 (1.24)‡</td>
</tr>
<tr>
<td>Cook Island</td>
<td>61.5%†</td>
<td>34.5%</td>
<td>3.9%</td>
<td>25.9 (1.46)</td>
</tr>
<tr>
<td>Niuean</td>
<td>64.0%*</td>
<td>18.3%*</td>
<td>18.3%</td>
<td>30.5 (1.04)‡</td>
</tr>
</tbody>
</table>

*0.01<p<0.05; ‡0.001<p<0.01; ‡p<0.001 compared to Samoan ethnic group at birth.

The mean age of the entire Pacific sample was 48.4 years. Compared to the average age for Samoans of 47.5 years, no Pacific ethnic group was significantly different (p>0.14). In all ethnic groups, with the exception of the Samoans, females comprised a slightly greater proportion each ethnic group. A statistical analysis that compared gender between the ethnic groups found no significant difference (p=0.3143).

Table 3 shows the percentage of married, never married, in de facto relationships, and those separated/divorced or widowed by ethnic group. Compared to Samoans, marriage was significantly more common among Tongans, and was less common for
Cook Islanders and Niueans. De facto relationships were more common for Cook Islanders and significantly less common among Tongans. Those never married and separated/divorced/widowed were significantly less common among Tongans. Niueans were most likely to never have been married.

Table 3. Proportion of participants married, never married, in de facto relationships, and separated/divorced or widowed by Pacific ethnic groups

<table>
<thead>
<tr>
<th>Ethnic group</th>
<th>Married (%) n=677</th>
<th>Never married (%) n=82</th>
<th>De facto relationship (%) n=51</th>
<th>Separated, Divorced, Widowed (%) n=154</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>71.5%</td>
<td>6.2%</td>
<td>8.3%</td>
<td>14%</td>
</tr>
<tr>
<td>Tongan</td>
<td>86.5%†</td>
<td>1.5%†</td>
<td>0.5%†</td>
<td>11.4%†</td>
</tr>
<tr>
<td>Cook Island</td>
<td>54.3%</td>
<td>10.2%</td>
<td>13.4%</td>
<td>22%</td>
</tr>
<tr>
<td>Niuean</td>
<td>58.3%</td>
<td>15.7%</td>
<td>8.4%</td>
<td>17.6%</td>
</tr>
</tbody>
</table>

*0.01<p<0.05; †0.001<p<0.01.

Table 4 shows family and household characteristics of the Pacific ethnic groups. Tongans had the highest average number of both children and adults and household size (6.9 members). Cook Islanders had the smallest estimated household size of 6 members and also reported the lowest average number of adults in a household. Niueans reported having on average the fewest children and were most likely not to have had any children (16.1%).

Table 4. Mean and (%), (SE) family and household characteristics of the Pacific ethnic groups

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Number of children (SE)</th>
<th>Number of adults (SE)</th>
<th>Total per household (SE)</th>
<th>(% Childless)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>3.5 (0.13)</td>
<td>3.0 (0.09)</td>
<td>6.5 (0.17)</td>
<td>5.3%</td>
</tr>
<tr>
<td>Tongan</td>
<td>3.8 (0.28)</td>
<td>3.1 (0.17)</td>
<td>6.9 (0.39)</td>
<td>7.0%</td>
</tr>
<tr>
<td>Cook Island</td>
<td>3.4 (0.63)</td>
<td>2.6 (0.17)*</td>
<td>6.0 (0.71)</td>
<td>14.5%</td>
</tr>
<tr>
<td>Niuean</td>
<td>3.2 (0.22)</td>
<td>2.9 (0.14)</td>
<td>6.1 (0.29)</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

*0.01<p<0.05.

Table 5 shows that rented accommodation was the most common type of dwelling for all of the Pacific ethnic groups except Niueans who were most likely to live in owned (mortgaged/freehold) accommodation.

Table 5. Type of dwelling by Pacific ethnic group (%)

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Rented (%) n=398</th>
<th>Mortgage (%) n=398</th>
<th>Freehold (%) n=79</th>
<th>Family / friends / boarding &amp; other (%) n=84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samoan</td>
<td>44.6%</td>
<td>41.6%</td>
<td>5.6%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Tongan</td>
<td>55.9%</td>
<td>28.8%</td>
<td>2.6%</td>
<td>12.8%</td>
</tr>
<tr>
<td>Cook Island</td>
<td>55.8%</td>
<td>33.2%</td>
<td>5.6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Niuean</td>
<td>33.5%</td>
<td>50.5%</td>
<td>7.3%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>
Figure 1 illustrates the estimated total annual household income by Pacific ethnic group. Cook Islanders have the highest estimated annual household income, Tongans have the lowest. This difference means that an average-sized Cook Island household will receive $38 per household member per week more than an average-sized Tongan household.

**Figure 1. Estimated annual household income by ethnicity**

Other measures of income found that 37% of Tongans reported a household income of less than $20,000 per annum, compared to only 21% of Samoans and Niueans. For household incomes that exceeded $80,000 per annum, Cook Islanders had the highest (11%), followed by Tongans and Niueans (8%), and Samoans (7%).

Cook Islanders had the greatest proportion that indicated being financially ‘comfortable’. Niueans had the greatest proportion that indicated their financial situation allowed them to ‘get by’. A larger proportion of Tongans (32%) indicated not having enough money to ‘make ends meet’.

Table 6 lists employment characteristics by Pacific ethnic group. Niueans were most likely to participate in both full and part time paid employment. Tongans were least likely to participate in full time work and Cook Islanders were least likely to participate in part time work. A larger proportion of Tongans participated in ‘home duties’. Over a quarter of Cook Islanders surveyed were beneficiaries.
Table 6. Employment characteristics by Pacific ethnic group aged <65 years

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Full time (%)</th>
<th>Part time (%)</th>
<th>Unemployed/redundant (%)</th>
<th>Beneficiary (%)</th>
<th>Home duties (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=425</td>
<td>n=70</td>
<td>n=34</td>
<td>n=161</td>
<td>n=80</td>
</tr>
<tr>
<td>Samoan</td>
<td>59.4%</td>
<td>9.8%</td>
<td>4.3%</td>
<td>15.1%</td>
<td>11.4%</td>
</tr>
<tr>
<td>Tongan</td>
<td>53.5%</td>
<td>11.4%</td>
<td>4.7%</td>
<td>13.5%</td>
<td>16.8%</td>
</tr>
<tr>
<td>Cook Island</td>
<td>57.5%</td>
<td>5.2%</td>
<td>2.6%</td>
<td>25.4%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Niuean</td>
<td>64.2%</td>
<td>11.7%</td>
<td>3.5%</td>
<td>14.5%</td>
<td>6.1%</td>
</tr>
</tbody>
</table>

Table 7 lists qualifications by ethnic group. Niueans were most likely to have continued in further education (39.7%); Cook Islanders were least likely to have done so (28.4%). Of those who did further education, there were marked differences in the types of qualifications that were attained. Tongans were most likely to gain degrees, Niueans were most likely to gain diploma qualifications, and Samoans were most likely to have obtained a certificate.

Table 7. Education type by Pacific ethnic group

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Degree (%)</th>
<th>Diploma (%)</th>
<th>Certificate (%)</th>
<th>Other (%)</th>
<th>Further education (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=45</td>
<td>n=108</td>
<td>n=129</td>
<td>n=44</td>
<td>n=326</td>
</tr>
<tr>
<td>Samoan</td>
<td>9.9%</td>
<td>31.3%</td>
<td>45.8%</td>
<td>13.1%</td>
<td>34.9%</td>
</tr>
<tr>
<td>Tongan</td>
<td>26.9%</td>
<td>22.0%</td>
<td>40.9%</td>
<td>10.3%</td>
<td>34.5%</td>
</tr>
<tr>
<td>Cook Island</td>
<td>6.3%</td>
<td>40.1%</td>
<td>43.1%</td>
<td>10.5%</td>
<td>28.4%</td>
</tr>
<tr>
<td>Niuean</td>
<td>7.0%</td>
<td>44.7%</td>
<td>37.3%</td>
<td>11.0%</td>
<td>39.7%</td>
</tr>
</tbody>
</table>

Key: Degree=MA, PhD, BA, BSc, Medicine; Diploma=Teaching, Nursing, Business, Management; Certificate=Trade or Technicians, apprenticeship, typing.

Discussion

This study indicated that the majority of Pacific people in NZ aged over 35 years were not born in NZ. Niueans and Cook Islanders had a more favourable socioeconomic profile compared to Samoans and Tongans. Cook Islanders and Samoans were in the best (and similar) financial positions, although Samoans reported greater financial stress. Significant differences in health related socioeconomic characteristics existed between the Pacific ethnic groups.

Seven percent of the total sample had mixed ethnicity. A strong sense of self identity has been found to be protective against adverse health outcomes, especially with regard to mental health, sexual health, and criminal behavior. In time, mixed ethnicity will be more common in New Zealand, increasing the potential risk associated with identity.

Migrants tend have a more adverse risk factor profiles and generally have a higher prevalence of hypertension, chronic conditions (e.g. diabetes), obesity, and cardiovascular diseases (CVD). Birthplace and length of residence in NZ can be used as markers for immigration. Therefore, it is proposed that Cook Islanders and
Niuean people have a better health profiles compared to Samoan and Tongan people, as they have lived longer in NZ.

Marital status has a strong relationship with CVD. For both men and women, marriage decreases the risk of adverse CVD and CVD mortality.\textsuperscript{19,20} Results showed that the more recently settled Pacific groups (Tongan and Samoan) were more likely to be married and therefore would be expected to gain the most protection. However, this may also reflect a strong cultural difference between traditional and more liberal Western social norms.

Family or household size can determine overcrowding and affects disposable household income.\textsuperscript{21} Most findings from this survey showed similar family trends to Census 2001. One important difference was observed in the average size of Pacific families. Census 2001 reported Pacific family sizes ranged from 3.4–3.9 members. The DHHS estimated family or household size ranged of 6.0–6.9 members.

It is likely that this difference is the result of varied definitions of family or household size. This issue was addressed recently by Koloto et al.,\textsuperscript{22} who in consultation with the Ministry of Social Development agreed that standard measures used for family were inaccurate for Pacific people and that total household number was best used to quantify a Pacific household or family rather than family size, because a single Pacific household may encompass 3–4 family groups (extended family).

Housing has been directly linked to cardiovascular and all-cause mortality.\textsuperscript{3} Living in sub-standard housing has been shown to increase the risk of many infectious diseases and also to worsen the symptoms or ailments associated with chronic diseases.\textsuperscript{23,24} Pacific families were more likely to live in damp and cold housing than Maori and NZ European and were also more dependent on rental accommodation and more likely to live in overcrowded circumstances in response to economic hardship and larger families.\textsuperscript{25,26} The above factors combined with having lower income increases the mobility of Pacific households, and is also prompted by increasing property rents.

For these reasons it has been proposed that home ownership may be a positive indicator of prospective health status.\textsuperscript{21} Long-term residence can increase the quality of care received from a general practitioner as the general practitioner-client relationship can be developed over time and continuity of care established. It was surprising that the Cook Island ethnic group had a low level of home ownership considering their longer residence in NZ, smaller household or family size, and higher income levels (Figure 1). Contrary to our results, Census 2001 reported that Samoans had the highest level of home ownership (41%), followed by Cook Islanders and Niueans (39% each). This may be due to Census 2001 not distinguishing between free-hold or mortgaged home ownership.

Income is reported to be the single most important determinant of health.\textsuperscript{3} Although Pacific people have been identified as having low-income levels, there is a paucity of published literature comparing the Pacific ethnic groups. Census 2001 reported that Niueans and Samoans had the highest median incomes.

The DHHS found Cook Islanders and Samoans had the highest and similar income levels. However, Samoans reported greater financial pressure. This may result from the fact that Samoan families have larger households and that other financial pressures may contribute compared to the Cook Island community. These financial pressures
include remittances to family in Samoa, donations of money to the Church, and a continual adherence to the cultural concept of Fa’a Samoa,\textsuperscript{27} which include requests from family elders, leaders, or Matai (village chief) for financial contributions that will be used to finance projects, functions, or for gifting to prominent people, guests, and visitors.\textsuperscript{27}

The main factor determining income is employment.\textsuperscript{28} Employment has been shown to increase general health and wellbeing as it provides many opportunities for social interaction, community participation, the development of social status, and can increase levels of physical activity.\textsuperscript{29} Conversely, unemployment has been found to be detrimental to both physical and mental health.\textsuperscript{5} The low level of full time employment of Tongans was also observed in the Census 2001 and may reflect larger family sizes and explaining why more Tongans take part in ‘home duties’.\textsuperscript{1}

Surprisingly, Tongans had the fewest beneficiaries and Cook Islanders had the most. This may reflect different levels of awareness for welfare entitlements, and how to access them. Many people who are entitled to a Community Services Card (which gives subsidised healthcare assistance to low income earners) do not have them, and this is more common in Maori and Pacific communities.\textsuperscript{29} Cook Island and Niuean people are NZ citizens and are therefore entitled to welfare. This is not necessarily the case for all Tongan and Samoan residents, however, and may contribute to the numbers of beneficiaries.

Education can affect many determinants of health indirectly by determining occupation and income,\textsuperscript{3} but also affects health directly by improving understanding of health protection and confidence in seeking the aid of professionals. Mothers who were better educated were more likely to receive health services for their children including postnatal care, immunisation, use of community nurses, and early dental care and early childhood education.\textsuperscript{30}

The newer Pacific groups (Samoan and Tongan) achieved higher-level qualifications compared to the longer-term NZ-resident Pacific groups (Niuean, Cook Islanders). Indeed, this trend was also observed in Census 2001.\textsuperscript{1} An apparently stronger emphasis on education, may explain why these differences have occurred. The new opportunity of higher education is more likely to be appreciated, valued, and utilised. Furthering education is a primary reason for coming to NZ for many Pacific people as there are few institutions that offer tertiary training in the Pacific. Current immigration policy gives preference to skilled/qualified applicants and may contribute to observed differences.\textsuperscript{31}

This is one of the two largest surveys carried out on NZ’s Pacific community to date. The ethnic composition of this sample makes it a valuable dataset as it is representative of Auckland’s four largest Pacific ethnic groups aged 35–75 years (Samoan, Tongan, Cook Island, and Niuean), thus allowing for comparisons to be made between them. It is recognised that the recruitment procedure used in sampling from the Electoral roll does have limitations as it would not capture Pacific people who have non-Pacific surnames. However it did allow for the targeted use of the Electoral Role to sample the Pacific population.

Unlike previous surveys carried out on Pacific people, this is a population-based survey and therefore is more likely to be representative of the Pacific population as opposed to workforce surveys.
It is hypothesised that the primary mechanism that has influenced the differences in the socioeconomic characteristics reported above, is most likely the length of residence in NZ. Longer residence in NZ appears to positively affect socioeconomic characteristics.

In the future, judgments may need to be made that will deal with prioritising and classifying ethnicity. What Pacific ethnicity(ies) should be prioritised if any and why? One suggestion is that questionnaires ask which ethnicity people most identify with.

In conclusion, a distinct pattern (continuum) emerged from the results. The Cook Island and Niuean ethnic groups generally had a similar and more favourable socioeconomic profile compared to the Samoan and Tongan ethnic groups. These differences are most likely to be related to the length of residence in NZ. As differences existed, each Pacific ethnic group should be investigated separately when there are sufficient numbers.

**Author information:** Gerhard Sundborn, Research Fellow in Pacific Health; Patricia Metcalf, Senior Lecturer in Biostatistics; David Schaan, Senior Research Fellow in Pacific Health; Lorna Dyall, Senior Lecturer in Maori Health; Dudley Gentles, Research Fellow in Maori Health; Rodney Jackson, Professor of Epidemiology; Section of Epidemiology and Biostatistics, School of Population Health, University of Auckland, Auckland

**Acknowledgements:** This research was funded by the Health Research Council of New Zealand and was carried out in the Section of Epidemiology and Biostatistics/Section of Pacific Health, School of Population Health, University of Auckland.

We also thank all the participants that took part in this survey; Diana Grant-Mackie, Jack Grant-Mackie, Barney Irvine, and Kelly Sundborn for their helpful discussions, comments, and feedback; and Rimu Street Tigers for Life Association for their valued support.

**Correspondence:** Gerhard Sundborn, Section of Epidemiology and Biostatistics, School of Population Health, University of Auckland, Private Bag 92019, Auckland 1. Fax: (09) 373 7503; email: g.sundborn@auckland.ac.nz

**References:**


Pseudoaneurysm of the internal carotid artery in an infant aged 8 months

Ravi Meher, Ashu Garg, Vikas Malhotra, Ishwar Singh

Abstract

Pseudoaneurysm of the carotid artery is a potentially life-threatening complication of deep neck space infection. It clinically manifests by pulsatile neck swelling, lower cranial nerve palsy, and Horner’s syndrome. There may be sentinel bleed from nose or oral cavity before the massive haemorrhage, from carotid artery rupture. We present a case of pseudoaneurysm of the internal carotid artery (ICA) following parapharyngeal and retropharyngeal space infection in an 8-month-old infant. Emergency carotid artery ligation was performed and the infant recovered well without any neurological sequelae.

With the advent of antibiotics, pseudoaneurysm of the carotid artery as a complication of deep neck space infection has become a rarity. One should be alert to diagnose it to avoid potential complication. Generally, these cases presents following upper respiratory tract infection with pulsatile neck swelling, haematoma of surrounding skin, lower cranial nerve palsy, and Horner’s syndrome.

Rupture of the pseudoaneurysm is preceded by recurrent small oral, nasal, or ear bleeds. Recommended treatment in such cases is endovascular occlusion of the pseudoaneurysm or reconstruction with a vein graft, but ligation may be considered when the arterial wall in these cases is mostly necrosed, friable, and beyond repair.

Case report

An 8-month-old male child presented to Ear Nose and Throat Emergency with complaints of swelling in the right side of his neck for 5 days associated with fever. This was preceded by cough and nasal discharge for 1 week.

On examination, the child was toxic, sick-looking, dehydrated, and febrile. There was a swelling present in the right parotid and submandibular regions, which was firm and tender. No bulge or abnormality was detected on intra-oral examination. The patient was put on intravenous antibiotics. The child’s condition did not improve and there was increase in swelling, intermittent stridor, and bleeding from the nasal and oral cavity after 1 day.

An urgent contrast CT scan neck showed a right internal carotid artery pseudoaneurysm surrounded by an abscess with extension into retropharyngeal and parapharyngeal space (Figure 1). The patient was then shifted to the operating theatre for exploration under general anaesthesia. A tracheotomy was performed to maintain airway and prevent aspiration.

Since the child was bleeding profusely with impending hypovolaemic shock, the nasal cavity, nasopharynx, and oropharynx was packed to control bleeding. The common carotid was exposed and ligated (Figure 2). The abscess was explored and 10 ml of
pus and blood clots were removed; the cavity was then filled with povidine iodine ribbon pack. On pus culture, no growth was seen. The child had no neurological deficits and had an uneventful recovery.

Fig 1 Contrast-enhanced CT scan axial cut at the level of the oropharynx demonstrates an 2.5 × 1.5 cm ovoid enhancing right parapharyngeal mass. This is situated at the anatomic position of the ICA and was felt consistent with an internal carotid artery pseudoaneurysm (shown as cross). The mass is contiguous with low attenuating extension into the retropharyngeal space and into the right posterior paraspinal space suspicious for an underlying abscess (shown as black dot). On the left side, a normal calibre ICA can be seen.
Figure 2. Intraoperative photograph of the carotid artery being ligated

Discussion

Pseudoaneurysm is defined as pulsatile encapsulated haematoma in communication with the lumen of ruptured vessel or an aneurysm whose wall consists of adventitia and periartrial fibrous tissue and haematoma. Pseudoaneurysms occur secondary to direct arterial injury due to blunt or penetrating trauma or as result of infective necrosis of arterial wall due to abscess in relation to the involved artery.

Extravasated blood forms a periartrial haematoma, which expands to an extent defined by the compliance of surrounding tissues. Fibrous tissue envelopes the haematoma and encapsulation by an endothelial layer of the haematoma creates a potential space occupied by the expanding artery. Arterial blood pressure forces blood through this potential space, causing gradual dilatation and enlargement into an aneurysmal sac.

Pseudoaneurysm of the carotid artery secondary to infection is a life-threatening condition, which requires emergency management and is associated with a very high rate of mortality and neurological deficit. These patients usually give history of acute tonsillitis or sore throat 2–3 weeks preceding the onset of a neck mass, as in the present case. There may be difficulty in swallowing or breathing, as well as a history of ear, nose, and throat bleeds.

In our case, there was sentinel bleeding from the nasal and oral cavity. There is usually a tender neck swelling which may be pulsatile and sometimes a bruit or thrill may be palpable. Involvement of lower cranial nerves and cervical sympathetic chain (Horner’s syndrome) can also occur. Other less common symptoms are facial pain, dizziness, tinnitus, otorrhoea, and blurred vision.

Diagnostic tests include ultrasound (such as duplex Doppler ultrasound), contrast computed tomography (CT) imaging, CT angiography, magnetic resonance imaging.
(MRI) (such as MR angiography), and diagnostic angiography. Angiography provides the most reliable and definitive diagnostic information, and offers opportunity of performing endovascular occlusion of the pseudoaneurysm. CT and MRI scans are helpful in providing information regarding structures surrounding the aneurysm, as well as clarifying the surgical approach to be taken.

The pseudoaneurysm should be treated as early as possible to avoid thrombosis, embolisation, and rupture. The ideal treatment would be to eliminate blood flow through the aneurysm and restore the blood flow through the artery. This prevents the complication associated with the aneurysm without compromising the distal flow, which is very important in the case of internal carotid artery.

This procedure can be done either by ligating the artery proximal to the pseudoaneurysm or resecting the wall of pseudoaneurysm. Another treatment option is endovascular occlusion of the pseudoaneurysm with detachable balloons or coils. Importantly, pseudoaneurysm of the internal carotid artery can be treated with endovascular reconstruction with coils filling the lumen of pseudoaneurysm. These options can reconstruct the arterial lumen, hence maintaining flow, and are useful in cases of traumatic aneurysms. The surgical or endovascular reconstruction of carotid pseudoaneurysms should always be considered whenever possible, leaving open the option of carotid repair.

In case of infective aetiology, arterial ligation may be considered since the arterial wall in these cases is mostly necrosed, friable, and beyond repair. Reconstruction procedures and repair with stents and coils may not be always feasible in case of post-abscess aneurysm. Open surgery also provides a path for drainage of the abscess. Patients who present with history of sentinel bleed thus should be treated on an emergency basis as they are at risk of carotid blow out.

Vascular complications such as pseudoaneurysm and carotid artery rupture (from extension of deep neck space infection into vascular space) can be life-threatening. Further spread into mediastinum can occur via carotid sheath (Lincoln Highway). Salinger and Pearlman reported a mortality of approximately 8% in 32 patients with haemorrhage from retropharyngeal and parapharyngeal abscess and concluded that ligation of the ruptured carotid artery secondary to infection was essential. More recently, Alexander et al suggested that rupture of a major artery of the neck secondary to the neck abscess has a mortality of 20% to 40%, regardless of the treatment. Reisner et al reported endovascular occlusion of a carotid pseudoaneurysm in a child with deep neck abscess. Similarly Singh et al described a case of carotid artery erosion in a 4-year-old child following parapharyngeal space infection which was successfully treated by carotid ligation.

Common carotid artery (CCA) ligation is the easiest option but should be the last resort since it is associated with a high mortality and neurological complications. Complications include various neurological deficits ranging from transient ischaemic attacks, ipsilateral blindness, hemiplegia, and death. Balloon occlusion test, MR or CT angiography can be helpful in demonstrating the presence or absence of good collateral circulation prior to carotid sacrifice.

If treated conservatively, the uncontrolled carotid blowout has almost 90% mortality rate so the only recourse is to ligate the artery. In the preantibiotic era, carotid artery
erosion secondary to peritonsillar or parapharyngeal space infection was common, with 56% mortality if the carotid artery was ligated. Ten percent of these patients died as a direct result of artery ligation, and another 10% had nonfatal cerebral complications. Approximately 30% of these patients died as a result of infection or other complications not associated with ligation of the carotid arteries.

In the current era of improved electrolyte management, anticoagulants, antibiotics, intraoperative anaesthesia advances, and hypertensive-hypervolaemic therapy, mortality and morbidity from carotid artery ligation have diminished. Moore and Baker in a series of 88 carotid ligations found an overall complication rate of 45% with a mortality of 31%. They reported marked reduction in both morbidity and mortality in the last 5 years of their study with a 31% and 11% complication and death rate, respectively. 10

In the current case, the common carotid artery ligation did not cause any neurological sequelae. The contralateral ICA, ECA, and the vertebral artery provide the collateral circulation.

Author information: Ravi Meher, Assistant Professor, Himalayan Institute of Medical Sciences, Jollygrant, Dehradun, India; Ashu Garg, Senior Resident, Department of ENT & Head and Neck Surgery, Maulana Azad Medical College and associated Lok Nayak Hospital, New Delhi, India; Vikas Malhotra, Specialist – ENT, Delhi Government, New Delhi, India; Ishwar Singh, Senior Resident, Department of ENT & Head and Neck Surgery, Maulana Azad Medical College and associated Lok Nayak Hospital, New Delhi, India.

Correspondence: Dr Ravi Meher, Assistant Professor (ENT), Himalayan Institute of Medical Sciences, Jollygrant, Dehradun, India. Email: meherravi@hotmail.com

References:
A lump behind the knee

Medhat Osman, Simon Dempsey, Guy Taylor

Investigation of a previously healthy young man presenting with a lump behind the knee led to an unusual finding.

Case report

A 21-year-old man was referred to Orthopaedic Outpatients at Wanganui Hospital, New Zealand with a 1-year history of a slowly enlarging lump behind his left knee. A supermarket employee, he was otherwise in good health and could walk, run, and squat with minimal discomfort. There was no past medical history or family history of note. On examination there was a smooth, firm, slightly tender lump 2 cm in diameter in the centre of the left popliteal fossa which became more prominent on extension of the knee. The knee was otherwise normal to examination and there were no abnormal neurovascular changes distal to the knee. There were no cutaneous stigmata or other subcutaneous nodules.

An ultrasound scan showed this to be a solid mass lesion and he proceeded to an magnetic resonance imaging (MRI) scan (Figure 1). The initial scan of the leg (Fig 1a) proved diagnostic, and the scan was therefore extended to include the opposite leg and pelvis (Fig 1b); abdomen and thorax (Fig 1c); and head and neck (not shown but normal). There was marked involvement of the intercostal and mediastinal nerves (not shown on the scans in Figure 1).

Figure 1. The MRI (STIR) scan of the left leg (Fig 1a) shows a soft tissue mass extending along the course of the sciatic nerve and posterior tibial nerve. Fig 1b shows the bilateral nature of these masses extending up into the pelvis involving the lumbar sacral plexus, and Fig 1c shows bilateral bulbous masses extending along the course of the lumbar plexus. These appearances are typical of multiple plexiform neurofibromata
Discussion

Neurofibromatosis type 1 (Nf1) and type 2 (Nf2) are distinguished clinically and genetically. They are caused by mutations in apparently unrelated genes on chromosomes 17 and 22 respectively.\(^1\) Nf1, the type originally described by von Recklinghausen, has a prevalence of 1:5000, 30% of whom have plexiform neurofibromas and 5% peripheral nerve neurofibromas.\(^1\) Our patient had both.

Although the mutated gene for neurofibromin is dominantly inherited with almost 100% penetrance, there is no family history in up to 50% of patients, indicating a high rate of spontaneous mutation.\(^2\) This is usually due to a paternal germ cell mutation.\(^5\) The gene product in Nf1, neurofibromin, is believed to have a tumour suppressant effect and levels are low in the presence of these mutations.\(^2\)

The much less common Nf2 has a prevalence of 1 in 210,000 and is characterised by bilateral vestibular schwannomas.\(^6\) Patients present with gradual, progressive, often asymmetrical hearing loss in their 20s whereas those with sporadic acoustic neuromas usually present in their 40s.\(^6\) Other features include meningiomas, gliomas, other schwannomas, cataracts, and intracerebral calcification.

The plexiform neurofibromas of Nf1 affect long portions of nerve and can invade the nerve itself or surrounding tissues. Malignant transformation occurs in 2–16% of patients\(^3\) and is the main cause of morbidity and mortality. Astrocytomas develop in 15% of Nf1 patients, are slow growing, and do not undergo malignant change.\(^4\) Benign melanotic hamartomas of the iris and developmental bony abnormalities are common.\(^5\) Phaeochromocytomas, intestinal tumours, and malignant gliomas occur with increased frequency in Nf1 patients but are still uncommon.\(^5\) Between 30 and 50% of Nf1 individuals have some neurodevelopmental abnormality\(^1\) which is a major focus of management in children.

Surgery in Nf1 is not without difficulties.\(^5\) Surgery to plexiform neurofibromas may result in severe haemorrhage. Important vascular, renal, and pulmonary abnormalities as well as phaeochromocytoma should be excluded prior to anaesthesia. However, complications requiring intervention have an incidence of only 2.4 to 3 per 100 person-years of follow-up,\(^6\) and follow up requirements have been debated.\(^1\)

Screening investigations have not been shown to be useful,\(^7\) and 1- to 2-yearly clinical follow-up is probably adequate.

Author information: Medhat Osman, Radiologist; Simon Dempsey, Orthopaedic Surgeon; Guy Taylor, Rheumatologist; Wanganui Hospital, Wanganui

Correspondence: Dr Guy Taylor, Wanganui Hospital, Private Bag, Wanganui. Email: GuyT@ghw.co.nz

References:


PHARMAC and lack of funding for clopidogrel

Harvey White, Chris Ellis

Abstract

Clopidogrel is an antiplatelet drug that has been shown in several trials to reduce clinical events such as cardiovascular death, stroke, and myocardial infarction when compared to aspirin in a broad range of patients with atherosclerotic vascular disease. Clopidogrel has also been shown to reduce the same events by 20% when added to aspirin in patients with unstable angina and also in patients undergoing coronary artery stenting. Despite this information being available for 5 to 10 years, guideline recommendations, and the knowledge that 5% of patients have major allergy to aspirin, New Zealand patients have only been able to receive funded clopidogrel for a short period, typically 3 weeks, after coronary artery stenting.

We believe this is an example where New Zealanders have been denied treatments, despite a strong evidence-base, by PHARMAC’s actions of delaying the funding of new drugs. We need to have a better process whereby New Zealanders can rapidly access new treatments.

Six years ago, clopidogrel was listed on the Australian funding schedule. In New Zealand, application was made for funding in January 2002 but New Zealand patients are still waiting for funding approval from PHARMAC despite numerous further studies over this time showing clear benefits for a wide range of patients.

This article will present the evidence as to why clopidogrel should have been available much earlier, and attempts to document some of the reasons for what we consider to be a flawed process.

Clopidogrel

Clopidogrel is an oral antiplatelet agent that locks the P2Y12 component of the adenosine diphosphate (ADP) receptor on platelets and thus blocks a pathway unaffected by aspirin and inhibits platelet activation and aggregation additional to aspirin’s effects. Clopidogrel has replaced ticlopidine, which is also an ADP receptor antagonist, because it rarely causes the life-threatening adverse effects of leucopenia and thrombocytopenia that occur with ticlopidine.

Early clopidogrel trials

Trials in patients undergoing coronary artery stenting have shown greater efficacy in reducing the incidence of acute thrombotic closure, as well as greater safety, of clopidogrel as compared with ticlopidine.\(^1,2\) The effectiveness and safety of clopidogrel in other cardiovascular indications has been evaluated in several trials.

Ten years ago, the Clopidogrel Versus Aspirin in Patients at Risk of Ischaemic Events (CAPRIE) trial\(^3\) reported that in 19,185 patients (with a recent ischaemic stroke, myocardial infarction (MI), or symptomatic peripheral vascular disease), over 1–3 years’ treatment with 75 mg of clopidogrel per day compared to aspirin 325 mg/day
reduced the incidence of ischaemic stroke, MI, or vascular death by 8.7% from 5.83% to 5.32%; p=0.04.

The benefit was greater in patients who had had previous ischaemic events (relative risk reduction 14.9% and absolute reduction 3.9%, p<0.05) for the composite. Twenty-nine patients needed treatment for 3 years to prevent one event. There was less clinically relevant bleeding with clopidogrel than with aspirin and there was a trend for more severe upper gastrointestinal discomfort with aspirin and more gastrointestinal haemorrhage (2.7% vs 2.0%, p<0.05).

After coronary artery bypass surgery there is a high rate of closure of venous grafts and recurrent ischaemic events. Aspirin has been shown to be beneficial in maintaining graft patency. In 1480 patients in the CAPRIE trial who had had bypass surgery, clopidogrel (as compared with aspirin) reduced vascular death—relative effect by 43%; absolute effect by 0.8% (3.3% vs 2.5%, p=0.03); and reduced the composite of vascular death, MI, and stroke by 3.3% absolute from 9.1% to 5.8% per year, p=0.004 with a decreased risk of bleeding, as compared with aspirin.

On the basis of the results from this large trial it would seem reasonable that (in patients with a good indication for taking aspirin and who have had anaphylaxis or other severe allergy to aspirin or experienced peptic ulceration) clopidogrel would be a reasonable alternative to aspirin and that it should be funded by PHARMAC. However, PHARMAC has never accepted these arguments, and patients who would be expected to benefit from aspirin—e.g. patients following an MI where aspirin has been shown to reduce the occurrence of death, MI, or stroke by 20%, or patients with coronary artery venous bypass grafts where clopidogrel had been shown to reduce ischaemic events—have not been able to have funded access to clopidogrel.

Five years ago, the Clopidogrel in Unstable Angina to Prevent Recurrent Events (CURE) trial investigators reported results in 12,562 patients randomised within 24 hours of the onset of a non-ST segment elevation acute coronary syndrome (ACS) to receive clopidogrel (300 g loading followed by 75 g daily) or placebo in addition to aspirin 160–360 mg daily for 9 months.

The primary endpoint of cardiovascular death, non-fatal MI, or stroke was reduced from 11.4% of patients randomised to placebo to 9.3% of patients randomised to receive clopidogrel; risk reduction (RR) 0.80, 95% CI 0.72–0.90, p<0.001. The benefits of clopidogrel became apparent within the first 24 hours of randomisation and the major absolute benefit was in the first 3 months but with continuing benefits for 9 months. Major bleeding occurred more frequently in the clopidogrel group (3.7% vs 2.7%, p=0.001) but there was no excess in life-threatening bleeding or intracranial haemorrhage. The risk of major bleeding was increased in patients undergoing coronary artery bypass grafting surgery within 5 days of stopping clopidogrel (9.6% vs 6.3%, p=0.06).

Three years ago, the Clopidogrel for the Reduction of Events During Observation (CREDO) trial reported on patients undergoing coronary stenting. For 1 year following randomisation to receive clopidogrel and aspirin compared with randomisation to receive aspirin alone, there was a reduction of death, MI or stroke by 26.9% (8.5% vs 11.5%, P=0.02).
Recent clopidogrel trials

Two recent trials have been performed in patients with ST-elevation MI. The Clopidogrel as Adjunctive Reperfusion Therapy-Thrombolysis in Myocardial Infarction (CLARITY-TIMI-28) trial\(^8\) showed that (in patients receiving fibrinolytic therapy for ST elevation MI) clopidogrel, compared with placebo, reduced the incidence of death, MI, or the presence of an occluded infarct-related artery at 48–192 hours after beginning fibrinolytic therapy by 36%—from 21.7% to 15.0%; \(p<0.001\). The rates of major bleeding and intracranial haemorrhage were similar in both groups.

In the Clopidogrel and Metoprolol in Myocardial Infarction (COMMIT) trial,\(^9\) 45,852 patients suffering an acute MI in China were randomised to receive clopidogrel or placebo. Half of the patients received fibrinolytic therapy. The composite endpoints of death, reinfarction, or stroke were reduced with clopidogrel by 9%. Total mortality was reduced by 7%; 7.5% vs 8.1%, \(p=0.03\). There was no increase in life-threatening bleeds. It is estimated that if clopidogrel was given to the 3000 New Zealanders having an acute MI each year and surviving to get to hospital, that 30 deaths, recurrent MIs, or strokes would be prevented by giving clopidogrel during their hospital stay. Continued treatment with clopidogrel after hospital discharge would be expected to have further benefits, although the benefits and hazards of long-term therapy are still being investigated.

Cost-effectiveness

Cost-effectiveness analyses of the use of clopidogrel for 1 year based on the CURE trial gave costs of US$4,722–US$6,173 per life-year gained depending on the funding source and with the price of clopidogrel being US$3.22 per day.\(^10\)

These costs are well below generally accepted cost-effective thresholds, and PHARMAC has usually funded new drugs with cost per quality adjusted life-year (QALY) <NZ$15,000 per QALY. Cost-effectiveness analysis for Canada using a detailed case-commenting system, taking into account factors such as shorter hospital stay with clopidogrel treatment, shows that clopidogrel is actually cost-saving for reducing death and MI when prescribed for 6 months,\(^11\) and C$7,973 for 9 months treatment to reduce an event (cardiovascular death MI and stroke).

PHARMAC’s role

Following the driving offshore from New Zealand of many pharmaceutical companies including Bristol Myers Squibb (co-marketers of clopidogrel with Sanofi-Aventis overseas but not in New Zealand) there has been less incentive for companies to apply for funding of products in the small New Zealand market, made smaller by PHARMAC’s restrictive marketing policies.

It was only in January 2002 that Sanofi-Aventis initiated discussions with PHARMAC about clopidogrel. At this time, the results of the CURE trial had been recently published. The Pharmacology and Therapeutics Advisory Committee (PTAC) subsequently met in February 2002 to discuss the proposal.

PTAC thought the CAPRIE and CURE trials\(^3,6\) were good studies”, but considered that there was “insufficient evidence of a clinically significant additional benefit for the use of clopidogrel”. They also noted “there was no decrease in overall mortality in...
CURE”, even though the CURE Trial was not statistically powered to determine effects on total morality (5.7% clopidogrel, 6.2% placebo). They also felt “more information was needed in patients intolerant of aspirin” but noted “that specific groups of patients may benefit from clopidogrel, namely after coronary artery bypass grafting and patients with coronary stents.” PTAC then referred the application to their Cardiovascular Sub-committee.

Sanofi-Aventis responded to PTACs’ comments in April 2002. However there was no response from PHARMAC for more than 2 years until September 2004 when PHARMAC offered to list clopidogrel for drug-eluting stents in exchange for a price reduction of 56%. Sanofi-Aventis was willing to accept the price reduction if the Australian criteria (which were much wider and included patients with symptomatic atherosclerotic disease and patients suffering an acute coronary syndrome) were accepted by PHARMAC.

PHARMAC responded in December 2004 suggesting special authority criteria and expenditure caps above which there would be a financial penalty for Sanofi-Aventis. Sanofi-Aventis advised PHARMAC that this cap would result in the supplying of clopidogrel below cost, which would not be sustainable.

In April 2005, PHARMAC replied with an increase in the expenditure cap but with the same restricted patients’ access and limited treatment duration. Several other communications between PHARMAC and Sanofi-Aventis have transpired since then with Sanofi-Aventis stressing that access and duration of treatment should be aligned with the New Zealand guidelines12,13 and PHARMAC offering a slightly increased list price and expenditure cap, but the same limited access.

In the light of these discussions, and if the two parties come to an agreement, patients undergoing angioplasty and stenting may be able to receive clopidogrel for 6 months. Aspirin-intolerant patients may at last be able to access clopidogrel long-term if they have had a stroke, a transient ischaemic attack, or MI. However, no current provision is made for patients who are aspirin intolerant who have venous bypass grafts or for patients who have been stented and who suffer a stent thrombosis.

For aspirin-tolerant patients, it is proposed that patients who were previously on aspirin may (with specialist application) be prescribed clopidogrel for 3–6 months if they have had an acute MI or have been admitted to hospital because of ischaemic pain lasting >20 minutes and occurring at rest.

Based on the number of patients with acute coronary syndromes from the Cardiac Society Audit in 2002,14,15 assumptions based on 5% of patients being aspirin-intolerant, and there being approximately 7000 patients with stroke, there are about 30,000 patients per year who would fulfil current guideline recommendations12,13,16,17 for prescribing clopidogrel.

Given an assumption that the price of clopidogrel may be close to the Australian price (it is to be noted that in Australia clopidogrel has been available since 1999) and treatment might be for 6 months rather than the New Zealand, ACC/AHA Guideline recommendations which are for clopidogrel treatment for 9–12 months;12,13,16,17 this would cost about NZ$15 million.

PHARMAC’s approach when faced with a figure of this amount has often been to offer some much smaller amount and to try and fit the eligibility criteria to this
amount. In this instance, they have offered to only fund clopidogrel for patients suffering an ACS, if they have previously been on aspirin (reducing the number of eligible patients by about 7000, and a recommendation not based on any scientific data) and have offered the prescribing of clopidogrel for a shorter period than 6 months. Negotiations thus continue while patients wait.

PHARMAC’s approach of making the listing of new drugs complex and cumbersome and thus slowing down the process and in addition restricting patient access to newer, usually better medicines, has been very effective in restraining spending. Unfortunately, when an evidence-base, such as is available with clopidogrel, is ignored, patients are harmed. In cardiovascular disease there is often a rapidly changing evidence-base and unless PHARMAC has a proactive approach to obtain new treatments and new indications, instead of waiting for companies to make applications, many contemporary treatments may not be available to New Zealanders.

It is not clear how PHARMAC decides to allocate new expenditure from one class of drugs to another and from one disease entity to another. To our knowledge, PHARMAC has rarely (if at all) asked for more money when a clearly effective new treatment is available. Coupled with PHARMAC’s propensity to under-spend their budget in recent years, patients have had a poor deal. In respect of clopidogrel, we believe PHARMAC has done a disservice to the health of New Zealanders.

Summary

Clopidogrel is a potent antiplatelet agent that has been shown to be superior to aspirin\(^1,3\) and to have a synergistic antiplatelet effect when combined with aspirin.\(^18\) In a wide variety of clinical studies across a wide spectrum of cardiovascular diseases, clopidogrel has had superior efficacy when combined with aspirin as compared with aspirin alone.\(^6–9,19\)

Clopidogrel is an effective, safe, and a cost-effective treatment that continues to be unfunded by PHARMAC for many New Zealanders who would be expected to benefit from its use.

Author information: Harvey D White, Director of the Coronary Care and Green Lane Cardiovascular Research Unit, Green Lane Cardiovascular Service, Auckland City Hospital, Auckland; Chris J Ellis, Cardiologist, Green Lane Cardiovascular Service, Auckland City Hospital, Auckland.

Acknowledgement: We are grateful to Charlene Nell and Barbara Semb for excellent secretarial assistance.

Correspondence: Professor Harvey White, Green Lane Cardiovascular Service, Auckland City Hospital, Private Bag 92 024, Auckland 1030. Email: harveyw@adhb.govt.nz

References:


Tuberculosis, fresh air, and rest

This extract is taken from the Presidential Address delivered by Dr. Morton Anderson before the Annual Meeting of the New Zealand Branch of the British Medical Association in Christchurch, and published in the New Zealand Medical Journal 1906, Volume 5 (19), p1–8

It is a matter for congratulation that the public, as well as the profession, has realised the fact that tuberculosis in its various forms is a disease for which much may be done both by curative and preventive measures. When we consider the enormous toll it levies yearly on our population, both in lives and money, we must recognise that no efforts should be spared to deal with it as soon as possible.

Fortunately such efforts are now being made, as in some of the other centres sanatoria have already been opened to cope with the disease, and we in Canterbury hope that ere long we will have a sanatorium which will be a credit to the province and which will take over the patients from Nurse Maude’s camp.

Thanks to the generosity and liberality of Mr. John Cracroft Wilson and the trustees of the Cashmere Estate, who have given a site with some 12 acres of ground on the Port Hills, the vexed question of situation has been set at rest. Already a considerable sum of money has been collected for the buildings, but we sadly want more funds, and the public may rely on us keeping them in mind of that fact till the institution has been erected and thoroughly equipped.

In the present day a great amount of attention is being paid to the conservation and promotion of the health of the individual and of the community. We are in fact getting to better understand and appreciate the laws of health. Good food, clothing, and cleanliness have long been recognised as necessary for good health, while fresh air and exercise have been regarded as very important, but we are becoming more aware of the value of sunshine, ventilation, and even of rest.

With regard to these latter much ignorance or prejudice still prevails. The careful housekeeper who opens her windows 2 in. or 3 in. at the top every morning and shuts them just as carefully before night, while possibly the blinds have been down most of the day to keep out the sunlight, fondly imagines that she has done her duty to her family in the matter of ventilation. How many keep their windows open wide all day and their blinds up, so as to admit all the fresh air possible? and how many keep their windows even half open at night, or, if open at all, probably blocked by a linen or calico blind? Yet it is of the utmost importance that fresh air should circulate freely through a dwellinghouse, and more especially through the bedrooms. There are, of course, days when the dust fiend is too much in evidence and must be kept out, and I fear that faded carpets will sometimes be urged as an excuse for keeping out the sunlight.

As to rest—and by that term I do not refer to the ordinary rest in bed at night, but to prolonged rest for weakly, overworked, or fagged-out individuals—it seems in danger of being forgotten as a strengthening and curative agent in these days of physical culture and the strenuous life. Every one has heard of brain-fag, but at the risk of
being called a faddist or of adding one more to the list of human ailments, I may say I believe there is also such a condition as heart-fag. Neither of these conditions is a disease in the strict sense of the word, though, if neglected, they may undoubtedly eventuate in that state. And when I reflect on the numbers of run-down or tired-out people who resort to the country or the seaside to recuperate, and, as a general rule, with great benefit, I can also remember not a few who came back not so invigorated as they hoped to be.

Possibly their holiday was not long enough, or they may even have gone to a place where the air or other conditions were not suited to them, but I am inclined to think that in some instances heart-fag was the cause of disappointment, and that had the holiday been begun by a few days’ complete rest in bed they would have derived double or treble the benefit.

NZMJ Note: The Cashmere Sanatorium eventually opened in 1923 after the establishment of the associated Coronation Hospital for advanced cases of tuberculosis in 1914. See http://library.christchurch.org.nz/Heritage/Photos/Disc13/IMG0040.asp and http://library.christchurch.org.nz/Heritage/Photos/Disc13/IMG0041.asp (click on the photos to see more)
Combined FDG-PET/CT and CT-guided biopsy in diagnosing oesophageal cancer recurrence

Burkhard von Rahden, Mario Sarbia, Hubert Stein

A 69-year-old female patient received a combined FDG-PET/CT scan (image fusion of Positron Emission Tomography with 18-Fluoro-Deoxy-Glucose and Computed Tomography; Figure 1) as a follow-up investigation 30 months after transthoracic oesophagectomy for squamous cell carcinoma of the infracarinal oesophagus.

The tumour had been locally limited with invasion of the muscularis propria layer (pT2). None of 15 resected mediastinal lymph nodes were positive (pN0), and the patient was considered free of residual tumour tissue (R0) following complete surgical resection with two-field-lymphadenectomy.

The FDG-PET/CT study (Figure A) revealed a left paratracheal lesion with intensive uptake of 18-Fluorodeoxyglucose (arrow). The lesion measured 4.6 cm in diameter, and was suggestive for either nodal recurrence, or (as differential diagnosis) thyroid carcinoma.

A CT-guided biopsy was performed (Figure B): The image shows the biopsy needle being introduced into the tumour mass (arrow). Histopathologic examination revealed a moderately differentiated, keratinizing squamous cell carcinoma (Figure C; tumour cells are indicated with arrows).

This histopathological appearance thus confirmed recurrence of the oesophageal carcinoma and made origin from the thyroid gland highly unlikely. The patient was subsequently referred to palliative radiochemotherapy.
Conclusion

Combined FGD-PET/CT is increasingly used as imaging tool—e.g. for follow up of cancer patients, combining the exact morphological information by CT, and the functional information by FDG-PET. Histopathologic evaluation of CT-guided biopsies is used for establishing the diagnosis in suspicious lesions and suspicion of recurrence.

Author information: Burkhard H. A. von Rahden, MD, Resident, General Surgery, Department of Surgery, University Hospital of Salzburg, Austria; Mario Sarbia, Professor of Pathology, Department of Pathology, Krankenhaus Lichtenberg, Berlin, Germany; Hubert J. Stein, Professor of Surgery and Chairman, Department of Surgery; University Hospital of Salzburg, Austria

Correspondence: Dr. Burkhard H. A. von Rahden, Department of Surgery, University Hospital of Salzburg, Müllner Hauptstraße 48, 5020 Salzburg, Austria. Fax: +43 (0)662 448251008; email: B.von.Rahden@salk.at
Ginseng extract and upper respiratory tract infections

Upper respiratory tract infections are a major source of morbidity throughout the world. We know that. Some of us (? the most gullible or knowledgeable) believe that natural health products with properties that stimulate the immune system may prevent or ameliorate these infections. Apparently extracts of the root of North American ginseng (*Panax quinquefolium*) have been found to have the potential to modulate both natural and acquired immune responses. A group of Canadian researchers have recently reported on a randomised, double-blind, placebo-controlled study comparing the effects of a poly-furanosyl-pyranosyl-saccharide-rich extract of North American ginseng in comparison with subjects taking a placebo. The results—“a moderate dose over 4 months reduced the mean number of colds per person, the proportion of subjects who experienced 2 or more colds, the severity of symptoms, and the number of days cold symptoms were reported.”


Multivitamin and multimineral supplements in older people

Many older folk regularly consume multivitamin and multimineral supplements, either prescribed or self prescribed, in the belief that their immunity to infections, use of health services, and quality of life will be improved. This theory has been tested in a general practice setting in Scotland. And the conclusion of this year-long, randomised, placebo-controlled trial—“routine multivitamin and multimineral supplementation of older people living at home does not affect self reported infection related morbidity.” A not very surprising outcome.

* BMJ 2005;331:324–7

Assisted suicide?

This is a topical subject at the moment which polarises our population. So what is happening elsewhere? Methuselah was rather surprised at a recent news item. Apparently a university hospital in Switzerland recently became the first in Europe to allow assisted suicide on its premises. The university of Lausanne said that from January 1 it would allow patients to kill themselves on its wards, provided they were incurably ill and of sound mind. A bit of a role reversal for a hospital? However, both the Swiss Medical Association and the National Committee on Ethics have backed the university’s stand. Both say that to respect the wishes and independence of patients, assisted suicide should be permitted in exceptional cases, but it should never become a routine procedure.

The new *Clostridium difficile*

Those with long memories will recall that *C. difficile* diarrhoea was originally called pseudomembranous colitis and was thought to be exclusively associated with the use of the then popular antibiotic, clindamycin—it rapidly become unpopular. Since then, we have learned that any broad spectrum antibiotic can lead to *C. difficile*-associated diarrhoea. Alarmingly it appears that about 3% of healthy adults and 20%–40% of hospitalised patients are colonised with *C. difficile*, which in healthy persons is metabolically inactive in the spore form. Even worse, two large studies describe a new strain of *C. difficile* and implicate a possible role of fluoroquinolone use as driving its emergence. And this *C. difficile* strain produces 16 to 23 times more toxins A and B in vitro than do other strains. So what has been an inconvenience is threatening to become a killer in the aged and others at risk. This editorial and the accompanying papers are a ‘must read’ for anyone interested in this problem.


**Acid acclimation by Helicobacter pylori**

In 1984, a landmark paper appeared in the *Lancet*. In this paper, Warren and Marshall first reported the key role of gastric infection by *Helicobacter pylori* in the development of peptic ulcer disease. Subsequently, they were awarded a well deserved Nobel prize. Others have since produced evidence for an association with gastric neoplasia. The 1984 paper signalled a radical change in the management of peptic ulcer disease. Amongst other things it has resulted in the eclipse of surgical ulcer procedures. But how does this bacteria live in the acid? Apparently, “*Helicobacter pylori* has a unique ability to colonise the human stomach by acid acclimation. It uses the pH-gated urea channel, Urel, to enhance urea access to intrabacterial urease and a membrane-anchored periplasmic carbonic anhydrase to regulate periplasmic pH to ~6.1 in acidic media.” Sorry about the finer details.

*Physiology* 2005;20:429–38
Type 1 diabetes: research hopes and their New Zealand implications

Type 1 diabetes has become a highly emotive issue currently affecting the lives and health of many New Zealanders. Worldwide the incidence is increasing by 3% annually. In Canterbury, around 30 young people are diagnosed with type 1 diabetes each year. The incidence has increased three- to four-fold since 1970, and is currently increasing by 5% annually.

These trends are alarming, and it is essential that New Zealanders become aware of how the development of new technology might assist management of this problem both in the short and long term. Whilst treatment of the disease must remain a research priority, recent evidence suggests that prevention of type 1 diabetes may be possible by immunological/nutritional intervention. Large international collaborations will be required to make progress in such important research areas and New Zealand is participating in these consortia (TRIALNET).

In the short term, biomechanical approaches are continuously being improved to help reduce the burden of injections (often up to six times daily) and improve quality of life. Insulin pumping systems coupled with glucose sensing devices (some that are implantable and with life of up to 1 year) are impending developments. Unfortunately, the costs of these devices may continue to be prohibitive for families and individuals with type 1 diabetes.

Human islet transplantation in type 1 diabetes is limited to a number of international sites using variations of the Edmonton Protocol. Human islet transplantation is severely compromised worldwide by the availability of human islets, leading investigators to consider alternate approaches. The first living-donor islet transplantation was undertaken in Japan earlier this year, and resulted in insulin-independence after 12 years of diabetes secondary to chronic pancreatitis. The success of this graft likely reflects the absence of autoimmunity in the recipient, but provides hope that (in the future) living-donor islet transplantation may be a reality for individuals with classical type 1 diabetes of autoimmune aetiology.

A reversibly immortalized human beta cell line, which has been shown to normalise glucose in animal models, has recently been developed. Cell lines such as this, are quite likely to replace xenograft islets as an insulin secreting source if they can be shown to have clinically reproducible expression. Unfortunately there is still no robust encapsulation method able to maintain long-term unimpeded exchange of nutrients, oxygen, and therapeutic factors in human beings, and at the same preventing rapid immunological destruction of the transplant. Whilst encapsulation is a promising approach, it is unlikely to yield solutions in the short term.

A research question that remains largely unexplored is whether or not the autoimmune memory effect observed in pancreatic transplants between twins, is due to continued antigen presentation caused by beta cell renewal and subsequent apoptosis (cell death). Recent work has revealed that even in long-standing type 1 diabetes, the human pancreas still contains beta cells.
While ongoing destruction of β-cells by apoptosis was noted, this indirect evidence for de novo beta cell formation is encouraging. In streptozocin-treated mice, beta cells can be restored to 40% of capacity by administration of insulin.7 These experimental data raise the interesting possibility that, after removal of immunodestructive T-cells by ablation and bone marrow transplantation, there may be sufficient regenerative capacity within the human pancreas to restore a sufficient number of glucose normalising beta cells to have therapeutic value.

The increasing incidence of type 1 diabetes worldwide strongly indicates that environmental factors play a significant part in the aetiology of the disease. Amongst a vast array of putative environmental triggers, it has been suggested that lack of vitamin D may have a critical role in the origin of type 1 diabetes and other autoimmune diseases. Supporting this role is evidence that 1,25 dihydroxy calciferol (DHC) regulates several immune pathways, inhibiting T-cell proliferation and IL-2 and IFNγ production, and further, that DHC overcomes genetic susceptibility to diabetes in NOD mice.8

The vitamin D model predicts that adequate vitamin D status could reduce the risk of developing type 1 diabetes. A birth cohort study that assessed vitamin D intake in the first year of life showed that children who regularly took the recommended dose of Vitamin D (2000 IU daily) had a reduction in risk for type 1 diabetes of almost 80% after follow-up of 30 years.9 While the vitamin D hypothesis is promising, further randomised controlled trials need to be undertaken. A more modest protective effect against type I diabetes has also been observed using the anti-inflammatory essential omega 3 fatty acids,10 odds ratio 0.74. Of interest would be to determine the effect of combining vitamin D and omega-3 fatty acids in a single intervention study.

In the long term, stem cell technology has considerable potential, but stem cell expertise in New Zealand is only at early infancy.

As type 1 diabetes is an autoimmune disorder with complex interplay of physiological events, a wide variety of clinical approaches are likely to be needed to see an arrest in the rapid growth of this condition. Whilst there are many exciting new research areas to be explored in type 1 diabetes, the very low spending on basic research in New Zealand is potentially denying individuals with diabetes a wide range of therapeutic possibilities. It is essential that health funding be strategically implemented in order to develop more long-term commitment to basic cell science and clinical research. Furthermore, it is essential that New Zealanders appreciate that many years of basic research are required before tangible clinical outcomes become widely available.

We simply must demand more long-term commitment and funding in New Zealand for basic research–clinical intervention studies, biotech initiatives, and transplant treatment that will include human stem cell research.

Jinny Willis
Scientific Officer
Lipid and Diabetes Research Group
Canterbury District Health Board, Christchurch
(jinny.willis@cdhb.govt.nz)
References:


Ethnic differences in nicotine use—chromosomes or colonisation?

Lea et al state that their study “provide(s) evidence that Maori are genetically slower nicotine metabolisers compared to Europeans”, claiming that this finding helps explain differences in smoking between ethnic groups.¹

While applauding the authors’ attention to the important issue of tobacco and its disproportionate impact on Aotearoa/New Zealand’s indigenous peoples, we disagree with their assertion that the genetic variance observed in this study helps explain ethnic differences in tobacco use. Our objections are threefold:

Firstly, the authors have used the term ‘ethnicity’ as though ethnic groups are the same as ancestral or genetic groupings. Ethnicity is a social construct or identity that combines elements of ancestry, history, language and culture.² Members of an ethnic group may share more than one ancestral heritage: many Maori have Pacific or European forebears, just as some New Zealanders with Maori ancestry may not identify themselves as Maori. The idea that ethnicity can be equated with genetic groupings is a misconception—³ one that becomes increasingly tenuous as a greater proportion of New Zealanders share multiple ancestral origins.

Secondly, the authors’ conclusions about genetic variance are not backed up by their data. The reported frequency of gene variants in the “general Maori population” is based on a small group of voluntary donors at the Wellington Blood Transfusion Service.⁴ Samples from a single geographical region may not represent the diversity of iwi in Aotearoa/New Zealand. Data on gene variation in Europeans are taken from non-New Zealand “Caucasians”; no details are given on how this group was defined.

Finally, the authors are advancing a genetic explanation for differences in tobacco use between Maori and Pakeha. Genetic factors play (at most) a very minor role in health differences between ethnic groups.⁵ In focussing on genetic factors we risk drawing attention away from the more fundamental causes of ethnic disparities in health – including unequal access to social and economic resources, and the effects of racism. Tailoring of therapy towards individual genetic profiles may be an attractive prospect, but it should not divert attention from population-level interventions (such as Aukati kai paipa) that have real potential to reduce ethnic disparities in tobacco use.

The authors state that the ultimate aim of their research is "to utilise genetic and metabolic information for individualisation of NRT"—a commendable goal—but we believe they are making a mistake in trying to apply it at the level of ethnic groups.

Sarah Hill, Caroline Shaw, Ricci Harris, Kirstin Lindberg
Registrars in Public Health Medicine
(caroline.shaw@huttvalleydhg.govt.nz)
References:


‘Woman bites dog’ article on domestic violence: author’s reply to Dr Goodyear-Smith’s letter

Felicity Goodyear-Smith’s response¹ to my viewpoint article,² published in the 11 November 2005 issue of the Journal, suggests that further clarification is required. We agree that violence by women toward their partner (or indeed, by anyone toward any partner of either gender) is not acceptable behaviour. However, Goodyear-Smith comments that I appear to condone violence by women and seems to have misread the conclusion of the paper (in the second to last paragraph) where I state that it was not my intention to excuse women’s violence.

Our agreement diverges with regard to the Conflict Tactics Scale (CTS) and the misunderstandings that arise from its use. Despite the apparent credibility of this scale and its wide use and acceptance, it has limitations that are often not considered in the analysis of outcomes when this scale is used. The original CTS does not necessarily do a reasonable job of counting acts of violence for the many reasons detailed in the paper. For example, there are ambiguities regarding equivalence that are reflected in Goodyear-Smith’s own comments (paragraph five) which appear to assume that kicking, biting, hitting, and threats with, or use of, a weapon are equally severe. As with the other terms, the severity of “hitting” is ambiguous. Was this a closed-fisted punch or a slap with an open hand? How hard? What part of the body was hit? What was the intent and outcome of the hitting? Was the victim or perpetrator the largest or smallest person?

Any reciprocity in application of the scale does not reduce concerns regarding possible bias and selective remembering. Both men and women deny or minimise men’s violence while applying the opposite strategy to violent acts by women.³

Underpinning much of the misrepresentation of equivalent violence and resultant myth-making about high levels of women’s violence, is the issue of context. Context really does matter. For example: it would not be reasonable to define a particular adult population as highly literate or very tall without specifying that these qualities were measured with a scale that was designed for application to three year olds and should not be generalised to adults.

The CTS is commonly applied to ‘ordinary couples’, not couples whose experience is known to include ‘domestic or family violence’ or ‘battering’. In such “common couple violence”,⁴ any violence is minor, seldom causing injury, is unlikely to escalate over time, and the person on the receiving end of the violence is not afraid. This contrasts with relationships where there are patterns of physical and/or sexual violence, verbal abuse, or acts of intimidation that escalate over time and that are used to control one partner. The victim in the latter situation lives in fear of the abuser and is commonly socially isolated and ashamed.

Conflating these widely variant populations in the public mind creates assumptions that ignore differences in dynamics, motivation, and outcome between ‘ordinary’ couples and couples in situations defined as including ‘Battering’ or ‘Intimate Partner
Violence’ (IPV) which have clearly defined meanings. “Battering an intimate partner essentially involves one partner attempting to control the thoughts, beliefs, realities, and/or conduct of another” (p.x).5

Unfortunately, quotations and reports in the media on the outcomes of research based on the CTS do not include even a passing reference to such contextual detail. This is especially concerning when the creator of the CTS expressed concerns regarding the ‘clinical fallacy’ and ‘the representative sample fallacy’ of generalisations being applied from either of these populations to the other.6

Questions asked by researchers define the response from study subjects and, ipso facto, the outcome. Similar problems arise in crime surveys, where subjects may not define an experience of criminal victimisation as a crime, or when sexual harassment and marital rape are not named as such by those who experience them.8,9 As Goodyear-Smith rightly points out, the Dunedin study applied the CTS to a 21-year-old cohort,10 and later on the same day, asked the same group about their experiences of assault.11

The CTS outcome showed higher rates of violence by women toward their partners. However, the questions on assault showed a much lower incidence rate overall, with women being 4.5 times more likely to have been assaulted by a male partner, and at a rate (how often that partner assaulted them) of 2.6 times more frequently. This also points to methodological issues with quantitative studies which ‘count’ objects, events, or episodes, rather than qualitative studies which allow participants more definition of their own experience. Obviously, the latter require intense rigour and clear methodological understanding in order to provide a thorough analysis of the outcome. Future studies may benefit from the inclusion of qualitative components, or learn from the example of the Dunedin study by broadening the scope and variety of questions.

I agree with Goodyear-Smith’s understanding of my assessment that men use more force in their violent acts and women experience more injuries12 and that more women than men are murdered by their partners. Goodyear-Smith cites figures from 1978 to 1987 showing that 82 men and 9 women killed their partners in New Zealand13—equating to 90% male on female homicide. More recently total average annual murder figures overall have risen, reaching a high of over 70 in 1992, and slowly reducing since then to about 50 murders per year14 with a low of 46 in 2003. An average of half of these murders are family violence-related, with children making up one-third of victims.15

To suggest that other measures provide information on outcomes of violent acts, and that this is not the function of the CTS is specious. If the CTS does not include an analysis of injury outcomes, then this must be specified in public reporting otherwise what it actually being measured remains unclear and open to the erroneous speculation that injury outcomes are equal.

Goodyear-Smith seems to suggest, as did Straus6 that women are responsible for the severity of men’s retaliation if they ‘start fights’. Such a position justifies the men’s violence and blames women for causing it. This is similar to men claiming that it is the female partner’s fault that he must attend a stopping-violence programme because she called the police. Social patterns of blaming the victim for their experience of
abuse and violence contribute to the undermining of formal social sanctions against abuse and add to the difficulties experienced by women who are abused by their male partners.\textsuperscript{10} Woman’s violent acts are frequently in self-defence.\textsuperscript{12}

It is indeed important that the media addresses the issue of violence between intimate partners. However, it is even more important that such reports do not encourage the creation of myths about equivalent violence by women toward their male partners.

Janice Giles
Researcher
Auckland

References:


Statins and myopathy: a patient’s experience


I took Lipex 20 mg daily, no other medication, and no grapefruit. At 4 months into treatment, enzymes remained normal. At 5 months, I noted lassitude with an overall sensation of loss of strength; there was cramping in both hands while holding hands of cards at Bridge; I was aware of discomfort in my left proximal interphalangeal joints when gripping a golf club. At first, I attributed these symptoms to work in the garden.

Blood tests were repeated, and my GP phoned to inform me that my serum creatinine phosphokinase (S. CK) was 334 U/L (normal: <200 U/L); 4 weeks later, S. CK was 419 U/L and at 6 weeks it was normal. Upon restarting Lipex at 10 mg daily, it took 1 month for exactly the same symptoms to resurface, with S. CK again at 334 U/L.

An Internet search, while not exhaustive, was interesting, in small part because I was unable to find any reference to cramp. Six months later, my only residual symptom is awareness of my left hand on gripping a golf club. The lesson for patients is that initial symptoms can be mild.

I remain a firm advocate for the use of statins.

John Rouse
Retired General Practitioner
Gisborne
Carcinomas in the Bay of Plenty: incomplete excision rates

The article *Incomplete primary excision of cutaneous basal and squamous cell carcinomas in the Bay of Plenty* by Simon Talbot and Brandon Hitchcock (NZMJ 23 April 2004;117(1192). URL: http://www.nzma.org.nz/journal/117-1192/848) has just come to our attention.

The incomplete excision rate groups dermatologists in with other specialist surgeons. This gives perhaps a misleading impression that specialist dermatologists have a similar incomplete excision rate to other specialists within the Bay of Plenty. Closer analysis of the results, however, showed consultant dermatologists’ incomplete excision rate for the study period was 1.42%.

We have audited our own basal cell and squamous cell excisions for the years 2001, 2002, and 2003. These excisions were carried out by consultant dermatologists, and the data excludes all lesions treated by Mohs micrographic surgery. In this audit, 1615 tumours were analysed: 1319 were basal cell carcinomas and 296 were squamous cell carcinomas; 9 lesions were incompletely excised. Therefore the dermatologists in the Bay of Plenty have an overall incomplete excision rate of 0.56%. Hence the article by Talbot and Hitchcock significantly over-estimates the specialist dermatologists’ incomplete excision rates.

If our data were extracted from the data presented by Talbot and Hitchcock, then the incomplete rate for other specialists rises to approximately 18%.

As specialist dermatologists we feel as sensitively about our incomplete excision rates as our orthopaedic colleagues do about their infection rates.

Paul Jarrett
Dermatologist

Paul Salmon
Dermatologist

Skin Centre
PO Box 10–116
Mount Maunganui
Bay of Plenty
Towards a 3-day hospital stay for right hemicolecction

Prior to 2003, the median inpatient hospital day stay for a patient undergoing an elective right hemicolecction at Middlemore Hospital, Auckland was 9 days (range: 5–35 days). In 2003, the senior surgical author (AGH) moved the majority of his elective colorectal surgical practice to a stand alone public hospital initiative of the Counties-Manukau District Health Board (CMDHB) called the Manukau Surgical Centre (MSC). At the same time, a simple protocol was developed to improve patient daystay in accordance with work from overseas.1 Put simply, the protocol involved early mobilisation of patients and early feeding. With these changes, the median inpatient daystay for an elective right hemicolecction fell to 7 days (range: 5–18 days).

In September 2005, a colorectal surgical team from CMDHB visited the Hvidovre Hospital in Copenhagen, Denmark, where protocols for enhanced recovery from colonic surgery had been established.2,3 Following this visit, a pilot programme was commenced at MSC in conjunction with anaesthesia (CD) and senior nursing staff.

The protocol involves the following steps:

- Preoperatively, the colorectal specialist nurse meets with the patient to discuss the programme and to introduce the patient to the ward and the staff that will be looking after the patient postoperatively.
- The patient is admitted on the day of surgery. No bowel preparation is used and patients are given a clear carbohydrate solution to drink the night before and 2 hours prior to surgery.
- A thoracic epidural is established. Calf-vein stimulators, TED stockings, and postoperative Clexane are utilised for DVT prophylaxis. Prophylactic antibiotics are administered. A transverse incision is utilised. Intraoperative fluid administration is limited as far as possible and only short-acting opioids are used. Pressors are used for epidural hypotension.
- Postoperatively, intravenous fluids are discontinued upon arrival on the ward from the postanaesthetic care unit. Protein drinks are commenced by mouth. The patient is mobilised that evening. The following day, the indwelling urinary catheter is removed, the patient is mobilised for 8 hours, and a light diet is initiated. On day 2 postoperatively, the epidural is removed and non-steroidal antiinflammatories are used for analgesia. The patient also resumes a normal diet.
- Discharge is planned for day 3 once discharge criteria are met. These include ability to tolerate a normal diet and pain able to be controlled with simple oral analgesia.
- On day 8, the patient is reviewed in the surgical outpatients clinic, the clips are removed, and the pathology is reviewed and discussed.
To date, five consecutive patients (median age 71, range: 67–76; no exclusions) undergoing elective right hemicolectomy have been placed in this pilot programme, with four of these patients being discharged after 3 days and one after 4 days (median 3 days total inpatient stay). Patient satisfaction has been high. One patient developed back pain 3 days after discharge and was seen in the emergency department and sent home. One patient developed wound cellulitis which was treated at the surgical outpatient’s clinic with oral antibiotics. One patient has written to the New Zealand Herald in praise of the programme and another was shopping for Christmas presents at the shopping mall on day 6 post-surgery.

This enhanced recovery programme may potentially benefit both patient and hospital. Early mobilisation and resumption of a normal diet allow for early discharge, hence allowing the patient a more rapid return to normal life. Also, shortening hospital inpatient stays will potentially minimise costs. At present, the pilot programme has been running only on a trial basis but it is hoped to more firmly establish this programme at CMDHB for all major colonic procedures in the near future.

Ryash Vather  
Medical Student, Summer Student  
Department of Surgery, South Auckland Clinical School, University of Auckland

Kamran Z Shoshtari  
Surgical Research Fellow  
South Auckland Clinical School, University of Auckland

Charles Ducat  
Consultant Anaesthetist  
Middlemore Hospital

Andrew G Hill  
Associate Professor of Surgery  
South Auckland Clinical School, University of Auckland  
Middlemore Hospital  
Auckland

References:


Resuscitation training of newly-qualified doctors

All doctors are expected to be proficient in both basic and advanced life support. In New Zealand, doctors are required to achieve a Level 7 Resuscitation Certificate prior to full registration.\(^1\) This qualification includes both theoretical- and scenario-based examinations, but practical experience in resuscitation and placements in emergency care settings are still difficult to obtain.

We surveyed all newly qualified doctors commencing work in November 2003 in New Zealand (\(n=279\)), and (based on the Level 7 Resuscitation Manual) we assessed their resuscitation training received, confidence in resuscitation skills, and theoretical knowledge. The response rate for the questionnaires was 81\%.\(^2\)

Our research indicates that the Level 7 Resuscitation manual is being widely used in New Zealand and has achieved some positive outcomes, but important deficits still remain. Changes that might be considered to improve resuscitation knowledge, training, and confidence include:

- Compulsory placements on resuscitation teams and in emergency care settings, with logbook skills requirements; and
- Ongoing regular practical training.

Increasing the exposure of medical undergraduates to real resuscitations should be carefully planned, resourced, and implemented, so that the experience is appropriate and the ability of the resuscitators to deliver care to patients is not impaired.

We suggest that it may be necessary to increase the role and number of resuscitation officers to maintain practical skills. Furthermore, trainees need to accept responsibility for their own educational needs. They need to be involved in resuscitation scenarios, which might require participating in ‘on call’ shifts in order to achieve this goal.

Sarah Bell  
Anaesthetics Department  
Royal Gwent Hospital  
Newport  
Wales

References:


Medical audit of practice management of diabetes in pregnancy at Gisborne Hospital’s Obstetric Medical Service

A mainly retrospective review to evaluate quality of patient care and outcome (and the current prevalence of diabetes) involving 59 patients (63 pregnancies) in 2832 pregnancies was undertaken over a 4-year period (2000–2004). Guidelines on treatment of diabetes in pregnancy provided a framework against which to assess quality of current practice. We were concerned by the epidemic of mainly Type 2 diabetes in our community highlighted by the Ngati Porou and Gisborne GP studies. (See Tipene-Leach D, Pahau H, Joseph N, et al. Insulin resistance in a rural Maori community. NZMJ. 2004;117(1207). http://www.nzma.org.nz/journal/117-1207/1208)

Data was obtained on demographic characteristics, diagnostic tests (1-hour polycose glucose challenge and/or a 2-hour glucose tolerance test), and intervention (including diet, insulin, and assessment of patient compliance and follow-up once delivery was completed). Specific outcome indicators comprised maternal outcomes like Caesarean section rates and foetal outcome (macrosomia, delivery injuries, and pre-term birth).

Pregnant patients with diabetes (gestational, Type 1, and Type 2) are referred to the clinic by their midwife. The obstetric medical clinic is staffed by a physician, two obstetricians, a midwife co-ordinator, a diabetic nurse educator, and the hospital dieticians.

The diagnosis of diabetes was made on a documented past history of Type 1 or Type 2 diabetes; a previous history of gestational diabetes and subsequent fasting hyperglycaemia; patients with positive polycose glucose challenge at 28 weeks of pregnancy or a positive 2-hour 75 g glucose tolerance test; and hyperglycaemia in high-risk patients (obesity, past or strong family history of diabetes, more than mild glycosuria, or previous large babies). Patients were seen at least monthly up to the time of delivery with assessment of weight, blood pressure, and laboratory results; BM prick tests results, and diet.

Results from those 4 years (2000–2004) revealed that there were 59 women (63 pregnancies) in 2832 pregnancies thus making a diabetes in pregnancy incidence of 2.08% per annum. Fifty-eight percent of all pregnancies were in Maori women. Thirty-nine (66%) women in this study were over 30 years of age. Thirty-five (59%) of the pregnant women were found to be obese with a body mass index of more than 30 kg/m² and 25 (42%) of the whole group and 71% of the obese women were Maori (mostly) and Pacific Islanders.

In the gestational history, three were primips, 56 multips, and 17 (27%) had a history of previous miscarriages. Thirty-three women (56%) gave a history of diabetes (13 were Type 2, 13 were Type 1, and 7 were gestational diabetics). Of associated conditions, 10 (17%) had asthma of which 7 (12%) were smokers (6 being Maori women).

There were 11 patients who were first seen in pregnancy under 12 weeks gestation (these were women with known diabetes); twenty were first seen between 31 and 38
weeks of gestation. Fifteen of these were classified as obese and should have been considered high risk and referred and seen earlier. Fifty-two had a full glucose tolerance test, and 7 were diagnosed only with a polycose glucose challenge. Nineteen patients (32%) were on insulin during their pregnancy (Actrapid Insulin) three times a day with Protophane insulin taken at night. Twenty-six (44%) were considered to have good compliance with tests and treatment.

The Caesarean rate was 47%. In 17 cases, the reasons were elective. Twenty-two babies weighed more than 4.0 kg, 77% were from Maori mothers, and 81% were obese. Five (22%) were from Pakeha (European) mothers and three of them were considered obese. When maternal age is considered against birth weight of more than 4 kilograms, 12 were aged 30 to 35, and 4 were between 36 and 40 years of age. There were two pre-term babies under 2.5 kg. Ten babies were delivered pre-term. None were diagnosed with neonatal hyperglycaemia or congenital abnormalities, and there were no neonatal deaths.

There was no post-delivery follow-up in 70% of the patients. In a subsequent survey of the laboratory polycose glucose results (Gisborne Hospital and Medlab Gisborne), 425 women had the test and 64 had a 1-hour post-prandial result of more than 7.8 mmol/L (15% positive).

The current incidence of diabetes in pregnancy of 2.08% in the Gisborne district represents major under-reporting of diabetes in our population of pregnant women given several factors including obesity, older age group, ethnicity (Maori and Pacific Islanders). The overall incidence of gestational diabetes mellitus (GDM) in New Zealand is 3% in Europeans and 6% to 10% in Maori.

In collaboration with colleagues at the National Women’s Hospital, we recommend a new action plan for the management of pregnant women in our community which will involve active participation of all the medical practitioners and midwives with particular attention to assessing for risk at an early stage; early referrals; appropriate blood tests and investigations for diabetes; monthly follow-up; and a glucose tolerance test 6 weeks after delivery in those that are not overtly diabetic.

Furthermore, treatment protocols are to include pre- and post-natal education on lifestyle changes including diet, exercise, smoking cessation, and advice on future pregnancies.

This study received no funds. A follow-up study of this small cohort over a longer period would be of great medical and community interest.

Babs J Reddy
Consultant Physician for the Gisborne Medical Obstetric Service
(reddybj@xtra.co.nz)
Survey by a Gisborne GP to detect diabetes in his patients

Concerned about the epidemic of diabetes that seems to be developing in our society—e.g. Tipene-Leach D, Pahau H, Joseph N, et al. *Insulin resistance in a rural Maori community*. NZMJ. 2004;117(1207). http://www.nzma.org.nz/journal/117-1207/1208—and curious about the true prevalence of the condition in my general practice, I undertook a survey of my patients with the support of the local primary health organisation (PHO): Turanganui PHO.

At the time the review commenced, we had identified 60 patients in the practice with diabetes (2% of the 2900 in the practice). I felt that I had a pretty good system for the detection of diabetes in my practice but it depended on casual contact screening and using random blood sugars as the indicator for getting a glucose tolerance test (GTT) performed.

In 2004, over a 10-month period, a group of my patients in the 45–60 year age group were specifically targeted; in addition, all of those in the age group over 25 years of age were randomly checked if they presented at the clinic and required a fasting blood test for any reason.

The specific target group was those aged 45–60 years—excluding any known diabetics—in the period from 1 July 2004–30 April 2005. They were sent a form inviting them to go to the local community laboratory for a fasting sugar level. Five months later, the exercise was repeated in the non-responders.

558 patients were screened; 18 new diabetics were detected after a GTT was done on those with fasting hyperglycaemia. Eight (44%) of the new diabetics were Maori—9.6% of the Maori patients screened. The other 10 diabetics were New Zealand Europeans.

Twenty-five more had impaired glucose tolerance—this being a fasting glucose greater than 7.8 mmol/L or 2-hour glucose greater than 11.0 mmol/L; 80% were European and 20% were Maori.

Since this survey was completed in September 2005, we have continued to screen for diabetes with more intensity and vigilance—all those with fasting glucose results greater than 5.7 mmol/L being referred for a GTT. Subsequently, another 27 patients with diabetes on GTT have been found.

Diabetic screening using opportunistic testing and doing GTT if fasting glucose results are elevated above 6.0 mmol/L does not detect all the diabetics in the practice. A more focused approach—deliberately ensuring all patients above 25 years of age were offered fasting blood sugars and asking for a GTT if the result was greater than 5.7 mmol/L—has increased our overall percentage of known diabetics from 2% to 3.8%.

The message from these results is that we need to be more conscious of the hidden presence of diabetes in our communities. And we can reduce the risk of long-term complications by early dietary modification and increased exercise.
Acknowledgement: Thanks to Dr Babs Reddy, Physician, Gisborne for his advice and support while we were doing this survey and analysing the results.

Murray Smith
General Practitioner
Village Medical Clinic
Gisborne
(murray@villageclinic.co.nz)
Risk of perioperative COX-2-inhibitor treatment: is a systematic review appropriate?

In the 25 November 2005 issue of the *Journal*, Aldington et al published a systematic review and meta-analysis of the cardiovascular risk of perioperative COX-2-inhibitor treatment based upon the three available studies, and concluded that “there is an increased risk associated with parecoxib/valdecoxib therapy in the post-surgical situation.”

Currently there is a tendency to perform systematic reviews and meta-analysis in situations with very few adequate randomised trials, and the present analysis is a good example. Thus, two studies are available in a specific high-risk surgical population—i.e. coronary artery bypass surgery vs one study in a variety of other procedures across several surgical specialities.

At first glance it seems highly questionable that such an analysis can be done since coronary bypass surgery is performed in cardiac high-risk patients and also includes a vascular injury, an area where perioperative COX-2-inhibitor treatment may pose specific risks, in contrast to the general surgical population. These considerations are supported by the demonstrated no increased risk in the latter group vs increased risk in coronary artery bypass patients.

Since many aspects of perioperative outcome are procedure-specific, it is highly questionable whether the present meta-analysis is valid or should have been done, and the conclusions made should be modified to the fact that these drugs are currently contraindicated in coronary bypass surgery, but that further data are required in other surgical populations.

Henrik Kehlet
Professor, Section for Surgical Pathophysiology
The Juliane Marie Centre, Rigshospitalet
Copenhagen, Denmark
(henrik.kehlet@rh.dk)

Reference:
More on PHARMAC and tobacco control in New Zealand

We think that Shaun Holt, Richard Beasley, and colleagues’ response regarding bupropion for smoking cessation (http://www.nzma.org.nz/journal/118-1217/1544/)\(^1\) still deserves an answer, as we are unaware of any evidence that bupropion is cost-effective compared with nortriptyline.

We agree with the raft of evidence, cited by the authors, that smoking cessation treatments can be highly cost-effective compared with other options for health spending. However, evidence does not yet extend to comparing bupropion with nortriptyline.

The one head-to-head trial\(^2\) showed no significant difference between nortriptyline and bupropion—so we don’t really know either way, which reflects uncertainty and different perspectives. Nortriptyline is neither proven as more or less effective as bupropion, nor bupropion proven as more effective than nortriptyline.

However, when nortriptyline is problematic for particular patients, bupropion as adjunctive smoking cessation treatment (versus nicotine replacement therapy alone) might be cost-effective relative to other treatments for other disease states—it would be good to see this quantified. Likewise with side effect profiles—it needs the analysis and would be worth pursuing, integrating the pharmacovigilance evidence around bupropion.\(^3,4\)

We apologise for any offence, as our intent was not to personally criticise the authors. Although the discussions around the Cochrane Review\(^5\) were hindered by no mention of its evidence about nortriptyline,\(^6\) we needed to be much clearer on that point (our response missed out an important comma).

We will continue to disagree with authors’ conclusions. However, apart from price, the evidence is debatable\(^7\)—this reflects different ways of looking at things, in the face of uncertainty. This will extend to other things that PHARMAC does or does not fund—where PHARMAC manages a set budget, so funding some things means not funding others. We welcome any new relevant evidence presented.

**Conflict of interest:** Scott Metcalfe is externally contracted to work with PHARMAC for public health advice. Peter Moodie declares no conflicts.

Scott Metcalfe  
Public Health Physician  
Wellington

Peter Moodie  
Medical Director  
PHARMAC  
Wellington
References:


William Henry Rankine McIntyre

24 June 1926–21 June 2005

William (Bill) was born at Logie Manse, Bridge at Allan, Scotland. He attended Stirling Primary and Secondary Schools and was Dux of both.

His training at Edinburgh University Medical School was interrupted by military service with the RAF.

In 1951, he graduated MBChB gaining 8 certificates of merit.

Bill worked in Cirencester (UK) then moved with his wife Valerie to work in Te Kopuru, High Prairie (Canada), and Dargaville.

He finally based himself in general practice at Greenlane in Auckland, working at the Maungakiekie Clinic.

Bill was a member of the Auckland Faculty of the RNZCGP in the early 1980s. He held membership with the NZMA throughout his career.

Musculoskeletal medicine was a special passion, and Bill was involved from its introduction into New Zealand. He was President of the New Zealand Association of Musculoskeletal Medicine in 1990–1. After retiring from General Practice in 1986, he practiced full-time in Musculoskeletal Medicine.

He is remembered as a very good doctor, astute and prepared “to do the extras” for his patients.

Outside of his medical activities, Bill was busy acting on the Board of Directors for Te Tuki (Arts and Community Centre – Pakuranga), as a Founding President of the Howick East Combined Probus, President of the U3A Pakuranga, and President of the Pakuranga Photography Club.

Nature and the outdoors were important to Bill. Valerie and Bill enjoyed tramping in New Zealand and overseas. He was a keen swimmer and sailor—a love he passed on to his family, Rod and Fiona. He is survived by his wife, son, daughter, and grandchildren—James, Christopher, and Catriona.

We are grateful to Dr John Corboy (GP, Botany Town Centre Medical Practice, East Tamaki, Auckland) for writing the obituary as well as Mrs McIntyre for providing the photograph.
George McKenzie Emery

George McKenzie Emery MD, DPH, MCCM [NZ], MRCGP, general practitioner and public health specialist, was born in Hastings in 1923 to expatriate American parents. He died in Dunedin on 26 September 2005 at the age of 82.

Dr Emery graduated from Otago in 1946 and initially considered a career in psychiatry. However his focus moved to general practice and he soon demonstrated his progressive leanings by setting up one of the nation’s first group practices in South Dunedin in 1951. His patients viewed him with genuine affection because he had the wisdom to see the person as well as the disease.

In 1962, he changed career direction again to become a senior lecturer in the Preventive and Social Medicine Department at Otago and thereby became one of the earliest academic general practitioners in the country. Following a sabbatical in 1968, during which he studied medical education and the delivery of health services in a range of countries, Dr Emery became a WHO consultant in a variety of Pacific and Asian nations then became the Director, WHO Disease Prevention and Research, from 1978 to 1980. He then applied his vision and wide experience in health service delivery to the Directorship of Community Services for the Otago Hospital Board from 1980 until 1988. During his tenure the concept of the Community Hospital took root.

Dr Emery was a mover and shaker both within medicine and without. His feisty nature was evenly mixed with humour although undergraduates did not always have the opportunity to perceive the latter. During his overseas postings he collected indigenous artefacts and extended this interest to Maori collectables on his return to New Zealand.

He became a minor celebrity in Dunedin when he rescued a condemned Victorian house in High Street from the demolishers and moved it piece-meal to a nearby section then rehabilitated it over the succeeding 25 years when it became a private museum for his collection. This interest in Dunedin’s heritage was reflected in his activities and promotion of the Historic Places Trust.

Dr Emery is survived by his second wife, Molly Ford. Betty Cooper from Gisborne was his first wife and they had five children, Leslie, Sheena, Rhett, Robin, and the late George. He is fondly remembered for his contribution to medicine in its broad sense and to the community of Dunedin.

We thank Associate Professor Jim Reid for his assistance with this obituary as well as Mrs Emery for providing the photograph.
David Laing was passionate about rugby. He was an ardent supporter of the All Blacks and loved to watch them play as a spectator and as the team doctor. Neither of these facts distinguishes him from many New Zealanders, but his contribution to rugby is noteworthy.

Born in Napier in 1926, he left school, aged 15, without School Certificate (he was too busy playing sport). He then worked as a laboratory assistant at Colgate Palmolive and put himself through night classes to finish his schooling and, eventually, to enter university.

At this point he decided to go to medical school and financed his studies at the University of Otago by working in a variety of jobs, including catching live frogs for the medical school, rabbiting and working nightshifts at Wattie’s.

He finished his training in his early 30s and gave up his surgical ambitions in favour of working as a GP to support his wife Philippa and to begin a family.

He helped set up the St Albans Medical Centre and worked there for more than 20 years, during which time he was a busy and caring GP, who delivered several hundred Christchurch babies and developed a special interest in sports medicine. He was a doctor for the Canterbury Rugby Union and spent winter Saturday afternoons either at Rugby Park or Lancaster Park, voluntarily attending to injured players.

He was a senior member of the medical team for the 1974 Commonwealth Games in Christchurch and taught musculoskeletal medicine to medical students, trainee GPs and established doctors in the 1970s and ‘80s. He toured France as team doctor for the All Blacks in 1986 and was their doctor in the 1987 Rugby World Cup in New Zealand.

His interests outside medicine included plant propagation, developing trees for shelter belts and advancing the work of the Tree Crop Association. He loved spending time in the South Island high country, especially the Mackenzie Basin, and was a gifted dry-fly fisherman. He is remembered as pursuing all his endeavours with dedication and generosity with his time and energy. He was always positive and optimistic in his approach to life.

In family life, he was a devoted husband and a loving father and grandfather. He died peacefully on December 10, and is survived by his wife, four children and four grandchildren.

This obituary originally appeared in The Press newspaper (Christchurch) on 17 December 2005 and was written by David’s daughter. We are also grateful to Bruce Rennie and Carol Ashby of The Press.
### Reviewers for the New Zealand Medical Journal in 2005

The Editorial Board (Frank Frizelle, Tim Buckenham, Roger Mulder, Richard Beasley, Jennie Connor, Jim Reid) and Editorial Team (Frank Frizelle, Editor; Brennan Edwardes, Production Editor; Sally Bagley, Administrative Assistant) thank all those who generously gave their time and expertise in reviewing papers for the *New Zealand Medical Journal* in 2005. (We apologise to anyone whose name has been inadvertently omitted from the following list.)

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Graham Aitken Nuffield Medical Postgraduate Travelling Scholarship

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

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

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

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

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

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

Applications must be submitted to Professor Campbell by 31 March 2006
National Heart Foundation: 2006 Grant Applications

View this notice at http://www.nzma.org.nz/journal/119-1228/1841/content.pdf

((Libraries please print out PDF above and replace this page))
Heart Sounds: a life at the forefront of health care (autobiography)

Sir David Hay. Published by Steel Roberts Ltd, 2005 (info@steelroberts.co.nz). ISBN 1877338532. Contains 183 pages. Price $30.00 (part of the proceeds of this book will be donated to the National Heart Foundation)

Sir David Hay is an icon of Christchurch medicine, displaying early undergraduate promise with lifetime capacity, drive, and superb organisational skills. His early postgraduate years were exemplary. He could have moved effortlessly to a top UK academic post but instead chose to return to his homeland to become a great leader and pioneer in coronary care and later in the National Heart Foundation (NHF).

His hugely readable, occasionally whimsical, informative, and accurate autobiography tells how it was for good specialist physicians in their difficult attempts to carve out any sort of career in the 1950s and 1960s. Especially so in the well out-of-date medical conservatism of Christchurch and Wellington.

With far-sighted and stubborn drive he struggled, pushed, and educated his and subsequent generations of doctors about the enormous and destructive long-term effects of cigarette smoking. Lonely and even reviled, his triumph was the anti-smoking regulations of the Clark Health Ministry (1989–91 and 2003) and the great development of a truly great NGO (National Heart Foundation).

Few can claim to have done so much and in a story told with charm, great readability, and modesty.

For the story of a public health personal health care campaigner and teacher ahead of his time, for inspiration to those who may feel it tough now, or just for a compulsive and entertaining read. With proceeds to NHF—a great buy!

A must for all health service households and partners. Very strongly recommended.

Donald W Beaven
Emeritus Professor and Patron
Diabetes Christchurch Incorporated and Diabetes New Zealand
Christchurch
Clinical cases for general practice exams


This is an interesting book—a collection of general practice scenarios which have been adapted from the author’s clinical practice. The cases are realistic and typical of what is commonly seen in a GP surgery. It is well suited to New Zealand conditions. Covered are a diversity of conditions basically arranged into systems—e.g. adolescent health, aged care, cardiovascular medicine, challenging consultations (a drug seeker), child health, dermatology, and so on.

It is a book that you would not read, but use. It provides instructions for both the doctor and the role player, and finally a feedback to the doctor for what should be the “ideal” consultation.

Many teachers of general practice have created scenarios, myself included, and it is somewhat a novel and commendable approach to publish them as a book.

Clinical cases for general practice exams will be of immense value to teachers of general practice who teach consulting skills, both at an undergraduate and postgraduate level. It could well save them an enormous amount of time and effort.

Jim Reid
Head of General Practice
Dunedin School of Medicine, University of Otago
Dunedin
Diving and subaquatic medicine (fourth edition)

Edmonds C, Lowry C, Pennefather J, Walker R. Published by Hodder Arnold, 2005. Available from Medical Books (NZ) Ltd (email: medbooks@iprolink.co.nz)

There are three major texts on diving physiology and medicine available in the English language, of which this is one. Reflecting the considerable experience of its principal author, Carl Edmonds, this is the most clinically focused of them. An all-Australian affair (all four authors, three physicians and a scientist, have had extensive involvement with the Royal Australian Navy’s School of Underwater Medicine), nevertheless wide international consultation and advice has been sought in writing the eight major sections of the book. The fourth edition was first published in hardback in 2002 and this cheaper, paperback version is a very welcome addition.

Diving and subaquatic medicine purports to be “a concise and clinically authoritative guide to all aspects of diving medicine” written for doctors, paramedics, and professional divers attending to the medical needs of those involved in underwater pursuits whether employed or recreational divers. It succeeds well in these objectives. The whole emphasis of the book is that diving safety requires knowledge and its sensible application in order to reduce risk.

Compared to previous editions, substantial updating of information based on contemporary research has been combined with an improved layout. A feature of all editions has been the illuminating case histories, summaries, and key point lists intended to provide for easy reference. Inevitably after three years since initial publication of this edition, some topics already need updating to include newer knowledge.

Fortunately, the unique style of the previous editions has been retained successfully, and Edmonds’ dry sense of humour pervades the book. Information is presented in a practical, very readable manner. Each chapter is sensibly referenced and there is a good index. Illustrations are generally of good quality and pertinent to the associated text. However, some of the photographs have been carried over from edition to edition and are beginning to show their age, whilst some of the radiographs have not reproduced particularly well.

This is the recommended textbook for the new University of Auckland Postgraduate Diploma in Medical Science in diving and hyperbaric medicine, and should be readily accessible on the bookshelf of everyone interested in diving physiology and medicine.

Mike Davis
Associate Professor of Medicine, University of Auckland
Editor, South Pacific Underwater Medicine Society (SPUMS) Journal