Annual Report
2006

Social & Behavioural Research in Cancer Group research projects, activities and publications, January to December 2006, with dissemination plans for 2007
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(as at 31 December 2006)

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External review is experienced by all research groups, and the Social & Behavioural Research in Cancer Group (SBRCG) is no exception. An earlier review concluded that: ‘The volume of work relative to actual staffing and its quality as evidenced by the publication record is very good.’ With respect to liaison and consultation with the Cancer Society (GSNZ), ‘In relation to what might be expected from the same funds awarded as specific contracts or projects, consultancy productivity is very good.’ Contracting out specific work would involve a ‘cost disadvantage’ to the CSNZ, and was an ‘alternative (that) does not offer the quality of work and advice and accessibility of a well functioning, expert research unit that values and is accountable to an action group.’ An underlying problem was the ‘inadequacy of staff and funding resources’ and a need for ‘much larger funding’ (i.e. $200,000+ p.a., in 1997 dollars), with this core funding supplemented by ‘investigator-driven grant applications and by contract research to assure a critical mass of experienced researchers and to provide a place for training of new researchers.’

Another issue identified was that academic achievement, primarily assessed through peer reviewed journal publications, was relatively easy to assess, whereas the contribution to practical, New Zealand oriented health promotion and cancer prevention was not. Furthermore, mainstream scientific expectations could conflict with ‘engagement in research of strictly local interest and advisory and consultation tasks’ - activities that can have a significant practical impact in advancing achievable cancer control goals within specific contexts. From this perspective, journal articles are but one of many possible measures of achievement, including other forms of dissemination (e.g. detailed technical reports), postgraduate training and supervision, formal submissions and successful, evidence-based advocacy. This issue of ‘conflicting accountabilities’ was considered potentially reconcilable by ‘clarifying expectations’.

Such reviews provide opportunities for reflection and it is instructive to consider both the level of support for, and performance of, the SBRCG since 1997 in the context of the recently released report of the Cancer Control Council of New Zealand Cancer Control Council of New Zealand.1 A key finding of that report was that only 11% of the total identified research investment in Cancer Control Strategy goals was for prevention, with 11% for early detection and 1% for quality of life studies. There is, clearly, an urgent need to substantially increase funding to support social and behavioural research by groups with good track records working in these identified areas.

Tony Reeder, February 2007

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Part I

SBRCG activities by major topic area
1 Tobacco Control

During 2006, it was particularly pleasing to participate in the implementation of the collaborative processes for establishing the New Zealand Youth Tobacco Monitor (NZYTM) and the Research Coordinating Group (RCG) to oversee survey procedures and outputs. The movement towards compatibility with the WHO-supported Global Youth Tobacco Survey (GYTS), without compromising the need for data to inform local action is, in particular, to be welcomed. These were achievements based on recommendations made in the landmark 2000 report.1 Also satisfying, was the publication in refereed journals of seven papers on tobacco control issues during 2006, as well as dissemination in a range of other forms.

With Helen Darling’s completion of her PhD thesis and the lack of HRC funding (although recommended by the Public Health Assessing Committee) for the ‘10–15’ longitudinal study proposed in last year’s report, SBRCG involvement in tobacco control research is likely to need to focus on specific issues identified in the, already funded, NZYTM and Dunedin Multidisciplinary Health and Development Study (DMHDS).

Key national tobacco control goals for 2007 include successful, evidence-based advocacy for tax increases on tobacco products (especially loose tobacco, and ideally with taxes linked to improved funding to support quitting, health promotion and research); further restrictions at point-of-sale; and reductions in child exposure to second-hand smoke. The SBRCG aims to contribute by assisting in the achievement of those goals through our scientific publications and service to the CSNZ, the Smoke-free Coalition and the RCG for the NZYTM.

1.1 Project Reports: Tobacco Control

1.1.1 Relations between secondary school smoking policies and youth cigarette smoking knowledge and behaviours

Staff

Dr Helen Darling, Dr Tony Reeder and A/Prof. Rob McGee in collaboration with A/Prof. Sheila Williams (biostatistician, Department of Preventive & Social Medicine).

Funding

Cancer Society of New Zealand Inc. (core grant), Health Sponsorship Council and University of Otago (Postgraduate Scholarships).

Rationale

To reduce cigarette smoking among youth, it has become commonplace to implement prevention programmes within the school environment. As most adolescents attend school, school settings provide a means of reaching a high proportion of young people with relative ease. Yet schools vary considerably in terms of policies to prevent cigarette smoking and the provision of education about smoking. A recent study demonstrated variation in the content of school policies in New Zealand. Although most schools provided some education intended to prevent tobacco smoking, as required by the Health and Physical Wellbeing Curriculum (Ministry of Education, 1999),

many schools included education about tobacco as part of sanctions imposed on students caught smoking and these sanctions were documented in school smoking policies (Darling and Reeder, 2003). In addition to educational programmes, preventive strategies may include sanctions imposed on students caught smoking and the provision of smoke-free environments with smoke-free adult role models. Examination of the effect of the school environment on youth tobacco use is complex, and may include the effects of school policies, the rigour of their implementation, and the provision and content of school-based education and cessation programmes.

Study Aims

This study aimed to investigate the relations between school policies and students’ cigarette smoking, tobacco purchasing behaviour, knowledge of the health effects of tobacco use, and likelihood of trying to influence others not to smoke.


Progress / Results

Analysis was based on the 2002 Youth Lifestyle Study (YLS) and the corresponding School Smoking Policy Study (SSPS). School smoking policies were coded into four categories (Pentz et al., 1989) whereby policies were considered to have a punishment emphasis if either (a) sanctions for students who were caught smoking were included in the policy or (b) the policy included definitions of behaviour that would be sanctioned. Policies which described cessation support were considered to have a cessation focus. If prevention guidelines were included in the policy that policy had a preventive focus. Policies that identified more than two situations in which the students were required to be smoke-free and which informed the public of the policy were designated 'comprehensive'.

Analyses of the relation between school policy and the prevalence of students’ cigarette smoking were undertaken using three outcome variables: all smokers; daily smokers; and ‘school’ smokers, that is, students who identified school as the location where they usually smoked. There was a statistically significant decreasing trend for daily smoking and school smoking as school socioeconomic decile increased. There was no significant difference for overall smoking prevalence between the decile groups.

The relation of both knowledge of health effects and purchasing behaviour with policy emphasis was examined using negative binomial regression, but no significant associations were found. Policies which had a punishment emphasis had a ‘protective effect’ for students advising others not to smoke, whereby students were 11% less likely to advise other students against smoking. Similarly, schools with policies which provided a smoke-free environment for students reduced the likelihood of advising others not to smoke.

Student perceptions of not being taught about the health effects of cigarette smoking did not differ significantly according to policy focus.

The lack of any significant positive effects of school policies, including health education, on health knowledge should be of concern. The New Zealand secondary school curriculum includes health education components that relate to tobacco use. The widespread implementation of broadly similar health education programmes may explain the observed lack of difference between schools that had explicit health education goals in policy, and those that did not.

An association between having a smoke-free school environment and students influencing others to not smoke was found in this study. However, this association was incongruent with perceptions that a smoke-free environment would promote non-smoking. The effect suggests that smoke-free environments reduce the likelihood of students encouraging others to not smoke by 10%, although this association was weak (CI 0.81, 1.0).

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In contrast to the findings of other studies (Moore et al., 2001), the present study failed to find an association between the strength of school policy and student smoking. Further, no significant association was found between policies which included sanctions for students caught smoking at school and the prevalence of smoking at school.

Dissemination

A paper has been published in the journal Health Education Research (TP20).

1.1.2 Tobacco Education: have New Zealand primary schools done their homework?

Student and collaborator

Jacqueline Walker and Dr Helen Darling in collaboration with A/Prof. Sheila Williams (biostatistician, Department of Preventive & Social Medicine)

Funding

Jacqueline Walker was supported by a Summer Studentship from the Asthma and Respiratory Foundation of New Zealand and was the recipient of the Dunedin School of Medicine Gil Barbezat Summer Studentship Research Award (2006). Helen Darling was supported by the Health Sponsorship Council and the University of Otago.

Rationale

This study reviewed tobacco related education in New Zealand primary schools. The study was important as: 1) there was previously no information available regarding tobacco education for younger students and there is evidence that this is a most important age for education interventions; 2) anecdotally, it was believed that most tobacco related education in New Zealand was provided by external providers who have either been linked to the tobacco industry or who have shown ineffectiveness in reducing tobacco use; 3) there is the opportunity to identify successful programmes and programme delivery models to inform the education and health sectors in New Zealand; and 4) it is important that current education programmes are critiqued against international ‘best practice’ models to ensure that New Zealand school students receive the most appropriate and effective education about the harmful effects of tobacco use.

1.1. Project Reports: Tobacco Control

Study Aims

To describe the content, delivery and evaluation of tobacco-related education provided to pre-teen students and to make comparisons with current best-practice.

Progress / Results

The data were collected in collaboration with the Health Sponsorship Council’s 2004 Pre-teen (Year 6) Youth Lifestyle Study (YLS). Of the 150 composite, full primary or contributing schools that participated in the YLS, 136 schools agreed to participate in the School Smoking Education Study (SSES).

Most schools (94%) provided health education about cigarette smoking; 3% reporting that ‘not using drugs’ was integrated into the ethos of the school and the remaining schools provided no education about tobacco. Most often education about tobacco was integrated into the general health and physical education curriculum and focussed predominantly on the harmful health effects of tobacco use (95%), the effects of second-hand smoke (76%) and the addictive nature of nicotine (64%). Just over half of the schools reported discussing legal restrictions related to tobacco use.

Overall, 90% of schools used an agency external to the school to provide tobacco-related education, and for most schools this was the Life Education Trust or DARE. The Ministry of Youth Development recommends that external providers are used only as a support to curriculum-based education and not as the primary providers of drug education. It is also important that smoke-free messages are consistent with a smoke-free school environment and the modelling of smoke-free behaviour by teachers and school staff.

One of the key findings of this study was the lack of rigorous evaluation of external programmes and what evaluation was conducted was of programme delivery only. Comprehensive evaluation is a component that is considered integral to best-practice. Regular and independent evaluation of the content and delivery of programmes will be required to ensure that the tobacco education provided in primary schools is consistent with best-practice will require.

Dissemination

The findings of this study were presented as a Summer Studentship report to the Medical School, University of Otago. A paper has been accepted for publication in the *Australian and New Zealand Journal of Public Health* (TP23).

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1.1.3 Attending a place of worship, unsupervised activities and tobacco smoking

Staff

Dr Helen Darling, Dr Tony Reeder and A/Prof. Rob McGee in collaboration with A/Prof. Sheila Williams (biostatistitian, Department of Preventive & Social Medicine)

Funding

University of Otago (Dunedin School of Medicine, Strategic Research Initiatives Award); Cancer Society of New Zealand Inc (core grant).

Rationale

Smoking among youth remains at unacceptably high levels in spite of widespread policy and education measures. To reach those youth who appear immune to mainstream interventions it may be necessary to look more broadly at possible determinants of tobacco use. Associations between parental relationships, parental smoking and smoking among youth have been investigated, but less is known about situations where either a strong sense of community values prevails or, conversely, where there is little parental supervision.

Study Aims

The aim of the present study was to report the frequency of participation in unsupervised activities and to investigate associations between different types of these activities and daily smoking among New Zealand youth.

Progress / Results

Data came from the 2002 Youth Lifestyle Survey (YLS), a biennial survey of Year 10 (approximately 14–15 years) and Year 12 (16–17 years) students based on a self-report questionnaire for students administered during school class-time.

The outcome variable, daily smoking, was obtained from responses to the question ‘How often do you smoke now?’ with students who responded ‘At least once a day’ categorized as daily smokers. Students were also asked to record the frequency with which they had engaged in a variety of activities. The activity list included an item (attending a place of worship), that may be protective against smoking and other items that may increase risk, for example, frequenting an amusement arcade or skate park. Relations with parents were assessed using the Self Description Questionnaire (SDQ 1; Marsh 1990).7


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Examination of the activities that were most likely to involve ‘unsupervised time’ indicated that more frequent visits, or increased unsupervised time, was associated with increased risk of daily smoking and this is consistent with the more general findings reported by Tyas and Pederson (1998).\textsuperscript{8}

**Dissemination**

A paper, based on these findings, is being prepared for submission to a journal.

### 1.1.4 Smoking cessation in early adulthood

**Staff and collaborator**

A/Prof. Rob McGee and Dr Tony Reeder, in collaboration with A/Prof. Sheila Williams (biostatistician, Department of Preventive & Social Medicine)

**Funding**

University of Otago; Cancer Society of New Zealand Inc. (core grant).

**Rationale**

An understanding of those factors which predict sustained tobacco use or, alternatively, cessation has the potential to be useful in developing public health actions to reduce smoking. Smoking cessation has been related to several variables including higher socio-economic status, lower alcohol intake, partner support for quitting, and lower nicotine dependence. However, much of the research on quitting has involved relatively short-term follow-up. Data relating to quit attempts among young adult smokers and successful quitting are available from the Dunedin Multidisciplinary Health and Development Study. These data cover the period from childhood to age 32, the most recent assessment. This research project has collected a large amount of information enabling an investigation of socioeconomic, health, attitudinal and behavioural factors, which might be associated with persistence or cessation of tobacco smoking.

**Study Aims**

To examine predictors of quit attempts and successful quitting in a sample of young New Zealand adult smokers. The nature of the data will allow us to examine quitting from a number of perspectives.

Chapter 1. Tobacco Control

Progress / Results

All data are available for analysis. The proposed analyses will build on previous work on quitting that we have published.

Dissemination

Two papers have now been published on smoking cessation. One has examined predictors of quitting smoking in a sample of older women over a thirteen-year period in *Addictive Behaviors* (TP18). The second examined parents’ smoking behaviour and its effects on subsequent smoking and cessation among their children in *Addiction* (TP19).

1.1.5 Tobacco imagery on New Zealand television

Staff

A/Prof. Rob McGee and Juanita Ketchel.

Funding

University of Otago; CSNZ and the Health Sponsorship Council.

Rationale

This is part of a series of studies looking at the prevalence and depiction of substance use on New Zealand prime-time television, including tobacco, alcohol and other drug imagery. Smoking in the movies is a risk factor for initiation of cigarette smoking among US youth. The tobacco industry clearly believes that social climate and image building are important. We consider that the role of television in developing positive attitudes towards smoking among youth deserves more attention, especially among young children. Tobacco imagery may also help sustain tobacco dependence among adult smokers in the same way that alcohol advertising apparently impedes recovery of those trying to stay sober or cut down on drinking alcohol.

Study Aims

To examine the amount and nature of depictions of tobacco use in a week of prime-time television in 2002 and 2004.

Progress / Results

The amount of imagery on youth-oriented programmes has remained relatively stable since 1999. For adolescents who view perhaps 3–4 hours of television per night, they may see some 40–50 people smoking over a week’s viewing.
Dissemination

A paper has now been published on tobacco imagery in *Tobacco Control* (TP22). This information has also been presented in teaching sessions with undergraduate and postgraduate students.

1.1.6 Investigating associations between exposure to films and tobacco smoking

Staff

Andrew Gray (biostatistician, Department of Preventive & Social Medicine), in collaboration with Dr Helen Darling and Dr Tony Reeder.

Funding

University of Otago.

Rationale

Based on the results of international longitudinal studies it was hypothesized that exposure to films containing tobacco smoking would be positively associated with smoking behaviours among secondary school students.

Study Aims

To examine potential associations between exposure to ‘smoking’ movies, R-rated movies and susceptibility to tobacco smoking.

Progress / Results

Data for this report came from the 2004 Youth Lifestyle Study. A score for ‘susceptibility to smoking’ was calculated from students’ responses to the questions: ‘If one of your best friends offered you a cigarette, would you smoke it?’; and, ‘At any time during the next year (12 months) do you think you will smoke a cigarette?’ Students were presented with a list of recent movies that had been scored for smoking content.

After controlling for parent or caregiver smoking; peer smoking; pocket money; sex and age, no association was found between liking the movies and susceptibility to smoke. However, a positive association was found between R-rated files and susceptibility to smoking, that is, increased exposure to the movies was associated with increased susceptibility.
Chapter 1. Tobacco Control

Dissemination

A report was prepared for the Health Sponsorship Council.9

1.1.7 Monitoring the promotion of tobacco products

Staff

Dr Helen Darling and Dr Tony Reeder

Funding

University of Otago (Dunedin School of Medicine, Strategic Research Initiatives Award) and CSNZ core grant.

Rationale

The Smoke-free Environments Act (1990) and subsequent amendments banned advertising of tobacco products in New Zealand. In spite of this legislation, the promotion of tobacco products continues to occur.

![Image of advertising on a wall adjacent to Frederick St., Dunedin.](photos: Geri Henry-McLeod)

**Figure 1.1:** Advertising on a wall adjacent to Frederick St., Dunedin.

Study Aims

To monitor aspects of the potential use of tobacco advertising in New Zealand.

Progress / Results

Members of the Social & Behavioural Research in Cancer Group have observed popular media and other potential sources for examples of tobacco imagery.

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9 Gray A. *Associations between exposure to films and smoking*. A report to the Health Sponsorship Council, 31 August 2006.
1.2 Other Activities: Tobacco Control

1.2.1 Conference and workshop attendances

With support from the CSNZ, Tony Reeder attended the national Smokefree Symposium in Wellington, 16–17 October, 2006. A highlight of that meeting was the opportunity to participate in the session, hosted by the Tobacco Control Research Steering Group, where future priorities in tobacco control were debated. The need to plan for the 'endgame' with respect to the tobacco industry was a key focus of discussion. Tony again raised the issue of the $20M+ p.a. that the government receives in tobacco taxes from illegal underage sales.10

1.2.2 Advocacy and consultation

In consultation with Dr Jan Pearson (CSNZ National Health Promotion Manager) and Belinda Hughes (CSNZ National Health Promotion Advisor, Tobacco Control), and due to the need to focus more specifically on research activities, SBRCG staff no longer routinely participate in the Cancer Society's teleconferencing Tobacco Operational Group. However, we continue to receive meeting agendas and minutes and provide consultation on research-related issues, in particular, when requested. We maintained our involvement in advocacy through letters in the newspaper and Tony Reeder continued to serve on the Board of the Smoke-free Coalition, attended all Board meetings in 2006 and participated in on-going email discussion and planning, particularly in relation to tobacco taxation and distribution issues.

1.2.3 Teaching, supervision and scholarships

Helen Darling supervised Jacqueline Walker's Summer Scholarship. Tony Reeder continued to provide a series of four seminars on tobacco control for the 5th Year Medical Students' Public Health Attachment and a seminar for the Public Health Policy paper (PUBH 702) of the Diploma in Public Health. Helen Darling also presented a seminar: School influence on behaviours: the example of tobacco smoking, as part of the Public Health Seminar Series.

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10 McGee R, Reeder AI, Darling H. Using underage tobacco sales money to enhance youth health. PHA News IX (2); 2006: 7-8 (TN6).
1.2.4 Collaboration

The SBRCG continues to have good collaborative relations with other researchers, including A/Prof Robert Scragg, Dr Karen Waldie (two papers have been prepared for publication), Dr Judith McCool and others at the University of Auckland. Tony Reeder has continued to serve on the newly established Research Coordinating Group (RCG) for overseeing the implementation of the New Zealand Youth Tobacco Monitor (NZYTM). Dr Reeder attended all of the face-to-face meetings NZYTM held in Wellington during 2006 and took part in regular email discussions about documents circulated for comment. Tony was also invited to review a number of tobacco control grant applications for the 2006 HRC and NHF grant rounds. Helen Darling has also reviewed articles for Preventive Medicine and The Journal of Adolescence.

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11 Scragg R, Reeder AI, Won, G, Glover M, Nosa V. Attachment to parents, parental tobacco smoking and smoking among Year 10 students in the 2005 New Zealand national survey. In submission.

12 Waldie K, McGee R, Reeder AI, Poulton R. Migraine but not tension-type headache as a risk factor for persistent smoking. In submission to: Headache: Journal of Head and Face Pain.
2 Sun Protection and Skin Cancer Control

The SBRCG is the only research group in New Zealand that has a long history of involvement in research in this area, as well as a comprehensive, on-going programme of research and collaboration with the Cancer Society of New Zealand and the Health Sponsorship Council. SBRCG project research, conference presentations, consultation and advocacy continued to make significant contributions to this area in 2006. Of particular note was the completion of the Report on the early detection of skin cancer in New Zealand by the Early Detection Advisory Group of which Tony Reeder is a member. That report sets the scene for future research and advocacy in the early detection area. Work continued in the challenging vitamin D area and Tony Reeder was invited to be a co-investigator on a collaborative HRC grant application. Also notable this year was the developing interest in the protection of outdoor workers from excessive exposure to solar UVR while at work and grant applications were submitted for funding to support a research project in this relatively neglected area. Finally, with four presentations at the NIWA conference UV radiation and its effects: An update and three at the Behavioural Research in Cancer Control conference in Brisbane, the SBRCG maintained a high profile and there was considerable media interest and reportage of our research activities.
2.1 Project Reports: Sun Protection

2.1.1 The Sun Study: Measurement and mitigation of solar ultraviolet radiation (UVR) exposure among school children in New Zealand

Staff, student and collaborators

Caradee Wright (PhD candidate) and Dr Tony Reeder (primary PhD supervisor), with Nathalie Huston, Jan Jopson and Vanessa Hammond (SBRCG research and support staff) in collaboration with Dr Greg Bodeker (PhD co-supervisor, NIWA, Lauder), Andrew Gray (biostatistician, Department of Preventive & Social Medicine) and A/Prof. Brian Cox (PhD co-supervisor and epidemiological advisor, Hugh Adam Cancer Epidemiology Unit).

Funding

Cancer Society of New Zealand (CSNZ) (project funding) and University of Otago with student support and scholarships from the University of Otago, National Institute of Water and Atmospheric Research (NIWA) and National Research Foundation (South Africa). Conference attendance and support from the Auckland Division of the CSNZ and Frederick Urbach Memorial Travel Award.

Rationale

Children are an important target group for skin cancer prevention efforts because any harmful sun exposure that may occur during school years is a significant risk factor. In addition, there is the opportunity for schools to provide exemplary, sun-safe environments and early education that has the potential to help establish lifetime protective behaviours. No known previous studies have linked actual, time-based child solar UVR exposure, concurrent activities and social and environmental factors. Interpretation of this relational database would provide much needed information to help guide the design and targeting of effective and appropriate sun protection interventions for school children.

![Figure 2.1: Boys wearing badges.](photo: Martin Allen)
2.1. Project Reports: Sun Protection

Study Aims

The key aim was to quantify real-time solar UVR exposure for a large random sample of children during daylight saving months, using electronic personal dosimeters. Associated aims included relating UVR exposure to personal activities, sun protection attitudes, knowledge and usual behaviours; to school factors (solar education in curricula, sun protection policies and physical environments — particularly shade provision) and to community support, especially the activities of local CSNZ health promotion staff (HPs).

Progress / Results

Data analyses have, largely, been completed. A total of 27 schools and 488 children (Y4 and Y8) participated in the study. Children spent, on average, 3 hours outdoors per day and median total daily exposure was 0.6 SED (1 SED, Standard Erythemal Dose = 100 Jm-2). Exposure for some individuals reached levels where erythema (sunburn) was likely. There were statistically significant differences in UVR exposure by sex, skin type, day of the week and activity, and sex/activity and Year level/activity interactions. Passive pursuits were associated with the highest UVR exposure rates compared to outdoor active, travel and unclassified pursuits.

There were statistically significant differences in sun-protective practices by sex, ethnicity and skin type, and sex-activity and school Year level-activity interactions. Girls tended to have higher sun protection scores than boys, but were more likely to sunbathe and use sunscreen. Children identifying with Pacific Island ethnicities had higher scores than children with other ethnicities, and children with Fitzpatrick skin types I and II (the most susceptible to sun damage) had higher scores than children with skin types III, IV and V.

School and community factors were not associated with UVR exposure, sun-protective practices, sun-related knowledge, attitudes and behaviours. However, school and HPs’ scores were relatively high, which was likely to reflect the significant time and effort spent promoting youth sun protection.

Trends for Year level indicated that where child sun-related knowledge increased with Year level, attitudes and behaviours supportive of sun protection declined. When sun-related knowledge, attitudes and behaviours were considered simultaneously, knowledge was only significantly associated with behaviours when mediated by attitudes. The study findings have implications for the development and targeting of child sun protection interventions.

Dissemination

Caradée Wright attended the International Non-Ionising Radiation Workshop, 20–22 May, 2004, in Seville Spain, and presented a poster (MC11) on a study regarding UVR dosimeters to an audience of UVR experts. A poster (MC15) of preliminary results was also presented at the 6th World Congress on Melanoma, September 6–10, 2005 in
Chapter 2. Sun Protection and Skin Cancer Control

Vancouver, Canada. Similar results, in addition to a summary of the invited review of Youth solar UVR exposure, concurrent activities and sun-protective practices published in *Photochemistry and Photobiology* (2005) was presented at the 33rd Annual Meeting of the American Society for Photobiology in San Juan, Puerto Rico 10–13 July, 2006. Ms. Wright attended the NIWA workshop, *UV radiation and its effects: An update*, Dunedin Museum 19–21 April, 2006, and presented preliminary results pertaining to children’s personal UVR exposure, concurrent activities and sun-protective practices (She received the award for the best paper presentation). A number of media releases have been prepared, interviews conducted and reports published. 1,2

Two papers from this study have been published to date: an invited review (MP18)3 and a report on the UVR exposure, concurrent activities and sun-protective practices of New Zealand primary schoolchildren.4 A third paper is being prepared for publication.5

2.1.2 The SunSmart Schools National Baseline Survey

**Staff and collaborators**

Jan Jopson and Dr Tony Reeder in collaboration with Dr Judith Galtry and Mary Duigan, National Office, CSNZ Inc.

**Funding**

CSNZ project funding, University of Otago; Maurice and Phyllis Paykel Trust and CSNZ (conference attendance support).

**Rationale**

Schools are identified as a priority action area for skin cancer control in the New Zealand Cancer Control Strategy Action Plan, 2005–2010.6

Students can spend extended periods outdoors during school hours, in both organised and discretionary activities. Providing a supportive environment at school has the

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1 McKinlay T. *Schools’ sun protection programmes questioned*. Otago Daily Times, April 22-3, 2006, p.33 (with later factual correction)
5 Wright C, Reeder AI, Bodeker G, Gray A, Cox B. Sun-related attitudes mediate relationship between knowledge and behaviour.
potential to significantly reduce UVR exposure and skin cancer risk through improving sun protective behaviour.

Primary schools have been identified as settings for effective educational and policy interventions in skin cancer control.\(^7\) The World Health Organisation (WHO) advocates as ‘best practice’ for addressing sun protection in schools, recognition of the sun protection efforts of each school through an award system, similar to the Australian SunSmart Schools Accreditation Program (SSAP).\(^8\) This multi-faceted approach is recommended to address school policy and practices, education of parents and caregivers involved with the schools, and classroom teaching.

**Study Aims**

The CSNZ re-launched the previously regional SSAP as a nationwide programme in October 2005, with nationally coordinated administration and resources based around a comprehensive website (www.sunsmartschools.org.nz), and with regional support for schools from CSNZ health promotion staff. The present study was commissioned by the CSNZ to provide baseline information about the sun protection policies and practices of New Zealand primary schools prior to the re-launch of the SSAP.

**Progress / Results**

As part of the need for programme evaluation, this paper reports the findings of a national survey of a randomly selected sample of approximately 12% of New Zealand primary schools prior to the national launch of the SSAP. Principals at 242 schools completed a mail survey (84% response rate) relating to school sun protection policies, practices, curriculum and environment. Survey responses were evaluated according to the 12 criteria of the SSAP. No school fully met all 12 accreditation criteria. Continued support and resources are needed to encourage schools to address sun protection across the spectrum of curriculum, practices and environment; and through commitment to written policy.

**Dissemination**

A technical report was prepared for the CSNZ (MR13). Jan Jopson attended the NIWA workshop, *UV radiation and its effects: An update*, Dunedin Museum, April 19–21, 2006 and presented a preliminary report (MC17). Tony presented a paper: *A baseline study prior to implementation of a New Zealand primary schools’ National SunSmart Accreditation Program* at the 8th Biennial Behavioural Research in Cancer Control Conference in Brisbane, September 27-29, 2006 (MC21). A paper containing the analytical findings is being prepared for submission to a journal for consideration for publication.

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Chapter 2. Sun Protection and Skin Cancer Control

2.1.3 A review of outdoor workers’ sun awareness and interventions to improve sun protection, 1990–2005

Staff and collaborators

Dr Tony Reeder (Co-investigator) with Dr Judith McCool (Principal investigator, Department of Social and Community Health, University of Auckland) and Dr Geraldine Meechan (Co-researcher), Department of Psychological Medicine, University of Auckland).

Funding

CSNZ Wellington Division Inc.

Rationale

A systematic review of the literature would be informative in helping to guide the future development of New Zealand sun protection policies, programmes and research.

Study Aims

The study had two key aims, the first of which was to review all literature pertaining to outdoor workers’ sun exposure, sun protection and skin cancer prevention published between 1990 and 2006. The second aim was to identify those elements of intervention strategies most likely to be effective in improving sun protection practices among outdoor workers.

Progress / Results

Although sun related knowledge and awareness of the risks of excess exposure varied, sun protection was generally poor among outdoor workers. Barriers to sun protection included its low appeal, perceived low priority and inconvenience. Male workers and younger workers were less likely to use sun protection than their female and older colleagues. Workplace policy development in larger workplaces was associated with improved sun protection. Barriers to policy development included time constraints, perceived low priority (e.g. relative to acute injuries) and conflict with work clothing practices. In the 10 intervention studies identified, long term effects were rarely assessed. Multi-component studies with longer duration interventions and follow-up tended to be most effective in promoting sustained improvement in sun protective behaviours. The use of team leaders as role models was efficacious in developing a more protective workplace culture. Perceived management support and the provision of specific, practical protective information were important components to sustain protective practices.
Dissemination

A report (MR14) was provided to the CSNZ (Wellington Division Inc.) which funded the study and a paper based on the findings is being prepared for publication.9

2.1.4 Solar ultraviolet radiation exposure and workplace sun protection in outdoor occupational groups

Staff, student and collaborators

Vanessa Hammond (postgraduate research student), Dr Tony Reeder (primary supervisor) and Nathalie Huston (research support) with Andrew Gray (biostatistician and co-supervisor, Department of Preventive & Social Medicine), Dr Greg Bodeker (co-supervisor, NIWA, Lauder).

Funding

University of Otago, Otago University Postgraduate Award, CSNZ (core grant), NIWA.

Rationale

Among the most at risk groups for developing skin cancer in New Zealand are those exposed to the sun during peak solar UVR hours (11am–4pm, particularly during daylight saving months), who are not adequately protected by shade, sunscreen, sunglasses and protective clothing (e.g. a sunhat).

Outdoor workers’ can receive extreme levels of solar UVR, yet New Zealand evidence suggests that almost a quarter of workers in key outdoor occupational groups never use sunscreen at work, and more than a third do not wear a sun protective hat (MR10).10 Although excessive exposure to solar UVR is an identified potential workplace hazard, sun protection and skin cancer prevention among outdoor workers in New Zealand has remained marginalised as an occupational safety issue. The available evidence and anecdotal reports suggest that adequate UVR exposure control strategies are not widely implemented.


Since behaviour is influenced by the conditions under which people operate, it is important to assess workplace sun protection polices, practices, environments, provision of equipment, scheduling of work hours, and general safety culture in order to understand the key risk and protective factors within different occupational groups with variation in sun-protection and UVR exposure.

**Study Aims**

The main aim is to obtain data that will help inform and guide the further development of sun protection and skin cancer prevention programmes for outdoor workers by quantifying actual UVR exposure and identifying the most appropriate targets and strategies for intervention and evaluation. The evidence gathered on occupation-specific policies, guidelines and practices will be used to inform sun protection interventions designed to accommodate the unique characteristics of particular outdoor occupational contexts.

**Progress / Results**

Data collection for the first stage of the study is scheduled to commence in Central Otago, January to March 2007. The outcomes of grant funding applications to support an extension of the project nationally are awaited.

**Dissemination**

The Central Otago stage of the study will either be written up as an MPH thesis or, on success in receiving grant funding to extend the project nationally, it will inform the development of a subsequent PhD research project. Results from the study will be made available to all participating workplaces and workers, the Cancer Society of New Zealand, the New Zealand Cancer Control Trust, the Ministry of Health, the Occupational Safety and Health Service of the Department of Labour, the Ngāi Tahu Research Consultation Committee (Te Komiti Rakahau ki Kāi Tahu) and other interested agencies. It is anticipated that research findings will be written up for our technical report series and published as one or more papers in refereed scientific journals. It is also anticipated that the study will inform the development of an occupational UV radiation exposure standard.

**2.1.5 The sun protection policies and practices of Territorial Authorities**

**Staff and collaborators**

Dr Tony Reeder (principal investigator) and Jan Jopson (co-investigator) with Nathalie Huston (research support).
2.1. Project Reports: Sun Protection

Funding

University of Otago Research Grant and the Cancer Society of New Zealand (project funding); Health Sponsorship Council; Maurice and Phyllis Paykel Trust and the CSNZ (conference attendances and travel of Dr Reeder)

Rationale

Until recently, the focus of skin cancer prevention in New Zealand has been on raising public awareness about sun protection in order to achieve positive attitudinal and behavioural changes. However, such changes are more likely to be achieved and sustained when public policies and institutional practices create contexts which support and provide opportunities for appropriate protective behaviours.11

Territorial authorities’ responsibilities include administering recreational and sporting facilities (including outdoor swimming pools), facilitating community events, employing outdoor workers, managing public places and granting planning and building approvals. Given their potential influence on shaping so many aspects of our shared outdoor social and physical environments, a focus on optimising territorial authorities’ sun protection policies and practices is a logical skin cancer prevention strategy. Such an approach is consistent both with health promotion theory and the objectives of the New Zealand Cancer Control Strategy through increasing protection for outdoor workers and increasing opportunities for the public to access shade in public settings. In addition, the Local Government Act 2002 identifies opportunities to protect public health.12

Study Aims

The three key aims of the study were to: (i) collect and collate national information to build a comprehensive picture of the sun protection policies, practices and

plans of local councils in New Zealand; (ii) help inform and guide the development of a SunSmart programme designed to encourage councils to implement appropriate sun protection policies and practices; and (iii) establish a baseline against which any change could be measured and interventions evaluated.

**Progress / Results**

This baseline study has been completed. The development of further research in this area will depend on the availability of funding support.

**Dissemination**

The findings have been written up as a full technical report (MR15) provided to the CSNZ and the HSC, with selected findings presented at national conferences / workshops, including one in 2005 (MC14) and two during 2006: at the NIWA workshop, *UV radiation and its effects: An update*, Dunedin Museum, April 19–21, 2006 (MC19), and the *8th Behavioural Research in Cancer Control Conference*, Brisbane, Australia, September 27–29, 2006 (MC22) with the support of grants-in-aid from the Maurice and Phyllis Paykel Trust and the CSNZ. A summary report (MR16) was also distributed to the CEO’s of all territorial authorities in New Zealand, whether or not they had participated in the survey.

**2.1.6 New Zealand population trends in sun protection knowledge, attitudes and behaviours, 1994–2006**

**Staff, student and collaborators**

Geri Henry (PhD candidate), Dr Tony Reeder (primary PhD supervisor), Andrew Gray (co-supervisor, biostatistician), A/Prof. Rob McGee (co-supervisor), Dr Jean-Luc Bulliard (technical advisor, Unité d’épidémiologie du cancer, Institut universitaire de médecine sociale et préventive, Switzerland), and Nathalie Huston (research support).

**Funding**

Funding is provided by a three-year PhD scholarship from the SunSmart Partnership of the HSC and the CSNZ. Additional support is provided by the University of Otago.

**Rationale**

Key aims of the New Zealand skin cancer prevention programme have been to raise public awareness and reduce the risk of excess sun exposure by encouraging sun protective behaviours appropriate for the diurnal and seasonal solar ultra-violet radiation (UVR) levels. The Triennial Sun Protection Survey dataset and climate and UVR data, will be used to quantify to what extent SunSmart messages are remembered and the
recommendations achieved among the adult New Zealand population. This study will be the first assessment of trends in, and relations between sun protection knowledge, attitudes and behaviours in the New Zealand adult population over the twelve-year survey period 1994–2006.

Study Aims

The aims are to comprehensively describe population trends in sun protection knowledge, attitudes and behaviours for the years 1994–2006, and analyse the relations between knowledge, attitudes and behaviours relevant to the SunSmart Programme. Changes in the incidence of sunburn and in possible contributing factors (e.g. outdoor activities or sunscreen use) will be of specific interest. In addition, National Institute of Water and Atmospheric Research (NIWA) historical data on UVR levels and weather at the time of each survey will be included in the analyses. Differences in survey and NIWA data between the five locations from which data were collected may provide information regarding particular local issues. Overall, the research should provide valuable feedback to help inform skin cancer awareness and behaviour modification programmes in coming years.

Progress / Results

Data have now been gathered for the 2006 Triennial Sun Protection Survey, producing five datasets for the period, 1994–2006. Preliminary results indicate that New Zealanders tend to have positive attitudes towards sun tanning (i.e. are ProTan), with the ProTan trend appearing to peak in 2000, subsequently declining back to near 1994 levels. Climate data including wind speed, rainfall, sunshine hours, cloud cover, and air temperature, have been obtained from the National Institute of Atmospheric Research (NIWA). The UVR data are due to be collected from NIWA in early 2007. Analyses have been planned for both the Triennial Sun Protection Survey datasets and the climate and UVR datasets. These future analyses will incorporate attitudes, knowledge and behaviours while controlling for weather effects to assess trends in the New Zealand adult population over the twelve-year survey period.

Dissemination

Analyses have been conducted on the attitude variables in the dataset, and preliminary results were disseminated at the NIWA conference *UV radiation and its effects: an update*, Dunedin, April 2006. One paper (MC18), was published in the conference workshop report. Another conference paper, (MC20) was presented at the *8th Biennial Behavioural Research in Cancer Control Conference* in Brisbane, September 27–29,
2006. A paper on *Perceptions of suntans among the New Zealand adult, urban population, 1994–2006*, has been prepared for submission to a peer reviewed journal.

### 2.1.7 Quantifying the association between sun exposure and vitamin D status in New Zealanders

**Staff and collaborators**

Dr Tony Reeder (co-investigator) with A/Prof. Robert Scragg (School of Population Health, Auckland University, principal investigator), and co-investigators Dr Richard McKenzie (NIWA, Lauder), Alistair Stewart (School of Population Health, Auckland University), Ben Liley (NIWA, Lauder), Dr Lorna Dyall (Māori Health, School of Population Health, Auckland University), Malakai 'Ofanoa (Pacific Health, School of Population Health, Auckland University), Dr Ekramul Hoque (Centre for Asian Health Research and Evaluation, University of Auckland), Dr Michael Kimlin (Institute of Health and Biomedical Innovation, Queensland University of Technology), and Paul Johnston and Dr Greg Bodeker (NIWA, Lauder).

![Beach scene with people](image)

**Funding**

A collaborative grant application was submitted to the HRC during 2006.

**Rationale**

New Zealanders have low vitamin D levels compared to other developed countries and a significant proportion has sub-optimal levels, particularly Pacific, Māori and South Asian peoples. Low levels of vitamin D have been implicated in a wide variety of health issues particularly rickets, osteomalacia, osteoarthritis, and evidence is emerging of possible causal links with some cancers (breast, colon, and prostate), multiple sclerosis, diabetes, hypertension, coronary heart disease and reduced lung function. For many of these outcomes, the risks are greater for Māori, Pacific and Asian peoples.
Current scientific opinion is that serum levels of 25-hydroxyvitamin D (25OHD3), the main measure of vitamin D status, should be maintained above 75 nmol/L. The mean level in adult New Zealanders is 50 nmol/L. The primary source of vitamin D is sun exposure, but there is a lack of consensus on how much is needed to maintain vitamin D at the optimum levels required for good health. The amount of vitamin D produced from sun exposure varies with age, skin pigmentation, time of year and day, and latitude. Vitamin D synthesis is dominated by reactions in the skin that utilize UV-B radiation in sunlight. The situation in New Zealand is special because we experience very high UV levels in the summer, but not in the winter. In the south of New Zealand, the daily dose of the UVR that produces vitamin D on a winter day is approximately 5% of that in the summer, so vitamin D levels are low during the winter months. A lack of knowledge about the action spectrum for vitamin D formation currently limits our understanding of how to mitigate the problem.

**Study Aims**

The study has two main aims. The first is to determine the association between sun exposure and changes in serum 25OHD3, and how this varies with age, skin pigmentation, latitude and season. The second aim is to determine the amount of UVR supplementation needed (if appropriate) from available artificial light sources to maintain optimal levels of vitamin D, and determine the wavelength-dependence (i.e. ‘action spectrum’) for vitamin D production across the UVB and UVA range.

**Progress / Results**

The outcome of the grant application will be known during 2007. In the meantime, collaborative contacts continue.

### 2.2 Other Activities: Sun Protection

#### 2.2.1 Conferences and workshops

In addition to staff attending and presenting at the NIWA (Dunedin) and Behavioural Research in Cancer Control (Brisbane) conferences, Geri Henry-McLeod attended the *GeoHealth 2006: Methods and Practice* conference, in Nelson, November 2006, creating the foundation for future collaborative projects involving GIS (Geographic Information Systems) data.

#### 2.2.2 Consultancy and advocacy

Tony Reeder continued to serve on the skin cancer *Early Detection Advisory Group* (EDAG), which was funded by the Ministry of Health to produce a report to inform developments in the early detection of skin cancer in New Zealand. The production
of this major report in 2006\(^{13}\) represents a milestone in what had become a neglected area in New Zealand since the mid 1990's (as identified in an earlier commissioned report, (MR9), which recommended that an advisory group should be set up).\(^{14}\) As part of the work being carried out in this area, Tony Reeder was invited to co-author an epidemiological paper on trends in melanoma.\(^{15}\) Tony Reeder also continued to work with the Vitamin D Working Group, and participated in meetings with Ministry of Health (in particular, Laura Lambie acting group manager, Non-Communicable Diseases Policy Group) and CSNZ staff about the development of sun protection programmes for school children and outdoor workers. There were a number of media reports about SBRCG work during 2006, including two that reached wide national audiences.\(^{16,17}\)

2.2.3 Collaboration

There was on-going collaboration with the CSNZ, in particular, with respect to the Sun-Smart Schools Accreditation Programme (Mary Duignan), the development of strategies for outdoor workers’ sun protection, and strategies related to early detection of skin cancer and the benefits and risks of solar UVR exposure (in particular, Dr Judith Galtry). Collaborative contacts were also maintained with the HSC, in particular, Kiri Milne and Wendy Billingsley. The collaboration with Dr Judith McCool at the University of Auckland also continued.

2.2.4 Teaching, training, supervision and scholarships

Tony Reeder was the primary supervisor and A/Prof. Brian Cox (HACEU) a co-supervisor for Ms Caradee Wright’s PhD study which was supported by a South African National Research Foundation (NRF) overseas PhD scholarship, NIWA funding to meet the first year of her university fees as an overseas student, and one of only four prestigious University of Otago International Student PhD Scholarships awarded in 2004. Caradee’s thesis was scheduled for submission at the end of 2006.

Tony Reeder is the primary supervisor for Geri Henry-McLeod’s PhD project, with Rob McGee and Andrew Gray as co-supervisors. Ms Henry-Mcleod was awarded the SunSmart Partnership Scholarship in 2005 to assist with her project. Tony Reeder is also the primary supervisor for Vanessa Hammond’s MPH project on outdoor workers. Vanessa Hammond was awarded an Otago University Postgraduate Award in 2006. Tony and other SBRCG staff also provided assistance to Ngaia Calder, who completed

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14 Reeder AI. *Report to the Skin Cancer Steering Committee to inform the development of the Skin Cancer Control Programme Plan 2005*. Social & Behavioural Research in Cancer Group, Department of Preventive & Social Medicine, University of Otago, Dunedin, July 2004. (MR9)


her dissertation about influences on young adult sun protection as part of her Bachelor of Commerce (Honours) in Marketing Management at the University of Otago.\textsuperscript{18}
3 Healthy Physical Activity and Nutrition

Physical activity has much to offer in terms of benefits for health, however, levels of participation appear to be too low to achieve these benefits among a substantial proportion of the New Zealand population.\(^1\) One of the key principles underpinning the vision for recreation and sport in New Zealand is that ‘involvement in recreation and sport should be a seamless progression of participatory experiences though all ages and all levels of involvement’.\(^2\) Achieving this goal requires an understanding of factors that support the maintenance of adequate physical activity participation across the life course. SBRCG involvement in this area received significant recognition and support with the award of a Dunedin School of Medicine Strategic Initiative Award to study physical inactivity and obesity issues in relation to cancer prevention.\(^3\)

3.1 Project Reports: Physical Activity and Nutrition

3.1.1 Factors influencing physical activity during adolescence and young adulthood

Staff, student and collaborators

Rose Richards (PhD candidate) and Dr Tony Reeder (PhD supervisor), in collaboration with Prof. Richie Poulton (Director, Dunedin Multidisciplinary Health and Development Study (DMHDS); co-supervisor), and A/Prof. Sheila Williams (biostatistician, Department of Preventive & Social Medicine).

Funding

Cancer Society of New Zealand Inc (core grant). The DMHDS is supported by the Health Research Council of New Zealand.

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\(^2\) Sport Fitness and Leisure Ministerial Taskforce, *Getting set for an active nation*. 2001: Wellington NZ
Rationale

Longitudinal studies encourage researchers to try to understand physical activity across the life span. This is an ambitious goal, given that understanding participation at one point in time is, by itself, a significant task. However, there is much to be gained through increased understanding of the patterns of physical activity participation from childhood through adulthood and how prior experiences may shape this participation. This project included three unique opportunities provided by longitudinal studies: the examination of tracking of physical activity (Study 1), and identification of antecedents of adolescent (Study 2) and adult physical activity participation (Study 3).

Progress / Results

Study 1 found low to moderate tracking of physical activity from childhood through to adulthood. In addition to adding to a very small number of studies that have been able to examine this issue, the current study explored different techniques for describing tracking and controlled for potential confounders of this relationship. Low to moderate tracking implies that initiatives to promote physical activity during childhood and adolescence will need to be followed with further initiatives into adulthood in order to support lifelong participation in physical activity.

Studies 2 and 3 examined antecedents of physical activity participation at two key times in the life-course: adolescence and young adulthood. Associations with a broad range of family environment, health status and health risk behaviours were examined. For adolescent physical activity, three patterns of participation were examined: consistent inactivity, consistent activity and declining participation between ages 15 and 18 years. Based on the commonalities and strength of associations; some key themes were identified. The first was that study findings suggest that programmes delivered during childhood, to support family participation in physical activity and a home environment that encourages activity over inactivity, and enhance motor ability, may be useful in preventing low physical activity in adolescence. The second key theme was that programmes delivered to families with low SES may be particularly useful. Study 3 found some evidence that these approaches may also help prevent non-participation in vigorous physical activity during adulthood.

Dissemination

The findings of the three studies have been presented in full in Rose Richard’s PhD Thesis, which was submitted in December 2006. In addition, a paper based on Study 1 has been accepted for publication in the journal Research Quarterly for Exercise and
3.1. Project Reports: Physical Activity and Nutrition

Sport (PP6) and a second paper based on Study 2 has been submitted to Medicine and Science in Sports and Exercise for consideration for publication.

3.1.2 Physical Activity and Interest Questions: 2004 Youth Lifestyle Study

Staff

Dr Helen Darling

Funding

Health Sponsorship Council

Rationale

To provide a report to the Health Sponsorship Council, based on data from the 2004 Youth Lifestyle Study, on the responses to the questions on sporting, culture and music questions.

Progress / Results

This report presented results for responses to questions regarding youth sporting, culture and music questions from the 2004 YLS. Only data for Year 10 students were analysed and analyses included the subgroups of susceptible non-smokers and Māori students.

Students were considered ‘susceptible’ if they had responded ‘probably yes’ or ‘definitely yes’ to the question: ‘If one of your best friends offered you a cigarette, would you smoke it?’ (and did not report daily smoking and had not smoked 100 or more cigarettes in their lifetime). Among the students in the study, 15.3% were classified as susceptible to smoking; more female students (9.5%) than male students (5.8%).

Dissemination

A report was prepared for the Health Sponsorship Council (PR7).
3.1.3 Walking to school: frequency and predictors among primary school children

Staff, students and collaborators

Dr Tony Reeder with Dr Jason Eberhardt-Phillips (former Public Health Course Coordinator, Department of Preventive & Social Medicine) and a team of 5th year medical students.

Funding

University of Otago (trainee intern Health Care Evaluation Project), Cancer Society of New Zealand (core grant).

Rationale

A lack of adequate physical activity contributes to a range of negative health outcomes. Walking to school can provide children with a regular and convenient form of physical activity.

Study Aims

The study aims were to obtain baseline data on the frequency of walking to school, and investigate factors that either facilitated or presented barriers to this behaviour.

Progress / Results

Tony Reeder was the ‘client’ for this medical student research project. An SBRCG proposal for a study of walking to school among Dunedin primary school children, which was submitted to the trainee interns for consideration, was enthusiastically taken up towards the end of 2004 and developed into a Trainee Intern Health Care Evaluation Project. Overall, 39 schools participated and 1,157 completed parent questionnaires...
were returned (68% response rate). The study established a baseline for the proportion of children walking to school and identified a number of predictors of that behaviour.

**Dissemination**

Study methods and findings were presented at a public Departmental seminar and prepared as a printed report. Copies of the report have been requested and provided to the local government sector. A paper for publication was prepared for submission in 2006. The research project has now been completed. However, study findings have the potential to continue to be used for advocacy to inform health, transport and education policies directed at increasing the proportion of school children who safety walk to school.

### 3.1.4 Evaluating the Southland Healthy Eating Healthy Action programme for primary caregivers in home settings with children under 5 years

#### Staff, student and collaborators

Leanne Liggett (PhD Candidate), A/Prof. Rob McGee (primary PhD supervisor), Dr Winsome Parnell (PhD co-supervisor, Department of Human Nutrition), Andrew Gray (PhD co-supervisor, biostatistician, Department of Preventive & Social Medicine), Yvette McKenzie (Sport Southland, Physical Activity Advisor), Stephanie Thurlow (Southland District Health Board, Dietitian).

#### Funding

The Southland HEHA Programme has three funding sources; nationally via the HEHA Innovations Fund (Ministry of Health) and locally from the Southland District Health Board and Sport Southland. Funding varies between 30–36 months.

#### Rationale

The Healthy Eating Healthy Action (HEHA) Strategy and HEHA Implementation Plan addresses three of the 13 priority population objectives in the New Zealand Health Strategy — improving nutrition, reducing obesity and increasing the level of exercise. The Southland HEHA Programme has been developed to assist addressing these population objectives in Southland and this research aligns closely with its second phase,

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4 Burt R, Chow K, Donohue R, Sani HSH, Taylor K, Towns C, Yelavich S. *Walking to primary school or being driven: how many children and why?* Trainee intern health care evaluation project. Department of Preventive and Social Medicine, Dunedin School of Medicine, January 2005.

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which is a short comprehensive healthy lifestyle programme entitled Healthy Me N U. Healthy Me N U is being designed for home-based primary caregivers of under fives, with the target audience being Māori, Pacific and low socioeconomic families.

**Study Aims**

The proposed research aims to evaluate the effectiveness of the Healthy Me N U programme. Two of the eight HEHA population objectives are being investigated through the doctoral study: fruit and vegetable intake and daily exercise levels. Knowledge, attitudes and behaviours regarding these two population objectives will be measured for participating caregivers and their children (if aged between 3 and 4 years). This information will be collected at baseline and six months post recruitment. The correlations between fruit and vegetable intake and daily exercise level of the caregivers and their children will be examined at both time points. Furthermore, these details will be collected for a comparison group not participating in the programme and residing in the Otago region, outside of Southland.

**Progress / Results**

The Southland HEHA Programme formally began in November 2006 and staff are working concurrently on both phases. A comprehensive literature review is currently being undertaken which incorporates the identification of national and international validated instruments which may be utilised in the future. Testing of instruments (specifically pedometers) prior to piloting the Healthy Me N U programme will occur in early 2007.

**Dissemination**

In October 2006, a presentation was made at the Public Health Intelligence (PHI) Analytical Workshop (Wellington) which focused on Public Health Outcomes Monitoring using the Southland HEHA Programme as a case study. The first media article was published in a Southland newspaper (December 2006).

3.1.5 The physical environment and physical activity study

**Staff and collaborators**

Dr Tony Reeder (co-investigator) with A/Prof. Hilda Firth (principal investigator) and A/Prof. Peter Herbison (co-investigator, biostatistician) Department of Preventive & Social Medicine; and co-investigators Dr Debra Waters (School of Physical Education); Dr Claire Freeman (Department of Geography); and Dr Nancy Rehrer (School of Physical Education / Department of Human Nutrition.)
3.1. Project Reports: Physical Activity and Nutrition

**Funding**

Grant applications were submitted to a number of potential funding agencies during 2006 and a grant-in-aid was awarded as a University of Otago Research grant.

**Rationale**

Contextual factors both within families and the neighbourhood physical environment are potentially modifiable influences on the physical activity participation of children and adults.

**Study Aims**

The study has five main aims, namely to: (i) quantify participation in physical activity; (ii) identify the places where it occurs; (iii) identify predictors and barriers to participation; (iv) investigate attitudes and perceptions regarding the physical environment; and (v) determine the types of physical contexts within which participants prefer being physically active.

**Progress / Results**

The study is due to start in 2007. The comprehensiveness of the study will depend on the level of funding received.

**Dissemination**

It is intended to disseminate study findings to participants, local authorities, agencies interested in advancing public health and local government. A variety of means will be used including oral presentations, reports and papers in peer-reviewed journals.

### 3.1.6 Alcohol imagery on New Zealand television

**Staff**

A/Prof. Rob McGee, Juanita Ketchel and Dr Tony Reeder.

**Funding**

Lotteries Commission, University of Otago, Cancer Society of New Zealand Inc.
Chapter 3. Healthy Physical Activity and Nutrition

Rationale

In 2002, we initiated a study of tobacco imagery in television programmes broadcast during prime-time viewing. In 2003, this research was extended to include alcohol and other drug imagery on television. Since we were successful in obtaining contestable grant funding to repeat the survey in 2004, we decided to report imagery across the two time periods in order to allow examination of any changes in its extent or nature.

Study Aims

To examine the amount and nature of depictions of alcohol use in one week of prime time television in 2002 and 2004.

Progress / Results

There were 648 separate depictions of alcohol imagery across the week of viewing recorded in 2004, with an average of one scene every nine minutes. Scenes depicting uncritical imagery outnumbered scenes showing possible adverse health consequences of drinking by 12 to 1.

The evidence points to a large amount of alcohol imagery incidental to storylines in programming on New Zealand television. Alcohol is also used in many advertisements to market non-alcohol goods and services. More attention needs to be paid to the extent of alcohol imagery on television from the industry, the government and public health practitioners. Health education with young people could raise critical awareness of the way alcohol imagery is presented on television.

Dissemination

A paper has now been submitted and provisionally accepted for publication. A copy of this paper was also sent to Ross Bell, Executive Director of the New Zealand Drug Foundation for use in advocacy concerning alcohol advertising on New Zealand television. This has proved timely as a review committee is sitting to consider this issue at present. A copy of the paper has been sent to the committee. This information has also been presented in teaching sessions with undergraduate and postgraduate students.

3.1.7 A tailored intervention to increase New Zealanders’ fruit and vegetable consumption

Staff and collaborators

Dr Tony Reeder (co-investigator) with the Otago University research team: Dr Caroline Horwath Matthaei and Louise Mainvil (principal investigators), with Silke Hellwig
3.1. Project Reports: Physical Activity and Nutrition

and A/Prof. Christine Thomson (Department of Human Nutrition); Andrew Gray (biostatistician, Department of Preventive & Social Medicine), Grant Baxter (Design Studies) and Dr Elaine Rose (Physical Education) in collaboration with Te Hotu Manawa Māori (Auckland).

Funding

National Heart Foundation of New Zealand (project grant number 1016), University of Otago, and the Cancer Society of New Zealand Inc. (Tony Reeder’s component).

Rationale

Low fruit and vegetable intake is associated with increased health risks, including obesity, and there is evidence that these may include some types of cancer. In order to complement environmental and policy interventions, there is a need for effective behavioural interventions which motivate and enable New Zealanders to make healthy food choices.

Study Aims

The aim of the first part of the project was to develop a computerised system for generating individually tailored print communications to increase fruit and vegetable consumption among those who do not meet current recommended criteria. The second aim was to determine the effectiveness of the 5+YourWay® system developed.

Progress / Results

Participants who were assigned to each of three groups (intervention, comparison and no-treatment) in the RCT were followed up during 2006.
Dissemination

An annual report was prepared for the National Heart Foundation early in 2006. Ms Mainvil made a number of oral presentations, including one to the CSNZ’s Nutrition, Lifestyle and the Cancer Connection Road Show in Dunedin. A number of papers will be prepared for publication and presentation. A paper on the preliminary work carried out for this project was submitted in 2006. Study participants will receive a brief report of the study findings in 2007. Those in the tailored group received personalised results as part of the intervention.

3.2 Other Activities: Physical Activity and Nutrition

3.2.1 Conferences and workshops

In March 2006, Rose Richards and Helen Darling attended a Department of Public Health, University of Otago (Wellington) workshop on The effects of the food and marketing industries on population health and health inequalities. Dr Darling gave an invited presentation based on the Sponsorship and Fundraising in New Zealand Schools Study (NPS1). Helen Darling attended the New Zealand Obesity Research Consortium Conference, 2006, 24–25 August 2006, Pacific Park Conference Centre, Dunedin.

3.2.2 Collaboration, consultation and advocacy

In October 2006, the SBRCG and Department of Preventive & Social Medicine hosted a visit by Prof. Jim Sallis from the Department of Psychology, San Diego State University. Prof. Sallis is a leading international researcher on the health effects of physical activity, determinants of active lifestyles and interventions for young people and adults. He was in New Zealand as a keynote speaker at the International Council for Health, Physical Education, Recreation, Sport and Dance 1st Oceania Congress and kindly agreed to extend his visit to include a day in Dunedin during which time he presented a well-attended Otago Postgraduate Medical Society Visiting Lecturer seminar introduced by Tony Reeder. As part of his visit a meeting was held between Prof. Sallis and emerging researchers in the physical activity field from the Social and Behavioural Research in Cancer Group. This was an extremely interesting and useful meeting. Prof. Sallis discussed with this group his views on where the field is headed, where New Zealand researchers are particularly well poised to contribute, and also provided advice on specific projects planned by group members.

Tony Reeder is named as an associate investigator in the grant application led by Prof. Philippa Howden-Chapman (Wellington School of Medicine, University of Otago)

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5 Mainvil LA, Lawson R, Horwath CC, McKenzie JE, Reeder AI. Validated scales to assess adult self-efficacy to eat fruits and vegetables.
6 Sallis JF. Are environment and policy changes a long term solution to inactivity? Otago Postgraduate Medical Society Visiting Lecturer public seminar, 6 October 2006.
for establishing a Centre of Research Excellence (CoRE) to be known as the Centre for Urban Health and Development (CUHAD). SBRCG involvement would be in the area of Theme 2: Urban Design, Transport and Active Journeys (led by A/Prof. Ralph Chapman, Director of the Graduate Programme in Environmental Studies at Victoria University). The assessment of proposals is being handled through the Royal Society of New Zealand and results should be known in early 2007.

A/Prof. Rob McGee is named as a principal investigator in the grant application led by Prof. Jim Mann (Department of Human Nutrition, University of Otago) for establishing a CoRE ‘Centre for Translational Research in Chronic Diseases: Obesity’. Dr Helen Darling is also nominated as an associate investigator. If successful, SBRCG’s involvement would focus on Theme 1: Social and behavioural determinants of obesity and Theme 3: Developing community interventions.

### 3.2.3 Teaching and supervision

Dr Reeder provided supervision for Ms Richards’ PhD thesis on Factors influencing physical activity participation during adolescence and young adulthood which was submitted for examination at the end of 2006. An intending PhD student, Robin Quigg, will receive supervision from Tony Reeder for her proposed project on children’s activity in their local environment, which is due to start in 2007. A/Prof. Rob McGee provides supervision for Leanne Liggett’s PhD project.
4 Other Issues in Cancer Control and Health Promotion

Although mainly involved in specific areas of cancer control identified as significant by the Cancer Society of New Zealand, particularly primary prevention, the SBRCG also carries out some generic research that fits into the broader National Cancer Control Strategy cancer continuum. In all cases, our work is designed to help inform and guide future action.

4.1 Project Reports: Cancer Control and Health Promotion

4.1.1 Public perceptions of cancer risk, prevention and treatment

Staff and collaborator

Dr Tony Reeder in collaboration with Dr Judy Trevena (Department of Psychological Medicine, Dunedin School of Medicine).

Funding

Cancer Society of New Zealand Inc. (core funding); former University of Otago research project.

Rationale

It is important to document public perceptions about cancer because they are potentially relevant for targeting primary prevention activities, and underlie motivations that influence the uptake of screening programmes and the acceptability of diagnostic and treatment services.

Progress / Results

The original 2001 CATI survey of a random sample of the general New Zealand adult population ($n = 438$) produced a large dataset, much of which has already been analysed and published. During 2006, the remaining data were written up in the form of a paper about public perceptions of reducing the personal risk of getting cancer.
Most participants considered that there were things which people could do to help reduce their risk of cancer. We specifically asked about nutritional and other behavioural factors and perceptions of whether a range of factors, including being overweight, the consumption of animal fats, the experience of sunburn, and exposure to sunlamps and second hand tobacco smoke would increase, decrease or make no difference to risk.

**Dissemination**

Apart from the two papers already published (PSP4 & TRP7), the findings of the most recent analyses have been written up as a paper for publication in 2007.

### 4.1.2 Public consultation: making decisions about public policy: A case study

**Staff, student and collaborators**

A/Prof. Rob McGee and Prof. Charlotte Paul supervising Rachel Nicholls (MPH Candidate) Department of Preventive & Social Medicine.

**Funding**

University of Otago.

**Rationale**

Publicly funded mammography is now being offered to New Zealand women, 45–69 years (previously 50–64 years), and may be extended still further to women 40–44 years. Mammograms significantly reduce breast cancer mortality in women over 50 years, but are controversial in women 40–49 years because there is no reliable evidence to show that it is beneficial in this age range. The lack of quality evidence has contributed to fierce debate. On the one side are experts who believe that mammograms can reduce mortality and therefore are important in the fight to avert the tragedy of breast cancer. On the other side are experts who consider that screening women 40–49 years benefits few, at most, and has significant potential for harm.

**Study Aims**

As the benefits of screening women 40–49 years is uncertain, informed consent—a legal and ethical duty—is necessary, but is difficult to achieve. One solution is the ‘citizens’ jury’; a representative random sample of 12 ‘ordinary citizens’ that meet over a few days to listen to ‘expert witnesses’, discuss and debate the issue, and provide recommendations. This proposal seeks to trial this method of consultation in a New
Zealand setting, by asking a group of Dunedin women (40–49 years) to consider possible harms, benefits and cost effectiveness of screening, and decide whether mammography should be offered to women in their age group. Citizens' juries that have been held overseas have been commissioned by decision-making authorities, such as government, with the intention that the public's informed views should be fed into the development of policy.

Progress / Results

Three ‘expert witnesses’ agreed to attend: Dr Simon Baker, (National Screening Unit/Ministry of Health), A/Prof. Ann Richardson, (Christchurch School of Medicine, University of Otago) and Dr Belinda Scott, (the New Zealand Breast Cancer Foundation). The citizens’ jury was held and the process carefully evaluated. The findings suggest that the process was viewed extremely positively by all involved and received very good evaluations. Interestingly, the women decided against offering organized mammography screening to women, 40–49 years.

Dissemination

A paper describing the jury process and evaluation will be submitted for publication. Rachel Nicholls submitted a thesis for the degree of Master of Public Health, University of Otago, Dunedin on 21st December 2006, A citizens’ jury case study: decision making about breast screening mammography (TRT1).

4.1.3 Spirituality in End-of-life Cancer Care

Staff and collaborators

A/Prof. Rob McGee and Richard Egan (PhD student) in collaboration with Prof. Rod McLeod (North Shore Hospice), Dr Chrystal Jaye (Department of General Practice, Dunedin School of Medicine), and Dr Joanne Baxter (Ngai Tahu Māori Research Unit, Otago University).

Funding

Genesis Oncology Trust PhD Scholarship, University of Otago (Depts. of General Practice and Preventive & Social Medicine), CSNZ (Canterbury and West Coast Division).

Rationale

Palliative care aims to meet the needs of the whole person dying from cancer: including the physical, social, mental and spiritual dimensions. This integrated approach to
Chapter 4. Other Issues in Cancer Control and Health Promotion

health is increasingly recognised as best practice in both end of life care and other areas of medicine. Current research suggests that spirituality is a key aspect of end of life care, but that it is not well attended to, and under researched. The topic is broad so as to be exploratory and hypothesis generating. As the project develops, more clarity and definition will result, for this research is breaking new ground in the New Zealand context.

Study Aims

Within a context where the incidence of cancer is increasing, the proposed research aims to investigate, explore and improve spiritual well-being concepts and practices in Aotearoa New Zealand palliative cancer care. Specific objectives include:

- literature search and review of overseas and New Zealand literature
- exploration of understandings concerning spirituality and spiritual care in hospice settings held by staff, patients with cancer and families
- investigate the relations between staff concepts and practices of spiritual care and spiritual well-being of patients

Progress / Results

The literature search is substantially progressed and the interviews are completed.

Dissemination

The results of this work will be made available to all respondents, including New Zealand hospices, in both written and oral forms. Lay and academic presentations will be made, both nationally and internationally, at conferences and hui. Articles will be prepared for publication in national and international journals.

4.1.4 Colorectal cancer control in New Zealand

Staff and collaborators

Dr Tony Reeder (tenth of 14 co-investigators) with Prof. Ann Richardson (principal investigator) and co-investigators Magnus McGee, Dr Ian Sheerin, Gillian Abel, Dr Lisa Fitzgerald, Suzanne Pitama and Dr Phil Hider (Department of Public Health and General Practice, Christchurch School of Medicine and Health Sciences); A/Prof. Bridget Robinson (Department of Medicine, Christchurch School of Medicine and Health Sciences); A/Prof. Brian Cox (Hugh Adam Cancer Epidemiology Unit, University of Otago); Dr Diana Sarfati (Department of Public Health, Wellington School of Medicine and Health Sciences); Dr Terri Green (Department of Management, University of Canterbury); Dr Susan Parry (Department of Gastroenterology, Middlemore Hospital, Auckland), and Mr Ian Bissett (Department of Surgery, University of Auckland).
4.1. Project Reports: Cancer Control and Health Promotion

Funding

A researcher initiated grant application was submitted to the HRC in 2006.

Rationale

Currently, New Zealand health services cannot provide timely investigation and treatment for people with CRC, nor provide surveillance for individuals at increased risk of CRC, let alone offer CRC screening. This research will provide information that is essential for health service planning. It will also produce a powerful research tool for New Zealand, because the approach can be adapted to other disease outcomes in order to determine the requirements of new interventions. The approach is being applied to CRC in New Zealand initially, because information in this area is urgently needed.

Study Aims

In order to obtain information that is essential to help reduce the impact of colorectal cancer (CRC) in New Zealand a computer model will be developed which, when combined with epidemiological, clinical, economic and qualitative data, will estimate the future services and costs required for appropriate treatment and follow-up for people with CRC, surveillance for those at increased risk, and CRC screening in New Zealand.

The specific SBRCG contribution will be to the area of qualitative research (thematic analysis of semi-structured interviews) into the perceptions of health professionals (10 GPs and 10 specialists) and the general public —through telephone interviews with four groups (50–74 years), those considered at: (i) high risk (who have been referred to a specialist for colonoscopy or other tests and have taken up this referral and been assessed by a specialist); (ii) high risk (who have been referred to a specialist for colonoscopy or other tests and have not taken up this referral); (iii) moderate risk and (iv) low risk. Māori participants as well as additional GP's and specialists from regions with high numbers of Māori patients will be purposefully selected as although the incidence of CRC is higher among non-Māori, Māori are more likely to die as they are less likely to be diagnosed early.

Progress / Results

Reviewers comments will be available early in 2007 and the final decision on funding is due in May 2007.

Dissemination

Wide dissemination to participants, Ministry of Health, District Health Boards, New Zealand Cancer Control Trust and CSNZ. Papers will be prepared for publication in journals and presentations at conferences.
4.1.5 Income and spending by New Zealand youth

Staff

Dr Helen Darling, Dr Tony Reeder, A/Prof. Rob McGee in collaboration with A/Prof. Sheila Williams (biostatistician, Department of Preventive & Social Medicine)

Funding

University of Otago (Dunedin School of Medicine, Strategic Research Initiatives Award), Cancer Society of New Zealand Inc (core grant), Health Sponsorship Council and University of Otago (Postgraduate Scholarships).

Rationale

Although employment during adolescence has been described as important in the preparation for adult responsibilities it has also been associated with a negative impact on academic outcomes and increased risks for adverse health behaviours such as alcohol consumption. Similarly, increased amounts of discretionary income has been associated with increased risk of daily smoking and gambling.

Study Aims

To describe the main sources of income among New Zealand youth, their expenditure on fast food, alcohol, cigarettes, and gambling and to examine the associations between part-time employment and expenditure on potential health risk items.

Progress / Results

Data are from the 2002 Youth Lifestyle Study (YLS), a biennial study of Year 10 and year 12 students. In 2002, 141 secondary schools were randomly selected to participate in the YLS, 82 schools participated with school classes randomly selected from within these schools. The YLS was administered by the Health Sponsorship Council (HSC).

Students were asked to record weekly personal spending and saving (using categories of up to $10, $11–20, $21–30, $31–40, $41,50, >$50), the source of their income, and pattern of spending in the week prior to the study. Some sources of income differed by sex, year and school decile with students from higher decile schools being more likely to report part-time employment (OR 2.17, 95% CI 1.59, 2.96) and less likely to receive income from friends (OR 0.48, 95% CI 0.31, 0.74) and relatives other than parents (OR 0.57, 95% CI 0.37, 0.86). Boys were less likely to receive money from their parents (OR 0.77, 95% CI 0.67, 0.96), but more likely to have part-time employment (OR 1.23, 95% CI 1.06, 1.43). This pattern was similar for older students.
Students were asked to record actual expenditure on a number of listed products and services in the week prior to the survey, for example, fast food (‘like KFC or McDonalds’), and gambling (‘for example, lotto, poker machines, scratchies’). Nearly 87% of students who participated in the YLS reported some spending in the week prior to the study; the median amount spent per week was $35. Over a third of the sample reported spending on fast food, school lunches and snack food.

Logistic regression was used to examine the relationships of sex, school year, school decile, and part-time employment with any purchasing of fast food, alcohol, cigarettes or gambling. Unadjusted odds ratios showed that senior school students (Year 12) were more likely to purchase fast food and alcohol, and spend money on gambling. Boys were more likely than girls to gamble and buy alcohol, but were less likely than girls to buy cigarettes. Students who received money from part-time employment were more likely to purchase fast food and alcohol.

Negative binomial regression was used to test for associations between the reported amount of money spent on alcohol, cigarettes, fast food, and gambling and student characteristics (sex, school year, school decile, and part-time employment). Older students spent nearly 70% more on alcohol and 35% less on gambling than younger students. Boys and students from higher decile schools spent more on gambling. The amount spent purchasing cigarettes and gambling increased significantly for students in part-time employment.

Consistent with international studies, participation in part-time employment was associated with the purchasing of alcohol and with an increased amount spent on cigarettes and gambling in this study.

The results of this study highlight the need for multifaceted interventions; for example, interventions that address both access to products and the desire to purchase them and suggest that interventions aimed at guiding young people in the use of their discretionary income may have positive public health consequences.

As a follow-up to this study, analysis of the income and spending questions from the 2004 YLS are planned that include analysis of the impact of work intensity and the number of hours worked per week on adolescent health behaviours.

**Dissemination**

The results of this study have been published in the *Journal of Adolescence* (AP4). It is intended that the results from analyses of data from the 2004 YLS will also be presented and published.

### 4.1.6 Report on data quality: the 2004 Youth Lifestyle Study

**Staff**

Dr Helen Darling and Dr Tony Reeder in collaboration with Andrew Waa (Health Sponsorship Council).
Chapter 4. Other Issues in Cancer Control and Health Promotion

Funding
Health Sponsorship Council, Cancer Society of New Zealand Inc. (core funding).

Rationale
Data quality issues were identified in preliminary checking of data from the 2004 Youth Lifestyle Study and the 2004 Pre-teen Youth Lifestyle Study (Pre-teen). Accordingly, a report was prepared for the Health Sponsorship Council that identified data quality issues and recommended ways to improve quality of future data collected as part of the Youth Lifestyle Studies.

Dissemination
A report was written for the Health Sponsorship Council (TR12).

4.1.7 The 10–15 longitudinal study

Staff and collaborators
Dr Tony Reeder, Dr Helen Darling, A/Prof. Rob McGee and Rose Richards in collaboration with Prof. Patrick West (Programme Leader for Youth and Health Studies, Medical Research Council Social & Public Health Sciences Unit in Glasgow); Andrew Waa (Health Sponsorship Council); Andrew Gray (biostatistician, Department of Preventive & Social Medicine); Dr Judith McCool (Department of Psychological Medicine, Auckland University) and Dr Caroline Horwath (Department of Human Nutrition, Otago University).

Seeding funding
Cancer Society of New Zealand Inc. (core grant), Community Trust of Otago Visiting Professorship, 2005.

Rationale
Given the limitations of cross-sectional studies, especially with respect to ascribing causality, during 2006 we designed and submitted a grant application to the HRC for funding to support a longitudinal study that included a focus on youth smoking. The aim was to include a broad range of valid and reliable measures of personal, family, school and community (including media) factors in predictive models in order to identify those most strongly related to risk factors for cancer, including smoking initiation, poor nutrition, physical inactivity and excess sun exposure.
Study Aims

Building on the existing YLS and Pre-Teen databases of the HSC, we aimed to establish a theory-grounded, longitudinal, school-based study to follow up a representative sample of students during a critical developmental period. From this study, among other issues, we aimed to identify key factors in smoking initiation.

Progress / Results

Although recommended for funding by the HRC Public Health Assessing Committee, this study was not funded. This was disappointing considering the support received and the effort expended, particularly the development of international collaboration with Professor Patrick West of the MRC Social and Public Health Sciences Unit at Glasgow University. However, given the development of other studies among this age group by competing research groups with the support of government agencies, we do not intend to pursue this further.

4.1.8 The History of Health Education Posters in New Zealand

Staff

A/Prof. Rob McGee and Juanita Ketchel with Dr Warwick Brunton, Department of Preventive & Social Medicine

Funding

Department of Preventive and Social Medicine

Rationale

Posters have been used as tools for health education in NZ for a considerable period of time. They usually have a high visibility in terms of attracting attention. They provide information for people who may have difficulty reading. They may be very cost effective. They can serve a function as reminders or cues at various behavioural choice-points (e.g. to encourage fruit and vegetable purchase in supermarkets). However, there has been no comprehensive examination of this material.
Study Aims

The project had aimed to provide a systematic examination of these poster collections in archives in Dunedin (Hocken Library) and Wellington (Archives NZ). The second aspect will involve using coding frames based upon the visual qualities of the posters together with a communication framework to examine the way health messages were delivered. (e.g. appeals to fear, humour, safety, good citizenship, and so on); and the target audiences (e.g. children, parents, workers, health professionals). We will be able to trace changes over time, and relate content to historical Department of Health (DoH) concerns.

Progress / Results

Cataloguing of posters is in process and articles in the Health Bulletin, published by the DoH from 1948–1993 have been recorded in category groups in order to document any shifts in focus on health. This search has also aided the dating of some of the posters from earlier years.

Dissemination

The results of this study will be published as an illustrated book. There is also potential for publication in a suitable academic journal.

4.2 Other Activities: Cancer Control and Health Promotion

4.2.1 Teaching, supervision and scholarships

Richard Egan has a Genesis Oncology Trust PhD Scholarship and is being Co-Supervised by A/Prof. Rob McGee. Both Richard Egan and A/Prof McGee are members of the Palliative Care Research Group, Otago University, which regularly meets to discuss research in palliative care.

A/Prof. Rob McGee also supervised Rachel Nicholl’s MPH thesis. Dr Reeder continued to provide guidance for Namomo Schaaf’s Master’s project on An investigation of delay in diagnosis of cancer in Pacific Island men living in New Zealand. This is due for completion in 2007.
Part II

Staff publications by major topic area, 1992–2006
1. Tobacco Control

In chronological order, with the most recent listed last in each sub-section

Refereed papers


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<th>TP</th>
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http://tc.bmj.com/cgi/reprint/15/1/34


Invited editorials

TE1 Reeder AI. Let's clear the air of second hand smoke! New Zealand Medical Journal, 2001;114(1126): 53–54. 


Letters published in scientific journals

## Part II: Staff Publications

### TLE2

### TLE3

### TLE4

### Thesis

#### TT1
- **Darling H.** Personal, family, school and other factors that protect young people from cigarette smoking. A thesis submitted for the degree of Doctor of Philosophy, University of Otago, Dunedin, 3rd December 2005.

### Professional publications (non-refereed from 2003)

#### TN1
- **Darling H, Reeder AI.** Strong support for smoke-free schools. Health Promoting Schools Magazine, Public Health South, Dunedin, May 2003, p.2.

#### TN2
- **Reeder AI.** How things have changed. Link. Otago-Southland Division of the Cancer Society of New Zealand, Dunedin, May 2003.

#### TN3
  - [http://tc.bmj.com/cgi/reprint/13/3/243](http://tc.bmj.com/cgi/reprint/13/3/243)

#### TN4
Darling H, Reeder AI. Exposure to secondhand smoke (SHS) is associated with adverse health outcomes for children adolescents, including increased risk of invasive meningococcal disease, respiratory middle-ear infections, and exacerbation of asthma symptoms. Health Promoting Schools Magazine. May 2004.

McGee R, Reeder AI, Darling H. Using underage tobacco sales money to enhance youth health. PHA News IX (2); 2006: 7–8.


Reports


Bandaranayake M. Smoking among Wellington fourth formers. Results of the 1995 smoking survey. A report to the Cancer Society of New Zealand, January 1997 (9p.).


Part II: Staff Publications


TR9 Darling H, Reeder AI, Waa A. Tobacco use among Year 10 and 12 students in New Zealand: a report on the Global Youth Tobacco Survey data. University of Otago / Te Whare Wānanga o Otāgo Te Ropu Whakatairanga Hauora / Health Sponsorship Council, July 2004 (26 p.).


TR13 Guthrie J. Tobacco education: Have New Zealand primary schools done their homework? Report to Otago School of Medical Sciences. March 2006 (8p.).

Conference presentations (from 1998)

| TC5   | Reeder AI, Blair A. Environmental tobacco smoke: New Zealand legislation hospitality industry views on the prohibition of smoking in licensed premises, Dunedin (poster). 11th World Conference on Tobacco or Health, Chicago, August 2000. |
### Part II: Staff Publications

| TC11 | Darling H, Reeder AI. Student quit attempts, smoking sanctions cessation programmes in New Zealand schools. Oral presentation at the 12th World Conference on Tobacco or Health, Helsinki, Finland, 3–8 August 2003. |
| TC12 | Darling H, Reeder AI. Youth smoking and exposure to second hand tobacco smoke: A New Zealand study. Oral presentation at the 12th World Conference on Tobacco or Health, Helsinki, Finland, 3–8 August 2003. |

**Workshop presentations (from 2003)**


**Tertiary seminars and lectures (2006)**

1. Reeder AI. Tobacco control. Seminars for 5th year medical students public health attachment (four seminars throughout year).

2. Reeder AI, Darling H. NZ the WHO Framework Convention on Tobacco Control. Seminar for PUBH 702: Society, Health Public Policy.

**Public seminar presentations (from 1998)**

**TPS1**  Reeder AI. Youth smoking: A burning issue. Public Health Association, Otago Branch, Department of Preventive & Social Medicine. Department of Preventive & Social Medicine, Dunedin, September 9, 1999.

**TPS2**  Darling H. School influence on behaviours: The example of tobacco smoking. Public Health Association, Otago/Southland, Department of Preventive & Social Medicine. Department of Preventive & Social Medicine, Dunedin, April 6, 2006.
### Media releases

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<tr>
<td>TMR2</td>
<td>Reeder AI. Smoky bars, like sawdust spittoons, are ‘a thing of the past.’ November 24, 2000.</td>
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<tr>
<td>TMR3</td>
<td>Reeder AI. Study underlines continuing need for quit smoking services. September 14, 2001.</td>
</tr>
<tr>
<td>TMR7</td>
<td>Darling H, Reeder AI. Smoke-free homes help youth stay smoke-free. Otago University media release, 30 May 2003.</td>
</tr>
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Submissions


TS2 Social & Behavioural Research in Cancer Group staff submissions supporting ASHs submission on MP Grant Gillons Cigarettes Fire Safety Bill, 2001.


TS4 McGee R, Reeder AI. Submission to the Ministry of Health regarding pictorial warnings, 13 June 2006.

Letters to the Editor 2006


2. Sun Protection and Skin Cancer Prevention

Refereed papers


http://www3.interscience.wiley.com/cgi-bin/fulltext/42145/PDFSTART


http://www.blackwell-synergy.com/action/doSearch

http://www.blackwell-synergy.com/action/doSearch


Book chapters


Theses


Professional publications


Reports

MR1 Morris J, Elwood M. How effective are sun exposure modification programmes? Social & Behavioural Research in Cancer Group/Hugh Adam Cancer Epidemiology Unit, Department of Preventive & Social Medicine, University of Otago, May 1995 (56p.).


MR3 Reeder AI. SunSmart Research: Report to the Health Sponsorship Council. A report prepared for the Health Sponsorship Council, 6 June 2000 (8p.).
Part II: Staff Publications

MR4 Reeder AI. Results from the Māori respondents included in the national survey of awareness, understanding and response to sun protection messages in media weather reports. A report to the National Health Promotion Committee, Cancer Society of New Zealand. Social & Behavioural Research in Cancer Group, Department of Preventive & Social Medicine, Dunedin School of Medicine, March 2001 (12p. + appendices).

MR5 Reeder AI. Skin cancer prevention in New Zealand: A discussion document to help guide future SunSmart programme directions. A report prepared for the Cancer Society Health Sponsorship Council Joint Working Group. Social & Behavioural Research in Cancer Group, Department of Preventive & Social Medicine, Dunedin School of Medicine, August 2001 (68p.).

MR6 Kime N, Reeder AI. Sun protection information in summer weather reports: perceptions and practices. A report prepared for the Cancer Society of New Zealand Inc., the Health Sponsorship Council. Social & Behavioural Research in Cancer Group, Department of Preventive & Social Medicine, Dunedin School of Medicine, December 2002 (29p. + appendices).


MR8 Jopson JA, Reeder AI. Sun protection in New Zealand secondary schools: obstacles and opportunities. Social & Behavioural Research in Cancer Group, Department of Preventive & Social Medicine, Dunedin School of Medicine, June, 2004. (42p. + appendices).

MR9 Reeder AI. Report to the Skin Cancer Control Steering Committee to inform development of the Skin Cancer Control Programme Plan 2005. Health Sponsorship Council Board Room, Wellington, July 2004 (44p.)

**Part II: Staff Publications**

**MR11** Wright, C. General observations made during The Sun Study ‘Sun-Smart in NZ’ Workshop. Report prepared for Wendy Fulton, Cancer Society of New Zealand, June 2005 (9p.).

**MR12** Reeder AI, Henry G. The 2006 Triennial Sun Survey: Recommendations for procedures, questionnaire design, and data management. A report to the Health Sponsorship Council, November 9, 2005 (8p.).

**MR13** Jopson JA, Reeder AI. Are NZ Primary Schools SunSmart? A Baseline study prior to the implementation of the National SunSmart Schools Accreditation Programme. A report to the Cancer Society of New Zealand, August 2006 (36p. + appendices).

**MR14** McCool J, Meechan G, Reeder AI. A systematic review of interventions in outdoor occupational settings to reduce the risk of skin cancer. Final report prepared for the Cancer Society of New Zealand (Wellington Division) Inc. on behalf of Auckland UniServices Ltd, August 2006. (39p.)


**Conference presentations (from 1998)**


Part II: Staff Publications


MC14  Reeder AI, Jopson JA. Sun protection policies and practices of NZ Territorial authorities: Rationale and preliminary findings. Oral presentation at the Public Health Association of New Zealand Conference, Wellington, July 2005.

MC15  Wright CY, Reeder AI, Bodeker G, Allen M, McKenzie R. Linking real-time solar UV radiation exposure with the social and physical environment, activities, knowledge and attitudes of New Zealand school children. 6th World Congress on Melanoma, Vancouver, Canada, 6–10 September 2005. (poster)


MC21 Jopson JA, Reeder, AI. A baseline study prior to implementation of New Zealand primary schools' National SunSmart Accreditation Program. 8th Biennial Behavioural Research in Cancer Control Conference: Fortitude Valley, Queensland, Australia, 27–29 September 2006.


Public seminar presentations (from 1998)

MPS1 McGee R. Fun in the sun. Otago Branch of the Public Health Association of New Zealand and the Department of Preventive & Social Medicine, University of Otago, Dunedin, 30 April, 1998.


Workshop presentations (from 2003)

1. Reeder AI. Current commitment to population monitoring of sun protection in New Zealand. Australian Sun Protection Survey meeting, Melbourne, 8 April 2003.


Media releases

MMR1 Reeder AI, Richards R. Sun protection information in weather reports helps everyone. December 8, 2000.


3. Healthy Physical Activity and Nutrition

3a. Physical Activity

Refereed papers


Thesis

Part II: Staff Publications

Reports

PR1  Reeder AI, Chalmers DJ, Begg DJ, Langley JD. Participation in physical activity and selected sports, the use of protective practices, and sports injury experience of the Dunedin Multidisciplinary Health & Development Study cohort at age 21 years. A report prepared for the Accident Rehabilitation & Compensation Insurance Corporation, February 1997. Injury Prevention Research Unit, Department of Preventive & Social Medicine, Otago Medical School, Dunedin (20p. + appendices).

PR2  Richards R, Reeder AI. Physical activity: its measurement and health benefits, the participation and opinions of young New Zealand adults. A report prepared for the Cancer Society Hillary Commission, Social & Behavioural Research in Cancer, Department of Preventive & Social Medicine, Dunedin School of Medicine, January 1999 (60p. + appendices).

PR3  Richards R, Reeder AI. Physical activity for cancer prevention. A report prepared for the Cancer Society of New Zealand. Social & Behavioural Research in Cancer, Department of Preventive & Social Medicine, Dunedin School of Medicine, August 17, 2001 (6p.).


PR6  Darling H. Kids on Bikes Pilot Programme evaluation. Dunedin, March 2004 (9p.).

Conference presentations (from 1998)


Part II: Staff Publications

Workshop presentation


Tertiary seminars and lectures

1. Richards R, Reeder AI, Poulton R. Longitudinal patterns tracking of sport participation from childhood to early adulthood. Student research seminar, Department of Preventive & Social Medicine, Dunedin School of Medicine. May 8, 2003.

Submissions


3b. Nutrition and Alcohol

Refereed papers

http://alac.oxfordjournals.org/cgi/reprint/37/5/457

http://alac.oxfordjournals.org/cgi/reprint/37/5/456


Reports

NR1 Reeder AI. The development and implementation of the Otago Lifesaver host responsibility programme for licensed club premises. Occasional Report 36, ISBN 0-0908958-37-4. Injury Prevention Research Unit, Department of Preventive & Social Medicine, Dunedin School of Medicine, Dunedin, November 1998 (54p.).

NR2 Reeder AI. The evaluation of a host responsibility programme for licensed club premises: the Otago Lifesaver Pilot Project. Occasional Report 35, ISBN 0-0908958-36-6. Injury Prevention Research Unit, Department of Preventive & Social Medicine, Dunedin School of Medicine, Dunedin, July 1999 (31p.).
NR3 Richards R, Darling H, Reeder AI. A discussion document to report and seek feedback on the Preliminary findings from the ‘Sponsorship and Fundraising in New Zealand Schools Study’: Challenges and opportunities. Social & Behavioural Research in Cancer, Department of Preventive & Social Medicine, Dunedin School of Medicine, Dunedin, February 2004 (15p. + appendices).

Conference presentations (1998)


Public seminar presentations

NPS1 Richards R, Darling H. Study on Sponsorship and Fundraising in New Zealand Primary and Intermediate Schools. The Effects of the Food and Marketing Industries on Population Health and Health Inequalities Research Workshop; Department of Public Health, University of Otago; Friday 3 March 2006, Westpac Trust Stadium, Wellington.

Submissions

NS1 Begg DJ, Reeder AI, Simpson J. Submission on Alcohol and Young People–comments on proposed ALAC strategic approach. Submitted to Alcohol Advisory Council, 23 October 1996.

Tertiary seminars and lectures

4. Other Issues in Cancer Control and Health Promotion

Treatment and Screening Issues

Refereed papers


Thesis


Media releases

TRMR1  Trevena J, Reeder AI. Many NZ’ers believe non-conventional cancer treatments beneficial. Otago University media release, 16 December 2005.

Report


Child and adolescent health

Refereed papers


Invited editorial


Professional publications


Conference presentations


Part II: Staff Publications


Workshop presentations (from 2003)


Media releases


Psychosocial factors

Refereed papers


Part II: Staff Publications


PSP4  Reeder AI, Trevena J. Adults’ perceptions of the causes and primary prevention of common fatal cancers in New Zealand. New Zealand Medical Journal, 2003;116 (1182).

Book chapter


Book review


Report

PSR1  McGee R. Comment on ‘Cannabis: the PHC’s advice to the Minister’ A report to the Cancer Society of New Zealand, Department of Preventive & Social Medicine, Dunedin School of Medicine, August 1995. (This report formed the basis of the Society’s submission on Cannabis and Health to the Minister of Health).

Professional publications


Submissions

Part II: Staff Publications


Media releases

Part III

Dissemination plans for 2007 by major topic area
1. Tobacco Control

Refereed papers

1. Darling H, Reeder AI, McGee R, Williams S. Personal, family and school factors that protect young people from cigarette smoking.

2. Scragg R, Reeder AI, Won, G, Glover M, Nosa V. Attachment to parents, parental tobacco smoking and smoking among Year 10 students in the 2005 New Zealand national survey. In submission.


Brief report


2. Sun Protection and Skin Cancer Prevention

Refereed papers

1. Wright C, Reeder AI, Gray A. Sun-related knowledge, attitudes and practices among New Zealand school children: the role of gender, year level and a school factor.

2. Wright C, Reeder AI, Gray A, Bodeker G. Patterns of solar UV radiation exposure, concurrent activities and sun protective practices of New Zealand school children.

3. Wright C, Reeder AI, Gray A, Bodeker G. Predictors of excess UV radiation exposure and identification of possible intervention opportunities.


**PhD thesis**


**MPH thesis**

1. Hammond V. Solar ultraviolet radiation exposure and workplace sun protection in outdoor occupational groups.
3. Healthy Physical Activity and Nutrition

3a. Physical Activity

Refereed papers


4. Darling H, Richards R. Is inactivity correlated with other health compromising behaviours among a sample of secondary school students?


3b. Nutrition and Alcohol

Papers and Reports


Refereed papers

1. Trevena J, Reeder Al. Public perceptions of reducing the risk of specific cancers.

2. Darling, H. The relations of part-time employment and work intensity with purchasing of potential health risk products.