

UNDERSTANDING DANGEROUS CONSUMPTIONS: MOVING FORWARD WITH A NATIONAL STRATEGY FOR RESEARCH ON TOBACCO, ALCOHOL, OTHER DRUGS AND GAMBLING

Peter Adams¹

Ian Hodges

School of Population Health

University of Auckland

Abstract

Tobacco, alcohol, other drug use and gambling impact significantly on the wellbeing of New Zealanders, and research plays a critical role in formulating appropriate responses. The project reported on in this paper aimed to identify ways in which the general infrastructure and supports for applied research in this sector could be improved to enable increases in both the quantity and quality of outputs. An advisory group made up of key researchers, end users and other stakeholders contributed to the preparation of a discussion document reviewing the current scene and outlining issues and opportunities for the future. The document identified strong needs for development in the areas of overall coordination, funding processes, research workforce and communication/dissemination. Feedback on the document was then sought via submissions and key informant interviews. Responses informed the preparation of a strategy advisory document, which recommended a two-step process for improving the research infrastructure: (1) fostering greater interaction and

1 Acknowledgements

The project was made possible by a funding grant from the Mental Health Research and Development Strategy Steering Committee. We are especially grateful to Janet Peters, who provided ongoing liaison with the Committee. The authors gratefully acknowledge the contribution of those who participated in the Advisory Group through the two phases of the project. From this group we note particularly the contributions of Simon Adamson, Dr Robert Brown, Professor Sally Casswell, Sally Jackman, Justin Pulford, Dr George Thomson and Professor Alistair Woodward, all of whom provided written material for the discussion document. We acknowledge Catherine Kissel for her contracted work on the key informant consultations and Janet Peters for her liaison with the funding committee. We also thank the staff of Social and Community Health in the School of Population Health at the University of Auckland, particularly Amor Hirao and Rajal Purabiya, who provided the organisational support for meetings and coordinated the production and distribution of the various documents.

The views expressed in this paper evolved from the collective efforts of a stakeholder committee that included researchers, research provider organisations, treatment providers and government agencies. Although financial support came originally from the Ministry of Health, the views do not represent the views and positions of the directorates and committees of the Ministry.

Correspondence

Dr Peter Adams, Social and Community Health, School of Population Health, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92 019, Auckland, New Zealand, Phone: +64 9 373 7599 ext. 6538, Fax: +64 9 373 7493, Email: p.adams@auckland.ac.nz

integration across the sector by bringing together researchers and other stakeholders from each of the four sub-sectors to explore the viability of developing a common identity and collective purpose; (2) building on the relationships formed in the first step, including implementing of a range of infrastructure development projects targeting funding mechanisms, research workforce development and communication/dissemination. The document also signals the eventual need to form a national coordinating committee to provide ongoing support for infrastructural development, to advance sub-sector strategies and to advise and liaise with government agencies on sector development.

INTRODUCTION

Aotearoa New Zealand has significant health and social problems arising out of, and linked to, the widespread availability and use of tobacco, alcohol, other drugs and gambling. In a World Health Organisation (WHO)-sponsored project that aimed to identify the main contributors to the global burden of disease, of the 10 selected risk factors examined in developed countries, tobacco was identified as the highest risk factor, followed by high blood pressure, alcohol and, further down at eighth, illicit drug use (World Health Organisation 2002). The New Zealand Health Strategy (Ministry of Health 2000) clearly identifies minimising “harm caused by alcohol, illicit and other drug use to both individuals and the community” as one of its 13 key objectives, with another seven of these objectives having a strong relationship with alcohol and other drug use. Achieving a better understanding of the complex origins of these problems, and identifying and evaluating interventions to counter them that are appropriate to New Zealand conditions, requires a robust infrastructure for planning, undertaking and disseminating relevant, good-quality research in these areas.

Tobacco Consumption

In New Zealand, as in many other countries, a prime impetus for undertaking harm-reduction research on tobacco (otherwise known as tobacco control research) is the scale of the human costs attributable to cigarette smoking. About one in four New Zealanders regularly smoke tobacco, and tobacco is the nation’s leading cause of preventable death (Ministry of Health 1999). Every year in New Zealand smoking results in an estimated 4,700 premature deaths (Ministry of Health 2002) and an estimated 347 deaths from exposure to second-hand tobacco smoke (Woodward and Laugesen 2001). The annual cost of smoking to New Zealand society was estimated in 1997 as \$22.5 billion (Easton 1997). The scale of death and disability attributable to tobacco has major implications for the quality of life for families and communities forced to deal with its consequences. A major concern is that despite large investments

in change, rates of Māori smoking have remained twice those of non-Māori rates, with a worrying increase in younger smoking (Laugesen and Scragg 1999).

Alcohol Consumption

Although fewer deaths are directly attributable to alcohol, it has broader impacts in terms of the mental, family and social wellbeing of the population. Approximately 90% of adult New Zealanders drink alcohol, and about one in five are likely to experience an alcohol use disorder at some time in their life. While heavier drinking by men has been a long-standing feature of New Zealand society, there are also indications that women's rates of alcohol consumption are rising. The average annual volume consumed by a woman has increased markedly from 5.4 litres in 1995 to 7.3 litres by the year 2000, an increase from seven to nine glasses per week (Habgood et al. 2001).

Alcohol is an acknowledged risk factor for some types of cancer, stroke and heart disease, and its use contributes significantly to death and injury on the roads (Ministry of Health 2001). International research on hospital admissions in developed countries indicates that 15–30% of male general hospital admissions and 8–15% of women admissions are for problems associated with alcohol misuse (Umbricht-Schneiter et al. 1991). Heavy alcohol use correlates strongly with the frequency of violence, including violence in public places, male-to-male violence and violence towards women. For instance, when surveyed, 10% of men and 5% of women indicated they had been physically assaulted in the past year by someone who had been drinking (Wylie et al. 1996). Heavy drinking also interacts significantly with mental health disorders. In a national survey of populations in the United States, 37% of those with a current alcohol abuse disorder also had a mental health disorder at some stage in their life (Bourbon et al. 1992). Alcohol and other drugs have also been identified as main contributors to current high rates of youth suicide in New Zealand (Beautrais 2000). An estimate of the social costs associated with alcohol use in 1991 ranged from NZ\$1 billion to NZ\$4 billion (Devlin et al. 1997).

Finally, alcohol (together with other drug use and gambling) forms a strong but undoubtedly complex interrelationship with criminal behaviour. For example, a study of 1,287 prison inmates in New Zealand prisons identified 83.4% had a substance abuse or dependence diagnosis (Simpson et al. 1999).

Illicit Drug Consumption

The illicit nature of most other drug use poses difficulties for research into the precise nature of consumption patterns and its contribution to health and wellbeing, and as a consequence local research is scant. As with alcohol, the heavy consumption of illicit

drugs tends to be associated with a range of health and mental health issues, and is heavily associated with criminal offending (Adamson and Sellman 1998). A 1998 random survey of alcohol and drug treatment services indicated that, aside from alcohol, the main substances for which clients were in treatment were cannabis (27% of clients), followed by opioids (17%), benzodiazepines (5.5%) and a range of other substances (5.2%) (Adamson et al. 2000). With regard to cannabis use, those between the ages of 15 and 45 who acknowledged using cannabis over the last year increased from 18% in 1990 to 21% in 1998 (Field and Casswell 1999). International research has connected regular cannabis use to increased risk of respiratory disease, reductions in energy, drive and motivation, and some contributions to learning disabilities (Ministry of Health 1996).

With regard to opioid use, an estimated 13,000 to 26,600 New Zealanders experience opioid dependence, and this contributes to rates of infection, overdose and crime (Sellman et al. 1996), and an estimated \$11 million is spent annually on providing 2,500 people with access to methadone. The current rise in the use of stimulants, particularly amphetamines, is posing new challenges to social, treatment and law enforcement agencies. In a telephone survey, 5% of a sample of 15–45-year-olds had used stimulants (uppers, speed, amphetamine, methamphetamine) in the last year. About one in five of those using amphetamines used quantities in a single session that have been identified in previous research as being hazardous (Wilkins et al. 2004). In addition, the inappropriate use of prescription sedatives (particularly benzodiazepines) continues to contribute to drug dependency for the “accidental addict” and to supplement the illicit consumption of multi-drug users (Porritt and Russell 1994).

Gambling Consumption

The impact of gambling on health and wellbeing has only recently registered, mainly as a result of the increasingly visible rises in overall consumption. Over 90% of the population gamble (Department of Internal Affairs 1996), and in 2003 total gambling turnover (including winnings) in New Zealand exceeded \$13 billion, with gambling expenditure (money lost²) rising from around \$0.1 billion in 1979 to \$1.9 billion by 2003 (Department of Internal Affairs 2003b). This translates to a rise in adult population per capita spend from about \$43 in 1979 to about \$500 in 2003. In New Zealand, as overseas, the expansion is associated with the increased availability of higher-intensity forms of gambling, most importantly the introduction of new “continuous” forms, particularly

2 Figures here are reported as expenditure, meaning the amount spent minus winnings. Gross turnover (including winnings) is often used and tends to be five to 10 times the expenditure depending on the average rate of return.

the spread of electronic gambling machines (EGMs). Over half of current expenditure is now on EGMs (Department of Internal Affairs 2003b) and over 85% of the 6,410 people seeking help for the first time gamble primarily on EGMs (Problem Gambling Committee 2003).

This increase is having important effects on the economic and social ecology of New Zealand communities. Because the study of the impacts of gambling is relatively new, only limited information is available regarding New Zealand contexts. However, international research is pointing to strong links with poverty, mental health concerns, family disruption, crime and other determinants of health and wellbeing (Australian Productivity Commission 2000, Lesieur 2000). For example, recent analysis of the distribution of EGMs in the Auckland region found a strong relationship between low income areas and higher numbers of EGMs (Adams et al. 2004). Other studies indicate negative impacts in terms of economic development (Pinge 2000). High-quality research on the impacts of gambling is urgently required because the scope of change is large, and little detailed knowledge is available for planning appropriate interventions (Adams 2000).

New Zealand Research into Dangerous Consumptions

Pockets of research in New Zealand have already demonstrated the potential for research in this sector to inform and stimulate advances in intervention and policy. For example, research by the Alcohol and Public Health Research Unit³ (Casswell 2000, Dehar et al. 1991, Moewaka-Barnes et al. 1996) on community development approaches to alcohol issues has informed and supported a wide range of community initiatives throughout the country. Similarly, the WHO collaboration with the University of Auckland on brief interventions for risky drinking (Adams et al. 1997, McCormick et al. 1999, Paton-Simpson et al. 2000) has spun off into a range of projects aimed at training health professionals. Research on the management of opioid dependency provided by the National Centre for Treatment and Development⁴ (Adamson and Sellman 1998, Sellman et al. 1996) has informed the development of methadone treatment programmes.

In terms of policy development, the Department of Health (during 1985–1990) and the Public Health Commission (during 1993–1995) generated a considerable level of policy research on tobacco (Ministry of Health 2002, Public Health Commission 1994). Also with regard to policy, longitudinal research in Christchurch at the University of Otago

3 Now shifted to Massey University as Social Health Outcome Research and Evaluation (SHORE).

4 Recently renamed the National Addiction Centre (NAC).

(Fergusson and Horwood 1997, 2000, Fergusson et al. 2000) has informed approaches to young people and cannabis use. A range of other examples could be listed, but the same observation can be made; namely, that high-quality research has and will continue to generate innovations in intervention and policy.

Despite the importance of this research to the health and wellbeing of New Zealanders, and despite the positive contribution research has made to interventions and policy, very little concerted attention has been given to examining how well this research effort is organised or ways it could be improved. Concerns have been raised that in a small and relatively isolated country like New Zealand, research and development in this sector is fragmented and dispersed (Adams 2001). Those involved in public health initiatives tend to have little association with those involved with treatment; those adopting 12-step approaches tend to move in different circles from those adopting harm-reduction approaches; tobacco people have little to do with alcohol and drug people who, in turn, have little to do with gambling people; Māori tend to work separately from Pākehā researchers; practitioners tend to move in different circles from academics; qualitative researchers cluster separately from quantitative researchers. The overall picture is one of fragmentation and separation.

In a country of limited resources and a dispersed population, there are a number of good reasons to examine the research arrangements for tobacco, alcohol, other drugs and gambling together in a single overarching framework. First, many of the broader social conditions thought to influence the problematic use of these substances and activities are similar. For instance, people experiencing significant adversity in their lives, or who are alienated from support networks, may be more likely to gamble, or use tobacco, alcohol or other drugs, in ways that may be considered harmful to themselves or others. Second, alcohol and other drug intervention services frequently treat people with problems linked to poly-substance use as well as co-existing mental health and/or gambling problems.

Third, especially in the case of tobacco, alcohol and gambling research, there is a common concern with the role of commercial interests in promoting and marketing these substances and activities. There is also a common interest in the role of government in controlling the demand and supply of these substances through measures such as taxation, licensing and law enforcement. Finally, the four research sub-sectors share a common reference point in the adoption of harm-minimisation principles as a basis for policy; the alcohol, tobacco and other drugs sub-sectors under the National Drug Policy (Ministry of Health 1998) and the gambling sub-sector under the recent Gambling Act 2003 (Department of Internal Affairs 2003a).

METHOD

This project aimed to identify improvements to the infrastructure supporting research in this sector, improvements that would lead to increases in research quality, quantity and community relevance. The project emerged initially from discussions between researchers concerned about the lack of overall direction and progress of research in this sector. Government agencies did not appear to be addressing the issues, so efforts were made by researchers themselves to initiate this process. From there the project was organised into the following four phases.

Phase 1: Advisory Group Discussions

This first phase involved assembling an advisory group of experts and representatives from a range of different New Zealand organisations that either provided, purchased or made use of research on tobacco, alcohol, other drugs or gambling. People who agreed to participate were provided with a concepts paper outlining reasons why it was considered necessary to develop a research strategy. During the first stage the Advisory Group met for one-day meetings on three occasions during 2001 and 2002.

Phase 2: Preparation of Discussion Document

A major task of the Advisory Group was to prepare a 58-page discussion document (Adams and Hodges 2002) describing and evaluating the existing New Zealand infrastructure for tobacco, alcohol, other drugs and gambling research. This included outlining views on possible options for the future.

Phase 3: Consultation

The discussion document was circulated widely to over 400 individuals and organisations early in 2002. A range of submissions was received, but several key people and organisations did not comment. In order to capture a greater range of viewpoints, an independent evaluator was commissioned to supplement the submissions by undertaking a set of 16 key informant interviews. A selection of health policy makers, research funders, research providers and end users from each of the four sub-sectors were interviewed for their ideas on the development of research in the sub-sector with which they were familiar.

Phase 4: Strategy Advice

In the final stage of the project, the Advisory Group met twice more in mid-2003 to discuss the comments and suggestions gathered during the consultation process. Ideas from these discussions were then used as the basis for preparing a strategy advisory

document (Adams and Hodges 2004), which, as much as possible, synthesised the diversity of perspectives and opinions expressed during the consultation process and meetings of the Advisory Group. This document was completed early in 2004 and contained a number of recommendations for action.

RESULTS AND DISCUSSION

The strategy process was an organised attempt to identify viable options for improving New Zealand's existing infrastructure for research on tobacco, alcohol, other drugs and gambling. The process was constrained by several factors, including the budget available, the time that busy contributors had to devote to discussions, and the general level of interest within the broader sector. For example, the costs of bringing key people together from different parts of the country limited the number of meetings that were practicable over the period, and attendances varied in response to other competing commitments. Furthermore, interest in the infrastructural needs of research was not perceived as a high priority, particularly by agencies faced with the more acute needs associated with maintaining intervention services.

Despite efforts to engage people as broadly as possible, many key people and agencies chose not to participate and it is likely that certain viewpoints were therefore missed. For this reason, the recommendations emerging from the process should be regarded as primarily the views of people concerned enough about the state of the existing research infrastructure to make a contribution.

With these provisos in mind, the sections that follow provide a summary of the information and recommendations presented in the strategy advisory document. They cover:

- observations on the current research environment made in the initial discussion document
- the main issues identified in consultations with representatives from the four sub-sectors
- recommended principles and processes for improving coordination across the four sub-sectors.

Considerably more detail on these themes is provided in the strategy advisory document itself. This summary is intended to provide convenient access for those who are unlikely to read the full document.

OBSERVATIONS ON THE CURRENT SCENE

The following observations on the existing New Zealand research infrastructure were made in the initial discussion document.

Funding Processes

New Zealand lacks a sizeable body of researchers dedicated specifically to investigating the harms associated with tobacco, alcohol, other drugs and gambling. In part this is a result of the comparatively modest levels of funding earmarked for work in these areas, and its unpredictability. Most funding for harm-reduction research in recent years has been secured in direct competition with other research areas, or by way of the commissioned research system, which on the whole offers only one-off short-term or medium-term project contracts, with little guarantee of continuity. Hardly any substantial funding has been provided to support extended programmes of research specifically within the alcohol or other drugs areas, and none – or virtually none – for tobacco or gambling. As a result, in recent years many researchers with an interest and training in tobacco, alcohol, other drugs or gambling issues have had to diversify and undertake research projects in other areas, or even leave research altogether. Future development will require attention to other ways of funding research in this sector.

Research Workforce

Barriers restricting the development of specialist research careers are impacting on new graduates and other researchers entering these areas of research for the first time, limiting their opportunities for on-the-job training and mentoring by more experienced researchers. This is particularly significant in the case of Māori and Pacific researchers, and more recently Asian researchers. Research aimed at reducing the harms associated with tobacco, alcohol, other drugs and gambling needs to effectively address and respond to the perspectives of Māori, Pacific and Asian peoples, using methods and approaches that are culturally appropriate and safe. Central to this should be initiatives to enhance the development of a dedicated Māori, Pacific and Asian research capacity. In conjunction with career mentoring, the initial training of researchers requires attention. It is necessary to consider ways to effectively support the development of masters and PhD students who demonstrate the enthusiasm and ability to pursue a research career in tobacco, alcohol, other drugs or gambling.

Communication and Dissemination

Better resources and mechanisms are required to support the sharing and dissemination of research expertise and data. This includes systems enabling data from

previous studies to be made available for further study. New approaches, such as regular forums or roundtable meetings, are also needed to promote face-to-face discussion and other forms of networking between research funding agencies, research end users and researchers.

Overall Coordination

There is a strong need to improve the overall coordination of research in the tobacco, alcohol, other drugs and gambling sector. One way of doing this could be by identifying priority topics for future research, to help better align and focus the efforts of research providers and research purchasing agencies, in the interests of making the best use of limited resources. Any research topic prioritisation process would need to include wide consultation with a broad range of funding agencies, researchers and research end users.

CONSULTATION FEEDBACK

In the key informant interviews and meetings of the Advisory Group that followed the release of the discussion document, a major theme for discussion was the extent to which there was a need for better coordination of infrastructure development activities within and across the four research sub-sectors. Some individuals advocated strongly for greater integration and collective working between the different agencies and individuals with a stake in tobacco, alcohol, other drugs and gambling research. This “cross sub-sectoral” approach was argued to be the key to addressing the infrastructural issues common to all four sub-sectors, by providing the necessary momentum for sustained progress in the long term.

Infrastructural issues thought to be amenable to this kind of collective approach included:

- funding processes (developing appropriate funding models, improving funder coordination, defining priorities for research funding)
- enhancing research quality (building research methods advisory services, improving standards of funding applications and publications, introducing quality incentives)
- research workforce development (recruiting, training and retaining researchers with the required specialist skills)
- communication and dissemination (building researcher networks, enhancing academic vitality).

Other participants in the consultation process were less inclined to accept that greater coordination between the four sub-sectors would necessarily be appropriate or beneficial for addressing these infrastructural issues. Most did agree, though, that coordination could potentially have advantages if it were done appropriately and well.

KEY PRINCIPLES FOR PROMOTING COORDINATION

Discussions during the consultation process about the feasibility and value of promoting greater coordination between the four sub-sectors eventually resulted in the identification of five core principles that it was agreed should underpin any future coordination activities and structures.

1. Research coordination processes are most likely to be effective if they are led or managed by research practitioners themselves, rather than by funding agencies such as government departments or ministries.

Individual government agencies tend to be interested only in particular dimensions of the use and misuse of tobacco, alcohol, other drugs and gambling. For example, the Ministry of Justice focuses mainly on crime-related issues, while the Ministry of Health concentrates on issues linked to disease, disability or use of health services. This focus on specific issues makes it difficult for a single government agency to embrace and address the full complexity of the research issues confronting the sector, which in reality span all levels from the molecular to the macro-social and global. Moreover, government agencies tend to be subject to changes in political focus and orientation and may therefore have difficulty setting long-term objectives. They may also be reluctant to engage in free-flowing dialogue about research development issues with researchers and other sector stakeholders in case it raises inappropriate funding expectations.

Having said this, it is crucial that key government sector agencies (e.g. Ministry of Health, the Alcohol Advisory Council (ALAC), Health Research Council, Police) have a strong involvement in any future coordination processes covering the tobacco, alcohol, other drugs and gambling research sub-sectors. One way of achieving this could be by regularly inviting representatives of government agencies to attend key coordination meetings as observers or advisors.

2. Maintain a long-term focus.

The effort involved in setting up mechanisms for promoting greater coordination between the four sub-sectors will only be worthwhile if these mechanisms remain in place for a long period – a matter of decades rather than years. Research infrastructures take considerable time to develop (PhD graduates, for example, take years to recruit and train) and major research programmes similarly take a long time to formulate, implement and mature into useful applications. The relationships required for realising successful inter-disciplinary and multi-site collaborations also take a long time to build up.

3. Involve all four sub-sectors.

During the consultation process and meetings of the Advisory Group, there was debate about the appropriateness of including the tobacco and gambling sub-sectors in a coordinated research development process. Tobacco research has built up its service and research base largely independently of the other sub-sectors, and concerns were expressed about the viability and usefulness of joining with the other sub-sectors to promote the interests of tobacco research. Gambling research is a newly emerging sub-sector and its needs were therefore not well understood or appreciated by those in the other sub-sectors. The absence of a clearly identifiable addictive substance also led some to question why gambling should be included with the other three sub-sectors

Nonetheless, by the end of the consultation process most participants accepted that there were good reasons why the four sub-sectors should attempt to work more closely together to advance their common interests. These included the efficiencies that could be gained in jointly servicing the diversity of research interests and methodologies in each sector, and the scope for achieving a more effective voice in policy environments.

4. Coordination should span public health, primary health and treatment research.

A few participants in the consultation process argued that the infrastructure for public health research on tobacco, alcohol, other drugs and gambling should be addressed and developed quite separately from the infrastructure for treatment research. However, most participants supported the development of a single, unified coordinating process incorporating both public health and treatment research, acknowledging that the rigid separation of treatment and public health has not been beneficial to sub-sector development. It was also noted that, increasingly, the methodologies and perspectives of public health and treatment-oriented service providers and researchers are overlapping and integrating.

5. Coordination processes should develop gradually, in a stepwise fashion.

It was made clear in meetings of the Advisory Group that any new coordination processes or structures would need to be developed slowly and carefully. Currently, very little intermingling or communication occurs across the four research sub-sectors. Researchers and other stakeholders tend to confine their links to the people in their own sub-sector, and they do not have a good understanding of the work being done in the other sectors. There is even perhaps some suspicion of those involved in the other sub-sectors.

Another reason for moving gradually is that it is likely to take time to secure adequate funding to support the development of new coordinating processes. Significant

resources are unlikely to be forthcoming in the short term. Researchers also need to be reassured that any new funding for coordination will not come at the cost of funding for future research projects.

STEPPING FORWARD

The following is a summary of the recommended “way forward” that emerged out of the strategy development process and the consideration of the principles just outlined. It consists of two initial steps – (1) collective engagement and (2) development projects – followed by a possible third step that could be taken in the longer term, should support emerge for it.

The first step, “collective engagement”, aims to foster greater interaction and integration across the four sub-sectors by bringing together researchers and other stakeholders from each sub-sector in order to explore the viability of developing a collective or common identity. The second step, “development projects”, builds on the relationships formed in the first step and aims to initiate a range of projects targeting key areas of infrastructural development, such as workforce and funding processes.

It is unclear how structures will evolve after the second step. However, one possibility, consistent with the majority of recommendations from the consultation process, would be to form an ongoing national coordinating committee for New Zealand research on tobacco, alcohol, other drugs and gambling. This committee would consist of representatives from the four research sub-sectors and would stand outside, but have a strong relationship with, government sector agencies.

Step One: Collective Engagement

As noted above, the consultation process revealed that researchers and other stakeholders tend to relate primarily to the people in their own sub-sector. They do not have a good understanding of the work being done by people in the other sub-sectors (with the notable exception, perhaps, of those involved in alcohol and other drug treatment research) and tend to have an under-developed appreciation of the similarities of focus and content they share with the other sub-sectors.

To address this situation, it is proposed that a series of research symposia be run. These would be designed specifically to enable researchers, end users, consumers and representatives of government agencies within and across the four sub-sectors to interact more closely together, share research work, explore commonalities of purpose and focus, discuss sub-sector and whole-of-sector development issues, and generally build a common sense of identity. A dedicated steering group would be responsible for organising the research symposia. The group would also evaluate the success of the

symposia and determine whether there is sufficient support across the four sub-sectors for moving on to the second step.

Step Two: Development Projects

If Step One goes well, and providing there is a consensus and support for further work, the next step would be to undertake a series of well-defined and planned research infrastructure development projects. Funding for these would be sought from agencies with an interest in the joint development of the tobacco, alcohol, other drugs and gambling research sectors. A project working group, consisting of representatives from the four sub-sectors, would be formed to negotiate, coordinate and monitor the development of the multiple projects. Staff from a range of existing research and service delivery settings would be responsible for managing the individual projects, with a small percentage of each project budget set aside to cover the administrative costs of the project working group.

The project working group would regularly monitor its own progress and assess whether additional coordinating structures and project development processes were required. As new projects are funded, expected outcomes or outputs would need to be carefully defined and progress regularly evaluated. In addition, the progress made in bringing researchers and other stakeholders together in Step One will require further consolidation by continuing to provide events such as symposia and conferences, where research activity can be shared and developed.

Although many kinds of infrastructure development projects could potentially be implemented, the consultation process identified three critical areas for future work: funding mechanisms, research workforce development, and communication and dissemination.

Examples of the types of projects that could address funding mechanisms include an end-user needs assessment (targeting politicians, policy makers, government agencies, students, managers, advocates and service users) and an international review of funding models and processes for identifying research priorities.

Examples of projects to address research workforce issues include devising a workforce development strategy in line with recent government health workforce initiatives (Health Workforce Advisory Committee 2002, Alcohol and Drug Treatment Workforce Development Advisory Group 2001) and instituting support programmes for trainee and new researchers.

Examples of projects to improve communication and dissemination include a whole-of-sector stocktake of current research activity (projects, grants, publications) and the development of internet-based initiatives to link people and information. The latter could include developing internet resources to better enable specific end users (e.g. GPs, pharmacists, specialists) to access research information or researchers living in different centres to network and undertake collaborative projects.

A NATIONAL COORDINATING COMMITTEE

The consultation process included an assessment of the viability of establishing a national coordinating committee to guide the overall development of research across the four sub-sectors. The Advisory Group acknowledged that setting up such a committee would require time and resources, and that it should be attempted in discrete stages.

The following is an outline description of one possible form the national coordinating committee could eventually take, recognising that in practice there may be several different ways such a committee could be set up and run.

Objectives

The three primary objectives of the coordinating committee would be to: (1) identify and implement improvements to the research infrastructure of the four sub-sectors, (2) advance the formulation and delivery of sub-sector strategies, and (3) advise agencies of government on sub-sector and whole-of-sector development issues. It is not intended that the committee have responsibility for developing research funding policies or allocating research funds.

Examples of the kind of work the committee could undertake include improving links and communication between research funders, research providers, provider organisations, policy makers and other end users; assisting government agencies to identify sub-sector research priorities; and contributing to or facilitating whole-of-sector planning processes.

Committee Membership and Procedures

Committee members would be research specialists and key stakeholders with a critical interest in the development of research across the four sub-sectors. Because the coordinating committee will be primarily answerable to its sub-sector groups, membership of the committee should ideally consist of an equal balance of

representatives from each of the four sub-sectors. Two members from each sub-sector would provide a manageable group of eight committee members. Relevant government agencies could have input into the selection process and could attend and have input into meetings of the committee on a regular basis. Additional experts could be co-opted to the committee for limited terms as required.

The committee could meet initially every two to three months. The activities of the committee will require an operational and resource base. At first all that may be needed is the facility to organise and hold meetings. However, as projects develop, it will be necessary to develop some administrative capacity to manage projects and negotiate funding. In time, if the work of the committee extends to several projects, it may be necessary to appoint a director and possibly a small secretariat to provide administrative support for the committee and to action key developments.

Relationship to Government Agencies

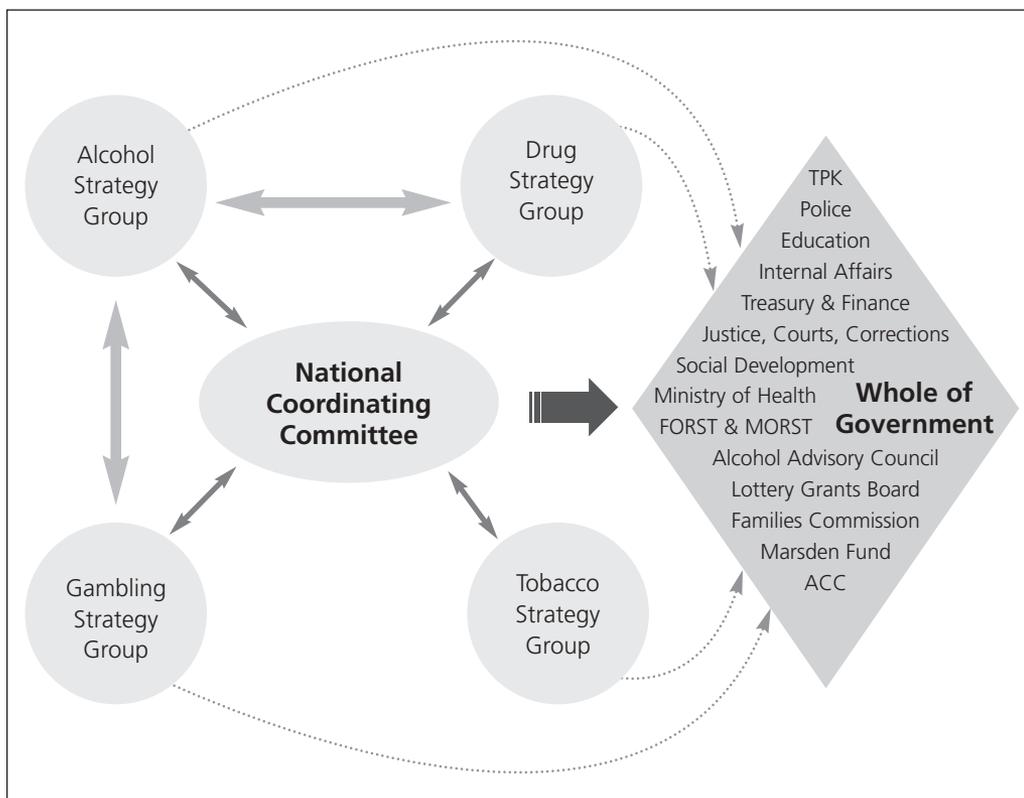
Reflecting the principles outlined earlier, it is intended that the coordinating committee should be positioned outside and operate at arm's length from government agencies. The relationship between the committee and government agencies is envisaged as a form of partnership, with representatives of key government agencies (e.g. the Inter-Agency Committee on Drugs and Health Research Council) able to attend committee meetings but not to serve as actual members of the committee.

Coordination across the Government Sector

A major challenge for the tobacco, alcohol, other drugs and gambling research sector arises from the fact that its work spans the interests of numerous government agencies. For example, alcohol-related research has relevance to health, justice, corrections, courts, finance, economic development, youth development, education, social development, Māori development, and police. In addition, several quasi-government agencies have specific interests in the sector, including ALAC, the Health Research Council, the Foundation of Research, Science and Technology, the Accident Compensation Corporation and the Mental Health Commission. For each research sub-sector on their own, the task of maintaining relationships across all relevant government agencies creates enormous logistical difficulties.

A key benefit of setting up a national coordinating committee would be to provide the four sub-sectors with a single, explicit mechanism for building ongoing relationships within and across relevant parts of the government sector (see Figure 1).

Figure 1 Relationships with the National Coordinating Committee



Notes: TPK = Te Puni Kōkiri; FORST = Foundation of Research, Science and Technology; MORST = Ministry of Research, Science and Technology; ACC = Accident Compensation Corporation.

Relationship to Sub-sector Groups

The consultation process highlighted that each of the four research sub-sectors is at a different stage of development, with different needs and different clusters of relationships. Gambling research, for example, is at a very early stage of development compared to alcohol research, which has had a longer time to refine its focus. The needs in each sub-sector also vary according to the nature of the products being consumed and the social context of their use. For example, the physically addictive nature of tobacco perhaps requires different responses than more socially embedded products such as alcohol and gambling. Certain broader issues, such as research workforce development and funding mechanisms, may be best handled at the combined cross-sector level, whereas other initiatives, such as identifying future research priorities, may be better undertaken at the sub-sector level.

A major task of the coordinating committee will be to ensure that the development, implementation and updating of key sub-sector strategies continue to occur. For example, the committee could provide support to the release of the Tobacco Control Research Strategy (Tobacco Control Research Strategy Steering Group 2003) and assist with its ongoing promotion to relevant government and non-government agencies. It could also contribute to future revisions to the strategy document.

Other forms of support the coordinating committee could provide include assisting sub-sectors with funding negotiations and policy advocacy, compiling and maintaining a web-based central register of completed and ongoing New Zealand research, and assisting with the organisation of research symposia, training workshops, conferences and other forums.

BENEFITS FOR SUB-SECTORS

This section considers some of the benefits the four sub-sectors could gain from the whole-of-sector initiatives described above.

Tobacco

In 2002, the tobacco sub-sector formed a research strategy committee, and in May 2003 this group formally released its Tobacco Research Control Strategy. The sub-sector is now seeking to engage in further dialogue with government agencies and secure funding support. A key requirement identified in the Tobacco Research Control Strategy is the establishment of a tobacco control research centre somewhere in the country.

Improved coordination processes would benefit the tobacco sub-sector by helping to raise awareness beyond the sub-sector about the importance of tobacco control to health. It could also help secure ongoing support for reviewing and updating the Tobacco Control Research Strategy (Tobacco Control Research Strategy Steering Group 2003), assist with advocacy work with government agencies, and encourage and facilitate research collaborations with people from the other three sub-sectors.

Alcohol

ALAC has in the past provided leadership on the research strategy for this sub-sector and it is anticipated that this key national agency will continue to contribute to the development of an alcohol-related research strategy. Other organisations with a critical interest in alcohol-related research, such as the Drug Foundation, Alcohol Healthwatch, the Centre for Social Health Outcome Research and Evaluation (SHORE) at Massey University, the National Addiction Centre at Otago University and the Alcohol and

Drug Research Collaboration at Auckland University, will also aim to have input into strategies to improve the existing research infrastructure. Improvements to whole-of-sector coordination will hopefully help to promote collaborations between public health and treatment researchers, provide end users with better access to research, and build up the alcohol research workforce.

Other Drugs

The other drugs sub-sector is the least advantaged in terms of organisational support and strategy. The New Zealand Drug Foundation has advocated for improvements to the research base on other drugs, but the Foundation lacks sufficient resources to develop these improvements on its own. Whole-of-sector coordination could benefit this sub-sector by supporting the formulation of a research development strategy for other drugs that clearly articulates future objectives and priorities. It could also provide a mechanism for improving communication between researchers and others involved in the sub-sector and for organising joint advocacy for research funding.

Gambling

The contribution of gambling research is just beginning to attract some recognition following the passing of the Gambling Act in September 2003. Some initial efforts have been made to develop a gambling research strategy, particularly by the Centre for Gambling Studies at the University of Auckland. The Health Research Council is also developing its role in the gambling research sector and the Ministry of Health is preparing for its new service-funding role once the Gambling Act is fully implemented. Accordingly, it is an opportune time to bring gambling researchers together and begin exploring future directions. Participation by the gambling sub-sector in the networking and coordination processes outlined above would help advance these goals, as well as providing an opportunity to better acquaint those in the other research sub-sectors with the particular challenges facing gambling research.

RESEARCH INFRASTRUCTURE DEVELOPMENT OVERSEAS

Other developed countries concerned about the impact of dangerous consumptions on their citizens' wellbeing and the burden of disease are exploring ways to improve the part research can play in devising effective strategies. The strongest example is occurring across the Tasman, where the Australian government has established a national committee dedicated specifically to coordinating research development in this sector. Called the National Drug Research Strategy Committee,⁵ it provides advice to

5 www.nationaldrugstrategy.gov.au/councils/advisory/ndrsc/index/htm.

the Intergovernmental Committee on Drugs on such matters as research principles; processes for identifying research gaps and priorities; information systems for disseminating research findings; resources for research; workforce issues; and mechanisms for cooperative development, transfer and use of research. Many of the functions they have identified are paralleled in the recommendations from the current consultation.

Other countries, such as Canada and the United Kingdom, have not set up specific research coordinating committees; rather, they have chosen to address issues related to the development and coordination of research as a part of the overall management of their drug strategies. For example, the government of Ireland, which currently faces a high level of concern regarding patterns of drug use, has supported the development of a National Advisory Committee on Drugs which, along with its other functions, is charged with coordinating efforts in research. The fruits of their input into coordination is obvious in the increasing number of research reports they are generating (see NACD 2004, Morgan 2001). These countries have as yet not included gambling in their planning processes and as a consequence, as in New Zealand, gambling research remains largely unplanned and lacks a robust national research coordination process.

Although what happens on the international scene can provide useful ideas on how research coordination could be improved, patterns of dangerous consumptions are highly sensitive to socio-cultural context and there are risks in assuming that overseas models can simply be transposed directly into the New Zealand situation. Most people who participated in the current consultation noted that the processes employed to organise research need to evolve in a fashion that is congruent with the New Zealand context. As a nation, New Zealand has its own unique history of dangerous consumptions and a unique cultural make up. It is also confronted by particular challenges, such as its relative geographic isolation and resource constraints. What New Zealand does share with other jurisdictions is a need to find ways of improving the infrastructure for tobacco, alcohol, other drugs and gambling research, and particularly ways to manage overall coordination.

GOVERNMENT AGENCY OR RESEARCHER-INITIATED LEADERSHIP

The consultation process revealed the presence of an ongoing debate about who primarily should be responsible for taking the lead in initiating processes to improve the infrastructure for tobacco, alcohol, other drugs and gambling research in New Zealand. Some people claimed it should be the relevant government agencies, while others felt it should be the researchers based in the universities and other

organisations. The truth is that significant input is needed from both groups. Building a better infrastructure for research is a complex task and requires leadership from people and agencies in both the government and non-government sectors, recognising the skills and resources each has to offer, and effectively harnessing them into a cooperative endeavour.

Inside/outside government sector alliances have worked effectively in advancing other areas of health. For example, government agencies, researchers and other stakeholders have worked closely together in supporting the Minister for ACC in developing a National Injury Prevention Strategy (Dyson 2003). Other examples include the Cancer Control Strategy (Ministry of Health and the New Zealand Cancer Control Trust 2003) and Youth Suicide Prevention Strategy (Ministry of Youth Affairs 1998). Such strategies are already proving instrumental in organising efforts in these sectors.

As identified by this paper, the missing link in the current tobacco, alcohol, other drugs and gambling research arrangements is leadership in the overall planning of infrastructural development. Both the government sector and research sector have an interest in this, and the formation of a national research coordinating committee would provide the platform.

Since dangerous consumption research is complex, multi-sectored, multi-disciplinary and involves a range of government agencies, the manner in which leadership for planning emerges could take several different tacks. The following provides one example of how roles and responsibilities might emerge in the future.

The Inter-Agency Committee on Drugs, in conjunction with the Ministerial Committee on Drugs, could be tasked with driving the formation of a national research coordinating committee, then to work closely with the new committee to devise and implement the four sub-sector strategies. The formation of the committee and implementation of the strategies will require some form of secretariat to provide administration. The secretariat is likely to be small, and is probably best located within another relevant organisation (such as the Health Sponsorship Council or the Drug Foundation). With facilitation by the secretariat, the combined efforts of a research coordinating committee and government sector committees could lead to a range of long-term cooperative ventures such as funding partnerships between different funding agencies (such as the Health Research Council, Ministry of Health and ALAC), and core funding of long-term research programmes focusing on specific themes or issues.

CONCLUSION

There is much to learn about how to effectively reduce problems associated with tobacco, alcohol, other drugs and gambling, and future policy development and service planning will require good-quality information and understanding. The design of current interventions has relied heavily on international research, but the question remains how well this information equips responses in the New Zealand context. As a small nation with a dispersed population, stretched out thinly across a row of islands surrounded by ocean, New Zealand faces some unique challenges in the way it responds to the harms associated with these dangerous consumptions. This relative isolation has contributed to unique characteristics in the way these products are distributed and consumed. The country's small size limits the availability of research funds to enable pursuit of a better understanding of consumption practices and few people at any one time are both available and capable of leading research projects in the sector. What resources do exist, both human and financial, need to be treated as scarce resources and managed carefully to avoid unnecessary and repetitive research endeavours.

The current project describes a range of gaps and obstacles to building adequate supports for the development of tobacco, alcohol, other drugs and gambling research. It proposes a series of steps to help develop the necessary infrastructure, and identifies how in the long run a collective and coordinated approach could help to generate the types of good-quality research programmes needed to inform and support future policy initiatives and service development.

What happens in the next phase now depends to a large extent on how key government agencies respond to the proposals outlined above. It is critical to identify who should take responsibility for moving the strategy forward from here. There are at least two options. One could be for an overarching agency such as a cabinet committee or the Prime Minister's Department to assume a lead role. Another could be for a core public sector department or ministry such as the Ministry of Social Development or Ministry of Health to develop and lead an inter-agency group to drive these initiatives forward.

Whichever agency or group assumes responsibility for the next phase, there is scope for it to play a vital role in supporting the tobacco, alcohol, other drugs and gambling research sector as it steps forward into a better coordinated and hopefully brighter future.

REFERENCES

- Adams, P. (2000) "Introduction" in P. Adams and B. Bayly (eds.) *Problem Gambling and Mental Health in New Zealand: Selected Proceedings of the National Conference on Gambling 1999*, Compulsive Gambling Society of New Zealand, Auckland.
- Adams, P., F. Rossen, L. Perese, S. Townsend, R. Brown, P. Brown and J. Garland (2004) *Gambling Impact Assessment for Seven Auckland Territorial Authorities; Part 1: Introduction and Overview*, Centre for Gambling Studies, University of Auckland, Auckland.
- Adams, P.J. (2001) *Towards a National Alcohol and Drug Research Strategy: A Concepts Paper*, University of Auckland, Auckland.
- Adams, P.J. and I. Hodges (2002) *Discussion Document: Towards a National Strategy for the Development of Research on Tobacco, Alcohol, Other Drugs and Gambling*, University of Auckland, Auckland.
- Adams, P.J. and I. Hodges (2004) *Strategy Advisory Document: Towards a National Strategy for the Development of Research on Tobacco, Alcohol, Other Drugs and Gambling*, Mental Health Research and Development Committee, Auckland.
- Adams, P.J., A. Powell, R. McCormick and G. Paton-Simpson (1997) "Incentives for general practitioners to provide brief interventions for alcohol problems" *New Zealand Medical Journal*, 110:291–294.
- Adamson, S.J. and J.D. Sellman (1998) "The pattern of intravenous drug use and associated criminal activity in patients on a methadone treatment waiting list" *Drug and Alcohol Review*, 17:159–166.
- Adamson, S.J., J.D. Sellman, A. Futterman-Collier, T. Huriwai, D. Deering, F. Todd and P. Robertson (2000) "A profile of alcohol and drug clients in New Zealand: Results from the 1998 national survey" *New Zealand Medical Journal*, 113:414–416.
- Alcohol and Drug Treatment Workforce Development Advisory Group (2001) *Practitioner Competencies for Alcohol and Drug Workers in Aotearoa-New Zealand*, Occasional Publication No. 13, Alcohol Advisory Council, Wellington.
- Australian Productivity Commission (2000) *Australia's Gambling Industries: Final Report*, Productivity Commission, Canberra.
- Beautrais, A. (2000) "Risk factors for suicide and attempted suicide among young people" *Australian and New Zealand Journal of Psychiatry*, 34:420–436.
- Bourbon, K.H., D.S. Rae, B.Z. Locke, W.E. Narrow and D.A. Regier (1992) "Estimating the prevalence of mental disorders in US adults from the Epidemiology Catchment Area Survey" *Public Health Reports*, 107:663–668.
- Casswell, S. (2000) "A decade of community action research" *Substance Use and Misuse*, 35:55–74.
- Dehar, M., P. Duignan and S. Casswell (1991) "Evaluation of Heartbeat New Zealand" *Health Promotion International*, 6:13–19.

- Department of Internal Affairs (1996) *People's Participation in and Attitudes Towards Gambling*, Research Series 22, Department of Internal Affairs, Wellington.
- Department of Internal Affairs (2003a) *Gambling Act 2003: Consultation on Possible Regulations*, Department of Internal Affairs, Wellington.
- Department of Internal Affairs (2003b) *Gambling Statistics 1979–2003*, Department of Internal Affairs, Wellington.
- Devlin, N., P. Schuffham and L. Bunt (1997) *The Social Costs of Alcohol Abuse in New Zealand*, Injury Prevention Research Unit, University of Otago, Dunedin.
- Dyson, R. (2003) *The New Zealand Injury Prevention Strategy*, Minister for the Accident Compensation Corporation, Wellington.
- Easton, B. (1997) *The Social Costs of Tobacco Use and Alcohol Misuse*, Public Health Monograph No.2, Wellington School of Medicine, Department of Public Health, Wellington.
- Fergusson, D.M. and L.J. Horwood (1997) "Early onset cannabis use and psychosocial adjustment in young adults" *Addiction*, 92:279–296.
- Fergusson, D.M. and L.J. Horwood (2000) "Does cannabis use encourage other forms of illicit drug use?" *Addiction*, 95:505–520.
- Fergusson, D.M., L.J. Woodward and L.J. Horwood (2000) "Gender differences in the relationship between early conduct problems and later criminality and substance abuse" *International Journal of Methods in Psychiatric Research*, 8:179–191.
- Field, A. and S. Casswell (1999) *Drug Use in New Zealand: Comparison Surveys 1990 and 1998*, Alcohol and Public Health Research Unit, University of Auckland, Auckland.
- Habgood, R., S. Casswell, M. Pledger and K. Bhatta (2001) *Drinking in New Zealand: National Survey Comparison 1995 and 2000*, Alcohol and Public Health Research Unit, University of Auckland, Auckland.
- Health Workforce Advisory Committee (2002) *The New Zealand Health Workforce: Framing Future Directions*, Ministry of Health, Wellington.
- Laugesen, M. and R. Scragg (1999) "Trends in cigarette smoking in fourth-form students in New Zealand 1992–1997" *New Zealand Medical Journal*.
- Lesieur, H.R. (2000) "Policy implications and social costs of problem gambling" in P. Adams and B. Bayly (eds.) *Problem Gambling and Mental Health in New Zealand: Selected Proceedings from the National Conference on Gambling*, July 1999, Compulsive Gambling Society of New Zealand, Auckland.
- McCormick, R.N., B. McAvoy, D. Bunbury, P.J. Adams, G.R. Paton-Simpson and A.M. Powell (1999) "Encouraging general practitioners to practice screening and brief intervention for problem use of alcohol: a market trial" *Drug and Alcohol Review*, 18:171–177.
- Ministry of Health (1996) *Cannabis: Public Health Issues*, Ministry of Health, Wellington.
- Ministry of Health (1998) *The National Drug Policy*, Ministry of Health, Wellington.

- Ministry of Health (1999) *Our Health, Our Future*, Ministry of Health, Wellington.
- Ministry of Health (2000) *The New Zealand Health Strategy: Discussion Document*, Ministry of Health, Wellington.
- Ministry of Health (2001) *National Alcohol Strategy 2000–2003*, Ministry of Health, Wellington.
- Ministry of Health (2002) *Tobacco Facts: May 2002*, Occasional Report No. 2, Public Health Intelligence, Ministry of Health, Wellington.
- Ministry of Health and the New Zealand Cancer Control Trust (2003) *The New Zealand Cancer Control Strategy*, Ministry of Health, Wellington.
- Ministry of Youth Affairs (1998) *The New Zealand Youth Suicide Prevention Strategy*, Ministry of Youth Affairs, Wellington.
- Moewaka-Barnes, H., S. Casswell, T. Compain, A. Waa, C. Spinola, P. Stanley, L. Stewart, R. Webb and A. Wylie (1996) *Community Action to Reduce Alcohol Related Traffic Injury among Māori: A Collaborative Project*, Alcohol and Public Health Research Unit, University of Auckland, Auckland.
- Morgan, Mark (2001) *NACD Drug Use Prevention: Overview of Research*, National Advisory Committee on Drugs, Government of Ireland, Dublin, www.nacd.ie/publications/prevention_druguse.html.
- NACD (2004) *Progress Report: July 2000 – July 2003*, National Advisory Committee on Drugs, Government of Ireland, Dublin, www.nacd.ie/publications/Progress_Report_ENGLISH.pdf
- Paton-Simpson, G., R. McCormick, A. Powell, P. Adams and D. Bunbury (2000) "Problem drinking profiles of patients presenting to general practitioners: Analysis of Alcohol Use Disorders Identification Test (AUDIT) scores for the Auckland area" *New Zealand Medical Journal*, 113.
- Pinge, I. (2000) *Measuring the Economic Impact of Electronic Machines in Regional Areas: Bendigo, a Case Study*, Centre for Sustainable Regional Communities, La Trobe University, Bendigo.
- Porritt, D. and D. Russell (1994) *The Accidental Addict*, Pan Macmillan, Sydney.
- Problem Gambling Committee (2003) *Problem Gambling Counselling in New Zealand: National Statistics*, Problem Gambling Purchasing Agency, Palmerston North.
- Public Health Commission (1994) *Tobacco Products: The Public Health Commission's Advice to the Minister of Health, 1993–1994*, Public Health Commission, Wellington.
- Sellman, J.D., J. Hannifin, D. Deering and P. Borren (1996) *Delivery of Treatment for People with Opioid Dependence in New Zealand, Options and Recommendations*, Ministry of Health, Wellington.
- Simpson, A.I.F., P.M.J. Brinded, T.M. Laidlaw, N. Fairley and F. Malcolm (1999) *The National Study of Psychiatric Morbidity in New Zealand Prisons*, Department of Corrections, Wellington.

- Tobacco Control Research Strategy Steering Group (2003) *A Tobacco Control Research Strategy for New Zealand*, Tobacco Control Research Strategy Steering Group, University of Otago, Wellington.
- Umbricht-Schneiter, A., P. Santora and R.D. Moore (1991) "Alcohol abuse: Comparison of two methods for assessing its prevalence and associated morbidity in hospitalised patients" *American Journal of Medicine*, 91:110–118.
- Wilkins, C., M. Pledger, K. Bhatta and S. Casswell (2004) "Patterns of amphetamine use in New Zealand: Findings from the 2001 National Drug Survey" *New Zealand Medical Journal*, 117:1190.
- Woodward, A. and M. Laugesen (2001) "How many deaths are caused by second hand cigarette smoke?" *Tobacco Control*, 10:383–388.
- World Health Organisation (2002) *The World Health Report 2002: Reducing Risks to Health, Promoting Healthy Life*, World Health Organisation, Geneva.
- Wylie, A., M. Millard and J. Zhang (1996) *Drinking in New Zealand: A National Survey 1995*, Alcohol and Public Health Research Unit, University of Auckland, Auckland.