
**EDGAR NATIONAL CENTRE
FOR DIABETES AND OBESITY RESEARCH
ANNUAL REPORT 2009**

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1. COMMENTS FROM LEADING THINKER

The Edgar National Centre for Diabetes and Obesity Research (ENCDOR) has had another productive year. There has been continuing progress on each of the three fronts which contribute towards our vision (“to make a significant contribution to reducing the global burden of diabetes through research and dissemination of knowledge”).

- **Novel Approaches to the Prevention and Treatment of Obesity and Type 2 Diabetes**

Three major projects under this heading were completed in 2009. The paper dealing the Healthy Eating and Training (HEAT) project which investigated approaches to achieving maintenance of weight loss in overweight and obese women has been published in the Canadian Medical Association Journal. The Lifestyle Over and Above Drugs in Diabetes (LOADD) study which aims to determine whether an intensive nutritional intervention can produce further improvement in blood glucose control and cardiovascular risk factors in people with diabetes considered to be on optimum drug treatment has been completed and analysed as has the series of studies examining the role of dietary protein in treating overweight people at risk of developing type 2 diabetes. All have been submitted for publication in major international journals. Good progress continues with a range of more recent projects many of which aim to explore novel approaches to the prevention and treatment of obesity in childhood and infancy.

- **Initiation And Evaluation of Preventive and Therapeutic Measures**

The cost-benefit analysis of the internationally acclaimed APPLE (A Pilot Programme for Lifestyle and Exercise) study has now been published. This approach to reducing the risk of childhood obesity has formed the basis of programmes now in widespread use in the United Kingdom. The process evaluation of the award winning Ngati and Healthy Diabetes Prevention project is almost complete and it is encouraging to see that the programme is now the blueprint according to which Ngati Porou Hauora approaches risk reduction of all chronic diseases. A report and papers from the study examining factors determining effective implementation of the National Diabetes Retinal Screening Grading System and Referral Guidelines are near completion. The development of a toolkit for NZ Group-based Self-Management Education for Patients/Whanau with Type 2 Diabetes is complete and a study of its effectiveness is underway.

- **Implementation of Current Knowledge**

Much of the activity in terms of implementing current knowledge has centred around guidelines and policy development at national and international levels. In New Zealand we have played a lead role in developing obesity guidelines, updating cardiovascular guidelines and preparing for a full review of diabetes guidelines which will be one of our major tasks in 2010. Internationally, there has been a major involvement in policy development following the World Cancer Research Fund’s recommendations relating to obesity and physical activity for the prevention of cancer, diabetes and coronary heart disease (report released 27 February 2009), and Jim Mann chairs the International Task Force establishing criteria for evidence-based nutrition recommendations. He has also been appointed a member of the Nutrition Advisory Group of the World Health organisation.

Our successes are due entirely to the calibre, enthusiasm and commitment of our staff. Rachael McLean has recently successfully completed her specialist training in public health medicine and has been awarded a prestigious HRC Clinical Training Fellowship to undertake research towards her PhD thesis. Her research will involve a new area of research, very appropriate to the aims of the Centre for Translational Research in Chronic Diseases (CTRCD): public health approaches to sodium restriction.

Victoria Farmer was awarded the Dunedin School of Medicine 2009 Research Support Person Award which enabled her to attend the International Diabetes Federation Conference in Montreal.

Rachael Taylor is Principal Investigator or co- Principal Investigator of three large obesity related interventions in infants and young children; 1) POI which aims to determine whether increased advice and support for parents regarding feeding, sleep and activity during the first two years of life can reduce the number of children showing excessive weight gain up to the age of 3 years, 2) MInT which aims to determine how best to inform parents of young children that their child is overweight, in a way that is both acceptable and increases the motivation to make appropriate changes to the family lifestyle, and 3) PLAY, an intervention designed to improve school playgrounds to encourage increased physical activity in children. Two further projects are being developed on 4) Healthy homework, a school-based intervention designed to increase healthy lifestyles within the home environment, and 5) a final project concerns how infants transition from a milk-based to a solid-based diet.

Kirsten Coppell received National Heart Foundation funding for a qualitative study to examine 'Reported barriers to adopting recommended dietary practices amongst type 2 diabetic patients in the Lifestyle Over and Above Drugs in Diabetes (LOADD) study.' She has also received funding from Diabetes New Zealand to explore the knowledge of diabetes and its prevention amongst the general New Zealand population, to be done in collaboration with Jeremy Krebs in Wellington and Diabetes New Zealand.

Invitations to write editorials for journals such as The Lancet, the British Medical Journal and Annals of Medicine and to present keynote lectures at major international conferences provide further evidence of the quality of our outputs. Given that many of our projects relate to prevention and treatment of obesity we have reflected this in the name of our centre, now the Edgar National Centre for Diabetes and Obesity Research (ENCDOR).

One rather disappointing feature of 2009 was the termination of our contract with the Ministry of Health for the Evaluation of the Healthy Eating Healthy Action (HEHA) Strategy. However this was inevitable following the government's decision to abandon the overarching HEHA Strategy. We have two major challenges in the immediate future: our lack of space and funding for infrastructure. We consider ourselves fortunate in terms of our endowment and ability to attract a reasonable level of research grant funding. Although research remains our primary focus our national and international wide ranging public service commitments remain a key component of our mission. We continue to hope that we will be able to increase our endowment income to ensure that we can continue to play a leading role in worldwide attempts to stem the tide of the obesity and diabetes epidemics.

Jim Mann

Edgar National Centre for Diabetes and Obesity Research Annual Report 2009

2. RESEARCH AND ACTIVITIES UPDATE

RESEARCH UPDATE

Healthy Eating And Training (HEAT)

This study attempted to determine the optimal macronutrient composition and the most appropriate (in terms of cost effectiveness and acceptability) support system for maintaining long term weight loss in overweight and obese women who had succeeded in losing 5% or more of their body weight. HEAT was HRC funded and is completed. The first paper has been accepted for publication in the *Canadian Medical Association Journal* (see Dale *et al* in Appendix (ii) of this Report). A second paper considering cost effectiveness is in preparation. (This project formed the basis of Kelly Dale's PhD thesis).

Supervisors: Jim Mann, Sheila Williams, Kirsten McAuley, Rachael Taylor.

Other investigators: Alex Chisholm, Paul Hansen, Victoria Farmer.

Lifestyle Over and Above Drugs in Diabetes (LOADD)

LOADD (funded by the Health Research Council) aimed to determine whether intensive nutritional intervention improves glycaemic control and cardiovascular risk factors in people with type 2 diabetes who are on optimised drug treatment. The first paper based on the participants recruited and studied in 2007-2009 is under consideration by the British Medical Journal. A further two papers are currently being drafted. An additional component to the LOADD study, a qualitative analysis of the reported barriers to adopting the recommended dietary practices amongst the intervention participants, is nearing completion.

Principal investigators: Kirsten Coppel, Jim Mann, Minako Kataoka, Alex Chisholm, Sue Vorgers, Michelle McGrath, Chris Booker, Victoria Farmer.

Inflammatory markers and adipokines in type 2 diabetes

This project, funded by the National Heart Foundation and HRC and commenced in 2008, aims to examine the extent to which nutritional intervention can influence selected inflammatory markers and adipokines in people with type 2 diabetes who are concurrently being treated with other medications according to cardiovascular and diabetes management guidelines. This is being conducted as part of the Lifestyle Over and Above Drugs in Diabetes (LOADD) study. In collaboration with A/Prof Dave Grattan at the Centre for Neuroendocrinology, this research will examine potential mechanisms by which interleukin-18 influences appetite, and examine how this pro-inflammatory cytokine interacts with other pathways in the brain which govern appetite. This research project forms the basis of Chris Booker's PhD thesis.

Supervisors: Dave Grattan, Jim Mann, Sheila Williams, Kirsten Coppel.

Macronutrient Composition and the prevention of type 2 diabetes

A series of studies in people at risk of developing diabetes is investigating whether higher protein alternatives to the standard high carbohydrate – high fibre – low fat diet may be preferable for reducing risk of progression to type 2 diabetes mellitus and the extent to which protein and dietary fibre may have a synergistic beneficial effect. The findings are particularly relevant to Maori who have particularly high rates of diabetes and whose preference is for diets with a lower carbohydrate content. Three papers from this research have been submitted for publication. The work is funded by HRC and the Riddet Centre of Research Excellence and forms the basis of two PhD theses.

Nutritional Management of Diabetes in People of Asian Ethnicity

Nutritional advice for people with diabetes worldwide is based almost exclusively on research in those of European descent. We and others have generated data which show that those of Chinese and Indian ethnicity respond differently from Europeans when eating carbohydrate containing foods and they have high rates of diabetes. In collaboration with colleagues at the National University of Singapore we intend to undertake a series of studies in people of Chinese, Indian and Malay descent to determine whether nutritional recommendations derived from research in Europeans is appropriate for people with diabetes in these communities living in Singapore and New Zealand. The results will have widespread relevance to people with diabetes world wide. The research is sponsored by a generous grant from the Singaporean government.

Sodium in New Zealand - intake, consumer perceptions, and implications for chronic disease

Rachael McLean has been awarded a Health Research Council Clinical Research Training Fellowship which provides three years research funding to undertake a PhD. Her study will be supervised by Jim Mann, and Janet Hoek. Janet Hoek is a Professor of Marketing and a member of the Centre for Translational Research into Chronic Diseases. Reducing sodium consumption is an effective means of lowering blood pressure and thus cardiovascular risk. Reducing sodium consumption in the clinical and public health contexts has proven difficult. Three approaches will inform attempts to reduce sodium intake in NZ. Initial work will involve analysis of the 2008/09 National Nutrition Survey data which will enable an estimation of intake and source of dietary sodium, international comparisons, and development of an approach to monitoring. Another aspect of this research will involve in-depth interviews to explore consumers' understanding of 'salt' and 'sodium', their knowledge of its health effects, and their use of food labels. A quantitative study will estimate the interaction between consumers' knowledge of sodium, their response to food label formats, and their choice behaviour.

Ngati and Healthy Diabetes Prevention Project (in collaboration with Ngati Porou Hauora)

A process evaluation of this project which was the overall Supreme Award winner and winner of the Whānau Whanui category at the Whānau Ora Award ceremony in Wellington in November 2006 is well on its way to completion with HRC funding. Early outcome data have been published in *Diabetes Research and Clinical Practice* (See Coppell *et al* in Appendix (ii) of this report)

Principal investigators: Kirsten Coppell, David Tipene-Leach, Jim Mann,

Validation of a new clinical test for insulin sensitivity

Validation of the new clinical test for measuring insulin sensitivity developed by our group (McAuley *et al.* *Diabetes Care* 2001;24:460-464) has been completed and prepared for publication.

Investigators: Kirsten McAuley, Geoff Chase, Geoff Shaw, Thomas Lotz, Juliet Berkeley.

Treatment and Prevention of Early Childhood Obesity

A series of studies aimed to prevent excessive weight gain in childhood and treat obesity in children, principally funded by the HRC is being led by Rachael Taylor (KPS Senior Research Fellow in Early Childhood Obesity and a member of the ENCDOR). These projects are described in her report.

ACTIVITIES UPDATE

International Activities

The ENCODR and the World Health Organisation Collaborating Centre for Human Nutrition have been asked to play a lead role in monitoring the new World Health Organisation (WHO) initiative to improve food safety and food security in the Pacific. Rachael McLean will attend the Pacific Food Summit in Vanuatu to represent our group. Jim Mann has been invited to serve on the Nutrition Advisory Group of the WHO in Geneva and will be involved in the update of the European Diabetes Guidelines. He continues to chair the Evidence Based Nutrition panel of the International Union of Nutritional Sciences (IUNS).

National Responsibilities

Jim Mann continues to chair the Ministry of Health Expert Advisory Group on Diabetes and Cardiovascular Disease, chaired the Technical Advisory Group which developed the New Zealand Guidelines for the management of obesity in adults and children and he and Kirsten Coppell will be involved in the revision of the national diabetes guidelines.

Other

The ENCDOR has continued to provide the secretariat for the New Zealand Society for the Study of Diabetes (NZSSD), the professional and research organisation for all health professionals and researchers working in the field of diabetes.

Research and professional training

Two students (Kelly Dale and Claire Cameron) have completed their PhD's under supervision of the staff of the ENCODR and a further nine (Chris Booker, Lorraine Brooking, Philippa Carter, Rebecca Cooke, Anna Dawson, Rachael McLean, Amber Parry-Strong, Christine Spencer, Lisa Te Morenga) and two MSc students (Megan Levers and Alana Newlands) are at various stages of their thesis research. All these students have been totally or partially supervised by staff of the ENCODR. A PhD student (Jill Haszard – Curtin University of Technology, Perth) has commenced a research project which will form the basis of her PhD thesis under the supervision of Rachael Taylor. Under the direction of Kirsten Coppell, the ENCDOR has been recognised as a Public Health Medicine Registrar training site with an Advanced Trainee (Rachael McLean) in post since July 2008.

Teaching

Jim Mann teaches undergraduate human nutrition students and he, Kirsten Coppell and Rachael McLean are involved in the teaching of medical students, GP trainees and medical and public health medicine registrars. Margaret Johnston and Rachael McLean tutor 2nd and 3rd year medical students.

Monthly journal club and research updates

The ENCODR holds monthly journal club and research update meetings. This is an informal meeting to keep abreast of current national and international research. These meetings are well attended by staff from the Departments of Human Nutrition and Preventive and Social Medicine as well as members of the Department of Medical and Surgical Sciences and the ENCDOR group.

3. RESEARCH FUNDING

EXTERNAL FUNDING ATTRACTED in 2009

- 1) Health Research Council of New Zealand *Screening, feedback and treatment in overweight 4-8 year old children* Rachael Taylor 36 months, \$1,307,272
- 2) Health Research Council of New Zealand *Improving school playgrounds to enhance physical activity in children* Rachael Taylor 36 months, \$799,244
- 3) Health Research Council of New Zealand Clinical Training Fellowship *Sodium in New Zealand - intake, consumer perceptions, and implications for chronic disease* Rachael McLean 36 months \$250,000
- 4) National Heart Foundation: *Reported barriers to adopting recommended dietary practices amongst type 2 diabetic patients in the Lifestyle Over and Above Drugs in Diabetes (LOADD) study.* Kirsten Coppell, Martha Bell, Alex Chisholm, Jim Mann \$14,591

ONGOING FUNDING

Ministry of Health: *'Implementation of the HEHA Strategy Evaluation'*. Start 01/06/2008 for 3.5 years. (\$4,000,000).

Health Research Council of New Zealand (Project Grant): *'Primary prevention of rapid weight gain in early childhood, a randomised controlled trial'*. Barry Taylor and Rachael Taylor (joint principal investigators), Jim Mann, Kelly Dale, Barbara Galland, Kirsten Coppell, Andrew Gray. Start 31/08/2008 for 3 years \$2,221,742

Riddet Institute Centre of Research Excellence (CoRE) Research Programme: Project within the Programme: *'Dietary intervention targeting physiological endpoints'*. Jim Mann (PI). Start 01/07/2008 for 6 years (\$1,480,680).

Health Research Council of New Zealand (Programme Grant extension): *'Lifestyle and nutritional approaches to reduce obesity, type 2 diabetes and its complications'*. Jim Mann, Rachael Taylor, Kirsten McAuley, Kirsten Coppell, Lorraine Brooking, Sheila Williams, Geoff Chase, Alex Chisholm, Geoff Shaw, Eleanor Murphy, David Tipene-Leach, Helen Pahau, Patrick Manning, Rob Walker, Wayne Sutherland, Victoria Farmer, Chris Booker. Start 01/07/2007 for 3 years \$2,116,152

Health Research Council of New Zealand: *'Lifestyle Over and Above Drugs in Diabetes (LOADD) study'*. Jim Mann, Kirsten Coppell, Kirsten McAuley, Alex Chisholm, Sheila Williams, Chris Booker. Start 01/07/2006 for 2 years (\$669,076). This grant was extended to 31/12/2009.

Health Research Council of New Zealand: *'Determining optimal approaches for successful maintenance of weight loss'*. Kirsten McAuley, Jim Mann, Kelly Whiteford, Rachael Taylor, Alex Chisholm, Sheila Williams, Paul Hansen. Start 01/07/2006 for 3 years (\$533,445).

Maurice and Phyllis Paykel Trust: *'The effects of IL-18 on body weight regulation'*. Dave Grattan, Chris Booker. Start 01/05/2007 for 3 years \$22,000

District Health Board Research Fund: Translational Research in Cardiovascular Disease, Diabetes and Obesity: *'New Zealand group-based self-management education for patients/whanau with Type 2 Diabetes'*. Jeremy Krebs, Kirsten Coppel, Eirean Kiely, Lynn McBain, Joe Howells, Lorna Bingham, Liz Dutton, Howard Metekingi, Sera Tapu-Taala, Robert Smith, Jim Mann. 12 months \$133,772

District Health Board Research Fund: Translational Research in Cardiovascular Disease, Diabetes and Obesity: *'Factors affecting effective implementation of the National Diabetes Retinal Screening Grading System and referral guidelines: A multi centre analysis'*. Edward Hutchins, Gordon Sanderson, Anmar Rahman, Ainsley Morris, Kirsten Coppel. 8 months (\$103,030).

Otago Diabetes Research Trust Scholarship for Summer Research Scholar: *'Comparison of cardiovascular risk factors and outcomes at 5 years following diagnosis of type 2 diabetes between different age groups, Otago, New Zealand, 1997-2002.'* Janet Lee a 3rd year medical student supervised by Kirsten Coppel. 10 weeks November 2008 – February 2009 (\$3,000).

AWARDS AND INTERNAL FUNDING

Dean's Bequest Fund, University of Otago: Dave Grattan and Chris Booker. *'Hypothalamic role of interleukin-18 in energy and glucose homeostasis'*. April 2008 \$13,914

University of Otago Research Committee Grant: *Centre for Translational Research in Chronic Diseases*. December 2008 for 1 year \$25,000.

4. COLLABORATIONS

The ENCDOR has collaborations with individuals and organisations within New Zealand and internationally. A long standing memorandum of understanding (which predates that signed by the University of Otago) with Ngati Porou Hauora has been in place to facilitate the conduct of the Ngati and Healthy Prevent Diabetes Project and other collaborative research. The creation of the Centre for Translational Research in Chronic Diseases (CTRCD) as a separate entity within the ENCDOR brings to our group expertise in social marketing (Professor Janet Hoek of Department of Marketing, University of Otago), a range of research areas related to physical activity and health (Professor Grant Schofield, Drs Erica Hinckson and Scott Duncan, Auckland University of Technology) and health economics and public policy (Dr Jackie Cumming, Victoria University). Professor Mike Lean (Endocrinologist and Nutritionist), brings an international perspective to this group. The work of the ENCDOR involves collaboration with a number of other Departments within the University of Otago, Dunedin. Strong links include those with the Departments of Medicine, Medical and Surgical Sciences, Human Nutrition, Preventive and Social Medicine, Women's and Children's Health, Psychological Medicine, Anatomy and Structural Biology and Biochemistry.

Within New Zealand there are also links with the University of Canterbury and the Christchurch School of Medicine in relation to insulin sensitivity research (Professor Geoff Chase and Dr Thomas Lotz, University of Canterbury; and Drs Geoff Shaw and Juliet Berkeley, Christchurch School of Medicine). Support from the District Health Board Research Fund has enabled collaborations with Counties Manukau, Canterbury and Capital and Coast District Health Boards (DHBs) and the Wellington Independent Practice Association and Mornington Health Centre.

International longstanding research and professional collaborations continue with Professors John Cummings (University of Dundee), Margaret Thorogood (University of Warwick), Andrew Neil (University of Oxford), Monika Toeller (University of Düsseldorf), Hester Vorster (North-West University, Potchefstroom, South Africa) and Jim Lewis (University of New Hampshire, USA)

At the institutional level, there are very close links with the Nutrition and Chronic Diseases Departments at the World Health Organization with Jim Mann regularly acting as an advisor, the World Cancer Research Fund (WCRF) and the Nutrition Study Group of the European Association for the Study of Diabetes.

5. COMMUNITY INVOLVEMENT, TALKS, AWARDS OR RECOGNITION

Jim Mann continues as Medical Advisor to Diabetes New Zealand with particular reference to their publication “Diabetes”, Patron of Diabetes Otago and Trustee of several diabetes related charitable trusts. He has been invited to give a number of talks to community based organisations including Rotary Clubs, University of the Third Age, and local Diabetes Societies.

Rachael McLean was awarded a prestigious HRC Clinical Training Fellowship enabling her to work full time on research towards her PhD and Victoria Farmer the Dunedin School of Medicine 2009 Research Support Person Award which enabled her to attend the International Diabetes Federation Conference in Montreal. Janet (Eun Hwa) Lee (Otago Diabetes Research Trust), supervised by Kirsten Coppell, was awarded the Renshaw Prize by the Otago Medical Research Foundation for her Summer Research Project report,

Our continuing invitations to deliver keynote and invited lectures at major international conferences and write editorials for the world’s leading medical journals, and to provide advice to international organisations including the World Health organisation provide additional evidence of recognition.

APPENDICES

(i) NAMES OF STAFF AND GRADUATE STUDENTS

STAFF

Director: Professor Jim Mann

Advisory Committee: Mr Eion Edgar, Dr Paul Drury, Professor Don Beaven, Dr Sandy Dawson, Professor Russell Scott, Eleanor Murphy, Lady Prue Wallace, Mr Russell Finnerty, Professor Carl Burgess

Centre Personnel: Chris Booker, Dr Juliet Berkley, Dr Kirsten Coppell, Victoria Farmer, Margaret Johnston, Minako Kataoka, Professor Mike Lean, Dr Kirsten McAuley, Michelle McGrath, Dr Rachael McLean, Dr Rachael Taylor, Dr David Tipene-Leach, Assoc Prof Sheila Williams

GRADUATE STUDENTS

PhD

- Chris Booker. Inflammatory markers and adipokines in type 2 diabetes. 2006
- Lorraine Brooking. Lifestyle interventions to improve Māori health. 2001 –
- Philippa Carter. The FLAME study; longitudinal study of weight, food and activity in 3 to 7 year old children. 2005 -
- Anna Dawson. Using motivational interviewing to increase parental awareness and acceptance of overweight in children aged 4-8 years. 2008 –
- Rachael Mclean. Sodium in New Zealand - intake, consumer perceptions, and implications for chronic disease 2009 -
- Amber Parry-Strong. Dietary intervention for the Diabetes Excess Weight Loss (DEWL) Study. 2007 -
- Lisa Te Morenga. Nutritional determinants of insulin sensitivity. 2006 -
- Rebecca Cooke
- Christine Spencer

MSc

- Megan Levers. Nutritional approaches for the metabolic syndrome. 2008 –
- Alana Newlands

(ii) RESEARCH PUBLICATIONS AND PRESENTATIONS

Chase, JG, Andreassen, S, Pielmeier, U, Hann, CE, McAuley, KA and Mann, JI (2009). "A Glucose-Insulin Pharmacodynamic Surface Modeling Validation and Comparison of Metabolic System Models," Biomedical Signal Processing & Control (BSPC), 4: 355-363,

Coppell KJ, Tipene-Leach DC, Pahau HLR, Williams SM, Abel S, Iles M, Harré Hindmarsh J, Mann JI. Two-year results from a community-wide diabetes prevention intervention in a high risk indigenous community: The Ngati and Healthy project. Diabetes Res Clin Pract. 2009; 85:(2):220-7

.Cummings JH, Mann JI, Nishida C, Vorster HH. Dietary fibre: an agreed definition. *The Lancet*. 2009; 373: 365 – 366

-Dale KS, Mann JI, McAuley KA, Williams SM, Farmer VL. Sustainability of lifestyle changes following an intensive lifestyle intervention in insulin resistant adults: Follow-up at 2-years. *Asia Pac J Clin Nutr*. 2009; 18(1): 114-20.

Dale K, McAuley KA, Taylor RW, Williams SM, Farmer VL, Hansen P, Vorgers SM, Chisholm AW, Mann JI. Determining optimal approaches for successful weight maintenance: A 2 x 2 factorial randomised controlled trial. *Canadian Medical Association Journal* 2009 180(10): E39-E46.

Lee J (EH), K Coppell, S Williams, J Mann. Comparison of modifiable cardiovascular risk factors at diagnosis of type 2 diabetes and at 5 years between different age groups, Otago, New Zealand, 1997-2002. Proceedings of the 197th Scientific Meeting of the Otago Medical School Research Society, Thursday 14 May 2009. *New Zealand Medical Journal* (2009)

Key TJ, Appleby PN, Spencer EA, Travis RC, Allen NE, Thorogood M, Mann JI. Cancer Incidence in British vegetarians. *Br J Cancer*. 2009, 101: 192-7

McLean R.M., Hoek J.A., Buckley S., Croxson B., Cumming J., Ehau T.H., Fa'asalele Tanuvasa A., Johnston M., Mann J.I., Schofield G., (2009) Healthy Eating - Healthy Action: evaluating New Zealand's obesity prevention strategy, *BMC Public Health*, 9:452.

Mann J. Alcohol and type 2 diabetes. *International Diabetes Monitor*. 2009; 21: 35-36.

Mann JI, Cummings JH. Possible implications for health of the different definitions of dietary fibre. *Nutr Metab Cardiovasc Dis*. 2009; 19: 226-229.

Mann J, Vegetarian diets. *BMJ* 2009;339:b2507

Mann J, Nye ER. Fad diets in Sweden, of all places. *The Lancet*. 2009, 374: 767 – 769

McAuley KA, Taylor RW, Farmer VL, Hansen P, Williams SM, Booker CS, Mann JI. Economic evaluation of a community-based obesity prevention program in children: the APPLE project. *Obesity* 2010 Jan;18(1):131-6.

Nielsen G, Taylor RW, Williams SM, Mann JI. Permanent play facilities in school playgrounds as a determinant of children's activity. *Journal of Physical Activity and Health*. In press

(iii) CONFERENCE PRESENTATIONS AND POSTERS

Oral Presentations

Coppell KJ, Kataoka M, Vorgers SM, Williams SM, Chisholm AW, Farmer VL, Mann JI. Intensive nutritional intervention in patients with type 2 diabetes hyperglycaemic despite optimised drug treatment: the Lifestyle Over and Above Drugs in Diabetes (LOADD) Study. Oral presentation, NZ Society for the Study of Diabetes Annual Scientific Meeting, Dunedin (July, 2009)

Kataoka M, Coppell KJ, Vorgers SM, Williams SM, Chisholm AW, Farmer VL, Swartz JM, Mann JI. Dietary compliance explains improvement in glycaemic control in the LOADD (Lifestyle Over and Above Drugs in Diabetes) Study. Oral presentation, NZ Society for the Study of Diabetes Annual Scientific Meeting, Dunedin (July, 2009)

Hutchins ET, Sanderson GF, Abdul-Rahman AM, Morris AB, Coppell KJ. Factors affecting implementation of the National Diabetes Retinal Screening Grading System and Referral Guidelines: A multi-centre analysis. Oral presentation, The Royal Australian and New Zealand College of Ophthalmologists, New Zealand Branch annual Meeting, Nelson (May, 2009)

Hoek, J., McLean, R. & Inch, A. Ideological or evidence-based? Evaluating school based food regulation decisions. Oral presentation at the International Non-Profit and Social Marketing Conference. Melbourne, Australia (July, 2009).

Hoek, J. and McLean, R Loss of Balance? Obesity, Individual Responsibility and Deep Capture. In Moore, B., Pappalardo, J and Wilkie, W. (Eds.), Oral presentation at Proceedings of the American Marketing Association Marketing and Public Policy Conference, Washington DC (May 2009).

McLean R & Hoek JA, Nutrition, industry collaboration and evaluation: Managing 'deep capture'? Oral presentation at the Public Health Association Conference, Dunedin (September, 2009)

McLean, R. & Hoek, J. (2009) Engaging With The Food Industry To Improve Nutrition: Managing The Risk Of 'Deep Capture.' Oral presentation at the New Zealand Society for the Study of Diabetes Conference, Dunedin (July, 2009)

Mann, J. & McLean, R. (2009) Diabetes: a marker of chronic disease? Paper presented at the New Zealand Society for the Study of Diabetes Conference, Dunedin (July, 2009)

(IV) KEYNOTE ADDRESSES

Mann, J
Thailand: Bangkok: 19th International Congress of Nutrition (ICN) Bangkok, Thailand, October 2009

*Does choice of carbohydrate-containing foods influence the risk of chronic disease?
Evidence-based nutrition: different from or the same as evidence-based medicine?*

Mann, J
Montreal: 20th World Diabetes Conference (IDF) Montreal, Canada, October 2009
Controversies in nutrition therapy