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# EDGAR NATIONAL CENTRE FOR DIABETES RESEARCH

## ANNUAL REPORT 2006

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## 1. RESEARCH AND ACTIVITIES UPDATE

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The Edgar National Centre for Diabetes Research (ENCDR) had another productive year in 2006, maintaining a high profile in terms of research outputs as well as national and international initiatives aimed at reducing the global epidemic of type 2 diabetes and improving treatment options for those who have developed diabetes. There have been a number of highlights during the year.

- National recognition for the Ngati and Healthy Prevent Diabetes Project. With partner Ngati Porou Hauora (NPH) the ENCDR has developed and implemented the first programme aimed at reducing the rates of obesity, diabetes and cardiovascular disease amongst Maori who have diabetes rates which are amongst the highest in the world. The programme which involves novel interventions and includes new approaches to evaluation was the overall Supreme Award winner as well as winner of the Whānau Whanui category at the Whanau Ora Award ceremony in Wellington in November 2006. These awards are a biannual celebration of successful Maori initiatives in the health and disability sector. The Ngati and Healthy Programme was also a finalist in the 2006 New Zealand Health Innovation Awards. Formal evaluation of the Programme forms an important component of the 2007 activities of the ENCDR.
- Establishment of a new Senior Research Fellowship. As a result of the generosity of the Karitane Products Society and matching funds from the Leading Thinkers Programme, it has been possible to establish a new Senior Research Fellow in Early Childhood Obesity based in the ENCDR. The position has been advertised and it is hoped an appointment will be made early in 2007. It is intended that the appointment of an established researcher in this field will further enhance an already productive component of the work of the ENCDR.
- Successful completion of the APPLE Project (A Pilot Programme for Lifestyle and Exercise). The APPLE Project is one of the first controlled studies, internationally, to clearly demonstrate the potential of a community-based intervention to reduce the risk of excessive weight gain in childhood. Findings were presented at several major scientific conferences including the International Congress on Obesity (ICO) in Sydney in September. Publication of the two year results in an international scientific journal is expected this year.
- The awards of major research grants. Staff of the Centre have been successful in attracting substantial new research funding (NZ\$1.2M) from the Health Research Council of New Zealand as well as obtaining smaller research grants from the National Heart Foundation and the University of Otago.
- Successful visit to Finland and Scotland. Dr Kirsten Coppell was awarded the Royal Arch Centennial Award for international study and visited both Finnish and Scottish Centres where she established potential research collaborations.

- Participation in national and international diabetes related initiatives. In New Zealand two major developments occurred in 2006. A special enquiry into type 2 diabetes and obesity by the Parliamentary Health Select Committee and the establishment of an Expert Advisory Group to the Ministry of Health on Diabetes and Cardiovascular Disease. Internationally, the World Health Organisation Scientific Update on Carbohydrates and the International Union of Nutritional Sciences Taskforce on Evidence-based nutrition have undertaken work relevant to diabetes. Professor Jim Mann acts as Advisor to the Health Select Committee Enquiry and Chairs the three newly established groups listed above. All staff members of the ENCDR contribute to the considerable workload involved in servicing these working groups.
- Continuing research publications and conference presentations. During 2006 14 papers were published in international scientific journals, 2 keynote lectures were delivered at international conferences and 8 invited lectures and 8 research papers and posters presented at conferences.

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## 2. NEW AND ONGOING RESEARCH PUBLICATIONS AND DISSEMINATIONS

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### i) Publications

1. Taylor R, McAuley K, Williams S, Barbezat W, Nielsen G and Mann J. Reducing weight gain in children through enhancing physical activity and nutrition: the APPLE project. *International Journal of Pediatric Obesity* 2006; **1**(3): 146-152.
2. McAuley K and Mann J. Nutritional determinants of insulin resistance. *Journal of Lipid Research* 2006; **47**(8): 1668-1676.
3. Coppell KJ, Anderson K, Williams S, Manning P and Mann J. Evaluation of diabetes care in the Otago region using a diabetes register, 1998-2003. *Diabetes Research and Clinical Practice* 2006; **71**(3): 345-352.
4. McAuley K, Smith K, Taylor R, McLay R, Williams S and Mann J. Long-term effects of popular dietary approaches on weight loss and features of insulin resistance. *International Journal of Obesity (Lond)* 2006; **30**(2): 342-349.
5. Mann JI, Tipene-Leach DC, Pahau HL, Joseph NR, Abel S, McAuley KA, Coppell KJ, Booker CS and Williams SM. Insulin resistance and impaired glucose metabolism in a predominantly Maori community. *Diabetes Research and Clinical Practice* 2006; **72**(1): 68-74.
6. Lotz TF, Chase JG, McAuley KA, Lee DS, Lin J, Hann CE and Mann JI. Transient and steady-state euglycemic clamp validation of a model for glycemic control and insulin sensitivity testing. *Diabetes Technology and Therapeutics* 2006; **8**(3): 338-346.
7. Mann JI. Evidence-based nutrition recommendations for the treatment and prevention of type 2 diabetes and the metabolic syndrome. *Food and Nutrition Bulletin* 2006; **27**(2): 161-166.
8. Mann JI. Nutrition recommendations for the treatment and prevention of type 2 diabetes and the metabolic syndrome: an evidenced-based review. *Nutrition Reviews* 2006; **64**(9): 422-427.
9. McMahon JA, Green TJ, Skeaff CM, Knight RG, Mann JI and Williams SM. A controlled trial of homocysteine lowering and cognitive performance. *New England Journal of Medicine* 2006; **354**(26): 2764-2772.
10. Elmslie JL, Porter RJ, Joyce PR, Hunt PJ and Mann JI. Carnitine does not improve weight loss outcomes in valproate-treated bipolar patients consuming an energy-restricted, low-fat diet. *Bipolar Disorders* 2006; **8**(5 Pt 1): 503-507.
11. Venn BJ, Skeaff CM, Brown R, Mann JI and Green TJ. A comparison of the effects of A1 and A2 beta-casein protein variants on blood cholesterol concentrations in New Zealand adults. *Atherosclerosis* 2006; **188**(1): 175-178.

12. Aitken WA, Chisholm AW, Duncan AW, Harper MJ, Humphries SE, Mann JI, Murray Skeaff C, Sutherland WH, Wallace AJ and Williams SM. Variation in the cholesteryl ester transfer protein (CETP) gene does not influence individual plasma cholesterol response to changes in the nature of dietary fat. *Nutrition, Metabolism and Cardiovascular Diseases* 2006; **16**(5): 353-363.
13. Chisholm A and Mann J. Reducing salt intake: action beyond the label. *New Zealand Medical Journal* 2006; **119**(1232): U1937. URL: <http://www.nzma.org.nz/journal/119-1232/1937/>.
14. Taylor RW, McAuley KA, Barbezat W, Nielsen G, Williams SM, Mann JI. The APPLE project: two-year findings of a community-based obesity prevention programme in primary-school aged children. *Submitted to the American Journal of Clinical Nutrition* November 2006.

## **ii) Disseminations**

### Keynote Addresses:

1. Mann JI. "Translating obesity evidence into policy: How well do we do it?" 10th International Congress on Obesity (ICO) Sydney, Australia, September 2006.
2. Mann JI. "Dietary fibre in Diabetes". 24th International Symposium on Diabetes and Nutrition by the Diabetes and Nutrition Study Group (DNSG) June/July 2006 Naples.

### Invited Lectures:

1. Taylor RW and Mann JI. "Curing the obesity epidemic". Obesity Symposium, Auckland. December 2006.
2. Mann JI. "Evidence-based nutrition: different from or the same as evidence-based medicine?" 30th Annual Scientific Meeting, Nutrition Society of Australia, Sydney, November 2006.
3. Mann JI. "Transforming New Zealanders' nutrition to manage diabetes - the challenge for politicians" Diabetes Parliamentary Support Group, Wellington. November 2006.
4. Mann JI. "Diet, obesity and the cancer link". World Cancer Research International Symposium. ICO, Sydney, Australia. September 2006.
5. Mann JI. "Diabetes and the metabolic syndrome". 10th Australasian Menopause Society Congress, Wellington. September 2006.
6. Mann JI. "Curbing the obesity epidemic". Healthy Eating Healthy Action (HEHA) Research Hui and Symposium, Wellington. June 2006.
7. Mann JI. "The Apple Study". Australian Health Ministers' Conference, Wellington. April 2006.

8. T. Lotz, J.G. Chase, K.A. McAuley, J. Lin, J. Wong, C.L. Hann, S. Andreassen. Integral-Based Identification of a physiological Insulin and Glucose Model on Euglycaemic Clamp and IVGTT Trials. pp. 463-468. 14<sup>th</sup> IFAC Symposium on System Identification. 29-31 March, 2006 (Newcastle, Australia).

Presentations:

1. D. Tipene-Leach, H. Pahau, M. Ngatai, G.D. Reedy, B.J. Taare, S. Sykes, K. Forrester, T. Wilson, J. Mann and K. Coppell. Ngati and Healthy: Diabetes Prevention in Action. The International Diabetes Federation Diabetes in Indigenous People Forum. November 13-15, 2006 (Melbourne, Australia).
2. T. Lotz, J.G. Chase, K.A. McAuley, G.M. Shaw, X.W. Wong, J. Lin, A. LeCompte, C.E. Hann and J.I. Mann. Highly correlated model-based testing of insulin sensitivity – initial results for a proposed low-intensity test. 6th Annual Diabetes Technology Meeting. November 2-4 2006 (Atlanta, USA).
3. R. Taylor, K. McAuley J. Mann, W. Barbezat, S. Williams, A. Strong, N. Misseldine, G. Nielsen, M. Oakley, J. Simpson, J. Bassett. The APPLE project: preventing obesity in children via environmental intervention. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).
4. R. Taylor, K. McAuley, S. Williams, V. Farmer, K. Smith, C. Hopkins, R. McLay, J. Mann. Long-term effects of popular dietary approaches on weight loss and features of insulin resistance. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).
5. K. Coppell, S. Williams, J. Mann. Weight and weight-related problems at diagnosis of type 2 diabetes – the Otago Diabetes Register, 1998-2004. 30<sup>th</sup> Annual Scientific Meeting of the New Zealand Society for the Study of Diabetes. May 3-5, 2006 (Palmerston North, New Zealand).
6. M. Iles, S. Abel. Process evaluation of Ngati and Healthy Prevent Diabetes Project. 30<sup>th</sup> Annual Scientific Meeting of the New Zealand Society for the Study of Diabetes. May 3-5, 2006 (Palmerston North, New Zealand).

Poster Presentations:

1. D. Tipene-Leach, H. Pahau, M. Ngatai, G.D. Reedy, B.J. Taare, S. Sykes, K. Forrester, T. Wilson, J. Mann and K. Coppell. Ngati and Healthy: Diabetes Prevention in Action. The International Diabetes Federation Diabetes in Indigenous People Forum. November 13-15, 2006 (Melbourne, Australia).
2. K. Coppell, S. Williams and J.I. Mann. Characteristics and cardiovascular risk of new cases of type 2 diabetes in Otago, New Zealand, 1998-2004. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).

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### 3. RESEARCH FUNDING

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#### **i) External Funding Attracted**

- Health Research Council of New Zealand: ‘Determining optimal approaches for successful maintenance of weight loss’. Investigators: Dr Kirsten McAuley, Prof Jim Mann, Kelly Whiteford, Dr Rachael Taylor, Dr Alex Chisholm, Assoc Prof Sheila Williams, Dr Paul Hansen. Starting on 01/07/2006 for 36 months (\$533,445).
- Health Research Council of New Zealand: ‘Lifestyle Over and Above Drugs in Diabetes (LOADD) study’. Investigators: Prof Jim Mann, Dr Kirsten Coppell, Dr Kirsten McAuley, Dr Alex Chisholm, Assoc Prof Sheila Williams, Chris Booker. Starting on 01/01/2007 for 24 months (\$669,076).
- The National Heart Foundation of New Zealand (Limited Budget Grant): ‘Pilot study to develop a new clinical test to measure insulin sensitivity’. Investigators: Dr Kirsten McAuley, Associate Professor J. Geoffrey Chase, Dr Geoffrey Shaw, Victoria Farmer. Starting on 01/01/2007 for 12 months (\$13,882).

#### **ii) Awards and Internal Funding**

- University of Otago Research Grant: ‘Pilot study to develop a new clinical test to measure insulin sensitivity’. Investigators: Dr Kirsten McAuley, Associate Professor J. Geoffrey Chase, Dr Geoffrey Shaw. Starting on 1/1/2007 for 12 months (\$44,800).

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## 4. COLLABORATIONS

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- An application for funding to establish a Centre of Research Excellence (CoRE) for Translational Research (Director: Professor Jim Mann) has provided an opportunity to establish many new collaborations in New Zealand and internationally. The list of Principal and Associate Investigators given in Appendix 1 provides an indication of the breadth of possible new initiatives, some of which will be pursued regardless of the outcome of the application. The involvement of Professor Mike Lean as Deputy Director warrants special mention. He is currently Professor of Human Nutrition and Consultant Endocrinologist at the University of Glasgow and the Glasgow Royal Infirmary and one of Europe's leading researchers and practitioners in the fields of diabetes and obesity. The University of Otago has provided funding for his part-time appointment over a 2-year period and we hope that long-term support for his continuing involvement may be found either from CoRE funding or from other sources.
- All the collaborators described in the 2005 Annual Report of the Edgar National Centre for Diabetes Research continue at varying levels of activity. We are especially proud of our collaboration with Ngati Porou Hauora in the Ngati and Healthy Prevent Diabetes Project and the achievements described in Section 1 of this report. This collaboration will be continued and hopefully extended in the coming years. In addition to its inherent research and clinical application it provides outstanding opportunities for research training.
- The award of two research grants for Dr Kirsten McAuley to further investigate her research developing a simplified approach to the measurement of insulin sensitivity provide the opportunity to extend the collaboration with the University of Canterbury and Christchurch School of Medicine (Associate Professor Geoff Chase and Dr Geoff Shaw), the group which won the Supreme Award at the 2006 New Zealand Health Innovation Awards.
- The appointment of Professor Jim Mann as Chair of the WHO/FAO Scientific Update in Carbohydrates and as member of the Advisory Group on the implementation of the WHO Global Strategy for the Prevention of Chronic Diseases has strengthened our relationship with the World Health Organisation.
- Following Dr Kirsten Coppel's successful visit to Tayside, Scotland (mentioned in Section 1), collaborative initiatives have already been facilitated. The first being an invitation to Dr Kirsten McAuley to speak at the meeting of the European Group for the Study of Insulin Resistance in Edinburgh (30 May – 1 June), as well as steps to establish joint research projects.



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## **5. OTHER CONTRIBUTIONS TO THE RESEARCH ENVIRONMENT**

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Staff of the ENCDR are involved in the supervision of 5 PhD students (Lorraine Brooking, Claire Cameron, Amber Strong, Lisa Te Morenga and Kelly Whiteford). Chris Booker, previously Senior Research Technician in the ENCDR, has enrolled for a PhD and will be jointly supervised by Associate Professor Dave Grattan (Department of Anatomy and Structural Biology) and staff from the Centre.

ENCDR staff act as regular reviewers for international medical and scientific journals including *The Lancet*, *Diabetologia*, *Diabetes Care*, *The American and European Journals of Clinical Nutrition* and Professor Jim Mann is on the Editorial Board of 5 international journals. He also Chairs the Scientific Committee of the National Heart Foundation of New Zealand and the Group of the European Association for the Study of Diabetes (EASD) which updates the Nutritional Recommendations for those people with diabetes.

Staff also regularly review applications for research grants to the Health Research Council of New Zealand, the National Heart Foundation of New Zealand, Diabetes UK and the National Institutes of Health (USA) and occasionally for other international grant awarding bodies.

Teaching within and external to the university is also undertaken. Teaching groups include both undergraduate and postgraduate students, as well as nurses and general practitioners.

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## **6. COMMUNITY INVOLVEMENT, TALKS, CONFERENCES, AWARDS OR RECOGNITION**

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The work of the Centre has been well reported in the National media (press, radio and television) and articles have been written for a lay readership. Several examples are given in Appendix 5. There has been considerable involvement with community organisations at the National and local levels. For example, Jim Mann acts as an Advisor to Diabetes New Zealand (DNZ) nationally, has assisted with the production of a successful DNZ Cookbook, has spoken to members of Parliament on behalf of DNZ and been an invited speaker at the national conference. He is also Patron of Diabetes Otago. In addition to serving as Chair of the Scientific Committee of the National Heart Foundation (NHF) he acts as an advisor to several of their community and patient related groups and has been guest speaker at several local functions of the NHF (for example, the 25<sup>th</sup> Anniversary Celebrations of the Otago Branch).

All members of the ENCDR have given invited lectures to a wide range of other community groups as diverse as the Embroiderer's Guild, the Association of Anglican Women (at their respective annual conferences) and Rotary Clubs.

The ENCDR is involved with the running of the New Zealand Society for the Study of Diabetes (NZSSD). Professor Jim Mann and Dr Kirsten Coppell are members of the executive committee, with Professor Mann being Chairman. The ENCDR acts as the secretariat for the NZSSD.

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## **7. PLANS FOR THE COMING YEAR**

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The small group of researchers who form the staff of the ENCDR are already overcommitted in terms of ongoing research projects (a full list of these appears in Appendix 3) as well as local, national and international commitments (presented in earlier sections of this Report) related to diabetes. Thus relatively few new projects are planned for the coming year, 2007 being regarded as a year for consolidation as well as analysis, documentation and presentation of already completed research. Several staff members have already received invitation to present their findings at international conferences. The appointment of a Senior Research Fellow in Early Childhood Obesity provides exciting opportunities for developing our work in this area. One new PhD student jointly supervised in the Centre and in the Department of Human Nutrition joins the group to further investigate the relationship between nutritional factors and insulin sensitivity.

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## 8. COMMENTS FROM LEADING THINKER

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I believe the achievements of the 3.2 Equivalent Full Time staff members (which includes 2 half-time Senior Research Fellows and 2 full-time Senior Research Technicians) have been considerable. The outputs could not have been achieved without their preparedness to perform at a level well beyond the call of duty. Also critical to the functioning of the ENCDR is the involvement of honorary staff members employed in other University Departments, notably Associate Professor Sheila Williams (Department of Preventive and Social Medicine) and Dr Rachael Taylor (Department of Human Nutrition) and many other collaborators especially Drs David Tipene-Leach and Sally Abel, Mrs Helen Pahau and Mr Terry Ehau of Ngati Porou Hauora.

The appointment of a further Senior Research Fellow creates exciting additional opportunities, but I fear that we are substantially overcommitted. We have no funding for an infrastructure and new funding arrangements within the University have resulted in insufficient funding from endowment income even for our core staff. We have been extremely fortunate in being able to attract reasonably substantial research grant funding, but such funding invariably covers only the cost of the research contracts with no contribution towards the other broader activities of the ENCDR. Thus I believe we need, during 2007, to devote considerable efforts to raising funds to increase our endowment income so that at very least the funding of our core staff and infrastructure will be guaranteed.

New initiatives will be largely those of the soon to be appointed Senior Research Fellow in Early Childhood Obesity. In the longer term we do need to consider how we can enhance our activities relating to type 1 diabetes. Currently, most of our research in the ENCDR has related directly or indirectly to type 2 diabetes. This applied to other New Zealand-based research as well as the activities of relevant governmental and non-governmental organisations. Yet there is convincing research that rates of type 1 diabetes are escalating. The causes of this increased prevalence are unknown and services provided for those with type 1 diabetes are not taking into account the fact that type 1, along with type 2, diabetes, is rapidly acquiring “epidemic status”.



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## APPENDICES

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### **APPENDIX 1: Short profiles on staff and graduate students**

#### **Professor Jim Mann** (Director) *CNZM, FRSNZ*

Jim Mann has been Professor in Human Nutrition and Medicine at the University of Otago and Consultant Physician (Endocrinology) in Dunedin Hospital for the past 19 years. For the preceding 15 years he lectured at the University of Oxford and worked as a Physician in the Radcliffe Infirmary. He is Director of the Edgar National Centre for Diabetes Research and the WHO Collaborating Centre for Human Nutrition. His research and clinical work have principally been in the fields of lipids and carbohydrates as they relate to coronary heart disease and diabetes.

He has been involved with a number of national and international organisations concerned with nutrition and health, several of which he has chaired or is continuing to chair, including the Diabetes and Nutrition Study Group of the European Association for the study of Diabetes, the Scientific Advisory Committee of the National Heart Foundation of New Zealand, the Cardiovascular Guidelines Group and the Food and Nutrition Advisory Committee to the New Zealand Ministry of Health.

#### **Dr Kirsten Coppel** (Senior Research Fellow) *MBChB, MPH, FAFPHM*

Dr Kirsten Coppel is a specialist in public health medicine and has also trained and practised as a general practitioner. Prior to undertaking diabetes research she was involved with monitoring the National Cervical Screening Programme and worked as a medical officer at the Family Planning Association. Kirsten has a particular interest in monitoring and evaluation, registers as a tool to improve quality of care and community interventions.

#### **Dr Kirsten McAuley** (Senior Research Fellow) *MBChB, PhD*

Dr Kirsten McAuley is a medical practitioner with extensive experience in clinical and community-based studies regarding weight loss, obesity, diabetes and insulin sensitivity in adults. Dr McAuley's previous research includes studies assessing the estimation of insulin sensitivity using simple surrogates and she has implemented a number of clinical studies involving lifestyle intervention in insulin resistant individuals.

#### **Victoria Farmer** (Senior Research Technician) *MSc*

Victoria Farmer's Masters research involved isolating bacteriocins produced by *Staphylococcus aureus* and *Staphylococcus warneri*. A move from a communicable disease research environment to the ENCDR has led Victoria to assist with running the Centre and involvement in numerous research projects carried out by the ENCDR.

#### **Chris Booker** (PhD Student) *BSc(Hons)*

Chris Booker, formerly a Senior Research Technician at the ENCDR, will be undertaking a PhD in 2007 with funding provided by a Postgraduate Scholarship from the National Heart Foundation. His research will focus on the role of inflammatory markers and adipokines in type 2 diabetes, and be based at both the ENCDR and the Department of Anatomy and Structural Biology.

## **APPENDIX 2: Principal and Associate Investigators within the Centre for Translational Research in Chronic Diseases: Obesity**

### **a) Centre Director**

*Prof Jim Mann* Edgar National Centre for Diabetes Research, Department of  
Medical and Surgical Sciences, University of Otago

### **b) Deputy Director**

*Prof Mike Lean* Department of Medical and Surgical Sciences,  
University of Otago

### **c) Principal Investigators (22)**

*Assoc Prof Hugh Campbell* Centre for the Study of Agriculture, Food and the Environment  
University of Otago

*Prof Jillian Cornish* Department of Medicine, Faculty of Health and Medical  
Sciences, University of Auckland

*Assoc Prof Oliver Davidson* Department of Psychological Medicine,  
Dunedin School of Medicine

*Assoc Prof Mark Dibben* Commerce Division, Lincoln University

*Dr Robin Gauld* Department of Preventive and Social Medicine,  
University of Otago

*Prof Ailsa Goulding* Department of Medical and Surgical Sciences,  
University of Otago

*Assoc Prof Dave Grattan* Department of Anatomy & Structural Biology,  
University of Otago

*Prof Janet Hoek* Department of Marketing, Massey University

*Prof Rod Jackson* Section of Epidemiology and Biostatistics, School of  
Population Health, Faculty of Medical and Health Sciences,  
University of Auckland

*Assoc Prof Rob McGee* Department of Preventive and Social Medicine,  
University of Otago

*Dr Kathy Mountjoy* Department of Physiology, Faculty of Medical and Health  
Sciences, University of Auckland

*Prof Ian Reid* Faculty of Medical and Health Sciences,  
University of Auckland

<i>Assoc Prof Grant Schofield</i>	Auckland University of Technology, Centre for Physical Activity and Nutrition Research
<i>Prof Philip Schluter</i>	Auckland University of Technology, Faculty of Health & Environmental Sciences
<i>Assoc Prof Rob Scragg</i>	Epidemiology & Biostatistics Section, School of Population Health, University of Auckland
<i>Dr Louise Signal</i>	Department of Public Health, Wellington School of Medicine and Health Sciences
<i>Prof Paul Smith</i>	Pharmacology Department, University of Otago
<i>Prof Barry Taylor</i>	Department of Women's and Children's Health, Dunedin School of Medicine
<i>Prof Robin Taylor</i>	Department of Medicine, University of Otago
<i>Dr Rachael Taylor</i>	Department of Human Nutrition, University of Otago
<i>Dr Rawiri Tipene-Leach</i>	Ngati Porou Hauora
<i>Assoc Prof Sheila Williams</i>	Department of Preventive and Social Medicine, University of Otago

**d) Associate Investigators (10)**

<i>Dr Jennie Connor</i>	Department of Preventive and Social Medicine, University of Otago
<i>Dr Kirsten Coppell</i>	Edgar National Centre for Diabetes Research
<i>Dr Tim Green</i>	Department of Human Nutrition, University of Otago
<i>Assoc Prof Paul Hansen</i>	Department of Economics, University of Otago
<i>Dr Kirsten McAuley</i>	Edgar National Centre for Diabetes Research
<i>Dr Cliona Ni Mhurchu</i>	Clinical Trials Research Unit, School of Population Health, University of Auckland
<i>Prof Paul Moughan</i>	Director Riddet Centre, Massey University
<i>Dr David Schaaf</i>	School of Population Health, Faculty of Medical and Health Sciences, University of Auckland
<i>Prof Murray Skeaff</i>	Department of Human Nutrition, University of Otago
<i>Dr Debra Waters</i>	School of Physical Education, University of Otago

### **APPENDIX 3: Full list of research projects and involvement by the Edgar National Centre for Diabetes Research**

#### **a) Projects recently completed**

- A Pilot Programme for Lifestyle and Exercise (APPLE).

#### **b) Ongoing Projects**

- Ngati and Healthy Prevent Diabetes Project (in collaboration with Ngati Porou Hauora).
- Otago Diabetes Project – A regional diabetes register established in 1998 to monitor diabetes care in the Otago region. Information held on this long-standing register has contributed to a number of research projects.
- Hospitalisation Project involving use of the Otago Diabetes Project register.
- Healthy Eating and Training (HEAT) – A PhD project in the Department of Human Nutrition, University of Otago. Supervised by Professor Mann and Dr McAuley.
- Lifestyle Over and Above Drugs in Diabetes (LOADD) Study.
- Intervention with fibre and protein – A PhD project in the Department of Human Nutrition, University of Otago. Supervised by Professor Mann and Dr McAuley.
- Pilot study to develop a new clinical test to measure insulin sensitivity (in collaboration with the University of Canterbury).
- Investigation of continuous glucose monitoring (in collaboration with the University of Canterbury).
- Mark Recapture Method Development using diabetes as a case study – A PhD project in the Department of Mathematics and Statistics, University of Otago. Co-supervised by Dr Coppel.



## **APPENDIX 4: DISSEMINATIONS**

### **a) Research publications**

1. Taylor R, McAuley K, Williams S, Barbezat W, Nielsen G and Mann J. Reducing weight gain in children through enhancing physical activity and nutrition: the APPLE project. *International Journal of Pediatric Obesity* 2006; **1**(3): 146-152.
2. McAuley K and Mann J. Nutritional determinants of insulin resistance. *Journal of Lipid Research* 2006; **47**(8): 1668-1676.
3. Coppell KJ, Anderson K, Williams S, Manning P and Mann J. Evaluation of diabetes care in the Otago region using a diabetes register, 1998-2003. *Diabetes Research and Clinical Practice* 2006; **71**(3): 345-352.
4. McAuley K, Smith K, Taylor R, McLay R, Williams S and Mann J. Long-term effects of popular dietary approaches on weight loss and features of insulin resistance. *International Journal of Obesity (Lond)* 2006; **30**(2): 342-349.
5. Mann JI, Tipene-Leach DC, Pahau HL, Joseph NR, Abel S, McAuley KA, Coppell KJ, Booker CS and Williams SM. Insulin resistance and impaired glucose metabolism in a predominantly Maori community. *Diabetes Research and Clinical Practice* 2006; **72**(1): 68-74.
6. Lotz TF, Chase JG, McAuley KA, Lee DS, Lin J, Hann CE and Mann JI. Transient and steady-state euglycemic clamp validation of a model for glycemic control and insulin sensitivity testing. *Diabetes Technology and Therapeutics* 2006; **8**(3): 338-346.
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8. Mann JI. Nutrition recommendations for the treatment and prevention of type 2 diabetes and the metabolic syndrome: an evidenced-based review. *Nutrition Reviews* 2006; **64**(9): 422-427.
9. McMahon JA, Green TJ, Skeaff CM, Knight RG, Mann JI and Williams SM. A controlled trial of homocysteine lowering and cognitive performance. *New England Journal of Medicine* 2006; **354**(26): 2764-2772.
10. Elmslie JL, Porter RJ, Joyce PR, Hunt PJ and Mann JI. Carnitine does not improve weight loss outcomes in valproate-treated bipolar patients consuming an energy-restricted, low-fat diet. *Bipolar Disorders* 2006; **8**(5 Pt 1): 503-507.
11. Venn BJ, Skeaff CM, Brown R, Mann JI and Green TJ. A comparison of the effects of A1 and A2 beta-casein protein variants on blood cholesterol concentrations in New Zealand adults. *Atherosclerosis* 2006; **188**(1): 175-178.

12. Aitken WA, Chisholm AW, Duncan AW, Harper MJ, Humphries SE, Mann JI, Murray Skeaff C, Sutherland WH, Wallace AJ and Williams SM. Variation in the cholesteryl ester transfer protein (CETP) gene does not influence individual plasma cholesterol response to changes in the nature of dietary fat. *Nutrition, Metabolism and Cardiovascular Diseases* 2006; **16**(5): 353-363.
13. Chisholm A and Mann J. Reducing salt intake: action beyond the label. *New Zealand Medical Journal* 2006; **119**(1232): U1937. URL: <http://www.nzma.org.nz/journal/119-1232/1937/>.
14. Taylor RW, McAuley KA, Barbezat W, Nielsen G, Williams SM, Mann JI. The APPLE project: two-year findings of a community-based obesity prevention programme in primary-school aged children. *Submitted to the American Journal of Clinical Nutrition* November 2006.

**b) Presentations**

15. D. Tipene-Leach, H. Pahau, M. Ngatai, G.D. Reedy, B.J. Taare, S. Sykes, K. Forrester, T. Wilson, J. Mann and K. Coppel. Ngati and Healthy: Diabetes Prevention in Action. The International Diabetes Federation Diabetes in Indigenous People Forum. November 13-15, 2006 (Melbourne, Australia).
16. T. Lotz, J.G. Chase, K.A. McAuley, G.M. Shaw, X.W. Wong, J. Lin, A. LeCompte, C.E. Hann and J.I. Mann. Highly correlated model-based testing of insulin sensitivity – initial results for a proposed low-intensity test. 6th Annual Diabetes Technology Meeting. November 2-4 2006 (Atlanta, USA).
17. R. Taylor, K. McAuley J. Mann, W. Barbezat, S. Williams, A. Strong, N. Misseldine, G. Nielsen, M. Oakley, J. Simpson, J. Bassett. The APPLE project: preventing obesity in children via environmental intervention. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).
18. R. Taylor, K. McAuley, S. Williams, V. Farmer, K. Smith, C. Hopkins, R. McLay, J. Mann. Long-term effects of popular dietary approaches on weight loss and features of insulin resistance. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).
19. K. Coppel, S. Williams, J. Mann. Weight and weight-related problems at diagnosis of type 2 diabetes – the Otago Diabetes Register, 1998-2004. 30<sup>th</sup> Annual Scientific Meeting of the New Zealand Society for the Study of Diabetes. May 3-5, 2006 (Palmerston North, New Zealand).
20. M. Iles, S. Abel. Process evaluation of Ngati and Healthy Prevent Diabetes Project. 30<sup>th</sup> Annual Scientific Meeting of the New Zealand Society for the Study of Diabetes. May 3-5, 2006 (Palmerston North, New Zealand).

21. T. Lotz, J.G. Chase, K.A. McAuley, J. Lin, J. Wong, C.L. Hann, S. Andreassen. Integral-Based Identification of a physiological Insulin and Glucose Model on Euglycaemic Clamp and IVGTT Trials. pp. 463-468 (invited). 14<sup>th</sup> IFAC Symposium on System Identification. 29-31 March, 2006 (Newcastle, Australia).

**c) Poster Presentations**

22. D. Tipene-Leach, H. Pahau, M. Ngatai, G.D. Reedy, B.J. Taare, S. Sykes, K. Forrester, T. Wilson, J. Mann and K. Coppell. Ngati and Healthy: Diabetes Prevention in Action. The International Diabetes Federation Diabetes in Indigenous People Forum. November 13-15, 2006 (Melbourne, Australia).
23. K. Coppell, S. Williams and J.I. Mann. Characteristics and cardiovascular risk of new cases of type 2 diabetes in Otago, New Zealand, 1998-2004. 10<sup>th</sup> International Congress of Obesity (Australian Society for the Study of Obesity). 4-8 September, 2006 (Sydney, Australia).

**d) Keynote Addresses**

24. Mann JI. "Translating obesity evidence into policy: How well do we do it?" 10th International Congress on Obesity (ICO) Sydney, Australia, September 2006.
25. Mann JI. "Dietary fibre in Diabetes". 24th International Symposium on Diabetes and Nutrition by the Diabetes and Nutrition Study Group (DNSG) June/July 2006 Naples.

**e) Invited Lectures**

26. Taylor RW and Mann JI. "Curing the obesity epidemic". Obesity Symposium, Auckland. December 2006.
27. Mann JI. "Evidence-based nutrition: different from or the same as evidence-based medicine?" 30th Annual Scientific Meeting, Nutrition Society of Australia, Sydney, November 2006.
28. Mann JI. "Transforming New Zealanders' nutrition to manage diabetes - the challenge for politicians" Diabetes Parliamentary Support Group, Wellington. November 2006.
29. Mann JI. "Diet, obesity and the cancer link". World Cancer Research International Symposium. ICO, Sydney, Australia. September 2006.
30. Mann JI. "Diabetes and the metabolic syndrome". 10th Australasian Menopause Society Congress, Wellington. September 2006.
31. Mann JI. "Curbing the obesity epidemic". Healthy Eating Healthy Action (HEHA) Research Hui and Symposium, Wellington. June 2006.
32. Mann JI. "The Apple Study". Australian Health Ministers' Conference, Wellington. April 2006.

## **APPENDIX 5: Examples of Media Coverage involving ENCDR staff**

- He Kitenga 2006 University of Otago Research Highlights (Page 20). “A Weighty Problem”.
- New Zealand Listener Cover Story (November 18-24, 2006). “The Big Picture”.
- The Māori Party Press Release (November 6, 2006). “Another Great Success for Māori Health Providers”.
- The Gisborne Herald (November 6, 2006). “East Coast diabetes project wins supreme health award”.
- New Zealand Ministry of Health Māori Health Web Page (October 2006). The Whānau Ora Awards.
- New Zealand Ministry of Health Media Release (October 16, 2006). “Māori health providers celebrate with Whānau Ora Awards”.
- Otago Daily Times (October 11, 2006). “Battle for research funding red hot”.
- University of Otago Media Release (September 26, 2006). “New Zealand Could Lead “Tide Reversal” in Obesity Epidemic”.
- Otago Daily Times (July 28, 2006). “Otago cancer researchers gain \$5.9 HRC grant”.
- University of Otago Media Release (June 28, 2006). Major Health Research Funding for University of Otago”.
- Health Research Council of New Zealand News Release (June 27, 2006). “Variety of research programmes among new HRC grants”.
- Health Research Council of New Zealand News Release (June 27, 2006). “Major health issues tackled by Dunedin researchers”.
- Otago Daily Times (June 24, 2006). “Gaining research centre crucial for university”.
- Newswire.co.nz (June 21, 2006). “Magnitude and Cost of Obesity May Have Been Underestimated”.
- Engineering World (April/May Issue, 2006). “Determining insulin resistance”.
- Sunday Star Times (April 23, 2006). “Diabetes-related deaths take off. NZ fatality rate far higher than once thought”.
- Members of the Edgar National Centre for Diabetes Research have also given frequent interviews on international and national radio and television.