

Contents

Page

Organising committee

Acknowledgments

General Information

Invited Speakers

Conference Programme

Poster Display

Abstract Presentations

Abstract Presentations

Abstract Presentations

Abstract Presentations

Abstract Presentations

Abstract Presentations

Poster Presentations

Disclaimer: Every effort has been made to ensure that all the information contained in this booklet is accurate. At the time of going to print the booklet contained up to date information.

Organising Committee

Paul Dixon, Helen Snell, Pauline Giles, Mary Yiannoutsos and Rosemairi Knowles.

In conjunction with the 2005 NZSSD Executive especially Paul Drury and Tim Cundy



In association with



PO Box 994, Dunedin, New Zealand

P: +64 3 454 6568 **F:** 64 + 3 4546548 **M:** +64 274 74 9887 **E:** nzssd@akblimited.co.nz **W:** www.akblimited.co.nz

NZSSD Membership

All enquiries should be directed to:

Mr C R Toomath,

NZSSD Membership Secretary

292 Turere Lane, Te Awamutu 2400, New Zealand

E: crayto@clear.net.nz **F:** 07 871 8992 **T:** 07 871 8922

Acknowledgements

The organising committee would like to thank all the sponsors and exhibitors for their contributions to the meeting.

With special mention to:



Novo Nordisk Pharmaceuticals Ltd
Sponsor of Professor David Kerr



Sanofi Aventis Sponsor of
Joan Everett and the conference bags



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tics

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General Information

REGISTRATION & INFORMATION DESK

The registration desk will open 0800 Wednesday morning and will remain open throughout the conference.

Ali Copeman +64 27 4749887

MESSAGES

Messages received will be left on the notice board located near the registration desk. Please check for messages, as no announcements will be made.

NAME BADGES

Please wear your name badges at all meeting sessions and social functions.

MEETING ROOM

All sessions are being held in the main conference room upstairs in the PNCC

INDUSTRY EXHIBITION

The industry exhibition is located in the exhibition Room ground floor PNCC. The organising committee is grateful to our sponsors and exhibitors for their generous contribution to the conference, and strongly encourages all delegates to visit each of the stands.

The organising committee gratefully acknowledges the assistance Nick Tunnicliff from Roche Diagnostics for co-ordinating the industry exhibition.

REFRESHMENTS

Morning and afternoon tea, Wednesday and Thursday lunch will be served each day in the Industry exhibition area.

Special dietary requirements: Delegates who have special dietary requirements should identify themselves to the serving staff or conference organisers at all functions.

CONFERENCE DINNER

Conference Dinner

Thursday 4 May 18.30 – 24.00

Novotel Palmerston North

One ticket is included in the full registration fee. Your dinner ticket is in your delegate name pouch along with any guest tickets you may have purchased. If still available additional guest tickets, may be purchased from the registration desk. Cost per ticket \$90.00 includes three course meal, refreshments (wine, beer & soft drinks), and entertainment.

Please remember to take your ticket with you – tickets will be collected.

AIRPORT AIR BUS, SUPERSHUTTLE AND TAXIS

Airport transfers can be booked at the registration desk.

DISCLAIMER OF LIABILITY

The NZSSD and the meeting managers will not accept any liability for damages of any nature sustained by participants or their accompanying persons or loss of or damage to their personal property as a result of the conference or related events.

Invited Speakers

Professor Don Chisholm heads the Diabetes Section of the Garvan Research Institute and is a clinical endocrinologist at St Vincent's Hospital, Sydney, Australia. He has achieved international recognition as a diabetes researcher in the area of insulin resistance. He has recently been working on links between fatty acid metabolism and insulin resistance. He received the 2002 Kellion Award from the Australian Diabetes Society for his efforts in diabetes research. He will be speaking on insulin resistance, fat metabolism and the metabolic syndrome.

Dr David Kerr is a Consultant Physician in Diabetes from Bournemouth, UK. His areas of research interest include patient management of diabetes and hypoglycaemia in diabetes, he has previously worked with Robert Sherwin's group at Yale. He will discuss the difficult topic of "in hospital" diabetes management as well as aspects of hypoglycaemia.

Joan Everett is a Diabetes Nurse Specialist from Bournemouth, UK. She has special interests in insulin pump therapy and structured education for Type 1 diabetes to achieve high quality self-management. She will provide an overview of diabetes education initiatives and pump programmes in the UK.

Dr Satu Viali is a Samoan physician trained in New Zealand and Australia. As well as being the sole fully-trained physician in Samoa, he is involved in starting a local medical school and is the co-ordinator of diabetes services in Samoa. He will discuss the state of diabetes in there.

Dr Mark Donaldson is an ophthalmologist from Auckland with a special interest in diabetic retinopathy and macular disease. He will discuss the macula in diabetes.

NZSSD 30th ANNUAL SCIENTIFIC MEETING PROGRAMME - Wednesday 3 May

Time	Event	Chair person
8.30	Registration Desk Opens	
11.15-11.30	Opening welcome - Paul Dixon	
11.30 – 12.15 K1	David Kerr In-Patient management of diabetes	
12.15-12.30 O1	TWENTY YEAR OUTCOMES – THE 1984 INSULIN-TREATED DIABETIC COHORT ENROLLED ON THE CANTERBURY DIABETES REGISTRY <i>SI Dawson, J Willis, CM Florkowski, RS Scott. Lipids & Diabetes Research Group, Christchurch Hospital, Christchurch</i>	
12.30-12.40 O2	LEFT VENTRICULAR HYPERTROPHY, DIASTOLIC DYSFUNCTION AND LATENT SYSTOLIC IMPAIRMENT ARE COMMON IN MĀORI AND PACIFIC PATIENTS WITH TYPE 2 DIABETES, HYPERTENSION AND DIABETIC NEPHROPATHY - ECHO SUBSTUDY TO THE DEFEND PILOT STUDY <i>C Hotu, GA Whalley, W Bagg, HJ Walsh, L Harwood, GD Gamble, GD Braatvedt, JF Collins, RN Doughty. Dept of Medicine, University of Auckland and Dept of Renal Medicine, Auckland City Hospital</i>	
12.40-12.50 O3	DELAY FUTURE END STAGE NEPHROPATHY DUE TO DIABETES (DEFEND) PILOT STUDY <i>C Hotu, W Bagg, L Harwood, GD Gamble, F Mahony, N Hapeta, S Latu, GD Braatvedt, JF Collins. Dept of Medicine, University of Auckland and Dept of Renal Medicine, Auckland City Hospital</i>	
12.50-13.35	Lunch - Industry Exhibition Area	
13.35-13.45 O4	SCREENING PRACTICES FOR GESTATIONAL DIABETES AMONG MIDWIVES <i>M Devers¹, D Simmons^{1,2}, C Roodt¹, A Haslam¹, S Waymouth¹, E Johnson¹, L Wolmarans¹ ¹Waikato Hospital, Hamilton, ²Waikato Clinical School, University of Auckland, Hamilton.</i>	
13.45-13.55 O5	LONG-TERM FOLLOW-UP OF NORTHLAND WOMEN WITH PREVIOUS GESTATIONAL DIABETES <i>N McGrath, C Evans Northland Health Diabetes Service, Whangarei</i>	
13.55-14.10 O6	DIFFERING CAUSES OF PREGNANCY LOSS IN TYPE 1 AND TYPE 2 DIABETES <i>T Cundy, L Neale, J Rowan, P McPherson Diabetes Pregnancy Clinic, National Women's Health, Auckland City Hospital</i>	
14.10-14.25 O7	WEIGHT REDUCTION AMONG MĀORI IN TE WAI O RONA: DIABETES PREVENTION STRATEGY: VANGUARD STUDY FINDINGS <i>D.Simmons¹, E Rush², N Crook³, MH. Williams¹, W Johnstone⁴, C Bridson⁵, G Wilkinson¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team. ¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland, ³Department of Medicine, Lakes District Health Board, Rotorua, ⁴Te Puna Oranga, Waikato District Health Board, Hamilton, ⁵Central Laboratory Services, Waikato District Health Board, Hamilton.</i>	
14.25-14.40 O8	WEIGHT AND WEIGHT-RELATED PROBLEMS AT DIAGNOSIS OF TYPE 2 DIABETES - THE OTAGO DIABETES REGISTER, 1998-2004 <i>K Coppel^{1,2}, S Williams³, J Mann^{1,4}. ¹Edgar National Centre for Diabetes Research, University of Otago, ²Otago Diabetes Trust Otago, Dunedin, ³Department of Preventive & Social Medicine, University of Otago, ⁴Department of Human Nutrition, University of Otago</i>	

Time	Event	Chair person
14.40-14.50 O9	STARTING POINT FOR PREVENTION AND IDENTIFICATION OF CUT-OFFS FOR RISK FOR TYPE 2 DIABETES IN NEW ZEALAND MAORI <u>E Rush</u> ¹ , D Simmons ² , N Crook ³ , V Obolonkin ¹ and the Te Wai o Rona: Diabetes Prevention Strategy team. ¹ Faculty of Health & Environmental Sciences, AUT University, Auckland, ² Waikato Clinical School, University of Auckland, Hamilton, ³ Dept of Medicine, Lakes DHB, Rotorua	
14.50-15.00 O10	CHARACTERISTICS OF MĀORI PARTICIPANTS WITH UNDIAGNOSED DIABETES IN TE WAI O RONA: DIABETES PREVENTION STRATEGY <u>C Chandrasekar</u> ¹ , D Simmons ² , E Rush ³ , N Crook ⁴ and the Te Wai o Rona: Diabetes Prevention Strategy Team. ¹ Diabetes Service, Waikato Hospital, Hamilton, New Zealand, ² Waikato Clinical School, University of Auckland, Hamilton, ³ Faculty of Health & Environmental Sciences, AUT University, Auckland, ⁴ Department of Medicine, Lakes District Health Board, Rotorua	
15.00-15.30	Afternoon Tea - Industry Exhibition Area	
15.30-15.45 O11	A RETROSPECTIVE REVIEW OF BARIATRIC SURGERY AT NORTH SHORE HOSPITAL <u>M Choe</u> ¹ , R Cutfield ¹ M Booth ² <i>Departments of Endocrinology¹ and Surgery², North Shore Hospital, Auckland</i>	
15.45-15.55 O12	CASE STUDY: GASTRIC BYPASS SURGERY FOR LIPODYSTROPHY <u>N McGrath</u> , <i>Northland Health Diabetes Service, Whangarei</i>	
15.55-16.05 O13	ACUTE CHANGES IN INSULIN SENSITIVITY, NEFA AND ADIPONECTIN WITH GASTRIC BYPASS <u>JD Krebs</u> ¹ , D Bell ¹ , N Sharma ² , G Knowles ² , G Miller ² , D Macartney ² , J Willis ³ , R Scott ³ , R Stubbs ² ¹ Diabetes Research Centre, Wellington. ² Wakefield Gastroenterology Centre, Wellington. ³ Lipid & Diabetes Research Group, Christchurch	
16.05-16.15 O14	COMPARISON OF PLASMA ADIPONECTIN LEVELS IN MĀORI AND CAUCASIAN SUBJECTS <u>B Shand</u> ¹ , P Elder ² , R Scott ¹ , N Poa ³ ¹ Lipid & Diabetes Research Group, ² Canterbury Health Laboratories, ³ Department of Psychiatry, Christchurch Hospital, Christchurch	
16.15 – 17.00 K2	Don Chisholm Fat Metabolism in Type 2 Diabetes	
17.00 – 19.00	Welcome Reception – Industry Exhibition Area	

NZSSD 30th ANNUAL SCIENTIFIC MEETING PROGRAMME – Thursday 4 May

Time	Event	Chair person
07.15-0815	Fun walk/run Palmerston North Hockey Pavilion	
08.30	Registration desk Opens	
09.00-09.45 K3	Mark Donaldson The Macula in Diabetes	
09.45-10.00 O15	EFFICACY AND SAFETY OF THE DPP-IV INHIBITOR, SITAGLIPTIN R Scott on behalf of the Sitagliptin Investigators. <i>Lipid & Diabetes Research Group, Christchurch</i>	
10.00-10.15 O16	REDUCED MICROVASCULAR DISEASE WITH FENOFIBRATE: THE FIELD STUDY P L Drury <i>Auckland Diabetes Centre - on behalf of the FIELD Study investigators, NHMRC Clinical Trials Centre, University of Sydney, Sydney, Australia</i>	
10.15-10.30 O17	AN INVESTIGATION INTO THE MEDICATION USAGE AND COST FOR DIABETIC PATIENTS IN A RURAL TOWN IN NEW ZEALAND A Zechner ¹ , G Joshy ² , D Simmons ² <i>¹Department of Economics, University of Waikato, Hamilton, ²Waikato Clinical School, University of Auckland, Hamilton</i>	
10.30-11.00	Morning tea - Industry Exhibition Area	
11.00-11.10 O18	MAPPING THE AVAILABILITY AND ACCESSIBILITY OF HEALTHY FOOD WITHIN THE WAIKATO AND LAKES DISTRICT HEALTH REGIONS: THE TE WAI O RONA DIABETES PREVENTION STRATEGY MH Williams ¹ , M Oehley ¹ , E Rush ² , D Simmons ¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team <i>¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland</i>	
11.10-11.25 O19	MY INDIVIDUAL NUTRITION INTAKE MONITORING TOOL (MINIM) – A NOVEL WAY OF KEEPING A DAILY FOOD DIARY K Smallman ¹ , L Matthews ² , L Ferguson ³ , H Gibbs ¹ <i>¹ Diabetes Projects Trust PO Box 61144, Otara; ² Institute of Health & Community Studies, University of Bournemouth, UK; ³ Community Dietetic, Counties Manukau District Health Board</i>	
11.25-12.00 K3	Satu Viali Diabetes in Samoa	
12.00-13.35	Lunch & Poster Viewing - Industry Exhibition Area	
13.35-13.50 O20	NEW ZEALAND DIABETES HEALTH SERVICES: THROUGH THE PATIENTS' EYES CAM Paddison, FA Alpass, CV Stephens <i>School of Psychology, Massey University, Palmerston North</i>	
13.50-14.00 O21	PROCESS EVALUATION OF NGATI AND HEALTHY PREVENT DIABETES PROJECT S Abel, M Iles <i>Ngati Porou Hauora</i>	
14.00-14.10 O22	LIFESTYLE INTERVENTIONS IN TYPE 2 DIABETES GROUP EDUCATION L Kent, K Newton <i>Wellington Independent Practice Association, Kapiti Coast, Wellington</i>	

Time	Event	Chair person
14.10-14.20 O23	FUNDAMENTAL DIABETES NURSING KNOWLEDGE: SHOW WITHOUT PUNCH? <u>H Snell</u> <i>Diabetes Lifestyle Centre, MidCentral District Health Board, Palmerston North</i>	
14.20-15.05 K4	Joan Everett Evaluating diabetes Education programmes	
15.05-15.35	Afternoon tea - Industry Exhibition Area	
15.45-17.15	NZSSD 30th Annual General Meeting	2005 Executive
18.30	Conference Dinner Novotel Palmerston North pre-dinner drinks from 18.30	

NZSSD 30th ANNUAL SCIENTIFIC MEETING PROGRAMME – Friday 5 May

Time	Pre Friday event	Chairperson
7.30 – 8.30	<p>The following discussion is not part of the official NZSSD Scientific Meeting Programme, the views expressed at this meeting are not official NZSSD policy on the issues concerned".</p> <p style="text-align: center;"><i>"Gestational Diabetes Mellitus in New Zealand-What is the way ahead? Workshop to discuss feedback from the National Workshop on GDM"</i></p>	David Simmons

Time	Event	Chair person
09.00-09.45 K5	<p>Don Chisholm Metabolic and clinical responses to diet and exercise in the metabolic syndrome and type 2 diabetes - which diet, what exercise?"</p>	
09.45-10.15	Paul Drury The FIELD study	
10.15-10.45	Morning tea - Industry Exhibition Area	
10.45-11.00 O24	<p>HLA-DQ ALLELES IN CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES: TEMPORAL CHANGES JA Willis¹, RS Scott¹, BA Darlow², JW Nesbit¹, JF McRae¹, AC Johnstone¹, CM Frampton ¹<i>Lipid & Diabetes Research Group, Christchurch Hospital and</i> ²<i>Department of Paediatrics, Christchurch School of Medicine & Health Sciences, Christchurch</i></p>	
11.00-11.15 O25	<p>METABOLIC CONTROL WITH INSULIN PUMP THERAPY - THE WAIKATO EXPERIENCE E Reda, A Von Reitzenstein, P Dunn <i>Waikato Diabetes Service, Waikato Hospital, Hamilton</i></p>	
11.15-11.25 O26	<p>RETROSPECTIVE AUDIT OF CSII USE AT THE CHRISTCHURCH DIABETES CENTRE J Berkeley , H Lunt, P Moore. <i>Diabetes Centre, Christchurch Hospital, Christchurch</i></p>	
11.25-11.35 O27	<p>A TOOL TO IMPROVE THE IN HOSPITAL MANAGEMENT OF HYPOGLYCAEMIA M Yiannoutsos, P Giles <i>Diabetes Lifestyle Centre, MidCentral District Health Board, Palmerston North</i></p>	
11.35-11.45 O28	<p>THE HYPOGLYCAEMIA RISK PROFILE OF TYPICAL INSULIN-TREATED DRIVERS IN NEW ZEALAND D Bell¹, AJ Huddart², S Dee¹, R B W Smith¹, C Eagleton¹, J Krebs¹ ¹<i>Department of Endocrinology, Wellington Hospital;</i> ²<i>Victoria University of Wellington</i></p>	
11.45-12.30 K6	<p>David Kerr Hypoglycaemia</p>	
12.30-12.45	Close of Meeting	

NZSSD 30th ANNUAL CONFERENCE PROGRAMME – POSTER DISPLAY

Posters Displayed 0900 Thursday until 1100 Friday,

Attended 12.35-13.35 Thursday 4 May

P1	<p>PREVALENCE OF DIABETES AMONG ADULT PATIENTS IN AUCKLAND CITY HOSPITAL <u>K Nirmalaraj</u>, S Lee, P Drury <i>Auckland Diabetes Centre, Greenlane Clinical Centre, Auckland</i></p>
P2	<p>SCREENING FOR TYPE 2 DIABETES IN CHILDREN <u>C Baker</u> <i>Far North Diabetes Services, Northland Health</i></p>
P3	<p>RISK OF DIABETES AND ABNORMAL GLUCOSE TOLERANCE AMONG WOMEN WITH SELF-REPORTED PAST GESTATIONAL DIABETES MELLITUS IN TE WAI O RONA: DIABETES PREVENTION STRATEGY <u>P Clark</u>¹, D Simmons¹, E Rush², N Crook³ and the Te Wai o Rona: Diabetes Prevention Strategy Team. ¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland, ³Department of Medicine, Lakes District Health Board, Rotorua.</p>
P4	<p>IS CGMS ABLE TO DETECT DIFFERENCES IN SUPPERTIME SNACK COMPOSITION IN TYPE 1 DIABETES? <u>J Wong</u>¹, H Lunt², M Cullens², C Frampton¹ ¹Christchurch School of Medicine & Health Science and ²Diabetes Centre, Christchurch Hospital</p>
P5	<p>PHYSICAL ACTIVITY AND INSULIN REQUIREMENTS IN CHILDREN WITH TYPE 1 DIABETES <u>R Claridge</u>¹, JA Willis², BA Darlow¹ ¹Department of Paediatrics, Christchurch School of Medicine & Health Sciences, and ²Lipid & Diabetes Research Group, Christchurch Hospital, Christchurch</p>
P6	<p>IS COMPLIANCE THE MAJOR DETERMINATE OF BLOOD PRESSURE CONTROL IN THE DEFEND STUDY? PRESENTATION OF TWO CASE STUDIES <u>L Harwood</u>, W Bagg, C Hotu, F Mahony, N Hapeta, S Latu, JF Collins¹, GD Braatvedt on behalf of the DEFEND study team <i>Dept of Medicine, University of Auckland and Dept of Renal Medicine¹ Auckland City Hospital</i></p>
P7	<p>DECONSTRUCTING DISTRESS: WHAT COGNITIVE PATTERNS MAY CREATE AND SUSTAIN ELEVATED DISTRESS AMONG PEOPLE WITH TYPE 2 DIABETES? <u>CAM Paddison</u>, FA Alpass, CV Stephens <i>School of Psychology, Massey University, Palmerston North</i></p>
P8	<p>PERCEPTIONS OF TYPE 2 DIABETES AMONG NEW ZEALAND EUROPEANS, PACIFIC ISLANDERS AND SOUTH ASIANS <u>D Bean</u>, KJ. Petrie, T Cundy <i>Departments of Health Psychology and Medicine University of Auckland</i></p>
P9	<p>PERCEPTIONS OF THE DIABETES EPIDEMIC AMONG WAIKATO HEALTH PROFESSIONALS J Swan¹, <u>D Simmons</u>¹, S Lillis¹, J Haar² ¹Waikato Clinical School, University of Auckland, Hamilton. ²Waikato Management School, University of Waikato, Hamilton</p>
P10	<p>TOOLS OF EMPOWERMENT TO ASSIST PRIMARY CARE EDUCATE PEOPLE WITH DIABETES <u>L Ferguson</u> <i>Counties Manukau District Health Board.</i></p>

P11	<p>TE WAI O RONA: DIABETES PREVENTION STRATEGY : THE USE OF A MODIFIED GREEN PRESCRIPTION <u>MH Williams</u>¹, D Simmons¹, J Henry², C Corrigan³, S McLennan³, G Wilkinson¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team ¹Waikato Clinical School, University of Auckland, Hamilton, ²Waikato District Health Board, Hamilton, New Zealand, ³Sport Waikato, Hamilton</p>
P12	<p>PATIENT PERSPECTIVES ON BARRIERS TO DIABETES CARE IN A RURAL TOWN IN NEW ZEALAND <u>G Joshy</u>¹, M Devers², D Simmons¹ ¹Waikato Clinical School, University of Auckland, Hamilton, ²Waikato Hospital, Hamilton</p>
P13	<p>THE EXPERIENCE OF MANAGING TYPE 2 DIABETES FROM THE PERSPECTIVE OF PART-EUROPEAN PEOPLE FROM FIJI <u>S Simpson</u>, Auckland University of Technology</p>
P14	<p>HEALTHY FOOD IN REFUGEE COMMUNITIES <u>K Ali</u> Refugee Health, Regional Public Health, Hutt Valley DHB</p>

ABSTRACT PRESENTATIONS SESSION ONE

01 - 03

Wednesday 4 May,

TWENTY YEAR OUTCOMES – THE 1984 INSULIN-TREATED DIABETIC COHORT ENROLLED ON THE CANTERBURY DIABETES REGISTRY

Shelagh I Dawson, Jinny Willis, Chris M Florkowski, Russell S Scott

Lipids & Diabetes Research Group, Christchurch Hospital, Christchurch.

Aims: To establish cause-specific death rates, by age and sex in insulin-treated diabetic individuals living in Canterbury, NZ.

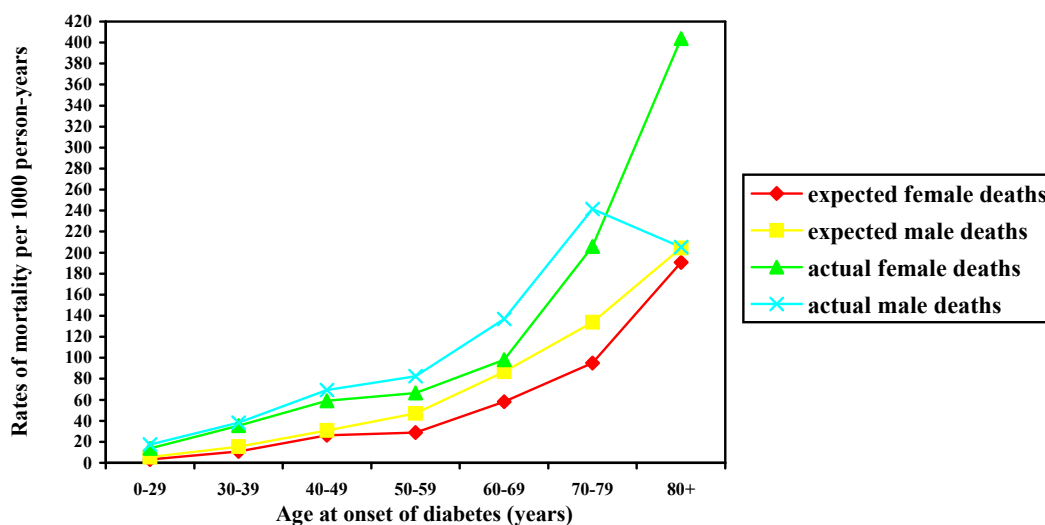
Methods: Insulin-treated diabetic subjects (n = 995) on the Canterbury Diabetes Registry were followed up over 20-years and vital status determined. Following notification of deaths during this period, age- and sex-specific mortality rates, standardised mortality rates and standardised mortality difference were calculated.

Results: Six subjects had left NZ leaving 989 diabetic subjects who contributed 13,706 person-years of follow-up. During follow-up 525 deaths occurred in subjects aged 17.3 to 96.7, 261 in females and 264 in males. At all ages mortality rates were considerably higher than expected mortality. The SMRs were higher for females than males at all ages, being 2.48 (95% CI 2.18 to 2.78) for females and 2.17 (95% CI 1.91 to 2.43) for males overall. Relative mortalities were increased for cardiovascular, renal, respiratory disease and malignancy with cardiovascular disease accounting for the single greatest cause of excess death at all ages.

A comparison of actual and expected mortality rates, by age at onset of diabetes, for the cohort per 1000 person-years is shown in Fig.1. All-cause mortality rates increased with age, and, were higher in diabetic men than diabetic women at all ages except ≥ 80 years. However numbers surviving to this age were very small (n = 2 men and 4 women). Actual mortality rates were also higher at all ages in diabetic women than the expected deaths in non-diabetic men.

Conclusions: This is the longest follow-up study carried out in New Zealand and shows that mortality rates for diabetic individuals remain high relative to the general population. To reduce these death rates attention must be paid to the early detection and treatment of cardiovascular disease and associated risk factors.

Figure 1 Expected and actual mortality rates per 1000 person-years



LEFT VENTRICULAR HYPERTROPHY, DIASTOLIC DYSFUNCTION AND LATENT SYSTOLIC IMPAIRMENT ARE COMMON IN MAORI AND PACIFIC PATIENTS WITH TYPE 2 DIABETES, HYPERTENSION AND DIABETIC NEPHROPATHY - ECHO SUBSTUDY TO THE DEFEND PILOT STUDY

C Hotu, GA Whalley, W Bagg, HJ Walsh, L Harwood, GD Gamble, GD Braatvedt, JF Collins, RN Doughty, on behalf of the diabetic nephropathy study group

Dept of Medicine, University of Auckland and Dept of Renal Medicine, Auckland City Hospital.

Aim: To characterize by echocardiography the cardiac structure and function in Maori and Pacific patients (pts) with type 2 diabetes mellitus (T2DM), hypertension and diabetic nephropathy in the DEFEND (Delay Future End Stage Nephropathy due to Diabetes) study using contemporary tissue Doppler echocardiography (TDI) methods.

Methods: 65 pts were randomised in the DEFEND study to two separate treatment arms. Prior to randomisation, pts underwent baseline 2-dimensional and Doppler echocardiography to determine left ventricular (LV) geometry (volumes and wall thickness), LV systolic and diastolic function and left atrial size. LV filling pressure was estimated using conventional and tissue Doppler methods.

Results: Mean LV Mass was elevated at 288 ± 72 g/m² and mean relative wall thickness (RWT) was 0.45 ± 0.10 (normal < 0.42). 54 % of patients met the American Society of Echocardiography criteria for LVH (RWT >0.42). Mean left atrial area was increased at 21.4 cm² (normal 14.2 ± 3.0). No pts had normal diastolic function, LV filling pressure was normal in 12% and definitely elevated in 26% of pts. Fractional shortening was normal at 35.3 ± 7.5 % (normal 28-44%). However, mean tissue Doppler systolic mitral annular (S') velocity, a measure of longitudinal systolic function, was reduced at 7.0 cm/sec (normal 11.1 ± 0.3).

Conclusion: Increased LV mass and diastolic dysfunction are common in Maori and Pacific pts with type 2 diabetes, hypertension and diabetic nephropathy. Systolic function, assessed by fractional shortening for the group overall was normal, though longitudinal systolic function was impaired (S' velocity). These findings demonstrate that important abnormalities of LV geometry and systolic and diastolic function commonly occur in these pts.

Funding: Auckland District Health Board, Health Research Council of New Zealand, Eli Lilly (December 2004 - December 2005)

DELAY FUTURE END STAGE NEPHROPATHY DUE TO DIABETES (DEFEND) PILOT STUDY

C.Hotu, W Bagg, L Harwood, GD Gamble, F Mahony, N Hapeta, S Latu, GD Braatvedt, JF Collins, on behalf of the diabetic nephropathy study group

Dept of Medicine, University of Auckland and Dept of Renal Medicine, Auckland City Hospital.

Aims: To examine whether intensive blood pressure (BP) control delivered by nurse-led health care assistants (HCA) is more effective than current practice to delay progression of diabetic nephropathy (DN) in Maori and Pacific patients (pts) with type 2 diabetes (T2DM) and hypertension.

Methods: Inclusion criteria: Maori and Pacific pts aged 30 - 75 years with T2DM, hypertension and DN, > 500 mg proteinuria/24 hours and serum creatinine 0.13 - 0.3 mmol/l or GFR (MDRD) < 60 ml/min/1.73m². Pts randomised to either community care (CC) or usual care (UC) for a 2 year study period. CC pts visited 4 weekly by a Maori or Tongan HCA in the community, who under the supervision of the study nurse and doctor adjusts antihypertensive medication according to a standard protocol aiming to achieve a BP < 130/80 mmHg. Follow up two years.

Patient Recruitment: Commenced November 2004 from primary and secondary care in Central Auckland and Waitemata areas. 6516 Maori and Pacific pts with diabetes were screened. 6355 pts did not meet inclusion criteria. 161 eligible pts identified, of whom 65 were randomised. Recruitment discontinued February 2006 due to low recruitment rate.

Demographics

Data are mean ± SD	CC (n = 33)	UC (n = 32)	CC + UC
Age (yrs)	59.6	62.6	
% Male	58%	53%	
% Maori	30%	25%	
%Retinopathy	83%	78%	
%Macrovascular disease	59%	48%	
Serum creatinine (mmol/l)	0.175±0.05	0.169± 0.05	
GFR ml/min/1.73m ² (MDRD)	36.6±12.8	36.5±12.8	
24 hr urine protein (g/l)	4.0±4.4	3.1±3.3	
Office BP (mmHg)	156/87	158/86	160/86 ± 19.3/10.8
24 hour daytime BP	135/79	145/81	140/80 ± 16.3/9.8
24 hour night BP	131/77	141/78	136/77 ± 19.1/11.5
Office BP- 24 hour daytime BP difference			19.2/5.8 ±19.6/11.4 (p < 0.0001)

Conclusion: These pts have significant micro- and macrovascular disease. As office BP is significantly higher than daytime BP, therapeutic decisions may be better based on ambulatory BP.

Funding: ADHB, Health Research Council of New Zealand, Eli Lilly (December 2004 - December 2005)

ABSTRACT PRESENTATIONS SESSION ONE

O4 - O10

Wednesday 3 May, 13.35-15.00

SCREENING PRACTICES FOR GESTATIONAL DIABETES AMONG MIDWIVES

Marion Devers¹, David Simmons^{1,2}, Corli Roodt¹, Al Haslam¹, Sarah Waymouth¹, Elizabeth Johnson¹, Louise Wolmarans¹

¹Waikato Hospital, Hamilton, ²Waikato Clinical School, University of Auckland, Hamilton.

Gestational diabetes (GDM) is a significant cause of maternal and perinatal morbidity. The Lead Maternity Carer (LMC) plays a key role in the identification, management and appropriate referral of patients with diabetes in pregnancy. The aims of this study were to assess the screening practices amongst LMC midwives. A postal questionnaire, sent to all LMC's in the Waikato area, was developed by the Diabetes in Pregnancy Service (DIPS) at Waikato Hospital, with subsequent postal and telephone follow-up of non-responders. Of the 83/131 (63%) respondents, 75% were full time, 70% trained in New Zealand; 24% remained anonymous. Screening was undertaken by 82/83 (99%) and 22% offered screening to all women. Among the other 65, risk factors used for screening were family history 89%, glycosuria 63%, obesity 55%, past GDM (51%), ethnicity (43%), age (26%) and past stillbirth (17%). Only 1 midwife did not screen for GDM. Overall, screening was undertaken at 26-30 weeks among 74%. Timing of screening ranged from 16 to 32 weeks. A combination of 50g polycose and oral glucose tolerance test (OGTT) was used by 81%, 6% used an OGTT alone. All respondents knew how to refer women to the DIPS, 13% had attended a workshop run by the DIPS and 77% indicated an interest in attending a workshop in diabetes in pregnancy. In general, LMC's were happy with the diabetes in pregnancy service and a number of ways to improve the service were offered (eg request for a glucose meter if strong suspicion of GDM, but normal OGTT). We conclude that screening for GDM is a normal activity of midwives and that there is a strong desire for an on-going educational programme. There is some variation in screening practices (eg risk factors and gestational age at screening).

LONG-TERM FOLLOW-UP OF NORTHLAND WOMEN WITH PREVIOUS GESTATIONAL DIABETES

Nicole McGrath, Carol Evans *Northland Health Diabetes Service, Whangarei*

We established a database of all Northland women who had presented with diabetes in pregnancy between 1995 and early 2005. We identified 184 women with gestational diabetes (GDM), 68 with pre-existing diabetes.

We then contacted the GDM women and their General Practitioners to obtain follow-up blood glucose test results or we arranged laboratory testing if necessary.

We obtained follow-up data on 110 patients (60%). 35 (32%) had abnormal blood glucose results: 19 had developed diabetes (fasting blood glucose ≥ 7.0 mmol/l or 2 hour blood glucose ≥ 11.1), 16 had impaired glucose tolerance (IGT, fasting blood glucose 6.1 – 7.0, 2 hour glucose ≥ 7.8). 50% of the women had a diagnosis made as a result of this study, and the diagnosis was made a mean 2.4 years after delivery (range immediately post-partum to 9 years). 21 (60%) women with abnormal follow-up results were Maori, 12 European, 1 Asian, 1 Pacific Island. The age at the time of GDM ranged between 17 and 42 years, mean age 32 years. One patient (European) had type 1 diabetes mellitus (positive GAD and IA2 antibodies, but not yet requiring insulin), the rest type 2 diabetes. 12 (34%) women likely had undiagnosed IGT/diabetes pre-pregnancy as this diagnosis was confirmed within a few months of delivery. Predictive factors for subsequent diabetes/IGT included Maori ethnicity, gestation at diagnosis and need for insulin in pregnancy.

The incidence of subsequent diabetes/IGT in this group mirrors that in high risk ethnic groups elsewhere¹.

1. Kim C, Newton KM, Knopp RH. *Diabetes Care* 2002;25:1862

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DIFFERING CAUSES OF PREGNANCY LOSS IN TYPE 1 AND TYPE 2 DIABETES

Tim Cundy, Leonie Neale, Janet Rowan, Paul McPherson

Diabetes Pregnancy Clinic, National Women's Health, Auckland City Hospital

Late intrauterine death was an important cause of pregnancy losses in women with type 1 diabetes until the 1960s, when advances in diabetic, obstetric and neonatal care brought a substantial improvement in outcome. However, other causes of pregnancy loss – notably those resulting from major congenital anomalies – have not shown such dramatic improvement. The last 25 years have been remarkable for the increasing number of women with type 2 diabetes in pregnancy, and we have previously reported a high perinatal mortality rate in type 2 diabetes*. In this paper we describe the causes of pregnancy loss in over 1000 diabetic pregnancies from 1986 to 2003, inclusive.

In this period there were 272 pregnancies in women with established type 1 diabetes, 439 in women with established type 2 diabetes, and there were also 284 pregnancies in women with diabetes that was newly recognized in pregnancy and persisted postpartum (274 type 2, 10 type 1). We recorded all pregnancy losses other than spontaneous miscarriage at <20weeks gestation, and included elective terminations of pregnancy for severe congenital anomalies.

The rate of pregnancy loss was 3.7% in established type 1, and 0% in newly recognised type 1 diabetes; 4.3% in established type 2, and 4.0% in newly recognised type 2 diabetes. All but one of the 41 pregnancy losses could be classified as either due to major congenital anomaly (elective termination or neonatal death), prematurity, chorioamnionitis, or unexplained late fetal death.

In type 1 diabetes (established and newly recognised, combined) the majority of pregnancy losses were due to congenital anomalies (50%) and prematurity (40%, median gestational age at delivery, 24 weeks). There were no losses attributable to chorioamnionitis, and no unexplained late fetal deaths. In contrast, the pregnancy losses in type 2 diabetes (established and newly recognised, combined) were largely due to unexplained late fetal death (57%, median gestational age at loss, 37 weeks) and chorioamnionitis (17%, median gestational age at loss, 23 weeks). The causes of pregnancy loss differed significantly between type 1 and type 2 diabetes (X^2 19.33, $p < 0.005$). Mean HbA1c values both at presentation and near the end of pregnancy were similar in type 1 and type 2 diabetes.

We conclude that unexplained fetal death and chorioamnionitis are both significant causes of pregnancy loss in type 2 diabetes, but are very uncommon in type 1 diabetes - a difference not readily explicable in terms of glycaemic control.

**Diabetic Medicine 2000 17: 33-39*

WEIGHT REDUCTION AMONG MAORI IN TE WAI O RONA: DIABETES PREVENTION STRATEGY: VANGUARD

STUDY FINDINGS

D.Simmons¹, Elaine Rush², Nic Crook³, Margaret H. Williams¹, Wayne Johnstone⁴, Catherine Bridson⁵, Guss Wilkinson¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team.

¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland, ³Department of Medicine, Lakes District Health Board, Rotorua, ⁴Te Puna Oranga, Waikato District Health Board, Hamilton, ⁵Central Laboratory Services, Waikato District Health Board, Hamilton.

Te Wai o Rona: Diabetes Prevention Strategy is a randomized cluster controlled trial among Maori aged 28+ years and their families from the Waikato/Southern Lakes areas with a community-based lifestyle programme designed to reduce Type 2 diabetes. Participants (n=5093) attended baseline screening and measurements, and if fasting (89% of attendees), underwent a 75g OGTT. Diagnosis of impaired glucose tolerance (IGT), and impaired fasting glucose (IFG) follow WHO criteria. The intervention is built around Maori lifestyle preferences, and includes a range of “tools” provided by specially trained Maori Community Health Workers. A Vanguard study, trialing the intervention, has been underway since November 2004, initially in one area and progressing to 4 other areas in May 2005. Overall, 438 participants were seen at least once, of whom 165 had seen a Maori Community Health Worker more than once. Follow up weight was available for 153 participants (Maori Community Health Workers assess the intrusiveness of the measurements and whether to weigh in the home). A group of 29 from one area have recently been weighed prior to the intervention. Participants have had 4±2 intervention visits over 156±141 days. Characteristics and effect of the intervention to date are shown below

Baseline data	Vanguard	Pre-intervention
N	153	29
Age	48±14	47±12
IGT/IFG	34	4
Men/Women	47/105	10/19
Weight (kg)	94.4±23.1	89.3±19.7
BMI (kg/m ²)	34.2±8.1	32.8±7.0
Weight loss (Baseline-most recent) (kg)		
-All	-2.2±6.4***	+0.3±9.5
-IGT/IFG	-5.3±7.8***	too few
-Normal	-1.3±5.6*	+0.6±10.2
-Female	-2.3±6.3***	too few
-Male	-1.8±6.6	too few

(*p<0.05, *** p<0.001) loss from screening baseline using paired t-test

This Vanguard Study is the largest evaluated lifestyle intervention with baseline and repeat anthropometric measures among Maori. It demonstrates significant weight loss in all subgroups, particularly those with IGT/IFG, consistent with the guidance to Maori Community Health Workers to initially put greater effort into these individuals.

WEIGHT AND WEIGHT-RELATED PROBLEMS AT DIAGNOSIS OF TYPE 2 DIABETES - THE OTAGO DIABETES REGISTER, 1998-2004

Coppell K^{1,2}, Williams S³, Mann J^{1,4}.

¹ *Edgar National Centre for Diabetes Research, University of Otago*, ² *Otago Diabetes Trust Otago, Dunedin*, ³ *Department of Preventive and Social Medicine, University of Otago*, ⁴ *Department of Human Nutrition, University of Otago*.

Obesity is an important risk factor for the development of type 2 diabetes (T2DM) and its complications. Data from the Otago Diabetes Register (ODR), established in 1998 to monitor diabetes care in the region, shows that almost half of the patients are obese and that mean weight for both men and women increased significantly between 1998 and 2003.

Aim: The aim of this study was to describe weight and weight-related problems of new cases of T2DM diagnosed between 1998 and 2004 according to age using data from the ODR.

Methods: Data held on the ODR were collected annually from general practices and death certificate information was sourced from Births, Deaths and Marriages. Demographics and details about diabetes treatments, complications, clinical measures and test results were extracted from the ODR for all cases of T2DM diagnosed between 1998 and 2004. Demographic, clinical and test result information for the year of diagnosis were compared between four age groups (<40, 40-59, 60-79 and ≥80 years).

Results: 1,589 new cases of T2DM diagnosed between 1998 and 2004 were identified. 5% were aged <40 years and 38% were aged 40-59 years at diagnosis. Weight, body mass index and diastolic blood pressure increased significantly across the age groups from 105.4kg, 36.0kg/m² and 80.2mmHg, respectively, for the <40 year age group to 69.3kg, 26.4kg/m² and 76.4mmHg, respectively, for the ≥80 year age group. The reverse was observed for systolic blood pressure. HbA1c and triglycerides were significantly higher and HDL-cholesterol significantly lower in the <40 year age group compared with the other three groups.

Conclusions: Obesity is more prevalent amongst diabetic patients diagnosed at a younger age and they are at increased risk of complications. Implementation of lifestyle changes is necessary to prevent the onset of diabetes and its serious complications at a young age.

STARTING POINT FOR PREVENTION AND IDENTIFICATION OF CUT-OFFS FOR RISK FOR TYPE 2 DIABETES IN NEW ZEALAND MAORI

¹Elaine Rush, ²David Simmons, ³Nic Crook, ¹Vladimir Obolonkin and the Te Wai o Rona: Diabetes Prevention Strategy team

¹Faculty of Health & Environmental Sciences, AUT University, Auckland, ²Waikato Clinical School, University of Auckland, Hamilton, ³Dept of Medicine, Lakes DHB, Rotorua

The incidence of Type 2 diabetes (T2DM) and risk factors for metabolic syndrome can be reduced with changes in lifestyle including diet and exercise. The utility of using BMI, waist circumference or percentage body fat cut-offs for the identification of increased risk for T2DM is not well documented for Europeans and less information is available for other ethnic groups.

Te Wai o Rona: Diabetes Prevention Strategy, a community-based diabetes prevention programme among Maori, initially recruited 2968 (1937 female, 1031 male) participants aged 28 to 91 y without known diabetes. Field measurements included weight, height, waist, body fat by single frequency bioimpedance, fasting blood samples and for 2891 participants a 75g two hour oral glucose tolerance test. T2DM was diagnosed in 6.2%, 3.9% had impaired glucose tolerance (IGT) and 9.4% impaired fasting glucose (IFG).

The risk of having dysglycaemia (T2DM, IGT or IFG) increased with age and was similar between men and women. Sensitivity of waist, BMI and TBF% measurements for risk of dysglycaemia was examined using receiver operating characteristic curve analysis. Waist, BMI and TBF% cut-offs with 90% sensitivity were 90cm, 28kg.m⁻² and 40% for women and 97cm, 27kg.m⁻² and 25% for men respectively. But the specificity of these tests with the above cut-offs was between 40 and 50%. Waist divided by height gave the best area under the curve (0.72). Longitudinal measurements in this population will lead to a better understanding of the use of BMI, waist circumference and TBF% for prediction of pre-diabetes and diabetes in this population.

CHARACTERISTICS OF MAORI PARTICIPANTS WITH UNDIAGNOSED DIABETES IN TE WAI O RONA: DIABETES PREVENTION STRATEGY

Chandra Chandrasekar¹, David Simmons², Elaine Rush³, Nic Crook⁴ and the Te Wai o Rona: Diabetes Prevention Strategy Team

¹Diabetes Service, Waikato Hospital, Hamilton, New Zealand, ²Waikato Clinical School, University of Auckland, Hamilton,

³Faculty of Health & Environmental Sciences, AUT University, Auckland, ⁴Department of Medicine, Lakes District Health Board, Rotorua.

Te Wai o Rona: Diabetes Prevention Strategy is a randomized cluster controlled trial inviting non-diabetic Maori aged 28+ years and their families from the Waikato/Southern Lakes areas into a community based lifestyle programme designed to reduce Type 2 diabetes. Participants are invited to come fasting, and undergo a 75g oral glucose tolerance (OGTT) test and to complete an extensive questionnaire including medical history and life style. Diagnosis of diabetes follows WHO criteria. Overall, 129/4488 (2.9%) Maori has previously undiagnosed diabetes. The table below compares the key characteristics among those with and without new diabetes:

	Male			Female		
	No diabetes	Diabetes	sig	No Diabetes	Diabetes	sig
N	1462	109		2797	120	
Age (years)	47±13	54±13	<.001	46±13	53±13	<.001
BMI (kg/m ²)	35.5±6.4	38.9±6.4	<.001	37.4±6.9	43.5±6.3.1	<.001
HbA1c (%)	5.9±0.4	7.9±1.7	<.001	5.9±0.5	7.6±1.3	<.001
SBP (mm Hg)	139±19	147±21	<.001	133±23	148±28	<.001
DBP (mm Hg)	90±12	94±11	.001	88±13	96±15	<.001
Pulse bpm	67±10	73±13	<.001	68±10	71±12	<.001
Distance walked in 4 minutes (m)	366±74	345±51	.029	356±99	323±69	.006
HDL/Total chol	4.5±1.4	4.9±1.4	.005	3.8±1.2	4.7±2.7	<.001

Those with diabetes were older, and, after adjusting for age, more obese, with a higher HbA1c, higher blood pressure, higher pulse, walked a lesser distance over 4 minutes (women only) and were more dyslipidaemic. Advice to limit physical activity due to heart disease was received by 6.7% and 10.1% of non-diabetic women and men, and 9.4% and 15.9% of diabetic participants respectively (non-significant after age adjustment). Musculoskeletal conditions limiting physical activity were 1.63(1.10-2.41 fold as common among diabetic as non diabetic subjects (age, gender adjusted). We conclude that Maori with undiagnosed diabetes are less fit, less able to become fit, with a substantially worse metabolic profile than non diabetic participants.

ABSTRACT PRESENTATIONS SESSION ONE

011 - 014

Wednesday 3 May, 15.30 – 16.15

A RETROSPECTIVE REVIEW OF BARIATRIC SURGERY AT NORTH SHORE HOSPITAL

M. Choe⁽¹⁾, R. Cutfield⁽¹⁾ and M. Booth⁽²⁾

Department of Endocrinology⁽¹⁾ and Department of Surgery⁽²⁾, North Shore Hospital, Auckland.

Obesity is an independent risk factor for premature morbidity and mortality. The 2002/03 New Zealand Health Survey reported that 20% of New Zealand adults were obese[1]. Bariatric surgery has been shown to be effective in achieving sustained weight loss and reducing obesity-related co-morbidities.

Methods: We conducted a retrospective review of 69 bariatric surgery cases performed by a single surgeon at North Shore Hospital between October 2001 and May 2005. Information was obtained from patients' hospital records and GP records where available.

Results: 75% were female and 87% NZ European. 60% were aged >40years at operation. 60(87%) had surgery due to co-morbidities, 9(13 %) due to self-image. Of those with co-morbidities, 30(50%) had diabetes/pre-diabetes, 32(53%) had hypertension and 38(63%) had gastroesophageal reflux. 61(88%) had a body mass index above 40kg/m² at time of operation. 77% were referred by their general practitioner and 68% had not had a physician's review. 37 (54%) of the operations were laparoscopic and 32(46%) involved open surgery. 61(88%) were gastric bypasses. Mean hospital stay was 5.5 days. 50% achieved a weight loss of more than 20kg at 3 months post-op, and 68% by 6 months. Mean weight loss at 6 months was 36 kg and 50% of patients had achieved >25% weight loss. Of the 18 patients who were diabetic, 3 of the 5 on insulin were able to stop insulin, and 2 had their doses markedly reduced. Mean HbA_{1c} pre-op was 8.15% and post-op was 6.09%. Follow-up was suboptimal for several reasons.

Conclusion: Public hospital bariatric surgery performed by a dedicated surgeon can be performed successfully with excellent medium-term results. Protocols for preoperative assessment and follow-up may need tightening. Cost-effectivity and quality-of-life studies will be important to make decisions about publicly-funded surgery for at-risk patients.

[1] Ministry of Health.2004. *A Portrait of Health: Key results of the 2002/03 New Zealand Health Survey*. Wellington: Ministry of Health.

CASE STUDY: GASTRIC BYPASS SURGERY FOR LIPODYSTROPHY

Nicole McGrath, *Northland Health Diabetes Service*

A 41 year old woman, with severe insulin resistance secondary to lipodystrophy, underwent gastric bypass surgery to improve glycaemic control. She was not morbidly obese (weight 90.4kg, height 1.74 metres, BMI 29). Multiple previous therapies to control blood sugars had been unsuccessful: extensive lifestyle advice, metformin, gliclazide, pioglitazone, large doses of insulin (over 500 units per day), optifast meal replacement, Atkins diet. In addition to type 2 diabetes mellitus, she had combined hyperlipidaemia with previous xanthomatous skin rash and an episode of pancreatitis secondary to hypertriglyceridaemia, polycystic ovaries, fatty liver, splenomegaly. Pre-operatively her HbA1c was 11.7% on maximum doses of metformin, gliclazide and pioglitazone; her lipid profile remained abnormal despite atorvastatin and bezafibrate retard (fasting triglycerides 19.8, cholesterol 9.8). A Roux-en-Y gastric bypass (biliopancreatic diversion) was performed in May 2005. Eight months later, her weight had stabilized to 80.1kg, BMI 26.6; HbA1c was 7.0% on no medication, lipid profile much improved. This case illustrates an alternative treatment option for lipodystrophy. Improvement in insulin sensitivity following biliopancreatic diversion can occur even before weight loss has occurred.¹ Gastric bypass surgery may therefore have a role in the non-obese patient with severe insulin resistance.

1. Wickremesekera K et al, *Obes Surg* 2005 Apr 15 (4): 474-81

ACUTE CHANGES IN INSULIN SENSITIVITY, NEFA AND ADIPONECTIN WITH GASTRIC BYPASS

Krebs JD¹, Bell D¹, Sharma N², Knowles G², Miller G², Macartney D², Willis J, Scott R³, Stubbs R²

¹Diabetes Research Centre,, ²Wellington Wakefield Gastroenterology Centre, Wellington, ³Lipid and Diabetes Research Group, Christchurch.

Background: In obese insulin-resistant subjects undergoing gastric bypass surgery who have impairments in glucose metabolism, including established diabetes, the need for anti-hyperglycaemic agents can be reduced or stopped immediately post-operatively, implying improvements in insulin sensitivity. As there is no change in fat mass in the initial period, it is likely that the effects of a circulating factor may mediate this effect. This factor may be gut or adipose tissue derived and act via a direct effect on hepatic or whole-body insulin sensitivity. Possible candidates are non-esterified fatty acids (NEFA) or adiponectin.

Aim: To examine changes in insulin sensitivity, NEFA and adiponectin in obese subjects undergoing gastric bypass before and after 6 days prior to any significant loss of weight.

Methods: Seven obese (BMI $44.8 \pm 9.3\text{kg/m}^2$) subjects (5 NGT, 2DM) undergoing roux-en-Y gastric bypass surgery were studied. Subjects underwent an insulin tolerance test pre-operatively and six days post-operatively.

Results: There was no significant change in weight over 6 days. Measurements of insulin sensitivity, NEFA and adiponectin are shown.

	Fasting Glucose	HOMA	Glu Kitt	Fasting NEFA	NEFA Kitt	Adiponectin
Pre- operative	5.5 ± 1.6	5.4 ± 3.1	4.6 ± 1.8	0.52 ± 0.14	9.2 ± 4.7	9.4 ± 3.9
Post- operative	4.3 ± 0.8	$1.7 \pm 1.1^*$	$2.6 \pm 1.1^*$	$0.86 \pm 0.13^*$	3.2 ± 1.0	9.4 ± 4.4

p<0.05 2-tailed *t*-test

Conclusion: Insulin sensitivity assessed in the fasted state by HOMA is significantly improved within 6 days of gastric bypass in obese insulin resistant individuals. However, unexpectedly, whole body insulin sensitivity as assessed by rate of glucose disposal to exogenous insulin administration is reduced, fasting NEFA levels are elevated and NEFA clearance is impaired. These changes are not explained by changes in circulating adiponectin. More detailed investigation to differentiate between hepatic and whole body insulin sensitivity is required to examine the clinical observation of immediate improvements in glucose metabolism.

COMPARISON OF PLASMA ADIPONECTIN LEVELS IN MAORI AND CAUCASIAN SUBJECTS.

B. Shand¹, P Elder², R Scott¹ and N Poa³

¹Lipid and Diabetes Research Group, ²Canterbury Health Laboratories, and ³Department of Psychiatry, Christchurch Hospital, Christchurch

Adiponectin is a cytokine produced by adipose tissue that has insulin sensitising and anti-atherogenic effects. There is some evidence that plasma adiponectin levels are lower in ethnic groups that have an increased prevalence of type 2 diabetes, such as Pima Indians and Indo-Asians. As it is well established that the prevalence of type 2 diabetes is higher in the Maori population than in the Caucasian population, we carried out a study to compare plasma adiponectin levels in these two ethnic groups. Data were collected from 136 Maori subjects, aged between 18-70 yr (44 males, 92 females) and 136 Caucasian subjects matched for age, gender, body shape (BMI and waist circumference) and insulin resistance (HOMA %S index). The data collected on each subject included anthropometric parameters, fasting plasma adiponectin, glucose and insulin levels and HbA_{1c}. The data of the matched pairs were analysed using paired t tests for normally distributed data and the Wilcoxon signed rank test for non-parametric data. The results expressed as median and interquartile range are shown below.

	Maori		Caucasian		P value
Age (yr) ^a	39.5	32.4 – 52.3	42.2	34.7 – 52.8	NS
BMI (kg/m ²) ^b	30.2	26.5 – 34.9	30.0	26.1 – 35.1	NS
Waist circumference (cm) ^b	96	85 - 107	96	87 - 107	NS
Insulin resistance (HOMA%S) ^b	91	54 - 149	94	52 - 137	NS
Plasma glucose (mmol/L) ^a	5.1	4.8 – 5.4	5.0	4.7 – 5.4	NS
HbA _{1c} (%) ^a	5.6	5.3 – 5.8	5.4	5.1 – 5.7	<0.01
Plasma insulin (pmol/L) ^b	51.3	30.1 – 82.1	48.4	33.0 – 86.7	NS
Plasma adiponectin (µg/ml) ^b	6.3	4.2 – 8.9	7.3	5.2 – 9.5	<0.01

NS = Not significant . a = Normally distributed data b = Non-parametric data

These results indicate that Maori people tend to have lower plasma adiponectin levels than Caucasian people of similar age, body shape and insulin sensitivity. It is possible these lower adiponectin levels may be a contributing factor to the higher prevalence of type 2 diabetes and cardiovascular disease in the Maori population.

ABSTRACT PRESENTATIONS SESSION ONE

O15 - O17

Thursday 4 May, 09.45 – 10.30

EFFICACY AND SAFETY OF THE DPP-IV INHIBITOR, SITAGLIPTIN.

R. Scott on behalf of the Sitagliptin Investigators.

Lipid and Diabetes Research Group, Christchurch.

Sitagliptin is a member of a new class of antihyperglycaemic agents called DPP-IV inhibitors, which block the DPP-IV enzyme that inactivates GLP-1 and GIP. Sitagliptin increases insulin and decreases glucagon release in a glucose-dependent manner. The agent achieves steady state after 3 days, inhibiting DPP-IV by around 80%. Efficacy and safety data are reported for Sitagliptin.

In a dose ranging randomised, double blind, placebo-controlled study, the efficacy and tolerability of Sitagliptin in 743 patients with type 2 diabetes was evaluated. Mean baseline A1C was 7.8%. Patients were randomised to one of six groups: placebo; Sitagliptin (5mg, 12.5 mg, 25 mg, or 50 mg twice daily); or glipizide, 5 mg titrated to 20 mg. At 12-weeks, HbA1c levels were reduced by 0.77 % ($p<0.001$) in the 50 mg twice-daily group. Patients taking glipizide showed a 1.0 % HbA1c reduction from baseline. Treatment with Sitagliptin was well tolerated and, like placebo, resulted in no weight gain. Patients treated with glipizide had an average weight gain of 1.1 kilogram relative to placebo. Adverse event reports of hypoglycaemia were observed in 4 percent of patients taking Sitagliptin, 17 percent of patients taking glipizide and 2 percent of patients taking placebo.

In a subsequent study, 552 type 2 diabetes patients, aged 30-74 years and HbA1c of 5.8 - 10.4% were randomised to one of five treatment groups: Placebo; Sitagliptin (25 mg, 50 mg, or 100 mg) once daily; or Sitagliptin 50 mg twice daily. Treatment with Sitagliptin 100 mg/day as a single daily dosing was as effective as twice daily administration of 50 mg/day. Sitagliptin is a new monotherapy for Diabetes that can reduce glucose levels without effect on body weight low risk of hypoglycaemia. The agent will complement existing treatments for Diabetes. Its potential for preserving Beta cell function is being studied at present.

REDUCED MICROVASCULAR DISEASE WITH FENOFIBRATE: THE FIELD STUDY

Paul L Drury Auckland Diabetes Centre - on behalf of the FIELD Study investigators, NHMRC Clinical Trials Centre, University of Sydney, Sydney, Australia

The FIELD study was a randomised double-blind controlled trial of co-micronised fenofibrate 200mg daily versus placebo in 9795 patients with type 2 diabetes and mild dyslipidaemia over a median follow-up of 5 years in 63 centres in Australia, New Zealand and Finland. Regular clinic visits during the study recorded details of any laser therapy for diabetic retinopathy, the clinical need for which was decided independently by the attending ophthalmologist. Urine samples for microalbumin and albumin:creatinine ratio (ACR) were collected, twice at baseline then at 2 years and at study close.

Compared to patients allocated to placebo, the occurrence of laser therapy was reduced by 30% for those patients allocated fenofibrate (5.2% vs 3.6%, $p=0.0003$). This difference was consistent across countries, age and sex and did not appear to be explained by glycaemic control, blood pressure or concomitant medication differences between groups. The effect was apparent within 1 year of randomisation.

Progression of albuminuria, defined by ACR category or albumin excretion, between baseline and closeout was reduced by 1.5% (ACR : 11.0% vs 9.5%, $p=0.002$ and albumin excretion: 13.6% vs 12.0%, $p=0.001$ respectively).

While albuminuria reduction by fenofibrate was previously described in the smaller DAIS study, these results additionally suggest a clinically significant effect of fenofibrate on progression of retinopathy either via lipid modification or a previously unknown mechanism.

AN INVESTIGATION INTO THE MEDICATION USAGE AND COST FOR DIABETIC PATIENTS IN A RURAL TOWN IN NEW ZEALAND

Antonia Zechner¹, Grace Joshy², David Simmons²

¹*Department of Economics, University of Waikato, Hamilton,* ²*Waikato Clinical School, University of Auckland, Hamilton.*

Improvements in diabetes care due to a multi-faceted intervention in a rural Waikato town will be monitored and costed over the next 2 years. Medicine costs are both an expense to patients and the government as subsidies. A mail survey was undertaken to provide insight into the range of medicine costs faced by diabetes patients. The information collected was: name of medication, dosage of that medication, number of doses taken, and frequency of dose taken. The Pharmac database covering a three month period was used to access the medication costs of those patients who filled in the survey. 204 (63%) patients responded (57% European, 31% Maori, 52% Female). 246 different medications were identified as being used within the rural cohort. There was however an overlap of medication listed under both generic and brand name. The medication covers prescription drugs, over-the-counter (OTC) medication, supplements, herbal and traditional medication. Antihyperglycaemic medications (AHM) were taken by 64% of patients and medications for non glycaemic risk factors and cardiovascular disease medications (NGRFCVDM) were taken by 87% of patients. Twelve patients (5.9%) took no medication. The average number of different medications was 4.4 ± 3.1 . The most common drugs used were: *Lipex* 96 (47.1%), *Accupril* 89 (43.6%), and *Metformin* 68 (33.3%). The median (interquartile range) AHM costs were: out-of-pocket \$3.00(0-9), subsidies \$64.38 (\$33-271) and total costs \$67.54 (40-274). The cost for NGRFCVDM were \$6.00(0-15), subsidies \$221.88(112-393) and total costs \$215.38(105-385). The median (interquartile range) costs for all drugs were: out-of-pocket \$52.10 (29-76), subsidies \$525 (\$264-1003) and total costs \$583 (323-1179).

We conclude that in this rural town, out of pocket expenses for medications are a small fraction of the total costs, and that AHM are a quarter of the cost of NGRFCVDM.

ABSTRACT PRESENTATIONS SESSION ONE

O18 - O19

Thursday 4 May, 11.00 – 11.25

MAPPING THE AVAILABILITY AND ACCESSIBILITY OF HEALTHY FOOD WITHIN THE WAIKATO AND LAKES DISTRICT HEALTH REGIONS: THE TE WAI O RONA DIABETES PREVENTION STRATEGY

Margaret H. Williams¹, Michael Oehley¹, Elaine Rush², David Simmons¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team

¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland.

Uptake of advice for lifestyle change for diabetes prevention requires physical access to affordable “healthy” food (ie foods that are high in fibre and low in sugar and fat). We have “mapped” the availability of healthy foods and compared their prices with those of comparable “less healthy foods” across the Waikato/Lakes areas involved in Te Wai o Rona: Diabetes Prevention Strategy. A list of outlets was compiled from the Waikato and Lakes District Councils databases, the New Zealand Business Directory database obtained through Google search engines and, local knowledge obtained from consultation with local Maori Community Health Workers. The list contained all registered venues where food was sold including supermarkets, Dairies, Service Stations, Restaurants, Takeaways, and Bakeries. All premises were visited, and after excluding venues subsequently closed, information was available from 1230/1234 outlets (473 in Hamilton and 757 “rural” ie out of Hamilton). We present preliminary findings which indicate that access to both healthy and less healthy food types is reasonable in urban and rural areas (eg low fat milk >95% accessible in rural and urban dairies, high fibre cereal in 100% of urban and rural supermarkets). Healthy foods were often more expensive than unhealthy foods (eg wholegrain vs white bread \$2.53±0.88 vs \$2.18±0.85, respectively p<0.001; lean vs regular beef/pork/kg \$15.95±6.86 vs \$13.04±5.85, p<0.001; skinned vs unskinned chicken \$8.44±3.67 vs \$13.93±5.97, p<0.001). In rural areas healthy food was cheaper or of similar cost to urban areas (eg whole grain bread \$2.54±0.87 vs 2.68±0.84 respectively, p=0.032; lean vs regular beef/pork comparable) for the same weight. We conclude that physical access to healthy food is generally not a problem in either urban or rural areas. However, costs are significantly higher for healthy foods in urban areas, but less so, for some foods in rural areas.

MY INDIVIDUAL NUTRITION INTAKE MONITORING TOOL (MINIM) – A NOVEL WAY OF KEEPING A DAILY FOOD DIARY

Kate Smallman¹, Lucy Matthews², Lynne Ferguson³ & Helen Gibbs¹

¹ Diabetes Projects Trust PO Box 61144, Otara; ² Institute of Health & Community Studies, University of Bournemouth, UK;

³ Community Dietetic, Counties Manukau District Health Board.

Introduction: Keeping food diaries can improve dietary compliance in individuals undertaking dietary change to improve diabetes and weight management. However, food diaries are burdensome and require a certain levels of literacy. These two things create a barrier to food diary work for some individuals. We would like to produce an innovative new tool with magnetic food portion representations for helping individuals improve their eating habits (MINIM).

Method: A literature review was undertaken to help develop several prototype MINIM boards, which were then presented to groups of clients for discussion. These groups were to determine the visual characteristics of the MINIM board, to maximise understanding of the concepts. The MINIM tool consists of a small magnetic board which when opened out contains a 'park' section which contains a selection of colour food items magnets, which can be moved to other labelled sections for breakfast, snacks, lunch and dinner as food is consumed throughout the day. Several individuals have tried the board with the selected attributes over a 1-week period and their comments examined to determine early impressions of the usefulness of the MINIM board.

Results: Client groups identified that the use of photographic images of food was confusing, whereas line drawings of representations of the food group were better received. Groups also felt that there was a need for a resource explaining portions in more detail, a result that was unexpected given that there are resources that were thought to meet this need already available. Individuals using the board identified that it was a useful tool but questioned whether the novelty value would wear off over time.

Conclusion: Resource development is a challenging process if we are to meet the needs of an audience who may have low health literacy. More trialling of the MINIM tool is needed to see its long-term impact. Trials to determine if it is better than current practice of paper food diaries are needed.

Recipients of Novo Nordisk Award 2005

ABSTRACT PRESENTATIONS SESSION ONE

O20 – O23

Thursday 4 May, 13.35 – 14.20

NEW ZEALAND DIABETES HEALTH SERVICES: THROUGH THE PATIENTS' EYES

CAM Paddison, FA Alpass, CV Stephens

School of Psychology, Massey University, Palmerston North.

Introduction: High quality health services are essential for people with diabetes. The current study aimed to explore how diabetes health services look from the patients' point of view, and to feed this information back to stakeholders so that it may provide a platform for improved services for people with diabetes in the future.

Methods: A questionnaire survey was used to collect data on self-reported experiences with diabetes health services in New Zealand. A 30 item quantitative measure was developed using a framework proposed by the Picker Institute with input from people with diabetes and health professionals. This included seven dimensions of care (communication, empowerment, rapport, respect for patient preferences, holistic care, access and coordination). Participants (N = 615) were randomly selected from a medical database of people with type 2 diabetes. Respondents matched the NZ diabetes population in terms of age, gender, and ethnic diversity.

Results: Patient reported experiences highlighted gold flag areas in diabetes health services (e.g. rapport and trust). This provides positive feedback to service managers and health professionals about what people with diabetes value and believe is being done well. Patient experiences can also help identify red flag areas, and stimulate discussion of problems in health service delivery. Unrealistic suggestions, contradictory advice, financial barriers, and limited attention to diabetes related worries were all highlighted in feedback from people with diabetes who took part in this study. Results from this study show some support for findings from the DNZ Consumer Survey. However, there are also notable points of difference: for example conclusions regarding financial barriers. Results also afford insight into the amount of attention NZ diabetes health professionals give to diabetes related psychological distress among their patients, concluding - in concurrence with the DAWN programme - that this as an important area for future improvement.

PROCESS EVALUATION OF NGATI AND HEALTHY PREVENT DIABETES PROJECT

Sally Abel, Mark Iles

Ngati Porou Hauora

This paper reports on the process evaluation component of the *Ngati and Healthy* Prevent Diabetes Project, and outcomes from this first phase. *Ngati and Healthy* is an innovative community-based intervention developed collaboratively by Ngati Porou Hauora, a Maori Primary Health Organisation and the University of Otago's Edgar National Centre for Diabetes Research. It aims to reduce the risk of Type 2 diabetes mellitus amongst the predominantly Ngati Porou population of the East Coast of the North Island where diabetes rates appear to be particularly high. The *Ngati and Healthy* intervention commenced with a prevalence survey to establish base-line data for post-intervention measurement, followed by a wide range of intensive community initiatives to promote healthy eating and exercise programmes relevant to the population.

The aim of the process evaluation is to better understand the underlying reasons for the project outcomes, by:

- Describing the content, context and implementation of the intervention
- Understanding the factors that assist and hinder the effective implementation of the intervention
- Contributing to a qualitative understanding of the prevalence survey results.

Data sources include:

- Key informant interviews (those involved in implementing the intervention)
- Focus group interviews with members of the four Ngati Porou communities
- Participant observation at meetings, workshops etc
- Informal discussions
- Relevant data.

The first phase of the process evaluation, now completed, focused on the intervention process. A second phase to be completed in April will focus on intervention content, and a final phase will provide a retrospective perspective.

Results of the first phase were collated into key themes and categorized into programme Strengths, Challenges and Recommendation. Many of the themes identified, particularly recommendations, were being addressed by the intervention team before formal evaluation feedback commenced, indicating that the *Ngati and healthy* team had good insight into their programmes and were in touch with the needs, responses and expectations of their communities. It appears that to date the organic way in which the team is working has ensured that the intervention remains responsive to, and focused on servicing the needs of the community.

ABSTRACT PRESENTATIONS SESSION ONE

O24 – O29

Friday 5 May, 10.45 – 11.45

HLA-DQ ALLELES IN CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES:

TEMPORAL CHANGES

JA Willis¹, RS Scott¹, BA Darlow², JW Nesbit¹, JF McRae¹, AC Johnstone¹, CM Frampton

¹Lipid & Diabetes Research Group, Christchurch Hospital and²Department of Paediatrics, Christchurch School of Medicine and Health Sciences, Christchurch

The incidence of type 1 diabetes presenting in individuals aged 0-19 years in Canterbury (NZ) has increased significantly with time over the last three decades. Ascertainment of all cases is complete for the years 1970 to the present day. Reduction in the prevalence of high-risk HLA genotypes in patients with type 1 diabetes has been reported, against increasing incidence of the disease, suggesting that environmental factors are contributing to increasing disease penetrance. This research investigated the frequencies of HLA-DQ genotypes in individuals with type 1 diabetes diagnosed prior to 20 years of age.

All new cases of diabetes aged 0-19 years in the study area were either admitted to the regional hospital or attended acute intervention outpatient clinics at the same institution. Blood samples have been taken at diagnosis for determination of antibodies against islet antigens and for characterisation of HLA-DQ alleles in all consenting individuals diagnosed since 1990. HLA-DQ α and β alleles were characterised by PCR-RFLP using group specific primers. The distribution of alleles conferring susceptibility for type 1 diabetes was compared across incidence years.

HLA-DQ α and β genotypes are available for 252 of the 344 cases diagnosed between 1990 and 2004. The proportion of cases expressing one or two of the HLA-DQ α susceptibility alleles, 0301 and 0501, was 37% and 59% respectively. The proportion of cases presenting with two copies of the HLA-DQ α susceptibility alleles did not change over time. The HLA-DQ β susceptibility alleles, 0201 and 0302, were present in 32% and 50% of cases respectively. The proportion of cases carrying two HLA-DQ β susceptibility alleles decreased over the study period ($p < 0.01$).

In conclusion, the prevalence of HLA-DQ β susceptibility alleles has changed significantly in type 1 diabetes cases diagnosed before 20 years of age, possibly reflecting a change in the relative importance of genetic and environmental factors in the development of type 1 diabetes.

METABOLIC CONTROL WITH INSULIN PUMP THERAPY - THE WAIKATO EXPERIENCE

Elham Reda, Angelica Von Reitzenstein, Peter Dunn

Waikato Diabetes Service, Waikato Hospital, Hamilton

Aim: A comprehensive review of CSII (Continuous Subcutaneous Insulin Infusion) use in New Zealand is not available. We have therefore reviewed Type 1 diabetic patients treated with insulin pump in the Waikato region, as a part of a service audit.

Objectives: To compare glycemic control, occurrence of acute complications, as well as weight change in a cohort of 105 consecutive type 1 diabetic patients before and after initiation of CSII.

Methods: 125 patients with Type 1 diabetes started CSII between September 1997 and December 2004. Between December 2003 and December 2004, the patients were contacted and asked to complete a standardized questionnaire concerning details of their diabetes management. In the following, we present the data of the 105 patients continuing CSII at the time of data collection after 1-8 years, i.e. after a mean of 3.0 ± 2.6 years, giving a total observation time of 315 patient-years of CSII.

Results: HBA1c improved, decreasing from $8.9 \pm 1.3\%$ at initiation to $7.9 \pm 1.0\%$, $P = 0.000$ at three months and $7.9 \pm 0.95\%$, $P < 0.001$ at six months post CSII. This reduction was maintained after 3 years ($P < 0.001$).

Before the start of pump therapy, only 9% of patients were able to lower HBA1c values to $\leq 7\%$. After pump initiation, 8%, 15%, 17%, 13%, 20%, 22%, 16%, and 13% of patients achieved the goal at 3,6,9,12 months and after 1,2,3,4 years respectively. In our adolescent group ($n=27$), we observed a significant decline in HBA1c from $9.06\% \pm 1.04\%$ to $8.10 \pm 0.74\%$, at 3 months ($p < 0.001$) and $8.1 \pm 0.93\%$, at 6 months ($p = 0.001$). This significant reduction in HBA1c was sustained after 1 year of pump therapy (HBA1c $7.94\% \pm 0.96\%$, $p = 0.005$). Severe hypoglycemia rate decreased from 0.70 per patient during the 1-year period of MDI therapy before initiation of pump, to 0.05 per patient on CSII therapy ($P < 0.001$). The majority of patients with hypoglycemia unawareness before pump therapy (33 patients, i.e. 60%) reported significant improvement in awareness of hypoglycemia symptoms on CSII. DKA rates decreased from 0.2 events per patient-year before the pump, to 0.05 events per patient-year on the pump therapy. During pump therapy, the patients reported a total of 12 cases of S.C. inflammation, requiring local or oral antibiotic treatment (0.04 cases per patient-year). No abscesses were reported during pump therapy.

Conclusions: Insulin pump treatment resulted in a significant 1% reduction in HBA1c that was sustained for ≥ 3 years. Our experience confirms previous reports that in patients with a history of serious hypoglycemia under MDI. The use of CSII was associated with a substantial decrease in the incidence of severe hypoglycemia, and in some cases with restored hypoglycemia unawareness.

We found no evidence to suggest increased tendency for DKA with continuing use of insulin pump.

In our experience, the CSII had a safety profile that was similar to the MDI therapy.

RETROSPECTIVE AUDIT OF CSII USE AT THE CHRISTCHURCH DIABETES CENTRE

Juliet Berkeley, Helen Lunt, Peter Moore

Diabetes Centre, Christchurch Hospital, Christchurch

CSII use in New Zealand is increasing, despite its associated high cost. There has been recent discussion about the usefulness of CSII in patients with apparent contraindications to its use.[1] We therefore undertook a retrospective audit of Christchurch CSII users to determine whether pump indications and contraindications at baseline, influenced outcome data including episodes of DKA, hypoglycaemia requiring external assistance and HbA1c.

45 local CSII users were identified and 32 had active files at the Christchurch Diabetes Centre. Mean age was 39 years (range 8-68). 31 patients had Type 1 diabetes; one patient had Type 2 diabetes with massive insulin resistance. Nine (28%) were male. Mean duration of diabetes was 22 years (range 2-53). Mean length of pump use was 50 months (range 6-240). 11 patients (34%) had relative contraindications to CSII (depression, eating disorder and non compliance with diabetes treatment plans). Pre-pump (baseline) HbA1c results were compared with HbA1c after six months of CSII and also most recent HbA1c results, using the paired t test as tabulated below.

	HbA1c			HbA1c		
	baseline	6 months	p<0.005	baseline	most recent	
All patients(n=32)	8.9%	8.13%	p<0.005	8.9%	8.1%	p<0.01
Contraindications(n=11)	10.2%	8.6%	p<0.01	10.2%	8.6%	p<0.01
No contraindications(n=21)	8.2%	7.9%	P=0.15	8.1%	7.8 %	P=0.32

In summary, there was a significant improvement in the HbA1c that was sustained beyond 6 months in those patients with contraindications to CSII. In the group with no contraindications, HbA1c was lower prior to CSII use and no significant change was noted. This suggests that some patients who have relative contraindications to CSII can obtain significant benefit from its use.

[1] Rodrigues IAS, Reid HA, Ismail K, Amiel SA. Indications and efficacy of continuous subcutaneous insulin infusion (CSII) therapy in Type 1 diabetes mellitus: a clinical audit in a specialist service. *Diabetic Medicine* 2005; 22:842-849.

A TOOL TO IMPROVE THE IN HOSPITAL MANAGEMENT OF HYPOGLYCAEMIA

Mary Yiannoutsos, Pauline Giles

Diabetes Lifestyle Centre, MidCentral District Health Board, Palmerston North

Aim: To improve the Hypoglycaemic management of in-patients as per MidCentral Health (MCH) Hypoglycaemic protocol (MDHB4858), with the introduction of the MCH Hypoglycaemia Protocol in a ID tag format.

Objectives:

1. Inform and increase awareness amongst nursing and medical staff of signs and symptoms of hypoglycaemia, preferred treatment and follow up.
2. Reduce barriers to accessing the protocol
3. Promote consistent recognition, treatment and follow up of hypoglycaemia
4. To identify wards/departments where there is a knowledge deficit for in-service to be planned.

Methods:

1. Trialled in coronary care initially, and then issued to all nursing and medical staff.
2. Launched at the nursing orientation session
3. Survey of nursing and medical staff carried out at 3 months
4. Audit of blood glucose record charts

Conclusion: With the introduction of the MCH Hypoglycaemia protocol in an ID tag format, there has been an increased awareness amongst nursing and medical staff in the recognition of signs and symptoms of hypoglycaemia and the preferred treatment for in-patients. Issuing the protocol in an ID tag format has reduced barriers to accessing the protocol and has assisted in ensuring consistent information for nursing and medical staff.

THE HYPOGLYCAEMIA RISK PROFILE OF TYPICAL INSULIN-TREATED DRIVERS IN NEW ZEALAND

D. Bell¹, A. J. Huddart², S. Dee¹, R. B. W. Smith¹, C. Eagleton¹, J. Krebs¹

¹Department of Endocrinology, Wellington Hospital; ²Victoria University of Wellington

Introduction: Hypoglycaemia impairs safe driving. As people with Type 1 and Type 2 diabetes are being offered intensified therapy to tighten glycaemic control, often with insulin*, they should be well prepared to detect and treat hypoglycaemia if it occurs when they drive. The level of awareness or adherence to safe practice among insulin-treated drivers in NZ is not known.

Aims: This study set out to examine knowledge patterns and highlight likely gaps in driver awareness and practice.

Methods: Using a structured questionnaire previously deployed in Britain¹, we interviewed 50 current drivers (33 with Type 1 diabetes). This gave data on hypoglycaemia awareness, driving patterns, and actual and intended practices for prevention or treatment.

Results: Two thirds reported experience of hypoglycaemia when driving – more than double the rate reported in the British study (31%). Nearly half (46%) said they never tested their blood glucose before driving, or only if they felt hypoglycaemia symptoms. However, 38% tested frequently and this rate rose to 48% among Type 1 drivers. Most participants (88%) would stop and treat themselves if they became hypoglycaemic, through only 28% would wait 30 minutes or more before resuming driving. Overall, 42% failed to observe one aspect of safe behaviour.

Conclusions: The majority of drivers understood the need to be alert to hypoglycaemia, with 72% unwilling to drive with blood glucose levels below 4.0 mmol l⁻¹. However, many relied on symptoms rather than self-testing, and most said they would be safe to resume driving within 20 minutes of treating hypoglycaemia. Only 20% had discussed driving safety in detail, and from these pilot findings we conclude that overall patient education needs review. We highlight awareness of the need to 'stop driving and wait' after hypoglycaemia onset, and the benefits of testing blood glucose before driving.

* AJ Graveling, RE Warren and BM Frier. Diabetic Medicine 2004; 21: 1014-1019

POSTER PRESENTATIONS

Attended Thursday 12.35 – 13.35

Industry Exhibition Area

PREVALENCE OF DIABETES AMONG ADULT PATIENTS IN AUCKLAND CITY HOSPITAL

Kingsley Nirmalaraj, Stuart Lee and Paul Drury

Auckland Diabetes Centre, Greenlane Clinical Centre, Auckland.

To our knowledge, there are no recent NZ data on the prevalence of diabetes among adult patients in a large city level hospital. The aims of this study were to determine the prevalence of diabetes and demographic data of hospitalised adults, and to explore the impact of diabetes on length of stay.

Data were obtained retrospectively from the Auckland City Hospital (ACH) clinical records department for all adults (age \geq 16 years) discharged from ACH in May 2005 excluding maternity and psychiatry.

A total of 4291 patients were discharged during May 2005 of whom 477 had diagnosed diabetes (11.1%). Of those with diabetes, 90% had type 2 and 6% type 1. Mean age was 64y (diabetes) and 52y (nondiabetic). 54% of diabetic patients were male. Ethnicity (diabetic patients) was as follows: European 49%, NZ Maori 15%, Pacific 23% (Samoan 10%, Tongan 4%, Niuean 3%, Fijian 3%, Cook Island Maori 2%, others 1%), Asian 9% (Indian 5%, Chinese 2%, others 2%). Within selected specialties, the proportion of diabetic patients as a percentage of the total was as follows: Nephrology 47%, Vascular 28%, Cardiothoracic surgery 22%, Cardiology 21%, General Medicine 14%. Other surgical specialties had lower but significant diabetes prevalence rates (Urology 10%, Neurosurgery 9%, General Surgery 8%, Orthopaedics 6%). For General Surgery, Orthopaedics, Ophthalmology and Urology, length of stay for those with diabetes was approximately twice that of nondiabetic patients. Length of stay was variably prolonged in Cardiology, General Medical, Renal and Vascular patients with diabetes, but to a lesser degree. Interestingly, there was no length of stay difference for Cardiothoracic or Neurosurgical patients.

We have found that a substantial proportion of hospitalised adults in central Auckland have diabetes, with an especially high prevalence within renal services. In general, diabetes is associated with an increased length of stay, particularly within certain surgical specialties.

SCREENING FOR TYPE 2 DIABETES IN CHILDREN

C. Baker

Far North Diabetes Services, Northland Health

Aim: Over the past two decades Type 2 diabetes has been reported amongst children and adolescents with increasing frequency (1). This study aimed to find a practical way to screen for Type 2 diabetes in an at risk child and adolescent population.

Method: A fasting capillary glucose (FCG) measurement was used to screen students from the local kura (school), most of whom had at least two risk factors for Diabetes. Overweight, Maori, Pacific Islander, Asian, family history, mother had diabetes in pregnancy, acanthosis nigricans, hypertension, hyperlipidemia. Students with a fasting capillary glucose ≥ 5.5 mmol/l had a fasting serum glucose (FSG) measured.

Results: Ninety students were screened. 100% Maori, age range 5 to 18 years, mean age 11.4 years

Seventy students FCG < 5.5 mmol/l, fifteen students had eaten and had capillary glucose (CG) ≥ 5.5 mmol/l. Five students had FCG ≥ 5.5 mmol/l, but their FSG were < 5.5 mmol/l

Of the fifteen who had eaten on retesting at a later date fourteen had CG < 5.5 mmol/l, the remaining one had eaten 20 minutes prior to testing and was referred to G.P for follow-up.

Conclusion: Obtaining FCG was a practical method of screening for Type 2 diabetes in school children.

Testing for insulin resistance would likely have been more informative but not practical.

Normal results did not mean that healthy eating and exercise were no longer important and hopefully this study has raised awareness of diabetes in this high-risk community.

Reference: McGrath, N., Parker, G., Dawson, P. (1999) Early presentation of Type Two Diabetes Mellitus in young New Zealand Maori. Diabetes Research and Clinical Practice 43: 205-209

RISK OF DIABETES AND ABNORMAL GLUCOSE TOLERANCE AMONG WOMEN WITH SELF- REPORTED PAST GESTATIONAL DIABETES MELLITUS IN TE WAI O RONA: DIABETES PREVENTION STRATEGY

Phillipa Clark¹, David Simmons¹, Elaine Rush², Nic Crook³ and the Te Wai o Rona: Diabetes Prevention Strategy Team.

¹Waikato Clinical School, University of Auckland, Hamilton, ²Faculty of Health & Environmental Sciences, AUT University, Auckland, ³Department of Medicine, Lakes District Health Board, Rotorua.

Te Wai o Rona: Diabetes Prevention Strategy is a randomized cluster controlled trial inviting non- diabetic Maori aged 28+ years and their families from the Waikato/Southern Lakes areas into a community based lifestyle programme designed to reduce the incidence of Type 2 diabetes. Participants are invited to come fasting, and undergo a 75g oral glucose tolerance (OGTT) test (unless an initial fingerprick glucose is <4.4 mmol/l, in which case no glucose load is given) and to complete an extensive questionnaire including medical history and life style. Diagnosis of diabetes, impaired glucose tolerance (IGT), and impaired fasting glucose (IFG) follow WHO criteria. Previous gestational diabetes mellitus (GDM) was ascertained by direct enquiry and was indicated in 70/2993 (2.3%) of responding women. The age related prevalence of reported past GDM and of undiagnosed diabetes, IGT and IFG are shown below:

Age(years)	<40	40-49	50-59	60-69	70+	
Past GDM	2.8%	2.8%	1.3%	1.9%	1.8%	p=0.096
Diabetes Now-Past GDM	24.0%	9.1%	0%	16.7%	0%	
-Others	7.9%	3.5%	5.4%	8.0%	7.6%	
IGT/IFG Now-Past GDM	4.0%	9.1%	28.6%	33.3%	33.3%	
-Others	7.9%	10.1%	14.3%	22.8%	20.9%	
Sig Past GDM vs Others	<.001	.393	.494	.563	.797	

The proportion reporting past GDM did not increase with age (p=0.096). Overall, the crude prevalence of undiagnosed diabetes and IGT/IFG was 14.1% and 12.5% among women with reported past GDM vs 4.1% and 12.8% (respectively) among other women (p=0.001). However after adjusting for age, those with a history of GDM had 4.3(2.1-9.1) fold increased risk of new diabetes (p<0.001), but no increased risk of IGT/IFG (1.1(0.5-2.5) p=0.896). We conclude that among Te Wai o Rona: Diabetes Prevention Strategy participants without known diabetes, the proportion of women with self reported past GDM is low and is related to a significantly increased risk of current diabetes but not IGT/IFG.

IS CGMS ABLE TO DETECT DIFFERENCES IN SUPPERTIME SNACK COMPOSITION IN TYPE 1 DIABETES?

Jason Wong¹ Helen Lunt² Marilyn Cullens² Chris Frampton¹

¹ Christchurch School of Medicine and Health Science and ² Diabetes Centre, Christchurch Hospital

72-hour Minimed CGMS is widely used in diabetes clinics. Clinical applications relate to its ability to detect large excursions in interstitial glucose and it has an established role in detecting overnight hypoglycaemia. Its utility in optimising the dietary management of type 1 diabetes has yet to be determined. We recruited 12 patients with type 1 diabetes who were on a basal-bolus regimen, gave a past history of overnight hypoglycaemia and who did not eat suppertime snacks on a regular basis. Patients were allocated a) no suppertime snack, b) a 12.7g protein/15g carbohydrate snack or c) a 15g carbohydrate snack, with the snacks taken in random order on consecutive days. Patients were advised to keep their diet and exercise routine consistent, for each day of study.

CGMS results from seven patients were suitable for analysis (five patients were excluded; three had calibration-related gaps in information, one had recurrent severe nocturnal hypoglycaemia, one failed to document time of supper). Three of these seven patients were female, mean HbA1c 7.3%, mean age 40 years, 3 were on long-acting analogues. Incremental glucose 'area-under-the-curve' was calculated at one, two, three, four and five hours post-supper. Paired comparisons were performed for each paired-snack combination (ie a/b, a/c, b/c) at each of these time points. The four hour area under the curve showed a slightly lower glucose for no snack compared to the carbohydrate snack ($p=0.043$) but no other comparison showed a statistically significant difference.

In conclusion, CGMS was unable to detect differences in overnight snack composition in type 1 patients, studied in an ambulatory setting. Although the number of patients studied was small, no definite trend was observed after detailed analysis of results. CGMS is an established tool for managing some aspects of diabetes care such as detection of overnight hypoglycaemia, but its role in managing more subtle aspects of care has yet to be defined.

Acknowledgement: Sponsored by Diabetes Christchurch Inc./Diabetes Training and Research Trust.

PHYSICAL ACTIVITY AND INSULIN REQUIREMENTS IN CHILDREN WITH TYPE 1 DIABETES

R Claridge¹, JA Willis², BA Darlow¹

*¹Department of Paediatrics, Christchurch School of Medicine and Health Sciences, and
Research Group, Christchurch Hospital, Christchurch*

Insulin requirements vary markedly between children with type 1 diabetes. Further, children with similar anthropometric characteristics and energy intakes can have very different demands for insulin. This pilot study aimed to evaluate the impact of physical activity on blood glucose control and insulin requirements in children. Identifying the factors that contribute to insulin requirements may lead to better algorithms for predicting insulin needs.

Children (n=28) aged 8-13 years, routinely monitoring blood glucose by fingerprick measurement and recording daily insulin injections, were recruited into the study. Each child wore a pedometer for 12hrs per day, for four days, and kept a diary of food intake, daily activities and total number of steps measured by the pedometer. The relationship between blood glucose, insulin dose and the number of steps was investigated. Day to day intra-individual variation in glucose measurements was considerable (CV 26.8%) compared with the variation in glucose measurements between subjects (CV 13.5%). Variation in blood glucose across the day was not explained by variation in the number of steps. However, there is a trend for a relationship between the number of steps during the day and the pre-lunch and pre-dinner blood glucose measurements ($p=0.10$). It was more usual for parents and children to manipulate food intake to attenuate the effect of exercise rather than altering insulin dose. The pedometers were simple to use and inexpensive, but were insensitive to non-locomotor forms of movement therefore potentially underestimating total activity. The children easily met the adult recommendation of 10,000 steps/day doing on average 14286 steps/day.

This pilot study revealed that exercise is an important contributor to good diabetes control, and that further research in a larger number of participants over a longer time period is warranted. Further studies should investigate other options for detecting activity such as heart monitors and accelerometers.

**IS COMPLIANCE THE MAJOR DETERMINATE OF BLOOD PRESSURE CONTROL IN THE DEFEND STUDY?
PRESENTATION OF TWO CASE STUDIES**

L Harwood, W Bagg, C Hotu, F Mahony, N Hapeta, S Latu, JF Collins¹, GD Braatvedt on behalf of the DEFEND study team
Dept of Medicine, University of Auckland and Dept of Renal Medicine¹ Auckland City Hospital.

Aim: To examine whether intensive blood pressure (BP) control delivered by nurse led, community healthcare assistants (HCA) is more effective than current practice to delay the progression of diabetic nephropathy in Maori and Pacific patients with type 2 diabetes (serum creatinine >130 umol/l and 24 hour urine protein > 0.5g). This paper describes two patients in the intervention arm of the study, visited monthly by the HCA, both of whom have been successful in achieving the blood pressure target (BP<130/80). Patient one is a 60 year old Tongan female with type 2 diabetes of 21 years duration. Patient two is a 55 year old Tongan male with type 2 diabetes for 27 years. In both patients, compliance varied at randomisation compliance was poor and at one year compliance was much improved.

	Patient 1	Patient 2
BP at baseline	202/89	180/93
BP at 2 months	124/61	124/61
BP at 4 months	130/62	130/62
BP at 6 months	144/89	159/95
BP at 8 months	145/59	144/77
BP at 10 months	164/77	146/72
BP at 12 months	122/70	115/59
eGFR at Baseline	25ml/min	35ml/min
eGFR at 12 months	12ml/min	21ml/min
Number of anti hypertensive drugs at baseline	1	1
Number of anti hypertensive drugs at 12 months	3	2
Number of visits completed	11	12
HbA _{1c} baseline	8.7	9.3
HbA _{1c} at 12 months	8.3	6.8
Total cholesterol (mmol/l) at baseline	8.4	10.7
Total cholesterol (mmol/l) at 12 months	5.8	8.0

Conclusion: Both patients were able to achieve target blood pressure control. However there were significant fluctuations in blood pressure which may have been due to erratic compliance with medications. This hypothesis is supported by the reduction in HbA_{1c} and total cholesterol despite no new prescriptions for lipid lowering or hypoglycaemic medications being issued. Despite achieving the BP targets, eGFR fell by 13-14ml/min over 12 months.

DECONSTRUCTING DISTRESS: WHAT COGNITIVE PATTERNS MAY CREATE AND SUSTAIN ELEVATED DISTRESS AMONG PEOPLE WITH TYPE 2 DIABETES?

CAM Paddison, FA Alpass, CV Stephens

School of Psychology, Massey University, Palmerston North.

Introduction: The DAWN programme (Diabetes Attitudes, Wishes, and Needs) was created because more than half of people with diabetes do not achieve good health and quality of life, despite the availability of effective medical treatments. Results from the DAWN studies have clearly demonstrated evidence of suboptimal psychological wellbeing among many people with diabetes. Documenting distress is important. However, further research is needed to examine those factors that may create and sustain elevated distress among people with diabetes. The aim of this study was to examine the relationships between personal views about diabetes (illness/treatment representations) and distress, and to identify cognitive patterns that may underpin elevated psychological distress among people with type 2 diabetes.

Methods: Self-report data on illness/treatment perceptions (IPQ-R, BMQ) and diabetes specific psychological distress (PAID) was collected via mailed questionnaire survey. Participants were randomly selected from a medical database: all had confirmed type 2 diabetes, and were aged over 18. Respondents (N = 615) matched the NZ diabetes population in terms of age, gender, and ethnic diversity.

Results: Bivariate correlations showed a number of statistically significant relationships between illness/treatment perceptions and diabetes related distress ($r = .37 - .51, p < .001$). These suggest that certain cognitive patterns may create and sustain elevated levels of diabetes related distress (for example: viewing diabetes symptoms as unpredictable but with serious life consequences and seeing diabetes as a central part of your personal identity). Multivariate analysis using hierarchical regressions showed illness/treatment perceptions explained 35% of the variation in diabetes distress ($R^2 = .35, p < .001$), even after controlling for age, ethnicity, treatment type and length of diagnosis. Implications for interventions are discussed.

PERCEPTIONS OF TYPE 2 DIABETES AMONG NEW ZEALAND EUROPEANS, PACIFIC ISLANDERS AND SOUTH ASIANS

Debbie Bean, Keith J. Petrie & Tim Cundy, *Departments of Health Psychology and Medicine, University of Auckland*

The Self-Regulation Model proposes that patients form perceptions of their illness along five dimensions: the illness identity (its name and symptoms), the illness timeline (how long it lasts), the illness cause(s), the illness consequences (how it affects ones life) and the illness cure/control (how controllable or curable the illness is and the methods for treating it). In a parallel process, patients form perceptions of the emotional effects of their illness. The model also proposes that these perceptions should predict the actions patients take in order to best deal with their illness, and previous research suggests that illness perceptions are important predictors of self-care behaviour for diabetes patients. Most of this research has been conducted in predominantly European British and North American populations. The present study aimed to determine whether there are differences in illness perceptions between ethnic groups, and whether illness perceptions predicted adherence outcomes, particularly HbA_{1c}. A sample of 86 Europeans, 86 South Asians, and 87 Pacific Islanders with type 2 diabetes completed self-report measures of illness perceptions and self-care. Metabolic control and retinopathy data were collected from their medical records. Results showed that Pacific Islanders and South Asians perceived their illness to be less chronic in nature (had shorter timeline perceptions) than Europeans. Relative to both other groups, Pacific Islanders perceived diabetes to have more consequences, more symptoms, and perceived diabetes to have a greater emotional impact. Pacific Islanders also had poorer metabolic control and more retinopathy compared to Europeans and South Asians. A number of the illness perceptions dimensions were significantly correlated with metabolic control, but these were inconsistent across ethnic groups. The results indicate that there may be some utility in assessing patients' perceptions of their diabetes when encouraging patients to become more adherent to treatments and lifestyle changes.

PERCEPTIONS OF THE DIABETES EPIDEMIC AMONG WAIKATO HEALTH PROFESSIONALS

Judith Swan¹, David Simmons¹, Steven Lillis¹, Jarrod Haar²

¹Waikato Clinical School, University of Auckland, Hamilton. ²Waikato Management School, University of Waikato, Hamilton

We have undertaken a postal survey of barriers to diabetes care among hospital senior medical (HD), senior nursing (HN), dietetic, podiatry, retinal photography (AL), general practitioners (GP) and practice nurses (PN) in the Waikato. Initial surveys were followed up with repeated contact. Response rates were high with 64% (63/98) HD, HN 80% (43/54), AL 38% (16/19), GP 72% (166/232), and PN 68% (149/220) returning valid surveys. Four open questions asked about how to improve diabetes care, what prevents care, whether they are worried about care and any comments. Responses were allocated one or more of 38 'barrier' codes (based upon prior validated work) using triangulation. A new code relating to being 'overwhelmed' by numbers of diabetic patients or eg "increasing work load and not enough staff and resources to cope" was created. This 'diabetes epidemic' code was reported by 35% HD (but none of the diabetes physicians), 44% HN, 38% AL, 10% GP, 9% PN ($p < 0.001$ across all disciplines). The same proportion of hospital staff reported the diabetes epidemic whether diabetes ($n=21$) or non-diabetes ($n=150$) staff (33.3% vs 36.1% respectively, $p=ns$). Perceptions were comparable overall between medical and nursing staff (17%, both, $p=ns$). Primary care practitioners reported the diabetes epidemic significantly less frequently than hospital staff (10% vs 39%, $p < 0.001$). Among GPs, those in the middle age tertile (40-49 years: 6% vs 18% vs 4%, $p=0.026$) and those with less than the median number (60) of diabetic patients (14% vs 3%, $p=0.026$) perceived the epidemic most; gender was not associated with the perception. We conclude that the epidemiological evidence and diabetes service experience for a diabetes epidemic is now being felt by non-diabetes hospital staff and these effects are beginning to impact on both medical and nursing primary care providers.

TOOLS OF EMPOWERMENT TO ASSIST PRIMARY CARE EDUCATE PEOPLE WITH DIABETES

Lynne Ferguson Diabetes Specialist Dietitian, *Counties Manukau District Health Board*.

Aims: To empower primary care by providing the tools to educate people with impaired glucose tolerance, diabetes and obesity.

Objectives: To up-skill and empower primary care health professional to be better able to educate patients.

Methods: A formal questionnaire was used to evaluate patients' perception of the education process when newly diagnosed. Primary care providers were surveyed to ascertain their perceived need for resources that would better enable them to educate patients.

Results: Many patients felt that they received insufficient information at diagnosis and much of it was conflicting. Primary care health professionals saw a need for resources to empower them to provide accurate, simple, appropriate and culturally focused material when educating patients.

Conclusion: Counties Manukau District Health Board area consists of a diverse mix of cultures and with 11,000 people with diabetes it was essential that resources were available for use by primary care providers to ensure appropriate education – the key to avoiding complication associate with diabetes. A package of nutritional resources was developed and trialled. Included was a set of food photographs that showed 45g portions of carbohydrate and a variety of meals that used the 45g, and food preferences for the different ethnic groups. The basic food guide was adapted to be more appropriate for 11 different ethnic groups and translated into the language. Finally 19 single sheets of nutrition information was added covering aspects of nutrition and providing specific information on suitable brands of food (e.g. breakfast cereals, yoghurt). In the future it is hoped that the photographs will be available but the latter two resources were to be photocopied for patients.

TE WAI O RONA: DIABETES PREVENTION STRATEGY : THE USE OF A MODIFIED GREEN PRESCRIPTION

Margaret H. Williams¹, David Simmons¹, Jacqueline Henry², Callie Corrigan³, Stephanie McLennan³, Guss Wilkinson¹ and the Te Wai o Rona: Diabetes Prevention Strategy Team

¹Waikato Clinical School, University of Auckland, Hamilton, ²Waikato District Health Board, Hamilton, New Zealand, ³Sport Waikato, Hamilton.

The National Green Prescription model was designed to help and support people with physically-limiting medical conditions to engage in physical activity. In the Te Wai o Rona: Diabetes Prevention Strategy a modified approach of the National Green Prescription model was developed for those with either known heart disease or recent chest pain. This focussed on tikanga and kaupapa Maori principles and ethics and, in particular, kanohi-ki-te-kanohi (face-to-face) contact to support and encourage Maori to readily engage in physical activity. Of those without new diabetes, 100 reported that their doctor said that they had a heart condition and they should only do physical activity given by their doctor; 30 reported that they felt pain in their chest when they did physical activity and 46 participants reported that in the past month that they had chest pain. To explore in-depth the behaviour, attitudes and motivation of stakeholders we aim to interview at least 10% of 200 key informants (GPs, Maori Community Health Workers, participants and past and present green prescription workforce). To date, 13 informants have been interviewed. Of these informants 1 male and 6 female were Maori Community Health Workers as well as 2 male and 5 female workforce people. Interviews ranged from 30 minutes to 120 minutes and were held in locations suitable to the participants in which the sharing of karakia, kai and/or conversation typically occurred at the end and beginning of each interview. Three major themes had been identified. These were: limited awareness about the national green prescription; establishing credibility of one's reputation in the community and, whakawhanaungatanga (strengthening of network ties), in which mutual respect is established to enable participants to engage in physical activity. These findings suggest that the inclusion of Maori principles and ethics are likely to increase the uptake of Maori responding to the Green Prescription programme.

PATIENT PERSPECTIVES ON BARRIERS TO DIABETES CARE IN A RURAL TOWN IN NEW ZEALAND

Grace Joshy¹, Marion Devers², David Simmons¹

¹Waikato Clinical School, University of Auckland, Hamilton, ²Waikato Hospital, Hamilton.

Aims A postal survey was conducted to identify the barriers to diabetes care among diabetes patients in a rural town as part of an integrated diabetes care initiative.

Methods A “Barriers to Care” postal survey was initiated in March 2005, including all known diabetes patients in a rural Waikato town. The survey included 27 closed questions based on educational, psychological, psycho-social, external physical and internal physical barriers.

Results 62% (204/328) patients completed the survey (aged 65±12 years, 46% male, 22% insulin users, 57% European & 30% Maori). No symptoms cue, lack of public awareness and personal finance are the three most frequently reported barriers across all ethnic groups.

Most Frequently Reported Barriers to Diabetes Care

Barrier	European N=116	Maori N=63	Other N=25
No Symptoms Cue	97 (82.2%)	53 (84.1%)	17 (73.9%)
Lack of Public Awareness*	77 (65.3%)	51 (81.0%)	12 (52.2%)
Personal Finance	77 (65.3%)	49 (77.8%)	16 (69.6%)
Priority Setting*	61 (51.7%)	46 (73.0%)	11 (47.8%)
Public Health Belief*	19 (16.1%)	21 (33.3%)	5 (21.7%)
Service-Physical Access to Care*	14 (11.9%)	7 (11.1%)	7 (30.4%)

* Ethnic difference significant at 5% level.

The reported rates of low diabetes knowledge and other health conditions are significantly higher among males, after adjustment for age, diabetes duration, ethnicity and insulin treatment [OR=2.3(1.2 - 4.3) & OR=2.3(1.3 - 4.1) respectively]. After covariate adjustments, unsatisfactory diabetes care/education is a significant barrier for insulin treated diabetes patients [OR=5.3(1.4 - 20.4)]. Priority setting [OR = 2.8(1.4 - 5.5)] and public health belief [OR=2.8 (1.3 - 5.9)] are significant barriers for Maori compared with Europeans.

Conclusion Using closed questions, the three most frequently reported barriers are not significantly different across subgroups of ethnicity, gender or insulin treatment. However, there are other barriers which have to be addresses within subgroups.

THE EXPERIENCE OF MANAGING TYPE 2 DIABETES FROM THE PERSPECTIVE OF PART-EUROPEAN PEOPLE FROM FIJI

Sandy Simpson, *Auckland University of Technology*

This study examines the. A qualitative approach was used, and the methodology was grounded theory based on the theoretical perspective of symbolic interactionism. Data was collected from the in-depth interviews of nine participants who have been living with Type 2 diabetes. Text from the interview transcripts was analysed using the version of grounded theory advocated by Strauss and Corbin (1998). This process facilitated the discovery of 'Carrying on with Life and Living' as the main concern shared by Part-Europeans managing Type 2 diabetes. It also identified the substantive theory of 'Walking The Line' as the core category and the basic social and psychological process by which Part-Europeans resolve their main concern of 'Carrying On With Life And Living'. This was a three-stage process involving firstly 'Carrying on Regardless', secondly 'Attempting Balance in Time and Motion and Control', and thirdly 'Balancing, Unbalancing, and Recovering Balance'. The results of this study reveal that the social and historical contexts of Part-European culture, such as heavy drinking, carrying on with life and living in the face of adversity, and taking traditional medicine impact significantly throughout their managing process. Findings of this study may contribute to development of some culturally aware strategies that could assist healthcare services to provide appropriate support, intervention, and education for Part-Europeans with Type 2 diabetes. This study also addresses the lack of studies concerned with the management of Type 2 diabetes in Pacific peoples and serves to inform research initiatives and priorities set by the Health Research Council of New Zealand.

HEALTHY FOOD IN REFUGEE COMMUNITIES

Koos Ali

Refugee Health, Regional Public Health, Hutt Valley DHB

Objective: Food is essential to human existence. Different communities have different perception of 'healthy food'. The practice of healthy food is influenced by environmental connection and traditional cultural practices. The purpose of this presentation is to identify the challenges that refugee communities face with obtaining and using food in healthy way. The presentation will particularly focus on traditional and cultural practice. Although the presentation will come from a personal perspective of the Somali community it is reflective of all refugee communities. The presentation will identify possible solutions at a family, community and society level to ensure that refugee communities have healthy eating practice and use them to improve their overall outcomes.

Method: The presentation will reflect qualitative perspectives, there being little research in this area. Personal, professional and community experience will inform the presentation and will be focussing on the quality of life and future of communities from refugee backgrounds and their primary health measures. Much of this information will come from a review of health needs of refugee communities in the Hutt Valley and also from participation on the Somali Council and Change makers Forum (a consultant agency for refugee issues).

Results: Qualitative analysis identified, among other issues, a higher predominance health of issues such as constipation, hypertension and diabetes in refugee communities compared to host communities. Key factors underlying these issues is lack of understanding about food content, economic limitations surrounding food choice, and food restrictions due to religious belief (Halal food).

Conclusions: Communities from refugee backgrounds will not flourish healthwise under current circumstances. Recommendations for improvement are provided.