Projects beginning in 2005

2005/001

The Busselton population study of the CARD15/NOD2 gene polymorphisms and their association with colorectal cancer and Crohn's disease

Aims

To determine the population prevalence of the CARD/NOD2 polymorphisms.
1. To define the prevalence of the 3 CARD15/NOD2 gene polymorphisms in the Busselton population of Western Australia.
2. To determine the prevalence of, and whether the CARD15/NOD2 gene polymorphisms are associated with, Crohn's disease, ulcerative colitis and colorectal cancer.

Investigators

- Dr Rupert Leong, Faculty of Medicine, University of New South Wales
- Prof Rodney Scott, Faculty of Health, University of Newcastle
- Dr Ian Lawrance, School of Medicine and Pharmacology, UWA
- Prof John Olynyk, School of Medicine and Pharmacology, UWA

Project status

In progress

2005/002

The relationship between glycaemia and lung function in the general population: The Busselton Health Study

Aims

To examine prospectively the relationship between glycaemia and lung function in the general population. More specifically, to
1. Determine whether baseline lung function, or the change in lung function, predict new diabetes (or change in FPG) after controlling for age, sex, height, smoking status and asthma/respiratory symptoms, and
2. Investigate whether baseline FPG, or change in FPG, predict decline in lung function after controlling for age, sex, height, smoking status and asthma/respiratory symptoms.

Investigators
A/Prof Joe Hung, School of Medicine and Pharmacology, UWA
Prof Matthew Knuiman, School of Population Health, UWA
Dr Elizabeth Davis, Dept of Endocrinology and Diabetes, Princess Margaret Hospital
Prof Peter Thompson, Dept of Cardiovascular Medicine, SCGH
Dr Brendan McQuillan, School of Medicine and Pharmacology, UWA
Dr John Beilby, Dept of Clinical Biochemistry, PathCentre

Project status

In progress

2005/003

Adolescent obesity, metabolic syndrome, adiponectin and cardiovascular risk

Aims

Primary aims:
In the Busselton Health Study of high school children, we will
1. Determine the prevalence of overweight/obesity and the metabolic syndrome phenotype in a population-based sample of Australian adolescents aged 13-17 years (and make comparison with the prevalence in surveys 20 years ago).
2. Establish if overweight/obesity and associated metabolic and cardiovascular risk factors in adolescents are related to carotid intima-medial wall thickness (IMT), a marker of early atherosclerosis.
3. Investigate if circulating levels of the adipocyte-specific cytokine, adiponectin, are related to the level of obesity, insulin resistance, inflammatory markers and early carotid atherosclerosis in adolescents.
Secondary aims:
4. Establish the age- and gender-specific range for individual metabolic syndrome components in Australian adolescents aged 13-17 years (including BMI, waist circumference, triglyceride, HDL, blood pressure and fasting insulin levels).
5. Investigate if physical activity is a determinant of cardiovascular risk factors, fasting insulin and adiponectin levels after adjustment for measures of overweight and visceral adiposity.

Investigators

A/Prof Joe Hung, School of Medicine and Pharmacology, UWA
Prof Matthew Knuiman, School of Population Health, UWA
Dr Elizabeth Davis, Dept of Endocrinology and Diabetes, Princess Margaret Hospital
Prof Peter Thompson, Dept of Cardiovascular Medicine, SCGH
Dr Brendan McQuillan, School of Medicine and Pharmacology, UWA
Dr John Beilby, Dept of Clinical Biochemistry, PathCentre
2005/004
The emergence of the metabolic syndrome phenotype and its impact on structural and functional markers of cardiovascular risk in the Busselton community

Aims

1. Establish the current prevalence of overweight/obesity and the metabolic syndrome phenotype, including insulin resistance, in a large population-based sample of Australian adults (and compare with the prevalence from previous Busselton surveys).
2. Determine if overweight/obesity and associated metabolic and cardiovascular risk factors are related to structural (carotid IMT) and functional (carotid artery stiffness) markers of early atherosclerosis and cardiovascular risk.
3. Examine if circulating levels of adiponectin are related to components of the metabolic syndrome, inflammatory markers, early carotid atherosclerosis and increased carotid stiffness.

Investigators

- Dr Brendan McQuillan, School of Medicine and Pharmacology, UWA
- Prof Matthew Knuiman, School of Population Health, UWA
- A/Prof Joe Hung, School of Medicine and Pharmacology, UWA
- Prof Peter Thompson, School of Medicine and Pharmacology, UWA

Project status

In progress

2005/005
The prevalence of gastrointestinal symptoms and disease in the Busselton population

Aims

1. Assess the age and sex related prevalence of dyspepsia, the irritable bowel syndrome, important bowel symptoms, peptic ulcer, gastrointestinal malignancies and other gastrointestinal disorders in a normal Australian rural population.
2. Assess the relationship of dyspepsia and peptic ulcer with age, sex,
symptoms of the irritable bowel syndrome, medication (especially NSAIDs, aspirin), diabetes, BMI, history of previous abdominal surgery, alcohol consumption and smoking habit.

**Investigators**

- Dr Digby Cullen
- Dr Lindsay Mollison, School of Medicine and Pharmacology, UWA
- Prof John Olynyk, School of Medicine and Pharmacology, UWA

**Project status**

In progress

### 2005/006

**Soluble mesothelin-related protein (SMRP) as an early marker for mesothelioma in the asbestos exposed population**

**Aims**

To measure SMRP levels in the serum of a non asbestos-exposed control population to determine the specificity of the SMRP assay and its utility as a screening tool for mesothelioma.

**Investigators**

- Prof Bruce Robinson, School of Medicine and Pharmacology, UWA
- Dr Jenette Creaney, School of Medicine and Pharmacology, UWA
- Clin Prof Bill Musk, Dept of Respiratory Medicine, SCGH
- Prof Nick de Klerk, Telethon Institute for Child Health Research

**Project status**

In progress

### 2005/007

**Comparative analysis of measures of obesity in relation to prevalence and incidence of cardiovascular disease and mortality**

**Aims**
We wish to compare and replicate our findings from the National Heart Foundation Risk Factor Prevalence Study which show that waist/hip ratio is the dominant clinical measure of obesity predicting cardiovascular disease and coronary heart disease deaths, and that this measure supersedes waist circumference and body mass index. We will also use Busselton Health Study data to validate cut points for obesity measures, using Receiver Operator Characteristic curves, for comparison with our own Australian data and comparison with data obtained from the Asia Pacific Cohort Studies Collaboration group.

**Investigators**

- Clin Prof Tim Welborn, Dept of Endocrinology & Diabetes, SCGH
- Mr Satvinder Dhaliwal, School of Public Health, Curtin University of Technology

**Project status**

In progress

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**2005/008**

**Bioinformatics and Data Visualisation (BDV) tools for Family Data Analysis**

**Aims**

To identify existing visualisation data mining techniques for complex pedigree structures, with the aim to develop novel and innovative visualisation techniques by leveraging the advantage of high performance computing, using Busselton Health Study data (pedigree structures) as exemplar data.

**Investigators**

- [Dr Kim Carter](mailto:drkimcarter@aimr.edu.au), WAIMR
- [Prof Lyle Palmer](mailto:lyle.palmer@aimr.edu.au), WAIMR

**Project status**

In progress

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**2005/009**

**Association of Variants in Type 2 Diabetes/Obesity Candidate Genes in an Australian Cohort**
Aims

To look at variants in candidate genes for Type 2 diabetes (T2D) and obesity in a population-based Australian sample, and relate these variants to clinical parameters associated with T2D and obesity, including BMI, lipids, glucose and insulin levels.

Investigators

- Dr Brenda Powell, WAIMR
- Prof Lyle Palmer, WAIMR
- Dr John Beilby, School of Surgery & Pathology, UWA

Project status

Yet to commence