We conduct epidemiological research in the areas of diabetes, obesity and cardiovascular disease.

Research Brief

The aim of the research unit is to build the evidence-base around the novel risk factors of diabetes and obesity, and cardiovascular disease, in particular environmental toxicants, air pollution and viral infections. The unit is also interested in examining the more non traditional associations of diabetes and other outcomes, such as the relationship between diabetes obesity, metabolic syndrome, hypertension and cancer.

Methodologies

• We conduct epidemiological research and thus we employ statistical model to answer our research questions

Selected Publications

• Magliano DJ, Lyons JE. Bisphenol A and Diabetes, Insulin Resistance, Cardiovascular Disease and Obesity: Controversy in a (plastic) Cup? The Journal of Clinical Endocrinology and Metabolism. 2013 Feb;98(2):502-4


Environmental toxicants and chronic disease

The last few decades have seen epidemics of diabetes and obesity, which are not fully explained by changes in the prevalence of established risk factors, such as physical inactivity and poor diet. In particular, the reasons for the extremely rapid increase in diabetes and obesity over the past few decades remain unclear. Given this, there has been an impetus to look more widely than traditional lifestyle and biomedical risk factors. One key avenue of novel risk factors are those which stem from the environment we live in. There has been considerable interest in environmental toxicants such as endocrine disruptors, persistent organic pollutants and phthalates.

The aims of this project are to explore the relationship of several toxicants in the development of diabetes, cardiovascular disease and obesity.
1. The role of bisphenol A in the development of chronic disease
2. The role of phthalates in the development of chronic disease
3. The role of persistent organic pollutants in the development of chronic disease

Diabetes, obesity, metabolic syndrome and cancer

Diabetes, and cancer are growing epidemics in both developed and developing countries, and therefore understanding the full range of their consequences is of increasing importance. Cancer remains one of the most common causes of death, and so improving our understanding of its risk factors is essential for improving screening programs, identifying preventive strategies and developing novel therapies. This project has matched 18 Australian and New Zealand (ANZ) longitudinal cohorts which have information on diabetes, hypertension and anthropometry collected at baseline, to the National Death and Cancer registries to collect cancer outcomes. The data has now been pooled together to form a large database which will be used to explore the relationships of diabetes, hypertension, obesity and the metabolic syndrome with overall and site-specific cancer (in particular, but not limited to, breast, colo-rectal and prostate cancer).

This project will allow a better and fuller assessment of the likely burden and consequences of diabetes and obesity as well as inform clinical practice about the appropriate care of diabetic and/or obese patients.

Air pollution and chronic disease

We aim to examine the prospective association between air pollution, diabetes incident and CVD using individual unit data from AusDiab and long term air pollution data from Environmental Protection Agency (EPA) over 5 and 12 years, independent of confounding factors. EPA data will be modelled (using mixed models) with weather, temperature traffic proximity, geocoding data, health, demographic and diabetes outcome data from the AusDiab study and linked to prior exposure to air pollution using two measures of air pollution: i) the distance of each participant’s home address to the nearest major road using Geographical Information System modelling techniques and ii) average air quality at each address measured via the nearest EPA air quality monitor.