

School of Population Health RHD Student Project

Title: Investigating the bias introduced by different cohort recruitment and retention strategies

Supervisor: Dr Robert Ware—<http://researchers.uq.edu.au/researcher/1191>

Funding: Student Scholarship required, but top-up available

Student Objectives:

- Advance understanding of the effect of non-participation and drop-out in longitudinal studies
- Learn and apply a variety of statistical techniques used in analysis of longitudinal studies
- Provide regular research updates through oral and written presentations

Project Outline:

Longitudinal studies, where the same participants are measured repeatedly at different points in time, offer a unique opportunity to increase knowledge of the causes and mechanisms behind disease and mortality. However one of the most serious threats to the validity of their findings lies in participant loss to follow-up, commonly known as attrition, which is a form of selection bias particular to longitudinal studies. Attrition threatens the generalisability of longitudinal studies when participants who have complete information gathered on them at all follow-up waves differ in some way from participants who have incomplete information. The impact attrition has on the validity of a study can be measured by the magnitude of the error introduced due to participant drop-out - clearly the size of this error depends on the proportion of individuals who drop-out (i.e. the amount of attrition), and the relevance of the characteristics of these individuals to the effect measure. The purpose of this project is to investigate the magnitude and bias of this error under

different study recruitment and retention scenarios. The project will involve simulating results based on 'real-life' data sets.

Specific Aims:

- Identify characteristics associated with study non-participation and drop-out
- Model the magnitude and direction of potential biases under different drop-out scenarios
- Develop methods to adjust statistical estimates for non-participation and drop-out

Achievable Outcomes:

- A PhD in Statistics (a global research shortage area)
- Multiple scientific papers in good research journals
- Experience with oral/written presentations at national/international conferences