



RACP Foundation Research Awards

FINAL REPORT

Project / Program Title	Refining and validating a new algorithm to predict disability in old age - a tool for promoting healthy ageing	
Name	Dr Evelyn Wong	
Award Received	2015 Cottrell Research Establishment Fellowship	
Report Date	6 July 2016	
Chief Investigator / Supervisor	Professor Anna Peeters	
Administering Institution	Baker IDI Heart and Diabetes Institute	
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	Finish Date:	30 June 2016

PROJECT SUMMARY

Australia is facing costly increases in the burden of chronic disease as the population ages and conditions such as obesity and diabetes increase. Common risk factors, including smoking, diabetes and obesity increase an individual's chance of chronic disease and premature death. However, there is currently no way of combining these risk factors to identify those Australian adults whose risk of future disability is the greatest and in whom life expectancy free of disability may substantially improve with effective prevention strategies. With finite budgets and large socioeconomic disparities in health in Australia it is important our preventive efforts are well matched to need.

We recently developed the first risk prediction tool to predict the future risk of an overall marker of ill health – physical disability – based on the combined risk from middle age of the key preventable risk factors: smoking, obesity, hypertension and diabetes. In this project, I aimed to refine the disability risk prediction tool. This refinement project is as a step towards building a healthy life expectancy calculator for use by stakeholders such as government and private health insurers to more efficiently predict their future health needs and target their prevention efforts.

In this project I tested the inclusion of more detailed measures of smoking and obesity by adding information on number of years and degree of smoking as well as number of years lived with obesity and the severity of obesity. The aim was to ascertain if a tool to predict life expectancy free of disability will require such detailed measures of known risk factors or whether knowing the absence or presence of these risk factors is adequate in helping us predict one's risk for developing disability over a 10 year period.

PROJECT AIMS / OBJECTIVES

aimed to refine our recently developed disability risk prediction tool by:

- 1) Analysing the risk of disability from continuous markers of glucose metabolism including impaired glucose tolerance.
- 2) Analysing the association between more refined measures of smoking and the risk of disability such as pack-years and years following cessation of smoking.
- 3) Testing the hypothesis that adding a measure of obesity duration will improve the current disability risk prediction tool.

Aims (2) and (3) have been achieved and the first draft of the report for peer-reviewed publication has been written. Aim (1) will no longer be investigated as I have discontinued the project due to change in employment. The two aims were achieved in approximately 7 months of full-time equivalent research work.

SIGNIFICANCE AND OUTCOMES

To the best of my knowledge, this was a novel evaluation of the impact of detailed smoking and obesity measures in a disability risk prediction tool. We found that years lived with obesity and smoking pack years were predictors of disability and/or death.

However the disability prediction algorithms with and without detailed smoking and obesity measures performed similarly in their ability to predict disability and/or death. This suggests that the recently published disability risk algorithm which used obesity and smoking status at a single time point does not require more detailed measures of these risk factors. The simplicity of the algorithm without detailed smoking or obesity measures means it is practical for use in a clinical or workplace setting to ascertain individual risks of poorer overall health outcome.

PUBLICATIONS / PRESENTATIONS

A first draft of the report on this project has been drafted and is currently being reviewed by co-authors awaiting submission to an academic journal. During the time of my award, I have co-authored an original research article related to the field of disability (published in Diabetologia). I was also invited to comment on an article on disability trends in the USA, published in The Lancet Diabetes and Endocrinology.