



RACP Foundation Research Awards

FINAL REPORT

Project Title	Optimising risk prediction, antenatal interventions and treatment targets in diabetes in pregnancy	
Name	Dr Sally Abell	
Award Received	2017 Rowden White Travelling Fellowship	
Report Date	1 February 2018	
Chief Investigator / Supervisor	Helena Teede	
Administering Institution	Monash University	
Funding Period	Start Date:	1 January 2017
	Finish Date:	31 December 2017

PROJECT SUMMARY

The RACP Rowden White Travelling Fellowship provided stipend for me to continue my PhD and postdoctoral research and Endocrinology clinical work in 2017. I used this opportunity to travel overseas to gain international exposure to opportunities in my field.

This support allowed me to complete my PhD thesis and finish a number of manuscripts derived from my PhD over the first 6 months whilst living overseas. It also assisted with travel back to Australia to undertake my PhD confirmation and present by thesis. During this time I was able to attend international conferences and workshops where I presented my work, increasing the exposure of my research and that of my department. I also had the opportunity to network with experts in my field.

Following this, I undertook two voluntary medical observerships in New York City to further my clinical expertise in Endocrinology and Diabetes. My first observership was at Memorial Sloan Kettering Cancer Centre, sponsored by Professor R Michael Tuttle. This Endocrine Service is renowned for their pioneering work in Thyroid Cancer Surveillance and treatment of Advanced Thyroid Cancer. My second observership was at Mt Sinai Hospital, sponsored by the Mt Sinai School of Medicine. This is one of New York's most prominent and productive clinical Endocrinology Departments, also renowned for their basic science and translational research. Through these opportunities, I was able to expand my clinical knowledge and experience by taking part in multidisciplinary meetings, grand rounds and clinics in their Endocrine Units. I attended their basic and clinical research meetings where I heard about molecular studies in diabetes pathogenesis and cutting-edge international clinical trials led by the research teams. I was able to develop my teaching skills by working with the Endocrine Fellows across their rotations. This ensured a breadth of exposures and expertises preparing me for return to my clinical practice in Australia.

PROJECT AIMS / OBJECTIVES

Research:

I completed and further progressed a number of projects, with resulting publications that are either published or in submission (see output):

1. Observational research examining glycaemic control, mode of insulin delivery and pregnancy outcomes in type 1 diabetes in pregnancy.
2. Exploring optimal treatment targets in gestational diabetes and how these related to maternal, obstetric and neonatal outcomes
3. Mechanistic studies looking at biomarkers predicting onset of gestational diabetes in high risk women and implementation of these biomarkers into clinical risk prediction tools
4. Research collaboration examining optimal gestational weight gain in relation to maternal and neonatal outcomes

Clinical:

To further my learnings and experience in endocrinology

1. Taking part in clinical activities in international multidisciplinary referral centres renowned for their work in diabetes and endocrinology

SIGNIFICANCE AND OUTCOMES

Significance and outcomes of my research:

- Advanced the field of screening, prediction, diagnosis and management of GDM
- Expertise and content knowledge on the impact of obesity, ethnicity and glycaemia on adverse pregnancy outcomes in diabetes in pregnancy
- Expertise in maternal and fetal outcomes based research in GDM
- Expertise in critical appraisal of literature, epidemiology and biostatistics, and proficiency in the management of big datasets
- Engaged in translation of work through presentations, publications, protocol development and practice change.

Significance and outcomes of my clinical work:

- Developed clinical expertise in thyroid cancer diagnosis, surveillance and management
- Exposure to latest technologies and therapeutics in diabetes in pregnancy that are not yet available in Australia
- Exposure to basic, clinical and translational research methodology and development at internationally renowned centre.
- Networking with leaders in fields of diabetes and endocrinology

PUBLICATIONS / PRESENTATIONS

Submitted publications

- **Abell SK**, Boyle JA, England P, Nankervis A, Ranasinha S, Soldatos G, Wallace EM, Zoungas S, Teede HJ. Gestational diabetes mellitus and adverse pregnancy outcomes: impact of different glycaemic treatment targets. *Under submission.*

- **Abell SK**, Shorakae S, Boyle JA, Stepto N, Teede HJ, Harrison CL. Role of serum biomarkers to optimise a validated clinical risk prediction tool for Gestational Diabetes. *Under review Aust NZ J Obstet Gynaecol*.
- Goldstein R, **Abell SK**, Misso M, Ranasinha S, Boyle J, Black MH, et al. Gestational weight gain across continents and ethnicity - Systematic review and meta-analysis of maternal and infant outcomes in over one million women. *Under submission*.

Published

- Shorakae S, **Abell SK**, Hiam DS, Lambert EA, Jona E, Sari C, et al. High-molecular-weight adiponectin is inversely associated with sympathetic activity in polycystic ovarian syndrome. *Fertil Steril* 2018. Doi: 10.1016/j.fertnstert.2017.11.020 [Epub ahead of print]
- **Abell SK**, Shorakae S, Harrison C, Hiam D, Moreno-Asso A, Stepto N, De Courten B, Teede HJ. The association between dysregulated adipocytokines in early pregnancy and development of gestational diabetes. *Diabetes Metabolism Research and Reviews*. 2017 Aug. doi: 10.1002/dmrr.2926 [Epub ahead of print]
- Goldstein R, **Abell SK**, Misso M, Ranasinha S, Boyle J, Black MH, et al. Gestational weight gain outside Institute of Medicine guidelines: Systematic review and meta-analysis of maternal and infant outcomes in over one million women. *JAMA*. 2017;317(21):2207-25.
- Mousa A, **Abell SK**, Shorakae S, Harrison CL, Stepto NK, Teede HJ, et al. Relationship between vitamin D and gestational diabetes in overweight or obese pregnancy women may be mediated by adiponectin. *Mol Nutr Food Res*. 2017. July 25. doi: 10.1002/mnfr.201700488. [Epub ahead of print].
- Naderpoor N, Shorakae S, **Abell SK**, Mousa A, Moran L, Stepto N, et al. Bioavailable and free 25-hydroxyvitamin D and vitamin D binding protein in PCOS: relationships with markers of obesity and insulin resistance. *J Steroid Biochem Molecular Biology*. 2017 July 19. doi: 10.1016/j.jsbmb.2017.07.012. [Epub ahead of print].
- **Abell SK**, Teede HJ. The IADPSG diagnostic criteria identify women with increased risk of adverse pregnancy outcomes. *Aust NZ J Obstet Gynaecol*. 2017. July 25. doi: 10.1111/ajo.12676. [Epub ahead of print]
- **Abell SK**, Boyle JA, Soldatos G, Pease A, Suen M, Zoungas S, Teede HJ. Pregnancy outcomes and insulin requirements in women with type 1 diabetes treated with continuous subcutaneous insulin infusion compared to multiple daily injections. *Diabetes Technol Ther*. 2017;19(5):280-287.