

Developing clinical decision support tools for medication prescribing using contemporary linked electronic health records

WELLBEING AND PREVENTABLE CHRONIC DISEASES

PhD

An exciting PhD opportunity exists within a multidisciplinary team of researchers in the Renal Research Program at Menzies, Darwin.

Approximately half of the population of Australia have at least one chronic health condition, which disproportionately affects First Nations peoples. The Northern Territory has one of the highest burdens of chronic conditions including diabetes, cardiovascular and kidney disease in Australia. Primary care services in remote NT communities are faced with an immense burden of chronic condition management and care provision is often fragmented across multiple clinical specialties. Coordinated care is made difficult by the disjointed and siloed nature of health services in the NT and the lack of a readily accessible and comprehensive shared electronic health record. This presents a major clinical safety risk for patients that attend multiple health services and have complex care needs.

We have developed a novel, bespoke and innovative electronic health record that integrates patient level data from six hospitals, 56 government primary health care services and 11 Aboriginal community controlled primary health services in the NT. It provides the largest database of comprehensive and consolidated primary and tertiary health data in the NT.

We are seeking an outstanding doctoral candidate with a strong interest in programming and generative AI (ML including large language models and neural networks). The project aims to use the clinical components of observations (weight, BP, etc); code data (ICPC, ICD), results (pathology and investigations) and prescription data along with demographic information to develop guideline based medication prescribing clinical decision support. The tool will be integrated with TKC and add to other clinical decision support tools within TKC.

The successful applicant will be eligible to undertake a Doctor of Philosophy based in Darwin and work within the Renal Research Program under the guidance of A/Prof Asanga Abeyaratne, a Clinical Informatics and Digital Health Fellow and A/Prof Gillian Gorham, Head of Renal Health Program. The successful candidate will work within a large multidisciplinary team of programmers, clinicians and qualitative and quantitative researchers. Opportunities to work on other projects within Menzies are high.

Eligibility Criteria and Scholarship Provisions

Eligibility: The successful applicant will meet the eligibility criteria for admission to a Doctor of Philosophy degree.

Scholarship Provisions: The candidate will be encouraged to seek scholarship funding through Charles Darwin University Research Training Program Scholarship Scheme.

Successful candidate who is a recipient of a primary scholarship such as RTP may be eligible for a Menzies top-up scholarship to the value of \$10,000 per annum for the duration of primary scholarship.

For more information on Primary Scholarships:

<https://www.cdu.edu.au/research-and-innovation/higher-degree-research/scholarships>

Prospective students will be encouraged to apply for other prestigious postgraduate scholarships.

Application Process:

Applicants should submit the following:

- Brief summary of why they want to complete the project
- Current CV
- Copies of certified academic transcripts

Applicants who identify as Aboriginal and/or Torres Strait Islander are strongly encouraged to apply.

All applications should be submitted to A/Prof Oyelola Adegboye (oyelola.adegboye@menzies.edu.au)