

# Developing a Risk Stratification Model for Physical Decline During Chemotherapy

## UQ Summer Research Program 2027 Project Description

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| Project duration:                   | This research project is suitable for an honours or masters degree student and is <b>6 weeks in duration</b> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Hours of engagement & delivery mode | Between <b>20 – 36hrs per week</b> and must fall within the official UQ Summer Research Program Dates: <b>11<sup>th</sup> January – 19 February 2027</b><br>Located <b>onsite at MRI-UQ Aubigny Place, South Brisbane</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Description:                        | <p>The <b>Physical Activity during Chemotherapy to Enhance Recovery (PACER)</b> project aims to identify patients at risk of physical decline during chemotherapy and enable earlier, targeted exercise and physiotherapy support.</p> <p>Data have already been collected from patients undergoing chemotherapy, including measures of <b>physical function, skeletal muscle mass, patient-reported function and self-efficacy</b>, with repeat assessments throughout treatment.</p> <p>This student project will focus on <b>analysis of the existing PACER dataset</b> to investigate whether baseline physical assessments and measures of self-efficacy can predict subsequent physical deterioration during chemotherapy. The student will assist with data preparation, statistical analysis and interpretation, exploring the individual and combined predictive value of these measures.</p> <p>The aim is to determine whether a practical <b>risk stratification model</b> can be developed to identify patients who are more likely to experience physical decline during chemotherapy. Such a model could support more personalised care by identifying patients requiring early physiotherapy or exercise intervention while allowing lower-risk patients to be supported through education and self-management.</p> |
| Expected outcomes and deliverables: | Applicants will gain practical experience in the <b>analysis and interpretation of a clinical dataset</b> (approximately 300 patients and 1,000 data points) and develop skills in applying statistical methods to a real-world healthcare problem. They will have the opportunity to explore the development of a <b>risk stratification model to predict physical decline during chemotherapy</b> , including examining the relationship between exercise participation, physical function, body composition and self-efficacy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

The successful applicant will work as part of a **supportive and experienced clinical research team** and contribute to clinically embedded research with the potential to improve early identification and supportive care for people undergoing cancer treatment.

### Expected project outputs

The applicant will be expected to:

- Describe the demographic and clinical characteristics of the PACER cohort.
- Analyse whether patients were **meeting recommended exercise guidelines prior to their cancer diagnosis and during chemotherapy treatment**; and explore changes in exercise participation over the course of treatment.
- Analyse changes in physical function and body composition during chemotherapy.
- Determine whether baseline measures are predictive of physical decline during treatment, including:
  - Age
  - Chemotherapy pathway/regimen
  - Diabetes status
  - SARC-F sarcopenia screening questionnaire
  - Five Times Sit-to-Stand functional performance
  - Skeletal muscle mass and fat mass measured using bioimpedance
  - Self-efficacy measures
  - Exercise participation and whether exercise guidelines are being met
- Explore the relative and combined predictive value of these variables.
- Assist in developing a **clinically meaningful risk stratification model** to identify patients at increased risk of physical decline during chemotherapy.
- Contribute to interpretation and presentation of the findings, with potential opportunities to contribute to **conference presentations and/or publication** arising from the project.

Suitable for:

We are looking for an enthusiastic and motivated student with strong **organisational, communication and problem-solving skills**. The successful applicant should be reliable, hardworking and able to work both independently and collaboratively within a supportive multidisciplinary research team. They will understand the need for data security and patient confidentiality.

Skills in **data analysis, and interest in clinical research** is essential. Previous experience with statistical analysis especially GLM is required for analysing and interpreting clinical data.

An interest in **cancer care, exercise, rehabilitation or improving patient outcomes** would also be highly valued. We are particularly looking for someone who is curious, willing to ask questions, attentive to detail and enthusiastic about translating data into findings that have meaningful clinical application.

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| Primary Supervisor: | Dr Liisa Laakso                                                                                                                                        |
| Further info:       | If you would like further information, please email Liisa Laakso.<br>e: <a href="mailto:liisa.laakso@mater.uq.edu.au">liisa.laakso@mater.uq.edu.au</a> |