

## 2015/2016 Summer Studentship Project Application Form

Send to: Research Office, University of Otago Christchurch, PO Box 4345, Christchurch, by 5pm on **3 July 2015**

### Supervisor Information (First named supervisor will be the contact):

Supervisor's Name and Title(s): Melissa James

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Institution: UOC or CDHB

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### Research Category (Choose one category only – to be used for judging the students' presentations):

**Clinical X**

**Laboratory**

**Community**

### Project Title (20 words MAXIMUM):

**Cardiac Toxicity in patients treated with hypofractionated radiation treatment for breast cancer in Christchurch.**

Project Description:

### Introduction:

There is substantial high quality evidence from randomised controlled trials and systematic reviews that radiation given in larger fraction sizes with fewer fraction numbers (hypofractionated radiation treatment-HFRT) is as effective and safe as radiation treatment given in traditional fractionation schedules using 2 G per fraction (Conventionally fractionated radiation treatment-CFRT) after breast conservation surgery in early breast cancer. We have also published results from a retrospective study, that that HFRT has similar efficacy and safety compared with CFRT when given following a mastectomy. Despite the quantity of evidence supporting the efficacy of HFRT, there is little information regarding the late toxicity to other vital organs. There is a lag time of approximately 10 years before these late complications develop requiring very long follow-up periods to elicit this information beyond the normal follow-up periods of clinical trials. Reviews have indicated that overall survival benefits associated with radiation treatment in breast cancer may be negated by resultant cardiac toxicity. There are concerns that HFRT may result in increased toxicity to the heart when compared to CFRT. We have a database of 400 patients who have been treated in our department between 2003-2008 with HFRT. We have previously reported on the cancer outcomes for these patients and now sufficient time has elapsed to assess cardiac status and compare with those patients treated with CFRT during a similar period.

### Aim:

To elicit the incidence of cardiac disease in patients treated with HFRT between 2003-2008 in Christchurch hospital and compare this with a similar cohort of patients treated with CFRT.

### Method:

The comparison cohort of left sided breast cancer patients treated with CFRT and resident in Canterbury will be identified from the oncology database. Basic demographic, tumour, survival and treatment information will be recorded for each of these patients. The HFRT database will be updated for current survival information and limited to only those patients resident in Christchurch and who have left sided breast cancer. A list of patients will be provided to the cardiology department and their database will be searched to identify patients who have had a coronary angiogram in either the public or the private cardiology units in Christchurch. This part of the project will be overseen by Dr David Smythe. Other cardiac information will be sought from searching Echocardiogram databases, Health connect south/ Éclair databases and a search of hospital codes for admissions/ episodes of care relevant to cardiac morbidity. Mortality incidence ratios, HFRT vs CFRT for acute myocardial infarction and incidence ratios for non fatal acute myocardial infarction, angina, pericarditis, valvular heart disease and cardiomyopathy will be calculated.

### Student Prerequisites (eg. Medical Student) if applicable:

None