

## 2014/2015 Summer Studentship Project Application Form

Send to: Research Office, University of Otago Christchurch, PO Box 4345, Christchurch, by 5pm on **4 July 2014**

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

Supervisor's Name(s): Carl Hanger, Tim Wilkinson

Department: Older Persons Health Specialist Service, CDHB

Institution: CDHB

Phone: 3377701

E-mail: carl.hanger@cdhb.health.nz

Mailing Address: OPHSS, Princess Margaret Hospital, PO Box 800, Christchurch

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

**Clinical X**

**Laboratory**

**Community**

Project Title (20 words MAXIMUM):

**Ease of walking on low impact flooring**

Project Description:

Falls in hospital are common. Between 35-42% of falls cause injuries and 1 – 3% result in a fracture. These fractures are usually hip or pelvis fractures which threaten life and/or independence. Whilst there are some effective fall prevention strategies for falls in hospitals, fall rates and fall related injuries remain high. It is generally not possible to predict which falls or patients will have injurious falls. One approach is to tackle the whole population at risk by using energy absorbing or low impact flooring (LIF) to prevent injury.

A trial to investigate the practical aspects LIF has been completed and another is ongoing investigating falls and fall related injuries. For both, 3 different LIFs have been laid in one ward at PMH (total of 12 bed spaces) whilst 8 bed spaces have standard vinyl flooring (SF). During the trial, staff noted that 1 Parkinson's patient appeared to have more gait initiation difficulties on the LIF. Other patients were thought to have "sticky feet" on LIF. Softer surfaces (includes LIF), can potentially worsen gait in patients with existing poor balance (eg Parkinson's and stroke patients), and so the aim of this exploratory study is to examine gait characteristics on LIFs compared to SF in different patient diagnostic groups.

Current inpatients from any of 5 PMH inpatient wards will be recruited aiming to select a convenience sample that includes:

- Parkinson's patients (N=20)
- Stroke patients with either motor deficits such as hemiplegia with foot drop, poor foot clearance or proprioceptive loss (N= 15-20)
- Control group-non stroke and non-Parkinson's (N=20)

The outcome measures will be patient mobility, recorded by observation, looking for gait initiation, speed, turning and any tendency to trip during 3 metre Timed Up and Go [TUG], with 2 tests for each patient on each of Floors B and C (the 2 most preferred LIFs) and SF (control). Each TUG test will be video-recorded, thus allowing blinded (to floor type) outcome assessments. The order of allocation to each floor type will be randomised.

Comparisons will be made by patient group, adjusting for severity of disability, and by floor type.

Potential significance: The softer surface of LIFs could potentially alter gait pattern and thus increase (or decrease) tendency to fall. The effect of LIFs on gait changes, and fall injury rates, are both important to guide decisions as to whether LIFs are suitable for in a hospital environment.

