



Below is a list of projects available for Gillette's Summer Research Internship in 2019. The program will start with orientation in June and end with poster presentations in early to mid-August (dates to be determined).

Carefully review the available projects. Pay special attention to minimum requirements, which are outlined for each project. Tailor your statement of interest to highlight which project(s) is/are of most interest to you and how you are qualified to make a meaningful contribution to the project. As part of the online application process, you will need to rank your project preferences. Efforts will be made to accommodate your choices.

I. PAIN COPING IN CHILDREN WITH CEREBRAL PALSY UNDERGOING ORTHOPEDIC SURGERY

Research area: Pain & Comfort

Mentor: Chantel Barney, PhD

Number of students accepted: 1 student

Requirements: Intern can be an undergraduate or graduate student, and must be able to commit to 20-40 hours per week

Description: Pain coping is an individual's ability to complete activities of daily living when experiencing pain. As part of an institutional initiative to improve chronic pain measurement, a pain coping assessment has been initiated to supplement current pain assessment practices for patients undergoing orthopedic surgery. Gillette is working on a study to determine whether patients' pain coping scores collected before surgery are useful for predicting healthcare needs after surgery. For example, we are interested to find out whether a patient who is identified to have poor pain coping skills tends to stay in the hospital longer or requires more pain medications. Intern tasks for this project will include assisting with data collection from patient charts. The long term goal of this project is to provide focused healthcare to patients based on their individual pain coping needs.

II. VIRTUAL REALITY AS A PAIN AND ANXIETY MANAGEMENT STRATEGY FOR PATIENTS WITH AND WITHOUT DEVELOPMENTAL DISABILITIES

Research Areas: Pain, Outcomes

Mentor: Chantel Barney, PhD and Andrew Georgiadis, MD

Number of students accepted: 2-3 students

Requirements: Intern can be an undergraduate or graduate student and able to commit 20-40 hours per week.

Description: Virtual reality (VR) is a new technology being used at Gillette to improve patient experience during medical events. VR provides a very engaging form of distraction that may reduce pain and anxiety for some patients. We are measuring the effect of VR in various medical contexts using randomized controlled trials of VR compared to standard of care. Intern tasks will include collecting data, assisting with project implementation and training clinical staff. The long term goal is to better understand how useful VR is for reducing pain, anxiety, and medication use for patients at Gillette.

III. PHYSICAL THERAPY OUTCOMES PRE AND POST ROBOTIC ASSISTED LOCOMOTOR TRAINING USING THE LOKOMAT AT GILLETTE'S ST. PAUL REHABILITATION THERAPIES LOCATION

Research Area: Rehabilitation Therapy, Outcomes

Mentor: Amy Schulz, PT and Candice Johnson, OT

Number of students accepted: 1 student

Requirements: Intern can be an undergraduate or graduate student and able to commit 20-40 hours per week.

Description: Physical therapists have been gathering data pre and post robotic assisted locomotor training using the Lokomat for our population of patients with cerebral palsy. We are seeking an intern to complete a retrospective analysis of the data and work together with our therapists and research team to analyze trends. The intern will be looking at factors such as: age, Gross Motor Function Classification System level, and/or Gross Motor Function Measure scores, as well as assessments related to the patient's strength, gait, balance, and functional outcomes. Dosing and training variability may also be analyzed to assist with increased consistency in standard of care. Based on the needs of the department at the time of internship an additional smaller project may be added if appropriate to intern and department goals.

IV. CHANGES IN INTRATHECAL BACLOFEN PUMP DOSING AFTER SPINAL FUSION

Area: Musculoskeletal

Mentors: Walter Truong, MD

Number of students accepted: 1 student

Requirements: Intern can be an undergraduate, graduate student, or medical student and able to commit 20-40 hours per week.

Description: Intrathecal baclofen (ITB) is a known, targeted muscle relaxant that can be used to treat spasticity in diseases such as cerebral palsy, Friedreich ataxia, and other diseases that may lead to neuromuscular scoliosis (NMS). Treatment is focused on improving range of motion, facilitating movement, reducing the risk of contracture development, decreasing pain and, most importantly, improving quality of life. A protocol has been developed for initiating therapy and building to a therapeutic dose, but dosing varies significantly based on the intended effect and adverse effects of treatment. ITB dosing is complicated further by a lack of correlation of clinical efficacy to either body weight or blood baclofen levels. Anecdotally, ITB dosages change significantly after spinal fusion surgery for NMS with cases of both withdrawal and overdose symptoms. There is a lack of guidance on how patients should be monitored and how dosing is expected to change after such a surgery, representing a need for research in this area. This study aims at investigating the prevalence of pediatric neuromuscular scoliosis patients that require changes in intrathecal baclofen dosing after spinal fusion surgery, the magnitude of dosing changes, and complications observed with using ITB after spinal fusion.

V. GILLETTE INTRATHECAL BACLOFEN PUMP REGISTRY COMPILATION AND ANALYSIS

Area: Neuroscience

Mentor: Angela Sinner, MD

Number of students accepted: 1-2 students

Requirements: Intern(s) can be an undergraduate or graduate student and able to commit 20-40 hours per week.

Description: Gillette has been implanting intrathecal baclofen pumps to treat spasticity and dystonia for many years, and has one of the largest populations of patients with intrathecal baclofen pumps. The aim of this study is to characterize complications in this population at our institution. This involves a need to collect and compile relevant data into a database, and to collaborate in analyzing outcomes. This is a retrospective chart review of patients who have allowed their records to be used for research. We are seeking 1-2 summer interns to assist in compiling data from medical records and entering into an online REDCap database for defined years, and collaboratively compare and analyze the compiled data to identify changes in practice or outcomes. In addition, the interns will become familiar with the use of intrathecal baclofen pumps for the treatment of spasticity.