

**Welcome to the CanWheel Quarterly!  
A place to find out what is going on in the CanWheel world.**

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**TEAM UPDATE**

Welcome to our new Vancouver Research Assistant – Jennifer Zelmer! Jenn graduated with a degree in Anthropology from UBC and is looking to spread her research wings. She will be involved in the P2 project as well as assisting with OpenClinica and website maintenance for our team. Welcome Jenn ☺



**2014 CANWHEEL ANNUAL TEAM MEETING**

This year’s CanWheel Annual Team Meeting is fast approaching! It has been scheduled for the morning of **Thursday, June 12<sup>th</sup>, 2014** in Indianapolis. As part of the RESNA 2014, we will be hosting an open audience pre-conference session on the 12<sup>th</sup> at 1:30pm-4:30pm. All registered RESNA attendances are welcome to attend! Check out more details [here](#) or below in “Conference Corner”!

**PROJECT UPDATES**

**P1-P3**

The Wizard of Oz (WoO) study is moving along great! Pooja Viswanathan and an extensive team of research assistants finished data collection using our intelligent wheelchair with 10 participants (long-term care residents with mild cognitive impairment) at the end of 2013 and are currently analysing the data. Alex Mihailidis, at our Toronto site, will have a new trainee starting in June who will then continue on as an MSc student in September. Ian Mitchell also has two new students who will be joining his team in Vancouver. Bikram Adhikari has started a WoO sub-study of further examining the back-in parking module for his thesis. As well, our abstract based off of the WoO qualitative interviews, authored by Ben Mortenson, Paula Rushton, Pooja Viswanathan, Laura Hurd Clarke and Rosalie Wang, has been accepted as a poster at RESNA 2014! Thank you to everyone for the dedication and effort you have put into this study!

**P2**

The data collection is nearly finished! All sites have completed sessions up to the one year mark, while Vancouver, which is testing over two years, has finished all 1.5 year time points with the 2 year mark data collection finishing up in mid-October 2014. In total we have collected data from 129 wheelchair users and 34 caregivers in this longitudinal study. Currently, measurement properties papers are in progress and a brief report looking at one measure, the Wheelchair Skills Test Questionnaire Version, was submitted to Archives. A RESNA workshop looking at the clinical application of a Power Mobility Outcome Toolkit has been accepted, and the team is currently working on several other publications.

#### **P4**

Team members are currently preparing two manuscripts based on information gleaned from a scoping review of data-logger use literature in manual wheelchairs and power wheelchairs. A data-logger is a collection of sensors and storage system, which can be attached to a wheelchair and can record a variety of aspects of wheelchair behavior (e.g., how fast or far the wheelchair goes over the course of several days). The next step is to develop a series of surveys, informed by the scoping review, to gain the perspectives and feedback of consumers, clinicians and researchers interested in data-logger use.

#### **P5**

Our team sites across Canada are making great progress on data collection! Our recruitment target is 104 participants, which we have exceeded with 110 participants enrolled! Currently team members from our Vancouver and Quebec sites are working on collecting additional data for a satisfaction survey which is moving along well. Once data collection is complete, the team plans to start preparing publications in the fall and be ready to present the main findings at RESNA 2015.

#### **KUDOS**

A huge amount of applause are in order for several of our team members!

- Drs. Paula Rushton, Ben Mortenson, Claudine Auger and Laura Titus are all now official co-investigators on the team grant.
- Dr. Rosalie Wang has accepted an Assistant Professor position in the Department of Occupational Science and Occupational Therapy at the University of Toronto.
- Dr. Junaed Sattar has accepted an Assistant Professor position in the Department of Computer Science at Clarkson University.
- Jennifer Querques (Vancouver RA) has been accepted into the UBC Master's of Occupational Therapy program starting September 2014.

Congratulations everybody! Way to go!! ☺

#### **CANWHEEL WEBSITE**

Look out for some upcoming changes to our website including:

- Uploaded "Fast Facts" on the measures used in our Power Mobility Outcome ToolKit
- Updated team profiles
- Updated access to publications and presentations – including an [article](#) on CanWheel in the spring edition of Rehab & Community Care magazine
- "Sneak peek" videos of our collaboratively controlled wheelchair

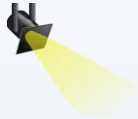
#### **CANWHEEL FACEBOOK PAGE**



CanWheel is getting social! Please "Like" our Facebook page here:  
<https://www.facebook.com/canwheel>

<http://www.canwheel.ca>

## TRAINEE SPOTLIGHT



**Megan MacGillivray** (PhD Student, Rehabilitation Sciences, UBC)



***Tell me a bit about the research you will be working on.***

My thesis research focuses on applying motor learning principles to training older adults, with no prior wheeling experience, how to optimally propel a wheelchair in terms of biomechanical and metabolic efficiency. The 3-arm RCT will compare the motor learning-based skill training (intervention) to general 'practice' with no feedback (time-matched active control) as well as a group that receives no practice or training (general control). We will examine how variables related to biomechanical and metabolic efficiency change with this training.

As a side project, I am currently analyzing data to determine what demographic variables are predictive of wheelchair users' average 'bouts' of wheelchair propulsion. By better understanding patterns in how people use their wheelchair for mobility, we can better target training for specific demographics and potentially in the future use these 'patterns' as outcome measures to indicate behavioural changes.

***What would you say are the implications of this research?***

My thesis research will provide information about how older adults learn the motor skill of wheelchair propulsion. It seems (and research has shown) that some people will naturally 'get' how to propel a wheelchair efficiently, while some people will not become efficient on their own. Very little propulsion research has specifically focused on older adults who comprise the largest cohort of manual wheelchair users.

***What got you into this line of research?***

I'm really not too sure. Google I suppose... I wanted to do my MSc in biomechanics focusing on mobility in people with physical disabilities. Back in my undergrad searches, this search took me to Bonnie Sawatzky's research and website. I eventually made my way to the west coast to pursue my MSc and now my PhD.

***Is there anything else you'd like to say about your research?***

It is fun! My research is often very heavy in the data analysis side so my role in P5 (as a trainer) has been more directly rewarding than the other types of studies that I have conducted so far.

***Tell me a "fun fact" about you!***

I'm getting married this summer in my hometown of Antigonish under a tree in my parents' backyard ☺





## CONFERENCE CORNER



The Rehabilitation Engineering & Assistive Technology Society of North America (RESNA) is holding its annual conference in Indianapolis, IN this summer. Join your colleagues at

the only conference that welcomes every aspect of assistive technology. This international, multi-disciplinary gathering includes insightful instructional courses, exciting plenary speakers, 40+ practical workshops, cutting-edge research platform and poster sessions, and unparalleled networking that will ignite your AT passion and put your career on the fast track.

### RESNA 2014 Annual Conference **Racing towards excellence in AT!**

June 11-15, 2014  
JW Marriot Indianapolis  
Indianapolis, IN

- CanWheel is hosting a pre-conference session this year!

#### Pre-Conference Session: June 12 @ 1:30pm-4:30pm

- One workshop has been accepted for P2
  - *Rushton PW, Kirby L, Smith C, Auger C, Demers L Application of a Power Wheelchair Outcomes Toolkit (June 13<sup>th</sup> at 10:30am)*
- One paper and one poster have been accepted for P1-P3
  - *Dewancker I, Mitchell I Mobisense: Lifespace Tracking and Activity Monitoring on Mobile Phones (June 15<sup>th</sup> at 7:30am)*
  - *Rushton PW, Mortenson B, Viswanathan P, Wang RH, Hurd Clarke L – Intelligent Power Wheelchairs for Residents in Long-term Care facilities: Potential Users' Experiences and Perceptions*

### ACC 2014

June 4 – 6 2014  
Portland, Oregon

- Members of the P3 will be presenting:
  - *Mitchell IM, Viswanathan P, Adhikari B, Rothfels E, Mackworth AK - Shared Control Policies for Safe Wheelchair Navigation of Elderly Adults with Cognitive and Mobility Impairments: Designing a Wizard of Oz Study (I) (June 6<sup>th</sup> at 10:20am)*



## **Happy Spring from the CanWheel Research Team!**

Please contact Kate Keetch ([kate.keetch@vch.ca](mailto:kate.keetch@vch.ca)) with comments, questions or Kudos for the next newsletter.

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