

**10<sup>th</sup>**  
Annual

# Showcase of Health Research

2015

Friday, February 6, 2015  
8:30 am to 1:30 pm

Best Western Plus Nor'Wester Hotel  
and Conference Centre  
Highway 61, Thunder Bay, ON

*Making a Difference!*

For more information, please contact

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ST. JOSEPH'S CARE GROUP

Showcase of  
Health Research



*2015 Making a Difference!*



Since 2006 the Research Department at St. Joseph's Care Group has hosted what has become the premier annual venue for the dissemination of research relevant to the health of Northwestern Ontarians.

The Research Department is pleased to host "Making a Difference: 2015 Showcase of Health Research".

This event is made possible through the generous support of the Leadership Team at St. Joseph's Care Group.

## 2015 Schedule of Events

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|----------|--|----------|--|
| 8:30 am  | <b>Registration and Poster Set up</b> - Kaministiquia Room   | 10:35 am | <b>Poster Presentations and Nutritional Break</b> - McGillivray Room   |
| 9:00 am  | <b>Welcome and Opening Remarks</b><br><i>Michel Bédard</i> , Scientific Director, St. Joseph's Care Group<br><i>Tracy Buckler</i> , President & Chief Executive Officer,<br>St. Joseph's Care Group  | 11:05 am | <b>Neurorehabilitation of the hand post stroke using a robotic device</b><br><i>V Johnson</i> , H Kazemi, T Milner - Lakehead University, McGill University  |
| 9:15 am  | <b>A pilot evaluation of the new same day counselling service offered through St. Joseph's Care Group Mental Health Outpatient Programs</b><br><i>A Mushquash</i> , K Bailey, J Haggarty, S Dama, M Young, S McFadyen, V Ewen, C Mushquash - St. Joseph's Care Group, Northern Ontario School of Medicine, Lakehead University | 11:25 am | <b>Fatal-crashes involving cyclists (1985-2009): Crash- cyclist, and driver-related factors associated with crash responsibility</b><br><i>E Sawula</i> , S Dubois, B Weaver, M Bédard - Lakehead University, St. Joseph's Care Group  |
| 9:35 am  | <b>NorthB.E.A.T.: Exploring the needs of youth experiencing early psychosis in Northern Ontario</b><br><i>C Cheng</i> , S Nadin, M Katt, C Lem, T Bedard, C S Dewa, B Minore - St. Joseph's Care Group, Lakehead University, North Bay Regional Health Centre, Centre for Addiction and Mental Health                          | 11:45 am | <b>fMRI analysis of the involvement of the mirror neuron system in video observation</b><br><i>S Parker</i> , A Pepe, J Lawrence-Dewar - Thunder Bay Regional Research Institute, Lakehead University                                  |
| 9:55 am  | <b>Decision-making ability in adolescents: Relationship to eating behaviour and body mass index</b><br><i>R Macchi</i> , C Davis - Lakehead University, York University  | 12:05 pm | <b>Prognostic factors following mild traumatic brain injury in older adults</b><br><i>V Kristman</i> , R Brison, M Bédard, P Reguly, S Chisholm - Lakehead University, Queen's University, Thunder Bay Regional Health Sciences Centre |
| 10:15 am | <b>Maternal substance use and Neonatal Abstinence Syndrome: A descriptive study</b><br><i>L Desaulniers</i> , K A McQueen, J Murphy - Northwestern Health Unit, Lakehead University, Thunder Bay District Health Unit  | 12:25 pm | <b>Poster Presentations and Lunch</b> - McGillivray Room   |

## Poster Presentations

- 1 Perspectives of insight and decision-making in dementia**  
*M Haggarty, E Wiersma - Lakehead University*
- 2 Comparison of outcome measures for studying mild traumatic brain injury prognosis in older adults**  
*V Kristman, R Brison, M Bédard, P Reguly, S Chisholm - Lakehead University, Queen's University, Thunder Bay Regional Health Sciences Centre*
- 3 Neural correlates underlying visuomotor adaptation using a dynamic point-to-point task: An fMRI study**  
*A Hantjris, A Pepe, J Lawrence-Dewar - Thunder Bay Regional Research Institute, Lakehead University*
- 4 Decline in visuomotor adaptation behaviour in healthy aging during a dynamic target task**  
*A Hantjris, A Pepe, J Lawrence-Dewar - Thunder Bay Regional Research Institute, Lakehead University*
- 5 Evaluating the implementation of accountability indicators for delirium on Extensive Services**  
*M Tran, G O'Quinn, S Franchi - St. Joseph's Care Group*
- 6 Nutrition risk prevalence in a Northwestern Ontario hospital**  
*J Stachiw, M Tamasi, J Skube, M Hartviksen - Thunder Bay Regional Health Sciences Centre, St. Joseph's Care Group*
- 7 Patient satisfaction associated with psychiatric group medical visits**  
*E Portt, G Tippin, A Maranzan, L Hutchinson, D Dutka - Lakehead University, St. Joseph's Care Group*
- 8 Identifying areas of focus for mental health promotion in children and youth for Ontario public health**  
*J Murphy, M Pavkovic - Thunder Bay District Health Unit, Hamilton Public Health Services*
- 9 Mediators of treatment outcome for a community-based group Triple P Parenting Program**  
*C Marchese, K Mularczyk, C Gaspar, J Feldstein, F Schmidt - Children's Centre Thunder Bay*
- 10 Treatment effectiveness and service delivery utilization for young children receiving services at Children's Centre Thunder Bay**  
*C Gaspar, C Marchese, K Mularczyk, J Feldstein, F Schmidt - Children's Centre Thunder Bay*
- 11 Concordance rates of two approaches for measuring individual client change**  
*S Chomycz, F Schmidt - Lakehead University, Children's Centre Thunder Bay*
- 12 Evaluating the Parent-Adolescent Communication Toolkit: Usability, measure assessment and preliminary content effectiveness**  
*E Toombs, A Unruh - Lakehead University, Dalhousie University*
- 13 The importance of program evaluation in community-based interventions: The case of Go Girls!**  
*T Alani, M Hillcoat - Lakehead University*
- 14 Healing the whole self: An approach to developing a culturally competent evidence-informed group therapy**  
*T Alani, M Stroink - Lakehead University*
- 15 NorthB.E.A.T.: Examining care pathways to reveal barriers to early assessment and treatment for youth in Northern Ontario who experience psychosis**  
*S Nadlin, C Lem, M Katt, P Braunberger, C Dewa, B Minore, C Cheng - St. Joseph's Care Group, Lakehead University, Centre for Addiction and Mental Health*
- 16 Eating in the city: A review of the literature on food insecurity and Indigenous people living in urban spaces**  
*K Skinner, E Pratley, K Burnett - Lakehead University*
- 17 Health and wellness in the community of Ignace**  
*C Marchese, D Caines, G Pronger, M Stroink, C Nelson - Lakehead University, Mary Berglund Community Health Centre*
- 18 Compass North Clinic: A student-led clinic in response to unmet community needs in urban Northern Ontario**  
*J Thorgrimson, D Haggarty, V Allen, E Pekka Leinonen - Northern Ontario School of Medicine*
- 19 Strengthening the rural dietetic workforce: Examining the impact of the Northern Ontario Dietetic Internship Program on recruitment and retention**  
*M E Hill, D Raftis, P Wakewich - Lakehead University, Northern Ontario School of Medicine*
- 20 Can students implement effective interprofessional education? The case study of the SimChallenge**  
*D Haggarty, M Haggarty, with D Dasey - Northern Ontario School of Medicine, Lakehead University*
- 21 Supervisors' autonomy, considerate leadership style and disability management policies and practices are associated with supervisors' likelihood to accommodate back-injured workers**  
*C McGuire, V L Kristman, W Shaw, K Williams-Whitt, P Reguly, S Soklaridis - Lakehead University, Liberty Mutual Research Institute for Safety, University of Lethbridge*

\*Presenter in **Blue**

- 22 Analysing clinical narratives using RapidMiner**  
*S Mohammed, J Flaïdhi – Lakehead University*
- 23 The effect of striker compliance on impacts to a Hybrid III headform and finite element analysis using a brain model**  
*T Hoshizaki, C Zerpa, A Post, S De Grau, T Hoshizaki, M Gilchrist – Lakehead University, University of Ottawa, University College Dublin*
- 24 The effect of multiple impacts on hockey helmet ability to prevent a concussion**  
*S Carlson, C Zerpa – Lakehead University*
- 25 The effects of knee taping techniques on lower extremity kinematics during running**  
*A Pelletier, P Sanzo, D Kivi – Lakehead University*
- 26 Passion and satisfaction with personal goals in recreational long-distance runners**  
*A Thorvaldson, J Farrell – Lakehead University*
- 27 Motivational factors influencing the adherence of male Ukrainian dancers to cultural dance**  
*E Wall, J Farrell – Lakehead University*
- 28 Examining the role of body mass index on injury severity in fatal crashes**  
*A Mushquash, S Dubois, B Weaver, M Bédard – St. Joseph's Care Group, Lakehead University*
- 29 A randomized trial of a comprehensive training program to enhance safe driving in older adults**  
*E Sawula, M M Porter, J Polgar, S Gagnon, S Dubois, B Weaver, M Bédard- Lakehead University, University of Manitoba, Western University, University of Ottawa, St. Joseph's Care Group, Northern Ontario School of Medicine*
- 30 An evaluation of screening tools to identify at-risk drivers**  
*N Smith, C Gibbons, R Middleton, J Clack, B Weaver, S Dubois, M Bédard – Lakehead University, St. Joseph's Care Group*

### A pilot evaluation of the new same day counselling service offered through St. Joseph's Care Group Mental Health Outpatient Programs

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|---|---|
| <ul style="list-style-type: none"> <li>❖ <b>Aislin Mushquash</b><br/><i>Mental Health Outpatient Programs, St. Joseph's Care Group</i></li> </ul> | <ul style="list-style-type: none"> <li>❖ <b>Murray Young</b><br/><i>Mental Health Outpatient Programs, St. Joseph's Care Group</i></li> </ul>     |
| <ul style="list-style-type: none"> <li>❖ <b>Kathleen Bailey</b><br/><i>Mental Health Outpatient Programs, St. Joseph's Care Group</i></li> </ul>  | <ul style="list-style-type: none"> <li>❖ <b>Shannon McFadyen</b><br/><i>Mental Health Outpatient Programs, St. Joseph's Care Group</i></li> </ul> |
| <ul style="list-style-type: none"> <li>❖ <b>Jack Haggarty</b><br/><i>Mental Health Outpatient Programs, St. Joseph's Care Group</i></li> </ul>    | <ul style="list-style-type: none"> <li>❖ <b>Victoria Ewen</b><br/><i>Department of Psychology, Lakehead University</i></li> </ul>                 |
| <ul style="list-style-type: none"> <li>❖ <b>Sumeet Dama</b><br/><i>Northern Ontario School of Medicine</i></li> </ul>                             | <ul style="list-style-type: none"> <li>❖ <b>Christopher Mushquash</b><br/><i>Department of Psychology, Lakehead University</i></li> </ul>         |

**Background/Objectives:** Rising demands for counselling has lead to lengthy wait times in community mental health settings. Delays in accessing treatment can contribute to deterioration of clients' conditions and increased reliance on acute care services. Same Day Counselling (SDC) is a new service that provides clients with access to counselling immediately, on the day(s) they need it. This evaluation aims to determine: (a) who accesses SDC; (b) whether SDC is helpful; and (c) whether SDC helps relieve pressure on the mental health system.

**Methods:** Clients waiting for counselling at St. Joseph's Care Group Mental Health Outpatient Programs were informed about the new SDC service. Clients who attended SDC were invited to evaluate the service by completing measures before and after their session. Following the sessions, counsellors also completed a brief checklist of session targets and interventions used.

**Results:** After 10 months, 51 clients had attended 156 SDC appointments. Clients presented with depression, anger, anxiety, somatic symptoms, sleep problems, repetitive thoughts and behaviours, and personality dysfunction. Self-rated disability was high. Analyses indicate that SDC is helpful in reducing the severity of presenting symptoms and associated disability and that clients are satisfied with the service. In addition, about half of clients who attended SDC elected to continue with SDC in lieu of waiting for traditional individual counselling.

**Conclusion:** SDC appears a useful mental health treatment strategy for adults presenting to a community mental health setting. Results also indicated that the program is highly valued by its users.

## Speaker #2

### NorthB.E.A.T.: Exploring the needs of youth experiencing early psychosis in Northern Ontario

- ❖ **Chiachen Cheng**  
*Research Department,  
St. Joseph's Care Group*
- ❖ **Shevaun Nadin**  
*Research Department,  
St. Joseph's Care Group*
- ❖ **Mae Katt**  
*Centre for Rural &  
Northern Health Research,  
Lakehead University*
- ❖ **Carole Lem**  
*Research Department,  
St. Joseph's Care Group*
- ❖ **Terry Bedard**  
*Regional Early Intervention in  
Psychosis, North Bay Regional  
Health Centre*
- ❖ **Carolyn S. Dewa**  
*Centre for Research on  
Employment and Workplace  
Health, Centre for Addiction  
and Mental Health*
- ❖ **Bruce Minore**  
*Centre for Rural and  
Northern Health Research,  
Lakehead University*

**Background/Objectives:** NorthB.E.A.T (Barriers to Early Assessment and Treatment) is a descriptive mixed-method project that examines the service needs of people with psychosis and its intersection with three marginalized populations: rural and remote residents, Aboriginal people, and youth. This presentation will focus on the results from narrative interviews from youth, their family care-givers, and early psychosis intervention service providers.

**Methods:** Qualitative interviews were conducted in both northern regions of Ontario. Participants were: youth  $\leq 18$  years old who have experienced psychosis, their family care-givers, and rural EPI service providers. Sampling was by snowball (service providers) and convenience (youth & caregivers) sampling techniques. Interviews were transcribed verbatim and coded for themes by two authors.

**Results:** Youth spoke about the need to be believed and to belong. Isolation themes were prominent; they were isolated living in rural areas, experiencing psychosis was very isolating, and accessing services was a very isolating process. Issues related to the determinants of health overshadowed any cultural influence on barriers to service needs. Both Aboriginal and non-Aboriginal participants experienced a mental health system that they found incomprehensible and difficult to navigate, despite level of prior contact or knowledge.

**Conclusion:** This qualitative research evidence provides insight into the mental health service needs of rural youth who experience first episode psychosis. This new evidence can be used to guide rural EPI program development and improve care pathways for northern youth.

## Speaker #3

### Decision-making ability in adolescents: Relationship to eating behaviour and body mass index

- ❖ **Rosemarie Macchi**  
*School of Kinesiology, Lakehead University*
- ❖ **Caroline Davis**  
*School of Kinesiology and Health Science, York University*

**Background/Objectives:** The percentage of overweight adolescents has tripled in the past 30 years, and today nearly 10% of Canadian adolescents are obese. Primary components of eating behaviour linked to obesity are poor food choice and excess consumption. Consuming large quantities of poor quality food and repeatedly choosing immediate gratification, when the long-term consequences of these actions are adverse, reflects deficits in good decision-making. The primary objective of this study was to test the prediction that poor decision-making would predict deleterious eating-related behaviours, which in turn would predict BMI percentile in the positive direction.

**Methods:** This study examined the associations among decision-making ability and measures of food choice, food choice motives, overeating, and body mass index (BMI) percentile in a sample of 311 healthy male and female adolescents, aged 14 to 18 years. Structural equation modelling was used to test the relationships among variables.

**Results:** Results indicated that the predicted model was a good fit to the data and all paths between latent and indicator variables were significant. Additionally, impulsive responding significantly predicted poor food choice ( $p < 0.001$ ) and overeating ( $p < 0.05$ ). Unexpectedly, no significant relationships emerged between the eating-related variables and BMI percentile.

**Conclusion:** This is the first study to investigate decision-making as a link to eating behaviour in adolescents. Findings from this study will extend the existing research in adults and offer a more comprehensive understanding of the factors that may contribute to eating behaviours and weight status in teenagers.

## Speaker #4

### Maternal substance use and Neonatal Abstinence Syndrome: A descriptive study

- **Lindsay Desaulniers**  
*Chronic Disease Prevention, Northwestern Health Unit*
- **Karen A. McQueen**  
*School of Nursing, Lakehead University*
- **Jodie Murphy**  
*Family and School Health, Health Promotion Division,  
Thunder Bay District Health Unit*

**Background/Objectives:** Neonatal Abstinence Syndrome (NAS) is one of the primary negative effects of substance use during pregnancy. The exact statistics regarding NAS and substance use during pregnancy are difficult to determine due to under reporting, especially in the context of pregnancy. Similarly, little is known regarding whether the severity of NAS differs based on substance exposure. The purpose of this study was to evaluate the prevalence of NAS and types of substance use during pregnancy, and determine whether the presentation of NAS symptoms differ based on the type of substance.

**Methods:** A retrospective chart review was conducted over a one year period at a tertiary care hospital. One hundred thirty-one mother-infant pairs met the inclusion criteria of documented NAS scores using the Modified Finnegan Scoring Tool and substance use during pregnancy.

**Results:** The results identified a high prevalence of NAS (8.7%) primarily as a result of exposure to illicit opioids and /or to methadone as the treatment for opioid addiction. In addition, more than half the women on methadone maintenance treatment continued to use additional substances primarily opiates. Infants who were exposed to methadone experienced more severe NAS compared to infants not exposed to methadone including higher peak scores, prolonged NAS treatment and length of stay.

**Conclusion:** Given the severity of symptoms of the methadone exposed infants and the high rate of opioid use with methadone treatment, evidence-based interventions are required to decrease the negative effects of NAS.

## Speaker #5

### Neurorehabilitation of the hand post stroke using a robotic device

- **Vineet Johnson**  
*School of Kinesiology, Lakehead University*
- **Hamed Kazemi**  
*Department of Kinesiology and Physical Education,  
McGill University*
- **Theodore Milner**  
*Department of Kinesiology and Physical Education,  
McGill University*

**Background/Objectives:** Stroke significantly impacts activities of daily living (ADL) and thereby quality of life (QOL). Very little evidence exists on targeting hand function post stroke, despite the impact it could have on both ADL and QOL. The principal aim of this project was to provide targeted hand function training using a robotic device.

**Methods:** Nine subjects aged 40 - 72 years, who sustained a single stroke 6 months prior to start of the study were recruited. All subjects were trained for a total of 10 one-hour session using the Enable-Hand robotic device. Changes in function were assessed using CAHAI-9, Box & Block test and ABILHAND.

**Results:** A one-way MANOVA revealed a significant multivariate main effect for CAHAI-9, (Wilks'  $\lambda = .173$ ,  $F(2, 7) = 16.680$ ,  $p < .002$ , partial eta squared = .827) and the Box & Block test (Wilks'  $\lambda = .805$ ,  $F(2, 7) = 7.73$ ,  $p = .017$ , partial eta squared = .688). A one-way MANOVA performed on the ABILHAND scores revealed no significant results.

**Conclusion:** Robotic hand training post stroke improved hand function as estimated by CAHAI-9 and Box and Block test. Though the objective tests indicated an improvement, the same was not true for the subjective tests - ABILHAND. Higher frequency of training sessions may have enhanced the training effects.

### Fatal-crashes involving cyclists (1985-2009): Crash-, cyclist-, and driver-related factors associated with crash responsibility

- ❖ **Erica Sawula**  
*Department of Health Sciences, Lakehead University*
- ❖ **Sacha Dubois**  
*Research Department, St. Joseph's Care Group*
- ❖ **Bruce Weaver**  
*Centre for Research on Safe Driving, Lakehead University*
- ❖ **Michel Bédard**  
*Research Department, St. Joseph's Care Group*

**Background/Objectives:** In 2012, 726 cyclists were killed and 49,000 injured in United States traffic crashes (NHTSA 2014). Given cyclist risk, we identified crash- and cyclist-related factors associated with the odds of contributing to cyclist-related crashes.

**Methods:** United States fatal crashes (1985-2009) involving a cyclist and car were selected from the Fatality Analysis Reporting System. Utilizing unsafe driver actions (UDAs), we classified cyclists and drivers by crash responsibility scenario (both, cyclist, driver, or neither responsible - the referent). Logistic regression was used to examine the odds of key crash- and cyclist/driver-related factors by responsibility.

**Results:** There were 5510, 2872, 944, 4669 paired-crashes where the cyclist, driver, both, or neither were responsible. When both were responsible, the most common UDA committed was failure to yield right-of-way (34.5%) by cyclists and speeding (51.4%) by drivers. Drivers who were younger (Age OR: 0.66; 95%CI: 0.58, 0.74), male (OR: 1.44; 95%CI: 1.21, 1.70), plus dry surfaces (OR: 1.54; 95%CI: 1.02, 2.33), and urban areas (OR: 1.24; 95%CI: 1.04, 1.48), increased the odds of both driver and cyclist being considered responsible compared to the referent scenario. In a sub-analysis where both cyclist and driver were tested for drugs and alcohol, driver BAC increased the odds (.05 grams per deciliter change, OR: 2.01; 95% CI: 1.36, 2.97) of both driver and cyclists being responsible. Results for when the cyclist or driver was solely responsible will also be presented.

**Conclusion:** Efforts to prevent cyclist-related crashes should focus on measures to improve the cycling environment and also those measures aimed at controlling cyclist- and driver- related factors.

### fMRI Analysis of the involvement of the mirror neuron system in video observation

- ❖ **Shayna Parker**  
*Thunder Bay Regional Research Institute;  
Department of Health Sciences, Lakehead University*
- ❖ **Andrea Pepe**  
*Thunder Bay Regional Research Institute;  
Department of Biology, Lakehead University*
- ❖ **Jane Lawrence-Dewar**  
*Thunder Bay Regional Research Institute;  
Department of Health Sciences, Lakehead University*

**Background/Objectives:** The mirror neuron system (MNS) is a neural network which is thought to drive the process of observational learning (OL). Video therapy techniques, which emphasize OL have recently begun to show promise as a tool for motor rehabilitation following brain injury. A better understanding of the natural functionality of the MNS during OL can help optimize these therapies.

**Methods:** Data from 13 individuals was collected using Blood Oxygen Level Dependent (BOLD) fMRI techniques during the presentation of video stimulus tasks designed to activate observational learning strategies. A voxel-by-voxel statistical analysis was performed on the data from each subject, using a general linear model approach to provide contrast analyses to show which brain regions are involved in mirror system activity. A group analysis was performed to see areas of activation common to all participants.

**Results:** Areas of significant activity (pcorrected < 0.05) were found to be localized in the inferior parietal lobe, the inferior frontal gyrus, and the ventral premotor cortex during the OL video tasks. These are all areas that have previously been associated with the MNS.

**Conclusion:** The activity of these regions provides evidence towards the involvement of the MNS in video therapy, which allows us to work towards optimizing these therapies. Future studies should focus on how the MNS might change in different populations, such as the elderly.



## Prognostic factors following mild traumatic brain injury in older adults

❖ **Vicki Kristman**  
Department of  
Health Sciences,  
Lakehead University

❖ **Robert Brison**  
Department of  
Emergency Medicine,  
Queen's University

❖ **Paula Reguly**  
Department of  
Health Sciences,  
Lakehead University

❖ **Michel Bédard**  
Research Department,  
St. Joseph's Care Group

❖ **Shelley Chisholm**  
Thunder Bay Regional Health  
Sciences Centre

**Background/Objectives:** Although mild traumatic brain injury (MTBI) is a significant health problem for older adults; no prognostic model for MTBI in this population exists. We conducted a pilot study to determine the feasibility of a large-scale prognostic study of MTBI outcome among older adults.

**Methods:** At three Ontario general hospitals, we screened for patients aged 65 and older visiting the Emergency Department (ED) for MTBI. Measures were assessed by telephone shortly after ED visits (baseline) and six months after ED visits. We assessed recovery from MTBI with the Rivermead Post Concussion Symptom Questionnaire (RPQ) and a single question on self-rated recovery. Chi-square analyses were performed to determine odds ratio point estimates for baseline predictors.

**Results:** Forty-nine of the 54 people enrolled completed follow-up. Factors associated with poor recovery according to the RPQ were passive coping (9.3 (95% CI: 1.2, 73.9)) and worse health compared to one year ago (9.9 (95% CI: 1.4, 69.9)). According to self-rated recovery, only post-traumatic amnesia was associated with poor recovery (7.7 (95% CI: 1.6, 38.1)). For both outcomes, results suggested prognostic potential for several factors including pain, fatigue, depression, injury severity, post-traumatic stress, and overall health; however, associations were not statistically significant due to small sample size.

**Conclusion:** These findings provide foundations for a large-scale prognostic study of MTBI outcome among older adults. Early prediction of outcome through prognostic models may support clinical decision-making and resource allocation; provide realistic, evidence-based expectations to older adult patients and their relatives; and identify modifiable prognostic factors to be targeted by interventions.

## Perspectives of insight and decision-making in dementia

❖ **Moira Haggarty**  
School of Nursing, Lakehead University

❖ **Elaine Wiersma**  
Department of Health Sciences, Lakehead University

**Background/Objectives:** Changes in insight can be experienced with a diagnosis of dementia. However, insight is a contested concept where people living with dementia, care partners, and service providers may all have very different perspectives.

**Methods:** For this qualitative study, one group interview with two people living with dementia, one focus group with five care partners, and three individual interviews with service providers were conducted. Using an interpretive phenomenological approach, the interviews and focus group were analyzed to explore perspectives on insight.

**Results:** A number of key themes emerged from the participant data. Beliefs and knowledge around risk and decision-making influenced one's understanding of insight. Changes in insight were associated with social stigma, and as a result, people living with dementia sought ways to preserve their sense of self. Participants suggested ways to make the assessment of insight more effective, such as with the use of patience, familiar language, the best time of day, and the probe-and-verify method. Finally, offering inclusion and choice was essential for people living with dementia to have a sense of self-worth.

**Conclusion:** The findings from this study will inform practice and research of decision-making with dementia. Care partners and service providers should balance the emotional and physical risks involved; understand their responsibilities around consent and capacity, use methods to assess insight that accommodate the person's strengths and limitations, and offer choice and inclusion, to preserve the personhood and dignity of the person living with dementia.

## Comparison of outcome measures for studying mild traumatic brain injury prognosis in older adults

- ❖ **Vicki Kristman**  
*Department of Health Sciences, Lakehead University*
- ❖ **Robert Brison**  
*Department of Emergency Medicine, Queen's University*
- ❖ **Michel Bédard**  
*Research Department, St. Joseph's Care Group*
- ❖ **Paula Reguly**  
*Department of Health Sciences, Lakehead University*
- ❖ **Shelley Chisholm**  
*Thunder Bay Regional Health Sciences Centre*

**Background/Objectives:** Despite high rates of mild traumatic brain injury (MTBI) in the older adult population, no study has described MTBI outcome measures specifically for this population. We conducted a pilot study to identify clinically meaningful measures of recovery for older adults with MTBI.

**Methods:** At three Ontario general hospitals, we screened for patients aged 65 and older visiting the Emergency Department (ED) for MTBI. Measures were assessed by telephone shortly after ED visits (baseline) and six months after ED visits. Recovery measures included the Glasgow Outcome Scale (Extended) (GOSE), Medical Outcomes Study 12-Item Short Form Health Survey (SF-12), Rivermead Post Concussion Symptom Questionnaire (RPQ), and one question on self-rated recovery. Sensitivity, specificity, and responsiveness were determined using the RPQ as the comparator.

**Results:** Forty-nine of 54 people enrolled completed the follow-up interview. The results suggested the SF-12 mental component score (MCS) had good sensitivity at baseline (93.3% (95% CI: 77.9, 99.2)) and follow-up (100% (95% CI: 91.6, 100)). The GOSE and self-rated question had good specificity at baseline (GOSE: 78.9% (95% CI: 54.4, 93.9), self-rated: 100% (82.3, 100)) and follow-up (GOSE: 85.7% (95% CI: 42.1, 99.6), self-rated: 100% (95% CI: 59.0, 100)). The MCS and RPQ identified most as early recovery. The GOSE, SF-12 MCS and self-rated question identified participants with deterioration and also reported less early recovery.

**Conclusion:** There is no single best measure to assess recovery from MTBI in older adults. MTBI-specific and generic tools reported varying results and the measures use varying concepts of recovery. Further confirmatory longitudinal research is needed.

## Neural correlates underlying visuomotor adaptation using a dynamic point-to-point task: An fMRI study

- ❖ **Andréa Hantjis**  
*Thunder Bay Regional Research Institute;  
Department of Health Sciences, Lakehead University*
- ❖ **Andrea Pepe**  
*Thunder Bay Regional Research Institute;  
Department of Biology, Lakehead University*
- ❖ **Jane Lawrence-Dewar**  
*Thunder Bay Regional Research Institute;  
Department of Health Sciences, Lakehead University*

**Background/Objectives:** Visuomotor adaptation is the ability to integrate sensory information in order to successfully interact with our environment, allowing us to accurately correct movements in response to an error. Several brain regions have been determined to be involved in visuomotor adaptation using stationary-target tasks. However, we suspect that a moving target task will better strengthen the internal model built during the execution of a manual action, reflected by different or increased areas of neural activation. The present study examines the underlying neural correlates of visuomotor adaptation during a novel dynamic-target task using functional MRI.

**Methods:** 10 healthy, right-handed participants (28.2±5.0 years) completed a computer-based point-to-point task. Participants controlled the movement of a cursor to a target while positioned in an MRI. Whole-brain fMRI data was acquired using conventional BOLD imaging techniques. A general linear model with two predictors (normal and distorted cursor movement) was used to determine areas that were significantly more activated during the distorted condition versus the normal condition.

**Results:** Significant signal changes associated with distorted visual feedback were observed in brain regions consistent with the literature as well as the claustrum ( $p_{\text{corrected}} < 0.05$ ).

**Conclusion:** Our findings confirm recruitment of the claustrum during a visuomotor adaptation task using multi-directional movements (Baugh et al. 2011). Further research of the functional and anatomical connections between brain regions will help map the neural networks required for successful visuomotor adaptation behaviour. This information will aid in the development of future investigations of the effects of aging on visuomotor adaptation.

## Decline in visuomotor adaptation behaviour in healthy aging during a dynamic target task

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**Background/Objectives:** Visuomotor adaptation is a skill used to adjust movements in order to successfully complete day-to-day motor tasks. During the natural aging process, the connections in our brains begin to weaken, making it more difficult to control and correct movements. The present study investigates visuomotor adaptation behaviour in young and aging participants during a novel dynamic point-to-point task. We hypothesized that aging individuals will demonstrate a decline in visuomotor adaptation performance on the task when compared to the young individuals.

**Methods:** Twelve young (mean=26.7±5.3), and 12 aging (mean=58.6±9.9) healthy right-handed adults completed a point-to-point visuomotor adaptation task written in Presentation software on a desktop computer. The task included both normal control, and x-axis, y-axis, and dual axis visually-distorted trials. Measures of path distance, movement time, and average cursor velocity taken to reach the target were analyzed using a repeated-measures ANOVA in SPSS.

**Results:** The aging group exhibited longer path distances than the young group (mean difference=221.499±41.444,  $p=0.000$ ) during the full-flip and x-flip distortions. The aging group also showed a faster velocity during the task than the young group (mean difference=0.258±0.049,  $p=0.000$ ), which can be attributed to more rapid reversals in cursor direction.

**Conclusion:** In conclusion, there is a distinction between the young and aging groups, with the aging group exhibiting a decline in visuomotor adaptation performance compared to the young group. The results of this study provide the framework for future functional MRI investigations of the changes in neural regions underlying visuomotor adaptation during aging, as well as after injury, such as stroke.

## Evaluating the implementation of accountability indicators for delirium on Extensive Services

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**Background/Objectives:** As part of a province-wide collaborative coordinated by the Regional Geriatric Program of Toronto, this study evaluated the feasibility of implementing accountability indicators (i.e., rate of baseline delirium screening using the Confusion Assessment Method [CAM] upon admission to hospital and rate of delirium acquired over the course of hospital admission). The study also examined the CAM's ability to accurately detect the presence of delirium using physician diagnosis as the "gold" standard.

**Methods:** For clients admitted to Extensive Services at St. Joseph's Hospital during the 6 month study period, delirium screening was completed daily by nursing staff starting within 48 hours of a client's admission until the client was separated from the unit. Using chart based abstraction, the first positive screen on the CAM was compared against outcome of the physician's assessment to establish the extent to which a positive screen corresponded to a physician's diagnosis of delirium.

**Results:** The rate of baseline delirium screening over the study period was 77% and screening was conducted in 75% of total patient-days. Twenty-six percent of clients acquired delirium throughout their hospital admission. There were positive CAM screens for 4 clients and these corresponded with physician diagnoses of delirium fifty percent of the time.

**Conclusion:** Results showed high rates of compliance with delirium screening but marginal concurrent validity of the CAM. The small number of positive CAM ratings renders it difficult to fully evaluate the clinical value of this tool. However, the accountability indicators are feasible to implement and may be used to track the impact of delirium prevention strategies.

### Nutrition risk prevalence in a Northwestern Ontario hospital

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**Background/Objectives:** Hospital malnutrition leads to increased risk of morbidity, length of stay, and mortality. At TBRHSC there is no formal nutrition risk screening and referral process to the Registered Dietitians (RDs). Evaluate nutrition risk prevalence and the current RD referral processes upon admission.

**Methods:** Research Assistants recruited participants, 72-hours after admission to the medical/oncology unit, over a 10-week period (November 2013-February 2014). Nutrition risk of consenting participants was determined using the Malnutrition Screening Tool (MST<sup>©</sup>). The unit RD also documented referrals for comparative analysis. Participant's age, sex, date admitted, admitting diagnosis, reason for referral and MST<sup>©</sup> scores were obtained. Moderate and high risk patients were offered nutrition supplements and RD referrals, respectively. Data was analyzed using pivot tables in Microsoft Excel<sup>®</sup>. Ethics approval was obtained from TBRHSC and Lakehead University.

**Results:** Sixty-seven of 69 recruited patients (33 male, 34 female) consented with an average age of 64.7 years. Of the 67 participants, 55.2% (n=37) were moderate (n=27) or high risk (n=10) using MST<sup>©</sup>. Eight high risk patients accepted referrals to the RD. In total, the RD received 41 referrals; 13 (31.7%) were not addressed (discharged/ inappropriate). Of the 28 patients screened by the RD with MST<sup>©</sup>, nine (32.1%), four (14.3%), and 15 (53.6%) were at low, moderate, and high risk, respectively. Five (17.9%) low and moderate risk scores were considered high risk based on RD assessment.

**Conclusion:** The nutrition risk prevalence was similar to other Canadian hospitals. Further research with a larger sample is needed to validate the MST<sup>©</sup> at TBRHSC and to assess feasibility of implementing a hospital-wide nutrition screening process.

### Patient satisfaction associated with psychiatric group medical visits

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**Background/Objectives:** Group medical visits (GMVs) are a novel approach to psychotropic medication management. During a GMV, multiple patients attend a group session led by a physician/psychiatrist and other health providers in order to review medication and make adjustments or refills. The format is valued for the potential time and cost efficiency while maintaining quality of care. Given the unique nature of this appointment format, patient satisfaction with the GMV is an important consideration.

**Methods:** The present study examined patient satisfaction associated with a weekly one hour GMV led by a psychiatrist and nurse for the purpose of psychotropic medication management. Each GMV session was attended by a varying number of patients (e.g., 2 to 10) who were invited to complete a questionnaire measuring satisfaction with that day's GMV. The questionnaire included a Likert-type scale ranging from 1 to 5, with higher scores indicating greater patient satisfaction.

**Results:** Twenty-two GMV patients participated. The average response to the item, "overall, I felt the quality of care and services today were..." was 4.11 (SD = 1.07), while the item, "today's visit with the doctor was ...", had an average of 4.03 (SD = 0.95). The average response to the item, "overall my mental health has improved by attending the program", was 3.76 (SD = 1.17).

**Conclusion:** Average responses on individual items ranged from good to very good patient satisfaction levels. In addition to the expected time and cost efficiency of GMVs, these findings suggest that patients are generally satisfied with this novel structure of care.

## Identifying areas of focus for mental health promotion in children and youth for Ontario public health

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**Background/Objectives:** In Ontario, there is not enough consistency or guidance in the area of mental health promotion practices for children and youth aged 0-18 years. The aims of this study are to: 1) explore key areas of focus for mental health promotion, through a comprehensive literature search; 2) explore common assumptions, knowledge, and beliefs of provincial stakeholders around priorities and gaps in the areas of focus; and 3) confirm alignment of the identified key areas of focus with the core principles of Ontario's public health system, through consultation with public health leaders.

**Methods:** Qualitative research methods have been used to carry out the three key phases of the study; a comprehensive literature review, one-to-one key stakeholder interviews, and focus groups with public health leaders from across the province. Analysis for phase two and three of this research was conducted with the use of NVivo software.

**Results:** The salient themes that emerged from the literature review were social connectedness, parenting, resilience, stigma, physical health, and mental health literacy. Preliminary analysis suggests that system integration and a comprehensive framework is a key area of focus for mental health promotion among the stakeholder group. The focus group analysis is currently in progress.

**Conclusion:** Common areas of focus for child and youth mental health promotion, established through data collection from the literature, stakeholder interviews, and focus groups with provincial public health leaders, will aim to inform public health units across Ontario and have the potential to influence further research, resource allocation, and policy.

## Mediators of treatment outcome for a community-based group Triple P Parenting Program

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**Background/Objectives:** The Triple P group parenting program is a well-established evidence-informed intervention delivered through Children's Centre Thunder Bay (CCTB). While the effectiveness of this CCTB program has been previously evaluated, there has been no examination of mediators of treatment outcome.

**Methods:** Unanalyzed data for the past three years has been collected as part of routine clinical practice. In total, 236 parents began the Triple P program with roughly 135 completing the service (complete pre- and post- data).

**Results:** Effectiveness analyses (i.e., Effect Size, and Reliable Change Indices) on both child and parent related measures demonstrated strong outcomes. Mediation analyses examined the indirect effects of parenting variables in the context of treatment effectiveness on child-related outcomes. Results demonstrated that parental reactivity was a significant mediator of the relationship between children's behaviour problems (SDQ-Total) as assessed pre and post intervention. A similar association was found in the context of paternal hostility, such that the inverse relationship between child behaviour problems pre and post-intervention was partially mediated by lower levels of paternal hostility post-intervention. Analogous indirect effects were demonstrated for maternal efficacy and satisfaction with respect to mediating inverse associations between child behaviour and emotional problems pre and post-intervention.

**Conclusion:** Results reflect the effectiveness of the Triple P program while also elucidating potential mechanisms of influence on child behavioural and emotional problems.

### Treatment effectiveness and service delivery utilization for young children receiving services at Children's Centre Thunder Bay

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**Background/Objectives:** The Children's Centre Thunder Bay (CCTB) Infant and Child Services mental health program has not been previously evaluated. To achieve this objective, a new functional evaluation tool, the Child and Adolescent Needs and Strengths (CANS: preschool version) scale, was implemented. Despite the potential functional utility of the CANS, it has had limited dissemination or research with young children.

**Methods:** Therapists completed the CANS on 102 young clients (males = 66.67%; mean age = 3.81 years) who received services through the Infant and Child treatment program. To date, 37.25% of the clients have pre- and post- CANS data. In addition, demographic information and service delivery data were integrated with the existing CANS data for analyses (e.g., age, gender, wait time, length of service, and reasons for closing).

**Results:** The average wait time for mental health services, and time in service was 212 days, and 314 days, respectively. Originally, 147 clients were referred to services, 30.61% declined to begin, and 7.84% dropped out of services. The top five clinical items pre-treatment were (highest to lowest): peer relationships, expressive language, decision-making, cognitive (development) and impulsivity/hyperactivity. T-tests revealed that 5 of 9 domains (Life Domain Functioning, Child Behavioural/Emotional Needs, Regulatory Functioning, Caregiver Strengths and Needs, Child Strengths) had statistically significant improvement after post-treatment testing.

**Conclusion:** This program evaluation project demonstrated the effectiveness of treatment services, prevalence of early termination of services, and usefulness of the CANS as a clinical evaluation instrument.

### Concordance rates of two approaches for measuring individual client change

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**Background/Objectives:** The Reliable Change Index (RCI) and Percentage of Improvement (PI) are two approaches for determining clinically significant change in individual clients. However, there is a lack of research directly comparing these two approaches. The current study compared the RCI and PI by calculating the percent concordance (i.e., percent of positive treatment responders determined by both the RCI and PI).

**Methods:** A comprehensive review of the literature was conducted regarding the RCI and PI in clinical settings. Concordance rates were calculated based on parent outcome measures related to child functioning upon completion of a parenting intervention in a community-based clinic.

**Results:** Percent concordance for mothers (N = 177) and fathers (N = 84) ranged from 66.7% to 100%, with the existing literature placing rates around 90%. This variability was likely based on the low sample sizes for some of the scales. Significant concordance was displayed through chi square analyses. The PI was more liberal than the RCI in cases when there was a discrepancy in treatment responsiveness. Average concordance rates were slightly higher for fathers rather than mothers.

**Conclusion:** The RCI and PI were significantly concordant for most scales, suggesting they would produce comparable results if either was chosen to determine individual client change. In cases where there were differences, the PI was more likely to classify clients as treatment responders. Recommendations for use will be discussed.

### Evaluating the Parent-Adolescent Communication Toolkit: Usability, measure assessment and preliminary content effectiveness

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**Background/Objectives:** This study aimed to assess the usability and preliminary effectiveness of the Parent-Adolescent Communication Toolkit (PACT), an online intervention designed to improve parents' communication with their adolescents. The concurrent criterion validity of a scale entitled the IWK-Parent Adolescent Communication Checklist (IWK-PACC) and the differences between two types of PACT skill module delivery styles (sequential and unrestricted module access) were examined.

**Methods:** Sixteen parent-adolescent dyads completed pre-test and post-test communication assessments. Following the pre-test assessment, parents completed the PACT intervention (although were randomly assigned to a module delivery style group) and rated the usability of the intervention modules. Post-test parent-adolescent communication scores were compared to pre-test scores using paired t tests.

**Results:** Parent usability ratings of PACT were high and feedback was positive. The sequential module access groups rated the PACT content higher and completed more content than the unrestricted module access group, indicating support for the PACT sequential access design. The IWK-PACC was moderately correlated with an established communication scale and indicated validity. Parent mean post-test communication scores were significantly higher than pre-test scores indicating preliminary effects of the PACT intervention. No significant differences were detected for adolescent participants.

**Conclusion:** Findings suggest that PACT has potential to improve parent-adolescent communication but further effectiveness assessment is required before dissemination of PACT occurs.

### The importance of program evaluation in community-based interventions: The case of Go Girls!

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**Background/Objectives:** Thousands of dollars are spent annually to implement community-based programs; however, literature has demonstrated that the efficacy and effectiveness of such programs have been understudied. Using the example of the Big Brothers Big Sisters Go Girls! Group Mentoring Program, the importance of program evaluation and evidence-informed interventions will be demonstrated. Despite being implemented nationally, to-date no known quantitative research on outcomes of the program have been done.

**Methods:** Using self-esteem (Rosenberg Self-Esteem Scale) and body image satisfaction (Body Appearance Scale) outcomes, a program evaluation of Thunder Bay's Go Girls! Program was completed. Data was collected in 2012 from girls in Grades 7 and 8 (n = 13) participating in the program. The self-report measures were given on the first and last session of the group.

**Results:** Using a paired sample t-test, data analysis demonstrated that participation in this intervention did not significantly increase participants' self-esteem ( $t(12) = -.67$ , ns) or body image ( $t(12) = -1.23$ , ns). While the group means did increase from pre- to post-intervention (.55 and 1.03, respectively), these differences were not statistically significant, nor were they large enough to meaningfully indicate increases in self-esteem or body image.

**Conclusion:** Considering the budget restraints of many community organizations and the high needs of individuals seeking out these services, it is essential that interventions funded are practically beneficial for those engaging these programs. Using the Go Girls! example, it can be seen why such evaluations are necessary. The implications of these findings are discussed within the poster.

## Healing the whole self: An approach to developing a culturally competent evidence-informed group therapy

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**Background/Objectives:** For several years there has been recognition of the importance of offering culturally competent mental health services. However, literature on how this can be done and the outcomes of such approaches has been less discussed. The current project sought to create a mental health group intervention for Indigenous women in Thunder Bay that are surviving the effects of intimate partner violence.

**Methods:** Initial critical analyses of the literature on intimate partner violence, colonization and the mental health effects of traumas, and psychological interventions for trauma were all completed. Focus groups and interviews were held with Indigenous women surviving the effects of intimate partner violence, as well as with service providers for this population. The findings from these focus groups and interviews were triangulated with evidence-based interventions for the reported mental health effects of intimate partner violence (e.g., post-traumatic stress, depression, anxiety, low self-worth), to develop a group mental health intervention. Feedback was then sought from community members.

**Results:** A 20-week model of modified Dialectical Behaviour Therapy skills with a foundation using the tri-phasic model of trauma was developed. The curriculum consists of sharing from personal traditions, suggestion of skills (rather than the therapist playing the role of expert), opportunities for feedback and collaboration, partnerships with community agencies, and flexibility in implementation.

**Conclusion:** Researchers have advocated that culturally competent practices should incorporate the client's cultural values, should be easily accessible and collaborative. Using such an approach may offer a new model for how culturally competent evidence-informed group therapies can be developed.

## NorthB.E.A.T.: Examining care pathways to reveal barriers to early assessment and treatment for youth in Northern Ontario who experience psychosis

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**Background/Objectives:** Longer duration of untreated psychosis (DUP) is associated with worse outcomes in people with severe mental illness. Early psychosis intervention (EPI) was developed to decrease DUP, and improve long-term outcomes. While EPI research has contributed to care, services in Northern Ontario need to better understand the barriers that clients experience in accessing EPI services. NorthB.E.A.T is a descriptive research project that is exploring the care pathways of youth in Northern Ontario who experience psychosis. An aspect is to understand the barriers and facilitators they face in receiving appropriate early psychosis intervention.

**Methods:** Participants were adolescent clients of mental health services, their care-givers, and mental health service providers who were recruited from 10 project sites across Northeastern and Northwestern Ontario. Data were collected through narrative interviews which explored participants' experiences with, and perceptions about seeking help for severe mental illness in Northern Ontario. Transcripts were content analyzed and care pathways drawn.

**Results:** The actual care pathways for many of the youth participants differed from ideal EPI care pathways. The pathways revealed various barriers (e.g., lack of knowledge about psychosis and psychosis specific services) and facilitators (e.g., family support) to early assessment and treatment were revealed. Various access points and some missed opportunities were also revealed.

**Conclusion:** These findings provide insight into the mental health service needs of rural youth who experience psychosis, and can be used help guide rural EPI service development.



## Eating in the city: A review of the literature on food insecurity and Indigenous people living in urban spaces

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**Background/Objectives:** This paper looks at the current state of literature regarding food insecurity and Indigenous people living in urban spaces in North America and Australia. Although the majority of Indigenous peoples live in urban centres in these three nations, less attention has been paid to food security among urban Indigenous people compared to those living rurally and remotely.

**Methods:** A systematic review of peer-reviewed journal articles was undertaken from July to September of 2014, covering articles published from 1997 to 2014 on the topic of food insecurity with urban Indigenous populations in Canada, the United States, and Australia.

**Results:** Fourteen studies met the inclusion criteria. Findings highlight both the variety of experiences of urban Indigenous peoples within and across the three nations, and the commonalities of these experiences. The five themes emerging across the studies reviewed include: Affordability of and Access to Store Foods; Dietary Change and Store Foods; Traditional Foods; Food Sharing, Communal Preparation and Eating; and Food Programming. Further complicating the picture is the fluidity of the urban/rural experience for many Indigenous people and in northern Canada in particular there are high levels of movement between service centres and reserves.

**Conclusion:** Food flows between the urban and the rural, on-reserve or remote spaces, and the impact of these movements and linkages is a key area for future research.

## Health and wellness in the community of Ignace

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**Background/Objectives:** The Mary Berglund Community Health Centre (MBCHC) sought information from the Ignace community regarding their current health and their perceptions of some of the known social determinants of health such as health care accessibility, community belonging, and education.

**Methods:** A survey was distributed in the fall of 2013 and was completed by 195 participants (61% female). A variety of Chi-square, ANOVA, and correlational analyses were conducted.

**Results:** Over 80% of participants rated their sense of belonging to the community as either "Somewhat Strong" or "Very Strong." The largest group of respondents was 60 - 75 years old. Those in the older age groups tended to have lower health ratings, while those with higher levels of education reported higher health ratings. Those who believe Ignace to be safe are significantly more likely to have a higher sense of belonging to the community. Those who have a medical doctor are significantly more likely to have a lower health rating. Tobacco was the most highly reported addiction (18%).

**Conclusion:** This survey provides a foundation of knowledge regarding the community and reveals the importance of community factors in health. The MBCHC has also used the findings of this report to develop community action plan recommendations, such as conducting a survey aimed at the younger population, and increasing smoking cessation programs.

### Compass North Clinic: A student-led clinic in response to unmet community needs in urban Northern Ontario

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**Background/Objectives:** Healthcare under-service remains an issue in Northern Ontario. In 2012, the North West Local Health Integration Network had 13.2% unattached patients, a figure significantly greater than the provincial average (7.0%). Long waiting times are also problematic. Student-led clinics (SLCs), which commonly partner with community health centres and focus on the health and social needs of under-serviced populations, can help combat these lacunae in healthcare provision.

**Methods:** A needs assessment was conducted by an interprofessional group of students at the Northern Ontario School of Medicine and Lakehead University. It consisted of semi-structured interviews with local health care providers, educators, and potential clients in order to examine primary, chronic, and elderly care provision as well as social, mental health, and addictions services in Thunder Bay. Textual qualitative analysis was employed. Interviews with potential partner institutions are forthcoming.

**Results:** The most cited health concerns were mental health and addictions, diabetes, and cardiovascular disease. Sector representatives felt that important preventative services are currently lacking, including harm reduction, healthy eating, and disease management. Consumers reported barriers to health such as not having a primary care provider, poor follow-up, lack of coordination of services, long wait times, as well as stigma from health-care providers. All interviewees felt that a SLC could help address these issues, while providing important opportunities for interprofessional education, service learning, and research.

**Conclusion:** There are significant healthcare challenges in Thunder Bay. A SLC can help address these, while providing valuable learning opportunities for students and preceptors alike.

### Strengthening the rural dietetic workforce: Examining the impact of the Northern Ontario Dietetic Internship Program on recruitment and retention

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**Background/Objectives:** The Northern Ontario Dietetic Internship Program (NODIP), integrated within the Northern Ontario School of Medicine, provides 46 weeks of practice experiences in urban, rural, and under-serviced areas of Northern Ontario. This study, evaluating the early practice experiences of the first five cohorts (2008-12), was conducted by the Centre for Rural and Northern Health Research at Lakehead University.

**Methods:** NODIP graduates from the first five cohorts (n = 62) were invited to complete a 27-item questionnaire two years after graduation to track work experiences, employment decisions, preparation for practice, and future career plans. Data were analyzed descriptively using SPSSx.

**Results:** Three-quarters of graduates chose rural or northern locations for their first employment position; two-thirds were still practising in such settings two years after graduation. Factors affecting employment choices included: prior awareness of employers, prospects for full-time employment, flexible working conditions, interprofessional practice and continuing education, along with personal and community factors. Intentions to remain in current positions were shaped by employment conditions, including workloads, salary and benefits, opportunities for professional development and specialization, as well as by personal commitments.

**Conclusion:** A key measure of long-term success of the NODIP is the ability to attract and retain dietitians in Northern Ontario. This study provides early evidence that the NODIP community-engaged learning model has had positive impacts on recruitment and retention of dietitians to rural and northern practice. Results are being used to inform curriculum design, practicum experience planning, and strategies to recruit and retain dietitians to under serviced areas of Ontario.

## Can students implement effective interprofessional education? The case study of the SimChallenge

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**Background/Objectives:** In January 2014, the Lakehead University Interprofessional Student Society (LIPSS) successfully carried out the first ever student-led simulation at Lakehead University. Forty students from three different schools were brought together to practice Interprofessional and clinical skills in an open and safe environment.

**Methods:** Following the SimChallenge, feedback surveys were given to participating students and facilitators. Questions with 2-3 fixed responses were asked regarding the realism and difficulty of the simulations, student/facilitator preparedness, and recommendation of the experience. Open-ended questions were also asked.

**Results:** All of the students (n=33, 100%) and all but one facilitator (n=4, 80%) reported that the simulations were realistic. Almost all students (n=32, 97%) and all facilitators (n=5, 100%) reported the difficulty of the simulations was "just right." Almost all students (n=32, 97%) reported they would recommend the SimChallenge experience to their peers. Likewise, all facilitators (n=5, 100%) agreed that they would recommend the SimChallenge experience to their students. The experience, as described by students and faculty participants, will be explored.

**Conclusion:** This study is one of the first to demonstrate that students are capable of implementing effective IPE. Our findings suggest that the SimChallenge hosted by LIPSS was an opportunity for quality IPE through simulation among both students and facilitators. It peaked and renewed interest in, valuing of, and developed competencies for IPE and IPC.

## Supervisors autonomy, considerate leadership style and disability management policies and practices are associated with supervisors' likelihood to accommodate back-injured workers

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**Background/Objectives:** Supervisors play a key role in the return to work process for injured workers. Yet, we have little understanding of factors influencing their decision-making process. Our objective was to determine the association between a supervisors' perception of autonomy, leadership style, global work safety culture (GWSC) and disability management policies and practices (OPP) and the likelihood of supporting job accommodations for back-injured workers.

**Methods:** We conducted a cross-sectional study of supervisors recruited from a non-random, convenience sample of Canadian and US employers. Supervisors' likeliness to support job accommodation was measured using the Job Accommodation Scale (JAS). Exposures were measured using validated questionnaires. A multivariable generalized linear modeling strategy was used to determine the association between the exposures and the JAS. Final reduced models for each exposure were obtained after assessing several supervisor characteristics and organizational/job factors as potential effect modifiers and confounders.

**Results:** A total of 796 eligible supervisors from 19 employers participated. A considerate leadership style ( $\beta = .012$ ; 95% CI: .009; .016), autonomy ( $\beta = .065$ ; 95% CI: .024; .111) and OPP ( $\beta = .19$ ; 95% CI: .13; .24) were positively associated with supervisors' likeliness to accommodate. We found no significant association between an initiating structure leadership style ( $\beta = .002$ ; 95% CI: -.001; .006), GWSC ( $\beta = -.084$ ; 95% CI: -.19; .027) and supervisors' likeliness to accommodate.

**Conclusion:** Self-perceived autonomy, considerate leadership style and OPP were positively associated with supervisors' likeliness to accommodate back-injured workers, while initiating structure leadership style and GWSC were not associated with likeliness to accommodate.

### Analyzing clinical narratives using RapidMiner

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**Background/Objectives:** For many years natural language processing (NLP) programming tools have been used to process information in various applications areas including medicine. However, most of such systems have been developed by expert programmers and very little or none by clinicians. The subject under consideration in this presentation is automatic categorization of clinical documentation that contains narratives like EMRs containing discharge summaries. This topic requires great deal of clinical cognition and hence there is a need to let clinicians develop such systems without any programming knowledge using the RapidMiner environment.

**Methods:** This presentation describes how RapidMiner as a visual programming environment can be used for tokenization and categorization of clinical narratives by any clinician without the need for any background in programming any programming. It also describes how to select the best classifier for categorization. For this purpose we collected equal number of clinical narratives from the MTSamples.com which is a web repository designed to give you access to a big collection of transcribed medical reports. We collected equal number of samples from eight different clinical categories (Autopsy, Diet, Discharge Summaries, Chiropractic, Cosmetic, Dental, ENT and Radiology). We show how clinicians can flexibly drag and past variety of visual operators and change their behaviors via parameterizations even for complex processes like tokenization and classifications.

**Results:** Several experiments have been conducted by clinicians using the i2b2 dataset for categorizing discharge summaries. For example K-NN classifier outperform other classifiers (e.g. NB, J48, JRip, Lib-SVM, ZeroR) in categorizing diverse clinical reports including narratives with high degree of similarity like the smoking vs nonsmoking discharge summaries.

**Conclusion:** This presentation demonstrates how clinicians can use visual programming environment like the RapidMiner to tokenize and categorize clinical narratives like discharge summaries. Clinicians can easily train different classifiers to categorize automatically discharge summaries classes with high accuracy without the need for any programming knowledge.

### The effect of striker compliance on impacts to a Hybrid III headform and finite element analysis using a brain model

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**Background/Objectives:** The risk of concussive injuries is influenced by the compliance of the impacting surfaces. In order for injury reconstruction research to be accurate it is essential we understand the effect of the compliance of the impacting surface on the resulting brain trauma and risk of concussion.

**Methods:** The study involved three striker surfaces of different compliances: a vinyl nitrile foam and nylon cap, modular elastic programmer (MEP) with a nylon cap, and a MEP with a steel cap. A Linear Impactor at the University of Ottawa's Neurotrauma Brain Impact Laboratory was used to impact a 50th percentile male Hybrid III headform outfitted with 9 uniaxial accelerometers. Linear and angular accelerations of the headform were recorded at 20 kHz during the impact. The impact velocity was set at 5.49 m/s (+/- 0.02). The testing consisted of 3 impacts at 4 locations. The four locations consisted of front, "front boss", side, and "rear boss". The accelerations were then used as input in the University College Brain Trauma Model for calculation of brain strains.

**Results:** Analysis revealed similar dynamic response characteristics for impacts at the front and side impact sites. There were differences in the dynamic response characteristics between the front boss and rear boss impact sites for the vinyl nitrile cap.

**Conclusion:** The compliance of the impacting surfaces have to be considered in order to recreate accurate and precise injury reconstructions. This research will be used to further investigate the influence of impact characteristics on the risk of brain injuries.

### The effect of multiple impacts on hockey helmet ability to prevent a concussion

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**Background/Objectives:** Concussions are traumatic brain injuries (TBI) that result from mild or severe impacts to the head. Recent studies in sub concussive research suggest that repetitive impacts to the head produce deep brain tissue damage and neurological alterations. The purpose of this study was to examine the effect of repetitive impacts on helmet ability to minimize the amount of linear impact acceleration transferred to an artificial headform.

**Methods:** Three different types of helmets (i.e., Reebok 7K, Reebok 6K, and the Bauer 9900) were tested in the front location. The helmets were mounted and fastened on a 5 kg headform. One hundred impacts were performed for each helmet at the speed of 7.5 m/s. Raw data were clustered into groups of 25 impacts (e.g., 1-25, 26-50, 51-75, and 76-100). Repeated measures ANOVA(s) were conducted to determine if significant differences existed over multiple impacts for each cluster of data.

**Results:** Inferential statistics revealed significant differences on impact acceleration measures between group clusters for the Reebok 7K,  $F(3, 72)=19.826$ ,  $p<0.05$ ; Reebok 6K,  $F(3, 72)=8.687$ ,  $p<0.05$ ; Bauer 9900,  $F(3, 72)=114.65$ ,  $p<0.05$ . Post hoc analysis indicated peak linear acceleration differences between the first and last cluster of impacts (1-25; 76-100) for all helmets.

**Conclusion:** The outcome of this study can be used as a starting point to assess hockey helmet deterioration over time and improve helmet design to minimize the risk of TBI. Future research will build in this testing approach for TBI injury reconstruction.

### The effects of knee taping techniques on lower extremity kinematics during running

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**Background/Objectives:** Running is a popular form of physical activity linked to various lower extremity injuries. A commonly used technique for injury prevention and rehabilitation is taping. There is considerable research investigating running biomechanics, however, there has been limited to no research examining the effects of gender, speed, and the type of tape used on two-dimensional lower extremity kinematics. Therefore, the purpose of this study was to investigate the effects of gender, speed, and tape on two-dimensional lower extremity kinematics and stride characteristics during running.

**Methods:** Eight healthy runners (4 males, 4 females) volunteered to participate. Taping interventions (Leukotape, Kinesiotape, and no tape) and speeds (2.35m/s and 3.35m/s) were determined via a randomization process and lower extremity kinematics and stride characteristics were obtained using the Peak Motus System at initial contact, mid stance, and toe off of running. Lower extremity stride kinematics were then compared using descriptive statistics.

**Results:** Gender and speed differences were found in both lower extremity kinematics and stride characteristics. Females exhibited greater hip and knee flexion, while males showed greater ankle dorsiflexion and plantarflexion. Additionally, females spent more time in contact with the ground whereas males spent more time in the air. The faster speed (3.35 m/s) was associated with greater hip flexion and extension, peak knee flexion, and less time in contact with the ground. The different taping techniques did not result in any changes to the stride kinematics.

**Conclusion:** Gender and speed seem to have effects on lower extremity stride kinematics, whereas taping does not.

## Passion and satisfaction with personal goals in recreational long-distance runners

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**Background/Objectives:** Running is one of the most popular forms of physical activity today. Among runners, passion may be the difference between achieving satisfaction with one's personal goals and not. Goals channel focus, effort, and behaviour toward relevant tasks. Satisfaction with personal achievements emanates from establishing personal goals. This study investigated if passion predicts satisfaction with the achievement of personal goals in recreational long distance runners.

**Methods:** Long distance recreational runners (N = 50; 13 male, 35 female, 2 unreported), 18 years or older (M = 42.8 years), who run independently or were involved with a local running club and run distances greater than three kilometers were recruited. Self-report instruments including the Passion Scale (Vallerand et al., 2003) and a brief demographic questionnaire were administered online and in person to assess participants' passion orientations and satisfaction with personal goals.

**Results:** A multilevel linear regression model was used to see if passion predicted satisfaction with personal goals among recreational runners. Harmonious and obsessive passion were unable explain a significant amount of the variance in satisfaction with personal goals ( $F(1, 46) = .495$ , ns,  $R^2 = .021$ ,  $R^2_{Adjusted} = -.021$ ). Analysis shows that harmonious passion ( $\beta = .143$ ,  $t(48) = .856$ , ns) and obsessive passion ( $\beta = .004$ ,  $t(48) = .026$ , ns) did not significantly predict satisfaction with personal goals.

**Conclusion:** This study examined the relationship between harmonious and obsessive passion and satisfaction with personal goals. Neither type of passion predicted goal satisfaction among long-distance recreational runners. The relationship between passion and goal satisfaction warrants further investigation.

## Motivational factors influencing the adherence of male Ukrainian dancers to cultural dance

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**Background/Objectives:** Physical activity (PA) is a healthy lifestyle component; however, only 15% of Canadian adults meet the minimum requirements. Physical Activity participation declines during adolescence, negatively impacting an individual's level of PA as an adult. Dance is an increasingly popular form of PA. To date, the motivational factors contributing toward participation in cultural dance are not fully understood. The Theory of Planned Behaviour (TPB) incorporates constructs of attitudes, social norms, and perceived behavioural control to understand factors contributing to PA adherence. This study explored what motivates adult males (an under researched population) to adhere to cultural dance beyond adolescence.

**Methods:** Adult male dancers (n = 5) who began participating in Ukrainian dance before the age of 13 and continued into adulthood were recruited. Guided by the TPB, one-on-one semi-structured interviews were conducted to explore factors contributing toward participant motivation to engage in cultural dance.

**Results:** Four themes emerged from the data: (a) parents play a significant role in motivating adolescents during periods of amotivation; (b) establishing meaningful relationships among dancers; (c) year-round performances highlight the benefits of continued effort, and provide rewarding experiences; and (d) travelling together facilitates group cohesion and opportunities for Mentoring.

**Conclusion:** In accordance with the TPB, the most salient factor influencing adherence to cultural dance in this population is the influence of significant others: specifically, the role parents play in motivating adolescents, and establishing meaningful relationships among dancers. Future research could extend the study of significant others by exploring the relationship between a dance school and motivation to adhere to cultural dance.

## Examining the role of body mass index on injury severity in fatal crashes

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**Background/Objectives:** We explored the association between BMI and crash injury severity after controlling for driver and vehicle factors known to independently contribute to injury severity.

**Methods:** The independent contribution of driver and vehicle related factors on injury severity as both a binary (fatal, non-fatal) and ordinal (fatal, incapacitating, non-incapacitating, no or possible injury) outcome were examined utilizing paired-crashes (1998-2009) from the Fatality Analysis Reporting System. Further, we conducted analyses while controlling for alcohol and drugs for drivers blood-tested for these substances.

**Results:** A total of 1,235(6%), 15,437(69%), 5,625(25%) crashes respectively where both, one, or neither driver was fatally injured were analyzed. Mean BMI was 25.81(SD=5.36) for those fatally injured and 25.44(SD=5.06) for those not. In the binary logistic regression model, female sex, older driver age, not using a seat-belt, driver-side impact, lighter vehicle weight, driving an older vehicle, and driving a car (versus van or light truck) had increased odds of the driver being fatally injured. The odd ratios (95% CI) of a fatal injury were 1.21(1.14, 1.29) and 1.33(1.20, 1.46) respectively for individuals with Class II or III obesity. Results from the ordinal logistic regression model were comparable. After controlling for alcohol and drugs the harmful effect of elevated BMI was reduced to about 4-6%.

**Conclusion:** After controlling for contributors to injury severity, individuals with Class II or III obesity had increased odds of fatal injury. Potentially, these increased odds may be related to inadequate vehicle designs not appropriately engineered for individuals with higher BMIs.

## A randomized trial of a comprehensive training program to enhance safe driving in older adults

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**Background/Objectives:** Canadian drivers aged 65+ represented the highest number of traffic-related collision fatalities in any age group in 2011. With high fatality risk compared to younger drivers, older driver safety is an area requiring attention. We investigated the effectiveness of a comprehensive training program to enhance safe driving in older adults. The program comprises in-class training, on-road training, and driving simulator training. The outcome variables examined for this presentation are self-reported driving comfort levels and driving knowledge.

**Methods:** Participants (n=78) aged 65+ were randomized by age and sex to one of three groups: 1) in-class training group (control); 2) in-class plus on-road training group; and 3) in-class plus on-road plus simulator training group. To analyze differences across the three study groups, analysis of covariance models were performed with post-intervention driving comfort level scores as the outcome variable and baseline driving comfort levels as the covariate. We compared driving knowledge evaluation pre- and post-classroom scores using a paired t-test.

**Results:** Results from the ANCOVA models revealed no statistically significant differences among the groups in the amount of change (p-values = .374 and .708 for daytime and night-time driving comfort, respectively). Participants' driving knowledge improved from 74.3% of correct answers before the in-class education component to 83.2% after (p<.001).

**Conclusion:** The comprehensive training process has potential to lead to a reduction in crashes, and hence may result in injury prevention, and prolonged use of the automobile with resulting quality of life benefits for older adult drivers.

## An evaluation of screening tools to identify at-risk drivers

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**Background/Objectives:** Driving is a primary mode of transportation for many people to maintain independence and mobility. However, neurological changes as a result of aging or injury can impact safe driving. Clinicians often rely on a variety of pen and paper tests to identify at-risk drivers; however, the accuracy of these tools remains unclear.

**Method:** Results from the Clock Drawing Test (CDT), Montreal Cognitive Assessment 7.1 (MoCA 7.1), Motor-Free Visual Perception Test Third Edition (MVPT-3), and Trail Making Test A and B (TMT-A and TMT-B) were compared to the outcome from on-road assessment (pass/fail). Receiver Operator Characteristic curves were generated to show the trade-off between sensitivity (true positives) and specificity (true negatives). We illustrate the “grey area” for each test where the possibility for false positives and false negatives exist. Tests were rated based on the size of this grey area and we used serial trichotimization to demonstrate how these tests could be used in practice.

**Results:** Overall, TMT-B had the best sensitivity and specificity, yielding the smallest grey area (34% of those assessed). This was followed by CDT (63%), MVPT-3 (65%), TMT-A (66%), and MoCA 7.1 (81%). Using serial trichotimization we were unable to predict the on-road outcome for 15% of participants.

**Conclusion:** Our results support the use of a combination of tests to yield screening results with high sensitivity and specificity. We see this as an opportunity to improve on current protocols while reducing the harm caused by mislabelling both fit drivers as unfit and unfit drivers as fit.

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