NORTHERN HEALTH RESEARCH CONFERENCE 2011

Northern Ontario School of Medicine
École de médecine du Nord de l'Ontario
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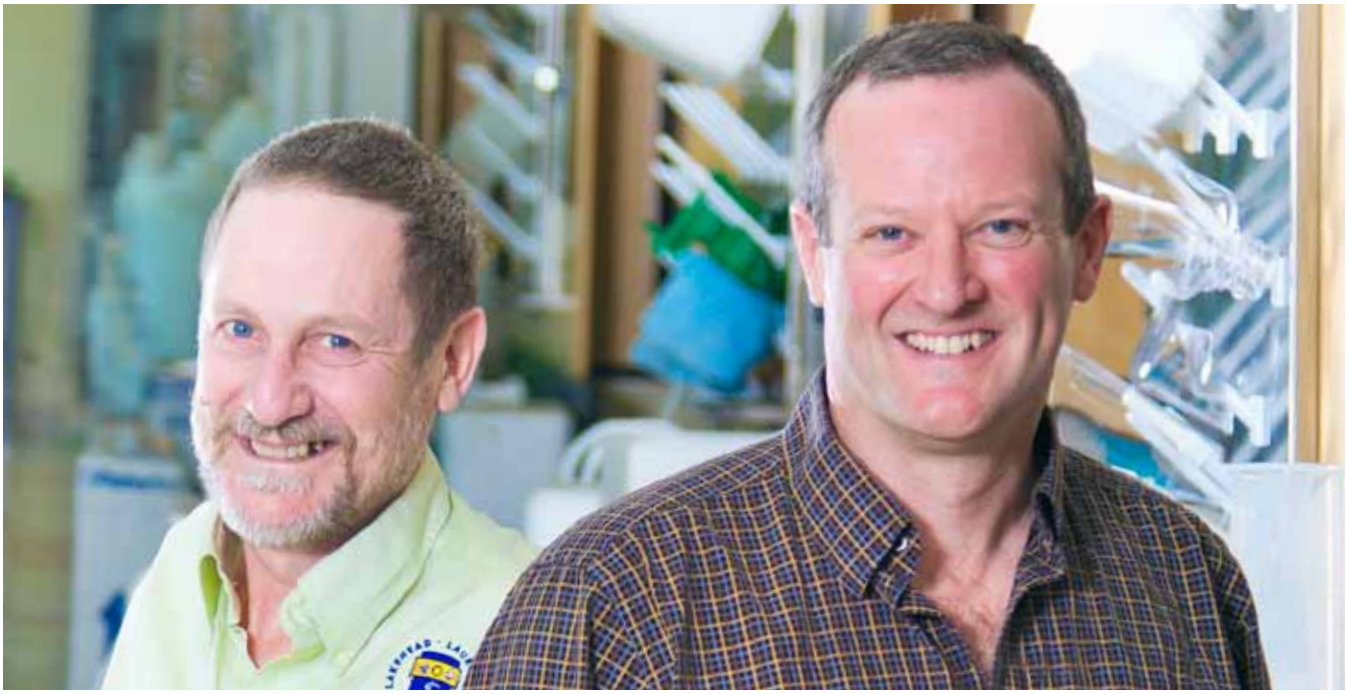
For information on the Northern Ontario School of Medicine's Research programs, please contact us at **research@nosm.ca** or through NOSM's website at www.nosm.ca.

Town of Huntsville
Ariel View of Downtown

Welcome.

Message from the Northern Ontario School of Medicine



On behalf of the Northern Ontario School of Medicine (NOSM), we welcome you to the sixth annual Northern Health Research Conference (NHRC). We are pleased to be hosting the conference in Huntsville this year.

The Town of Huntsville has eagerly supported NOSM's community-engaged distributed model of medical education. Each year since 2007, four third-year NOSM medical students have completed their Comprehensive Community Clerkship (CCC) in Huntsville. The CCC is an undergraduate curriculum requirement in which third-year medical students learn in hospitals, health centres, and family practices with the support of local physicians. Huntsville also welcomes learners from other NOSM programs, including dietetic interns and residents.

We are honoured to welcome our Keynote Speaker, Dr. David Henry. Dr. Henry is currently the President and CEO of the Institute for Clinical Evaluative Sciences (ICES) in Toronto. The title of Dr. Henry's keynote address is The development of ICES North – An important resource for Clinical, Health Services and Population Health Research. You are invited to join us as we meet with Dr. Henry on Friday, June 10 at 4:30 p.m. to discuss establishing ICES North as a satellite of ICES in Toronto.

Last year, NOSM publicly launched a new Strategic Plan. One of the strategic priorities in the plan is to Strengthen NOSM's Research Initiatives, with the goal of conducting research aligned to the School's vision of Innovative Research and Education for a Healthier North. This conference is one of many initiatives that allow the School to encourage research activities across the North, as well as facilitate the School's social accountability mandate of improving the health of people in Northern Ontario.

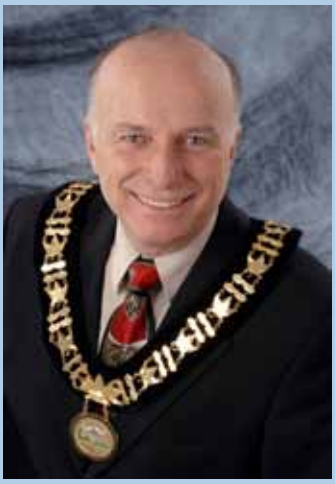
Over the next two days, you will have the opportunity to hear oral presentations and view posters on a variety of research topics, ranging from examination of the use of walk-in clinics in Northern Ontario, to the characteristics of community acquired pneumonia in the rural population of Northwestern Ontario.

Thank you to everyone at NOSM who devoted many hours to ensuring a successful Northern Health Research Conference. Special thanks to the Town of Huntsville and the staff of the Active Living Centre and Waterloo Summit Centre for the Environment.

Please enjoy the conference and the networking opportunities that it has to offer!

Dr. Roger Strasser
NOSM Dean

Dr. Greg Ross
NOSM Associate Dean, Research



Mr. Claude Doughty
Mayor of Huntsville

Greetings.

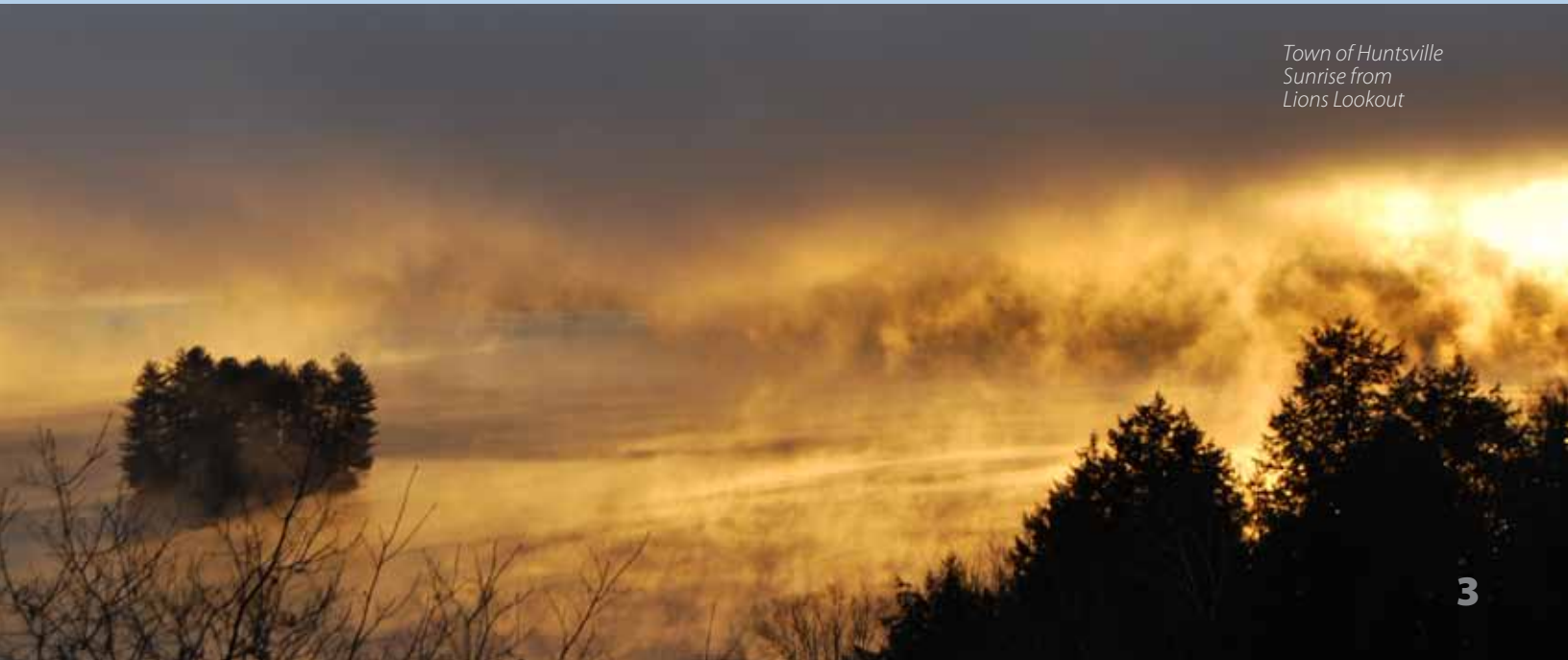
Message from the Mayor of Huntsville

On behalf of my Council Colleagues, and the residents of the Town of Huntsville, it is with great pleasure that I extend greetings and best wishes to everyone attending the sixth annual Northern Health Research Conference being hosted by the Northern Ontario School of Medicine, June 10 – 11, 2011 in the beautiful Town of Huntsville.

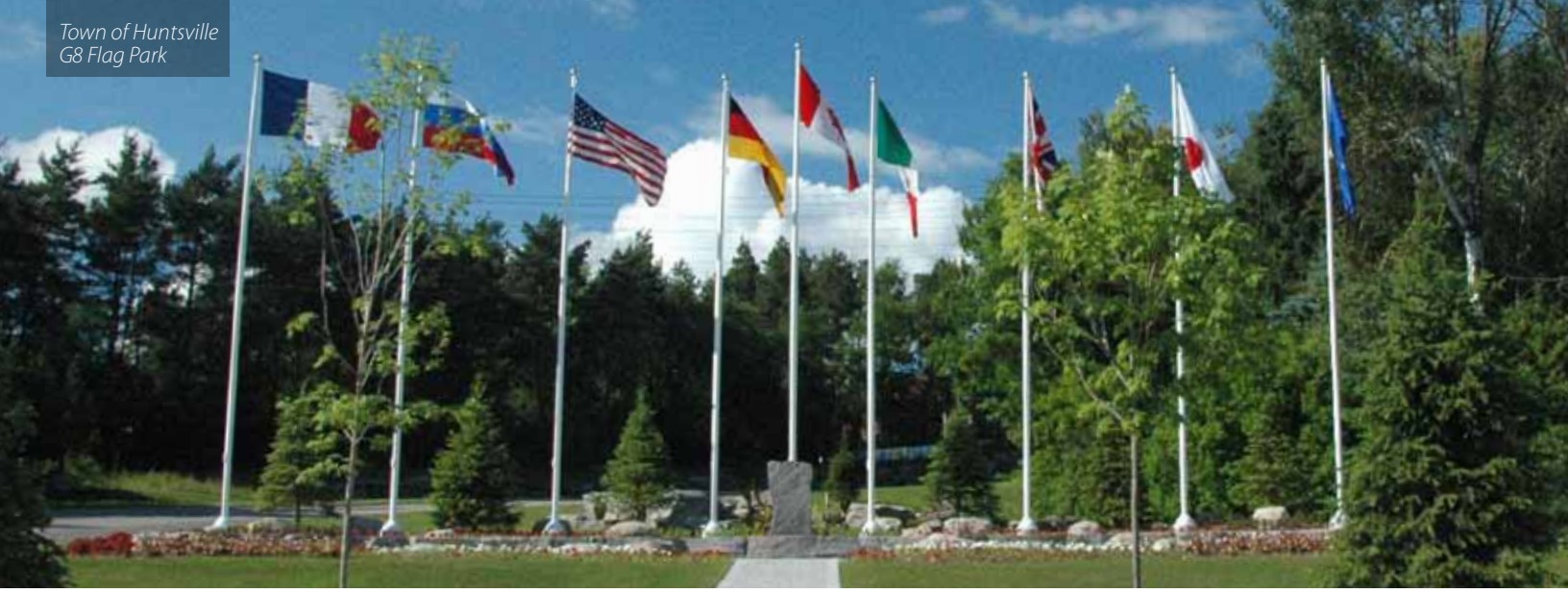
The Town of Huntsville is honoured to be chosen as the location for this year's Conference which demonstrates the Northern Ontario School of Medicine's commitment to health care and education to the people of Northern Ontario and beyond. Delegates from across Northern Ontario and other provinces in Canada will attend together with many health professionals and researchers.

During your stay, I encourage you to enjoy the many amenities that exist in the Town of Huntsville which should include the opportunity to visit and explore our Historic Downtown Huntsville and welcome you to visit us again, in the near future.

Wishing you all the best!



Town of Huntsville Sunrise from Lions Lookout



Town of Huntsville
G8 Flag Park

Mr. Norm Miller
MPP
Parry Sound - Muskoka

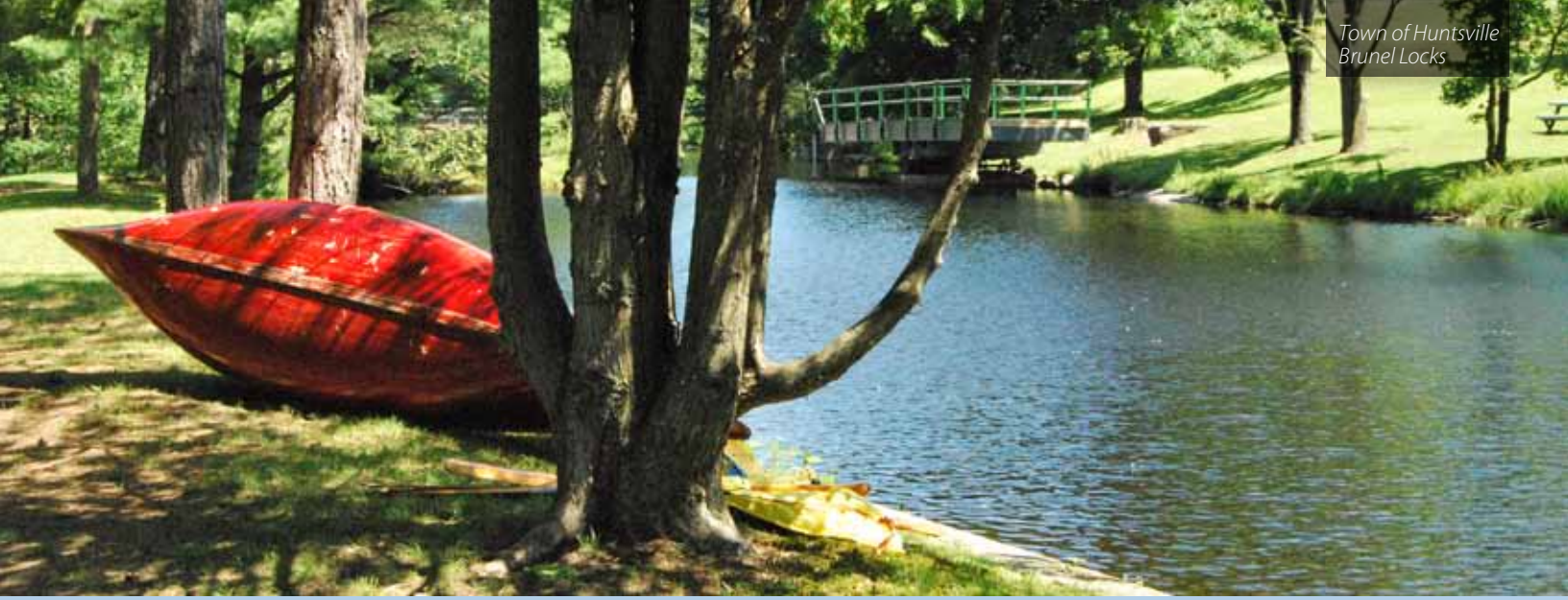
Welcome.

It is my great pleasure to extend a warm welcome to you all, and a special welcome to those who have travelled long distances to participate at the 6th Annual Northern Health Research Conference. I would also like to thank the hosting organization, Northern Ontario School of Medicine, and the Organizing Committee for chosing the Active Living Centre in Huntsville to hold this very important event.

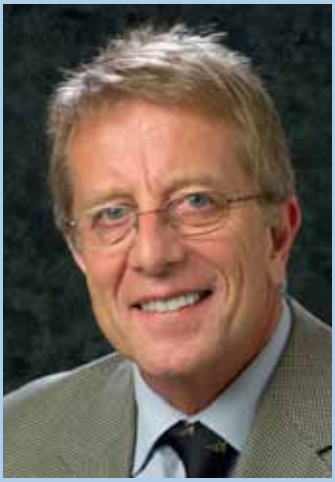
These conferences continue to bring greater awareness to research specific to the people of Northern Ontario communities. This event delivers stimulating presentations and provides attendees with an opportunity to collaborate and network with other researchers and health professionals. It is a chance to learn from your peers and examine new perspectives and developments in health care and education. I am confident that over the next two days, you will benefit from sharing experiences, exchanging information, and exploring new ideas in the important field of health.

June is a spectacular time to visit this region. The Town of Huntsville and the surrounding areas offer great places to see and exciting things to do. I hope you enjoy your stay in Huntsville.

On behalf of the communities of Parry Sound - Muskoka, I wish the Conference every success and all participants a rewarding occasion. Your commitment to improving the health of people in Northern Ontario is commendable.



Town of Huntsville
Brunel Locks



Dr. David Henry
President and CEO of the Institute for Clinical Evaluative Sciences

Keynote.

Dr. David Henry is currently the President & CEO of the Institute for Clinical Evaluative Sciences (ICES) in Toronto; Senior Scientist, Clinical Epidemiology - Holland Musculoskeletal Research Program, Sunnybrook Research Institute; Professor in the Department of Medicine at the University of Toronto; and, Adjunct Professor, School of Medicine and Public Health at the University of Newcastle, Australia.

Dr. Henry is a physician and clinical pharmacologist and has an interest in all aspects of medicines use by communities. He was a member of the Australian Pharmaceutical Benefits Advisory Committee (PBAC) and Chair of the Economics Sub-committee of PBAC from 1993-2001. He has worked with the World Health Organization and has expertise in international systems for pricing of therapeutic drugs. Dr. Henry has an interest in the portrayal of illness and treatment by the media and has established a media monitoring website, **www.mediadoctor.org.au**.

Agenda.

THURSDAY, JUNE 9, 2011

6:00 - 8:00	**"Meet and Greet" BBQ - Tours Available**	**Waterloo Summit Centre for the Environment** 87 Forbes Hill Drive, Huntsville

FRIDAY, JUNE 10, 2011

8:00 - 9:00	**Registration / Poster Set-Up / Poster Viewing (Groups #1 and #2)**	**Active Living Centre** 20 Park Drive, Huntsville
9:00 - 9:05	Welcome and Opening Remarks from Roger Strasser, Dean, Northern Ontario School of Medicine (NOSM)	
9:05 - 9:30	Welcome Message from Dignitaries and Special Guests	
9:30 - 10:30	**Keynote Address** **Dr. David Henry, President and Chief Executive Officer, Institute for Clinical Evaluative Sciences (ICES)** The Development of ICES North – An Important Resource for Clinical, Health Services and Population Health Research	
10:30 - 11:00	**Nutrition Break / Poster Viewing (Group #1)**	
11:00 - 11:15	**Alain Gauthier** Looking Beyond the Waiting Room: Examining the Use of Northern Ontario Walk-in Clinics	
11:15 - 11:30	**Mike Conlon** Health-related quality of life changes and associations with selected Single Nucleotide Polymorphisms in men with prostate cancer who receive external beam radiation therapy treatment: Study overview and preliminary results	
11:30 - 11:45	**Josina Vink** Towards an Integrated Continuum of Care: Strategies for Improving Care and Accommodation of Elders in Communities of North Shore Tribal Council	
11:45 - 12:00	**Lee Rysdale** Nutrition Concerns in a Sample of Northern Ontario Toddlers	
12:00 - 1:30	**Lunch / Poster Viewing (Groups #1 and #2)**	
1:30 - 1:45	**Paul Fredette and Barb Ward** Maternal-Infant Research on Environmental Chemicals (MIREC): A National Profile of In Utero and Lactational Exposure to Environmental Contaminants	
1:45 - 2:00	**Brooke Noble and Amanda Sawko** The perceived knowledge, skills, attitudes, and training needs of Northern Ontario dietitian preceptors	
2:00 - 2:15	**Bruce Weaver** Silly or Pointless Things People Do When Analyzing Data: 1. Conducting a Test of Normality as a Precursor to a t-test	
2:15 - 2:30	**Marina Ulanova** Risk of invasive Haemophilus influenzae type b (Hib) disease in adults with secondary immunodeficiency in the post-Hib vaccine era	
2:30 - 3:00	**Nutrition Break / Poster Viewing (Group #2)**	
3:00 - 3:15	**Christine Kupsh** An Anesthesia "Boot Camp" to Teach Crisis Resource Management Skills	
3:15 - 3:30	**Kristen Jacklin** Aboriginal Understandings of Dementia and Cognitive Health	
3:30 - 3:45	**Rachael Goodmurphy and Michelle Lawrence** Barriers and facilitators to recruitment and retention of Registered Dietitians in Northern Ontario	
3:45 - 4:00	**Anshoo Kamal and Hussein Lalani** Analysis of Emergency Department Physician Human Resource Utilization in Ontario	
4:00 - 4:30	**Poster Teardown (Groups #1 and #2)**	
4:30	ICES North Stakeholders Meeting with Dr. David Henry	**Active Living Centre** 20 Park Drive, Huntsville
7:00 - 9:30	**Dinner & Social**	**Grandview Golf & Country Club** Mark O'Meara Course, 939 Hwy #60, Huntsville

Session Chair: John Hogenbirk

Session Chair: Alain Gauthier

Session Chair: Bruce Weaver

SATURDAY, JUNE 11, 2011

	8:00 - 9:00	**Poster Set-Up / Poster Viewing (Groups #3 and #4)**	**Active Living Centre** 20 Park Drive, Huntsville
Session Chair: David Marsh	9:00 - 9:15	**Bob Chaudhuri** Placing Interprofessional Education and Collaboration Impact in Historical Context	
	9:15 - 9:30	**Leigh Hayden** Access to Health Services: Including a Gender and Equity Lens	
	9:30 - 9:45	**Amanda Ward** Case Study: A look into the Group Health Centre's Electronic Medical Record Procurement Process	
	9:45 - 10:00	**Carita Lannér** Mechanisms of resistance in carboplatin, docetaxel, and dual drug resistant ovarian cancer cell lines	
	10:00 - 10:15	**Michela Febbraro** A Review of Inuit Oncology Patients Treated at the Ottawa Hospital Cancer Centre	
	10:15 - 10:45	**Nutrition Break / Poster Viewing (Group #3)**	
Session Chair: Carita Lannér	10:45 - 11:00	**David Marsh** Do Guidelines Influence Physician Behaviour? Case Study of Methadone Maintenance Treatment (MMT) in British Columbia: 1996-2007	
	11:00 - 11:15	**Sean Bryan** Cystathionine γ-lyase and hypoxia: Implicating hydrogen sulfide in the hypoxic stress response	
	11:15 - 11:30	**Mark Lachmann** Cluster Suicide in Northern Ontario	
	11:30 - 11:45	**Janelle Jarva** Wait-times and mental health service delivery: The impact of Shared Care on waiting for mental health services	
	11:45 - 1:15	**Lunch / Poster Viewing (Groups #3 and #4)**	
Session Chair: Neelam Khaper	1:15 - 1:30	**Yasser Mohamed** Retrospective Drug Use Evaluation of Ceftriaxone in Northern Ontario Hospitals	
	1:30 - 1:45	**Joy Noel-Weiss** Maternal Fluids During Parturition, Neonatal Output, & Newborn Weight Loss: An Observational Study to Determine Associations	
	1:45 - 2:00	**Christopher Auger** The metabolic networks mediating cell survival in Pseudomonas fluorescens challenged by nitric oxide, an endogenous anti-bacterial agent	
	2:00 - 2:15	**John Hogenbirk** Future Practice of Medical Students at the Northern Ontario School of Medicine – Part 1: Methodology and Intended Medical Discipline	
	2:15 - 2:45	**Nutrition Break / Poster Viewing (Group #4)**	
Session Chair: Marina Ulanova	2:45 - 3:00	**Nya Fraleigh** Inhalation exposure to transition metals can facilitate sensitization to an innocuous protein antigen	
	3:00 - 3:15	**Margaret Delmege** Future Practice of Medical Students at the Northern Ontario School of Medicine – Part 2: Intended Practice Location	
	3:15 - 3:30	**Sheila Damore-Petingola** The Supportive Care Oncology Network – NE Region: Screening for Distress in Northeastern Ontario – Implications for Practice in Rural Health Care	
	3:30 - 4:00	**Closing Remarks / Conference Evaluation / Wrap Up / Poster Teardown (Groups #3 and #4)**	

Posters.

Group #1

Poster Station	Presenter / Title
1	Bob Chaudhuri The Treatment of Intergenerational Trauma, Resiliency in First Nation Peoples and the Experience of Residential School Exposure
3	Bob Chaudhuri A Pilot Project for Mental Health Service Treatment Provision for Residential School Survivors
5	Slim Babay The Effect of Omega-3 PUFAs on Anxiety in Rats
7	Michael Mak DiabeTEXTs – Innovative Diabetes Education through SMS Texting
9	Stephanie Ouellette A Retrospective Study Of Child And Adolescent Psychiatric And Multidisciplinary Teleconsultations
11	Kylie Williams Oxidative stress and inflammation in type 2 diabetes
13	Gerry Cooper Key Factors in Conducting a Successful Orientation
15	Krista Clark Effectiveness of a Wellness and Exercise based Oncology Program
17	Janique Vandal Antimicrobial activity of natural products recovered from the flora of Northern Ontario
19	Simone Kaptein A community-based participatory planning process and program design: Toward eliminating smoking during pregnancy and decreasing health inequities in North Bay
21	Neil McAlister Relationship Between Cardiac Diastolic Function and Exercise Tolerance
23	Bruce Weaver Observed, Estimated, and Projected Fatality Trends

Group #2

Poster Station	Presenter / Title
2	Bob Chaudhuri The Conundrum of Accommodation: The Status of Overt and Covert Disability in Medical Training
4	Bob Chaudhuri Shared care mental health and its problems in the interprofessional and intraprofessional context
6	Sergio Fabris Cortisol and dexamethasone induced hypertension increased intramuscular nitric oxide levels in fetal programmed hypertensive rats
8	John Coccimiglio Biological Properties of the herb Origanum vulgare
10	Marion Maar The Influence of Spiritual, Emotional and Social Wellness on the Management of Type 2 Diabetes Among First Nations People
12	Heather Peltsch Maternal-Infant Indicators of Quality Care
14	Alissa Tedesco Overview of the Diagnostic Pathway of a Lung Cancer Patient in Sault Ste Marie: A retrospective chart audit
16	Rashmi Narendrula Validating gene expression changes detected by microarray analysis in drug resistant ovarian cancer cell lines using Q-PCR
18	Jeff Curran Assessment of epidermal growth factor receptor mutation status in non-small cell lung cancer patients at the Algoma District Cancer Program
20	Nicole Hawdon Immune response to Haemophilus influenzae type b (Hib) vaccine in patients with chronic renal failure
22	Bruce Weaver Screening for Medically At-Risk Drivers with the SIMARD-MD: A Failure to Apply the CIHR Knowledge-to-Action Framework

Group #3

Poster Station	Presenter / Title
1	Bob Chaudhuri Reflecting on the Experience of the Placement of First Year Medical Students in First Nation and Métis Communities
3	Bob Chaudhuri "Self-Esteem" as a Culturally-Biased Construct and Using of Narrative Story-telling to enhance Resiliency in First Nation Mental Health
5	Mary Ellen Hill Enhancing Competencies, Improving Care: The Success of the Kenora Wound Care Pilot Project
7	Sebastien Lefebvre Evaluating the effect of transition metal exposure on the expression of metallothionein in airway epithelial cell cultures: Challenging analysis of a difficult molecule.
9	Stephanie Puukila Oxidative stress and inflammation in cardiac iron overload: Role of SDG
11	Wendy Graham Integrated Primary Care Screening Project
13	Neelam Khaper Impact of redox-cytokine interaction in cardiac remodeling
15	Carol Cameletti and Sonny Lee Facilitation of Martial Arts as Leisure: Empowering First Nations Youth as a form of Community Process
17	Michael Thibert Clinical and Psychosocial Effectiveness of Dance Based Cardiac Rehabilitation- Pilot Project
19	Jari Tuomi Junctional Tachycardia in the Mouse can be Prevented by Pacemaker Channel (If) Blockade
21	Sarah Craig Treatment Utilization by Problem Gamblers in Northwestern Ontario
23	Michela Febrarro A Retrospective Chart Review Examining Post-Diagnosis BMI Changes in Breast Cancer Patients in the Algoma Region after the Implementation of Wellness Initiatives

Group #4

Poster Station	Presenter / Title
2	Bob Chaudhuri A pilot study exploring Interprofessional attitudes, knowledge, and skills between students and non-students in the health care disciplines – a preliminary five-factor model
4	Eli Nix Functional antibody activity following immunization of end-stage renal disease patients with Haemophilus influenzae type b (Hib) conjugate vaccine
6	Laura Rossi Modulation of Gene Expression in Vascular Endothelial Cells by Extracellular Matrix
8	Kaylyn Sutcliffe Inhalation of nebulized diesel exhaust particles: A safety trial
10	Joe Eibl A structure-activity relationship study of pyrazoloquinazolinecarboxilate analogues to inhibit nerve growth factor in vitro
12	Ian Roney A Review of Thyroid Cancers Referred to the Algoma Regional Cancer Program 2007-2010
14	Francois Doiron Identifying risk factors for acute pneumonia in Northwestern Ontario
16	Marina Ulanova Characteristics of community acquired pneumonia in the rural population of Northwestern Ontario
18	Misagh Alipour An aqueous ginseng extract modulates the production of virulence factors, stimulates twitching and adhesion, and eradicates biofilms of Pseudomonas aeruginosa
20	Jari Tuomi Atrial Tachycardia/Fibrillation in the Connexin 43 G60S Mutant (Oculodentodigital Dysplasia) Mouse
22	Michela Febrarro Body Surface Area and Chemotherapy Dosing Guidelines at the Algoma District Cancer Program, A Cross-Canada Survey

Acknowledgements.

Northern Ontario School of Medicine

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*Special thanks to Aboriginal Elder, **Tim Watkinson**, for providing Opening Prayer.*

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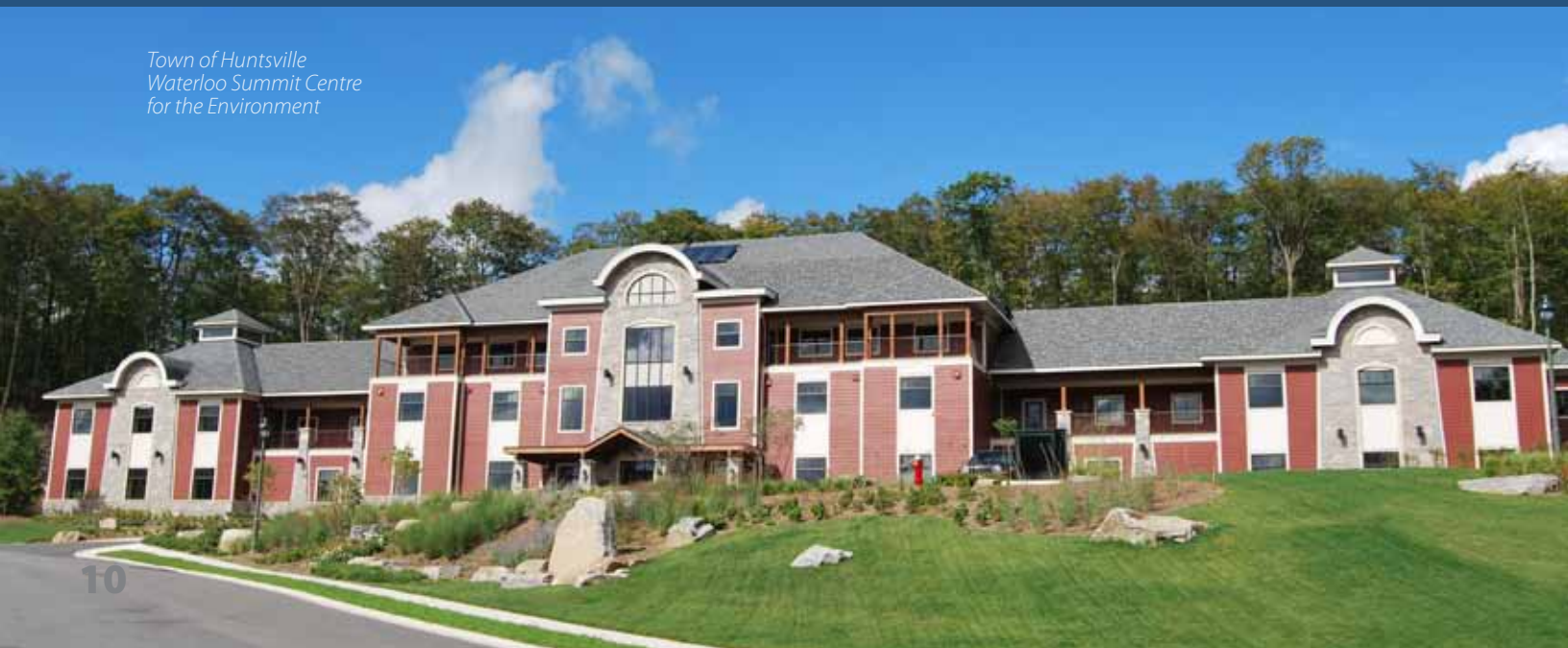
The Northern Ontario School of Medicine wishes to thank the Town of Huntsville for their support.



Town of Huntsville
Waterloo Summit Centre
for the Environment

Oral Abstracts.

The research work in the following abstracts are all original and innovative.

Abstracts have been published exactly as submitted.

Looking Beyond the Waiting Room: Examining the Use of Northern Ontario Walk-in Clinics

PRESENTING AUTHOR:
Alain P. Gauthier

AUTHOR(S):
Natalie Lefrançois[1]; Elizabeth Wenghofer[2]; Alain P. Gauthier[1]; Ginette Michel[1]; Patricia Pickard[1]

AFFILIATIONS:
Laurentian University
[1] School of Human Kinetics
[2] School of Rural and Northern Health

ABSTRACT:
Background: Walk-in-clinics (WICs) were designed to deal with episodic illnesses and to relieve the high patient volumes in emergency departments. However, there is speculation that WICs are not being used for their original intent, particularly in areas that suffer from physician shortages. The purpose of this study was a) to determine the proportion of WIC patients with and without a primary care provider; and b) to examine the proportions of patients who are using the WIC for management of acute or chronic conditions.

Methods: A survey was used to collect data at two WICs in Northern Ontario. Data included patient socio-demographic information, whether or not patients had a regular primary care provider, and the general nature of the patient's visit.

Results: The survey had a response rate of 86% (n=344). Among those surveyed, a total of 258 patients had a regular primary care provider, while 56 patients indicated they used the WIC for primary care services. A Pearson X^2 test revealed that patients with a primary care provider were less likely to use the WIC to treat a chronic condition (8.6%) when compared to patients without a primary care provider (19.4%) ($p=0.01$).

Conclusions: Results from this study confirm that for the majority, patient visits to WICs are being used in the way in which they were originally intended. However, our findings do suggest a high proportion of patients reporting the use of a WIC for primary care and chronic condition management, particularly in patients without regular primary care providers. Thus, this study indicates that WICs may be required to provide services beyond their intended scopes due to the lack of patient access to regular primary care services.

Health-related quality of life changes and associations with selected Single Nucleotide Polymorphisms in men with prostate cancer who receive external beam radiation therapy treatment: Study overview and preliminary results

PRESENTING AUTHOR:
Mike Conlon, PhD[1]

AUTHOR(S):
Mary Bewick, MSc[1]
Julie Bowen, MD[2]
Randy Bissett, MD[2]

AFFILIATIONS:
[1] Epidemiology, Outcomes & Evaluation Research
[2] Radiation Oncology Program, Regional Cancer Program of the Hôpital Régional de Sudbury Regional Hospital, 41 Ramsey Lake Road, Sudbury, Ontario P3E 5J1

ABSTRACT:
We have an ongoing research study that is focussed on men with intermediate to high risk prostate cancer who are treated using External Beam Radiation Therapy (EBRT) at the Regional Cancer Program of the Hôpital Régional de Sudbury Regional Hospital. This report provides an overview of the study and selected preliminary results. The study measures change in Health-Related Quality of Life (HRQOL) across prostate cancer treatment specific domains (urinary, bowel, sexual, and hormonal), and associations of Single Nucleotide Polymorphisms (SNPs) with development of toxicity or decreased HRQOL. Participation in the study involves completing the Expanded Prostate Index Composite (EPIC), a valid and reliable tool specifically designed to assess HRQOL in men who receive treatment for prostate cancer, at three time points (prior to treatment, end of treatment, two years post treatment) and providing a saliva sample for genetic analyses. Logistic regression defines ORs and 95% CI's for selected SNPs and associations with outcomes from treatment. To date, 60 men have been enroled. Preliminary analyses of the bowel domain HRQOL summary scores demonstrate significantly decreased HRQOL at end-of-treatment, with evidence of substantial inter-individual variation. There was little evidence of significant univariate associations in selected DNA repair SNPs, however the use of a "variant genotype score" was significantly associated with large decreases in HRQOL, and supported by a significant test of trend. Interpretation was not substantively different after adjusting for potential covariates (radiation treatment parameters, presence of hypertension or diabetes). Our early results suggest that the development and use of a variant genotype score may help to personalize treatment by determining who may be at risk for the development of toxicity and/or substantially decreased HRQOL and may therefore help clinicians and patients better determine appropriate treatment strategies.

Towards an Integrated Continuum of Care: Strategies for Improving Care and Accommodation of Elders in Communities of North Shore Tribal Council

PRESENTING AUTHOR:
Josina Vink

AUTHOR(S):
Allie Peckham, PhD(c) [1]; Ed Starr, MBA, MES, RPP [2]; Cassandra Vink, MScPl [3]; Josina Vink, MDes(c) [4]; Jillian Watkins, PhD(c) [5]; Paul Williams, PhD [6]

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SHS Consulting [2,3,4]; Ontario Professional Planners Institute [2,3]; Health Policy, Management and Evaluation, University of Toronto [1,5,6]; Strategic Foresight and Innovation, Ontario College of Art and Design University [4]

ABSTRACT:
The population of elders living in the seven First Nation communities of the North Shore Tribal Council, located between Sudbury and Sault Ste Marie, is projected to grow significantly in the next twenty years. As the population ages, the need for appropriate care and accommodation options is also increasing. This study examines the current and future needs of elders within the North Shore Tribal Council and offers strategies to move toward an integrated continuum of care based on existing practices. A series of methods were utilized for this research including: a literature review, examination of demographics and health status information, extensive community consultation, balance of care analysis with frontline health service providers, and collaborative strategy development. All components of this study were guided by Tribal Council staff and the Health Directors of the seven First Nation communities. The strategy builds on what is already working within these communities and offers concrete recommendations for addressing gaps in health, housing, and support services. Broad areas of action include increasing the coordination of care, enhancing integration community values and implementing innovative practices.

Nutrition Concerns in a Sample of Northern Ontario Toddlers

PRESENTING AUTHOR:
Lee Rysdale, MEd, RD

AUTHOR(S):
Lee Rysdale, MEd, RD[1], Kim McGibbon, MScCH, RD[2]; Jenna Campbell, MSc[1], Riley Fulkerson, BASc[1], Stephanie Hill BSc[1], Tammy Vachon BSc[1]; Nicole Holland, MSc[3], Janis Randall Simpson, PhD, RD[3]; Heather Keller, PhD, RD[3]; Joanne Beyers, MA, RD[4].

AFFILIATIONS:
[1] Northern Ontario Dietetic Internship Program. Sudbury and Thunder Bay, ON.
[2] Thunder Bay District Health Unit, Thunder Bay, ON.
[3] Department of Family Relations and Applied Nutrition, University of Guelph, Guelph, ON.
[4] Sudbury & District Health Unit, Sudbury, ON.

ABSTRACT:
Background: The extent and nature of potential nutritional problems in toddlers (18-35 months) is unknown. Recent federal funding is being used to develop a valid and reliable nutrition risk screening tool for this age group.

Objectives: To describe the potential nutrition concerns in a Northern Ontario sample to inform screening tool refinement and local public health nutrition programs.

Methods: Data were collected during the provincial refinement of Toddler NutriSTEP® (Nutrition Screening Tool for Every Preschooler) from diverse populations (including Aboriginal and Francophone) in Greater Sudbury and Thunder Bay. Demographic characteristics were gathered with an adapted Statistics Canada standardized questionnaire. Child nutrition concerns were obtained from 70 parent responses to 19 questions on the draft Toddler NutriSTEP® questionnaire. Descriptive quantitative statistics (SPSS Version 18) were completed.

Results: Thirty children (43%) were aged 18-24 months and 40 were 25-35 months; a small proportion had reported medical concerns (13 %). Most children were from two parent, educated, high income households of mixed backgrounds (64% and 23% English and French speaking mothers, respectively; 31% First Nations mothers). Nutrition concerns included: frequent supplement use (27% most of the time/always); low intake of vegetables and fruit (27% twice daily or less) and meat (31% a few times a week or less); high juice/sweetened beverage intake (37% two or more times daily); frequent fast/restaurant food consumption (19% once a week or more); and, baby bottle drinking (19% often/most of the time). Other concerns were: daily television viewing (33% two or more hours) and using distractions at meals (e.g. TV, toys) (36% sometimes/often).

Discussion: The prevalence of these nutrition problems supports the need for nutrition risk screening with toddlers. Screening is a fast and simple way to identify and address nutrition issues early, and increase parent knowledge to support optimal growth and development and prevent future health consequences.

Maternal-Infant Research on Environmental Chemicals (MIREC): A National Profile of In Utero and Lactational Exposure to Environmental Contaminants

PRESENTING AUTHORS:
Dr. Paul Fredette and Barb Ward

AUTHOR(S):
Tye Arbuckle and William Fraser

AFFILIATIONS:
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ABSTRACT:
While the neurotoxicity of lead and mercury in children is well known, the effects of low prenatal body burdens of lead and other heavy metals such as cadmium, arsenic, manganese and mercury on maternal and infant health are less understood. Preliminary evidence suggests that maternal blood lead levels below the current CDC action limit of 10 µg/dl have adverse effects on blood pressure, fetal growth and later child intellectual development, resulting in possible permanent effects. Little is known about how to reduce exposure to these low levels. Experimental animal and cross-sectional epidemiologic studies are also suggesting that nutritional factors such as antioxidant vitamin intake (Vitamins C and E) and calcium and other essential elements mitigate heavy metal toxicity. Health Canada's Healthy Environments and Consumer Safety Branch has identified a need for data on maternal exposure to and health effects of specific priority environmental contaminants and is prepared to contribute to the costs of collecting this data. Two of the most susceptible and vulnerable populations - the pregnant woman and her fetus are the focus of the MIREC study.

The perceived knowledge, skills, attitudes, and training needs of Northern Ontario dietitian preceptors

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ABSTRACT:
Background: The Northern Ontario Dietetic Internship Program (NODIP) is a distributed community-engaged model with die titian preceptors in various practice settings including rural communities. Preceptor roles are complex and there is limited knowledge to inform NODIP preceptor development needs.

Objectives: 1) To determine the perceived knowledge, skills and attitudes of Northern Ontario dietitian preceptors; 2) to identify barriers to dietitian preceptor training in Northern Ontario; and 3) to identify the training needs and preferred training modes of Northern Ontario dietitian preceptors.

Methods: A 22-item online survey was modified from a national dietetic instrument (Canadian Preceptors' Perceived Knowledge, Skills and Training Survey, 2008), to include items related to self-identified preceptor training content needs and preferred modes of training. This pretested online survey was distributed in March 2010 to 161 eligible dietitians practising in North East and North West Local Health Integration Networks (LHIN 13 and 14).

Results: Sixty four (40%) dietitians participated with 63% from LHIN 13 and 68% from an urban setting One quarter (26%) of respondents had 1-2 years of work experience while 32% had 21 or more years. Responses were consistent among respondents, including no relationship to practice setting, regarding their perceived knowledge, skills, and attitudes of dietitian preceptors. Eighty-six percent would like to be a more skillful preceptor. Barriers to preceptoring included workplace support and workload. Key training topics were evaluating learners, dealing with poor performers, fostering critical thinking and giving and receiving constructive feedback. Most useful training modes included face to face (e.g. workshops), videoconferencing, and teleconferencing/webinars.

Implications and Conclusions: These findings help identify the professional development needs of Northern Ontario dietitian preceptors and aid in future NODIP preceptor training activities. Also these results can inform national dietetic, as well as Northern Ontario School of Medicine Continuing Education and Professional Development (CEPD), preceptor initiatives.

Silly or Pointless Things People Do When Analyzing Data: 1. Conducting a Test of Normality as a Precursor to a t-test

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ABSTRACT:
Statistics textbooks often list the following assumptions for the unpaired t-test, usually in this order: The populations from which the two samples are drawn must be 1) normally distributed with 2) equal variances, and 3) each observation must be independent of all others. Many users of statistics appear to believe that the normality assumption is most important (possibly because the assumptions are usually listed in the order shown above). Because of that, some people first conduct a test of normality, and only if it fails to reject the null hypothesis that the data are normally distributed do they proceed to the t-test. However, testing for normality as a precursor to a t-test is one of the most pointless things one can do in statistics. The assumption of normality is most important when sample sizes are small; but when sample sizes are small, tests of normality have very low power, and therefore fail to detect important departures from normality. As sample sizes increase, the assumption of normality becomes less important, because the sampling distribution of the mean converges on the normal distribution. But at the same time, tests of normality become increasingly powerful, and begin to detect unimportant departures from normality that have no serious impact on the t-test. A better screen as to whether one can validly use a t-test is to ask if it is appropriate to use means and standard deviations descriptively. If the answer is “Yes”, then a t-test will usually not lead one too far astray.

Risk of invasive Haemophilus influenzae type b (Hib) disease in adults with secondary immunodeficiency in the post-Hib vaccine era

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ABSTRACT:
Incidence of invasive disease caused by Haemophilus influenzae type b (Hib), an encapsulated Gram-negative bacterium, has dramatically decreased in all countries that included conjugate Hib vaccines into the routine immunization programs. In Canada, a rapid decline in Hib-associated morbidity and mortality, especially in young children, has occurred since the vaccine was introduced in 1991. Vaccination also leads to reduced carriage of the microorganism due to the “herd effect.” As a result, the circulation of Hib in the population significantly decreases, but is not completely eliminated. Low circulation rates of Hib may account for reduced antigenic stimulation essential for the development of natural anti-Hib immunity in non-vaccinated populations. As production of type-specific anti-capsular polysaccharide antibodies is the major defense mechanism against Hib, individuals with various defects in humoral immune responses have high susceptibility to infections caused by Hib. We hypothesized that non-vaccinated adults with chronic conditions causing immunosuppression may lack protective antibody to Hib.

We have studied serum anti-Hib IgG levels in 60 patients with end-stage renal disease (ESRD), 30 patients with chronic obstructive pulmonary disease (COPD), and 20 patients with multiple myeloma (MM), considering antibody >1 mcg/ml as the level ensuring long-term protection against invasive Hib disease. We detected below-protective Hib antibody levels in 57% of ESRD, 53% of COPD, and 85% of MM patients, in comparison to 13% of healthy age-matched controls.

These data indicate that a large proportion of patients with severe chronic disease and hematologic malignancy are at an increased risk of invasive Hib disease. Considering that Hib continues to circulate in the population, this study provides rationale for the immunization of adult patients with secondary immunodeficiency with the pediatric Hib vaccine to achieve protective humoral immunity.

An Anesthesia “Boot Camp” to Teach Crisis Resource Management Skills

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ABSTRACT:
The Family Practice Anesthesia (FPA) 1 year program is significantly shorter than the 5-year specialty program. Therefore, there is limited clinical exposure to rare but critical events. Simulation offers a patient-safe and learner-safe environment to learn crisis management skills. We designed and implemented a comprehensive 5-day simulation-based anesthesia program to meet the needs of the FPA program. We compared the impact of this program to the standard clinical exposure training.

After IRB approval, a local needs assessment was performed on the FPA program. Learning objectives, curriculum and faculty development sessions were created. Resident feedback regarding effectiveness and anxiety were elicited through evaluations and interviews. To assess the impact of the program, crisis management was evaluated using a standardized scenario before and after the program. Videotapes were assessed by blinded reviewers using a non-technical score.

The curriculum was developed based on the 5 themes that emerged through an iterative process: Respiratory, Trauma, Airway, Cardiovascular and Crisis Resource Management. Teaching modalities for each theme included didactic lectures, hands-on technical teaching and high-fidelity simulation. The evaluations reflected decreased anxiety, increased motivation and a high level of satisfaction with the program. Unexpected benefits identified included interest in further faculty development, increased collaboration between institutions and enthusiasm for teaching. Analysis of crisis management skills is currently underway.

In conclusion, we successfully developed and completed the first iteration of an intensive, simulation based course for FPA residents. It was extremely well received by residents, faculty and the supporting institutions.

Aboriginal Understandings of Dementia and Cognitive Health

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ABSTRACT:
Our research concerns Alzheimer's Disease and Related Dementias (ADRD) in Aboriginal communities in Ontario, Canada. ADRD is viewed as an emerging health issue for Aboriginal communities as the number of seniors is increasing and is expected to double by 2017. Historically low rates of ADRD in these communities coupled with complex funding policies and disjointed service provision has meant that their specific needs as Aboriginal people have not been addressed. Our research aims to bring light to this new health issue through community-based anthropological investigations into the experience of ADRD in diverse Aboriginal communities in Ontario. This paper will present findings concerning cultural influences on the knowledge, attitudes, experiences and perceptions of ADRD held by Aboriginal people at two of our research sites: (1) The Haudensaune Six Nations Reserve in Southern Ontario and (2) the seven rural Ojibwa, Odawa, and Pottawatomi First Nations of Manitoulin Island in Northeastern Ontario. Narratives of Elders, caregivers and patients with dementia reveal an Aboriginal-specific interpretation of dementia that differs from biomedical understandings held by mainstream Canadians and caregivers. Our findings reveal the importance of culture and language in Elder's construction of cognitive health and dementia, and an underlying tension between traditional expectations of care and the nature of contemporary Aboriginal communities. Diversity in the ADRD experience between the two communities is evident and provides valuable information for the development of culturally sensitive and safe care.

Barriers and facilitators to recruitment and retention of Registered Dietitians in Northern Ontario

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ABSTRACT:
BACKGROUND: There is a chronic shortage of Registered Dietitians (RDs) in Northern Ontario along with limited research to address recruitment and retention issues for the profession.

OBJECTIVE: To identify the perceived barriers and facilitators to recruitment and retention of Northern Ontario RDs, in order to better understand the turnover and shortages of dietitians in various practice settings.

METHODS: A key informant telephone survey, previously developed and pre-tested, was conducted in March 2010 with a diverse sample of RDs working in Northern Ontario. Eligible RDs (n=161) were recruited by email and those consenting were provided with a convenient 10-15 minute interview with one of two research interviewers. The survey consisted of ten questions, including four related to demographics and practice area. Data were analyzed using PASW Statistics (Version 18).

RESULTS: Seventy-four RDs currently working in Northern Ontario were interviewed (response rate: 46%). Most respondents (65%) were from the Northeast Local Health Integration Network (LHIN 13) and from an urban setting (70%). The most common areas of primary practice among respondents were clinical (42%) and public health (26%). Most (72%) participants were aware of at least one vacancy in their organization over the past two years; the maximum number of vacancies in a single organization was five. The two factors that were most frequently identified by respondents as being likely to reduce recruitment and retention problems in Northern Ontario were continuing professional development and education (35%) and competitive salary and benefits (30%).

IMPLICATIONS AND CONCLUSIONS: The expansion of RD positions as well as roles (e.g. family health teams, provincial Diabetes Strategy) has had implications at the professional, client, community and organizational level. These results will assist in health human resource planning as well as advocacy efforts for the profession.

Analysis of Emergency Department Physician Human Resource Utilization in Ontario

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ABSTRACT:
This study examined the work patterns of three physician specialties working in Ontario emergency departments (EDs), emergency medicine (FRCP-EM), family medicine (FM) and family medicine-emergency medicine (CCFP-EM). Factors investigated included provincial supply and distribution, demographics, proportion working in EDs, and proportion of time spent in EDs. Data sources that were utilized included the Ontario Health Insurance Program (OHIP) claims data, Ontario Physician Human Resources Data Centre (OPHRDC), National Ambulatory Care Reporting System (NACRS), and the Emergency Department Coverage Demonstration Project (EDCDP). The study design examined all physicians in Ontario who billed at least one ED fee code in the fiscal years from 2004 to 2009. This data was then linked via the physician's OHIP billing number to the OPHRDC data set to determine physician specialty. Subsequently, all information was then linked via the patient's health number to the NACRS data set to determine hospital location. An ED shift was defined as having seen at least three unique patients in the ED within one calendar day.
Some key findings: Between 2004 and 2009, there were 6% fewer FM physicians working in EDs despite an 8% increase in the provincial supply of FM physicians during the same time frame. FM physicians were significantly more likely to work in rural EDs than their FRCP-EM and CCFP-EM counter-parts, with approximately 30% working in rural EDs. Female physicians in all three specialties were less likely to work in EDs. Those that did were more likely to work part-time or casually in EDs. Medium-volume EDs without a full-time CCFP-EM or FRCP-EM physician were utilizing EDCDP more than low-volume EDs with zero full-time ED physicians. Implications for policy: This investigation was to help inform the Ontario Emergency Department Task Force deliberations on the immediate, short and medium term interventions to address ED physician HR issues.

Placing Interprofessional Education and Collaboration Impact in Historical Context

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ABSTRACT:
Inter-professional Education and Collaboration (IP) literature speaks more to theory, educational innovation, and policy than actual evidence-based research. We propose that inter-professional care needs to demonstrate efficacy as the new educational model for students of the 21st century. While there have been many papers, both research and position statements, on the benefits that IP and its pa-tient-centred care may bring, few have tried to either quantify why IP should be used or even use qualitative methodology to uncover its power. In a recent litera¬ture search of over 200 papers over the last 10 years, including some of the earliest ideas about inter-professionalism dating back into the 70s, the ideals of teamwork, communication, roles and power have been debated but, strangely, not examined with a strict methodology. On the other hand, there have been some papers that have recently come out in the last two years that have utilized survey question-naires and tried to extract certain factors which make for an ideal inter-profes¬sional team. Many, if not all, of these papers have flaws insofar as statistical prob¬lems, and bias insofar as questionnaire testing performed on specific sub-groups of health care professionals who had experience with IP. Furthermore, when tasked with looking at students from the various health care professions, there is a paucity of research. This presentation summarizes current thinking with respect to IP and introduces a pilot study that attempts to identify factors that are com¬mon to students and non-students across the health care disciplines.

Access to Health Services: Including a Gender and Equity Lens

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Echo: Improving Women's Health in Ontario

ABSTRACT:
In Ontario, residents of northern and rural communities have a lower life expectancy and fewer years of disease-free life, than people in southern, urban areas of the province. This health discrepancy is partly due to a deficit of available health care services in northern, rural, and remote areas. Women in these communities live longer than men, but more often have one or more chronic diseases. In addition, women access different health care services than men (such as maternity care), and at different rates (such as depression care). To address inequities in access to health services, the Expert Panel on Northern and Rural Health Care has developed a Northern and Rural Health Care Framework/Plan Draft, and asked the wider community to respond. Echo: Improving Women's Health in Ontario is taking this opportunity to apply a gender and equity lens to the framework, to describe how this framework can be improved to ensure that women's health care needs are addressed, through increasing community capacity and integration.

To support this, Echo will use its recently released Ontario Women's Health Framework. The Framework is a leadership tool to support improving the health of women and girls in Ontario and improving the quality and sustainability of Ontario's health system. This framework development was informed by data Echo collected regarding health issues and concerns of women across the province, focusing on access to and appropriateness of health care services. This presentation will highlight areas where the Northern and Rural Health Care Framework can be improved to ensure more equitable access to health care for all northern and rural residents. We focus particularly on access to secondary and non-medical care, due to the Northern and Rural Health Care Frameworks' narrow focus on primary and emergency care.

Case Study: A look into the Group Health Centre's Electronic Medical Record Procurement Process

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ABSTRACT:
Deciding upon a particular EMR vendor has been difficult for many primary care facilities, both small and large. The literature in this area is focused on the challenges of going from a paper-based system to an electronic system; very little has focused on the challenges of moving from one EMR system to another. The Group Health Centre (GHC), which is a multi-specialty, ambulatory care health organization, located in Sault Ste. Marie, Ontario, Canada, is a unique case because they already have an EMR system that has been in place for approximately 15 years. This case study will observe and document the GHC's EMR system procurement process, focusing specifically on the needs assessment component of that process. The GHC has put together an eSolution Revitalization Program (eRP). The eRP will not only be responsible for procuring a new EMR system, but also for updating workflow patterns and bringing the GHC into the 21st century. Observing the eRP will give insight into how the GHC is organizing and preparing for the implementation of a new EMR system. Through observations, one-on-one interviews, focus groups and surveys this case study will determine if the eRP was successful in meeting their goals of completing a needs assessment and creating improved workflow patterns. This study will use Participatory Action Research (PAR) to provide feedback to the committee members throughout the procurement process. The feedback from the PAR will offer suggestions for improving the procurement process while it is taking place. This study will show whether or not the GHC was successful in keeping their stakeholders informed throughout the eRP and provide recommendation for other clinics going through a similar EMR procurement process.

Mechanisms of resistance in carboplatin, docetaxel, and dual drug resistant ovarian cancer cell lines

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ABSTRACT:
Carboplatin and docetaxel are two standard chemotherapeutics used to treat ovarian cancer. Patients often exhibit resistance to single agent therapy, and dual agent therapy was developed to overcome this resistance. However, resistance still commonly occurs in dual agent therapy. It is known that specific changes in gene expression occur in single agent resistance, but it is not known whether resistance to combined chemotherapy involves novel gene expression changes or is the sum of changes seen in single agent resistant cells.
Using the A2780 ovarian cancer cell line, we have generated three resistant cell lines including carboplatin and docetaxel resistant lines (A2780CBN, and A2780DXL respectively), and a carboplatin/docetaxel dual resistant line (A2780CBNDXL).

Changes in gene expression associated with the development of resistance in each cell line were identified by microarray analysis. In the A2780CBN line there were a total of 1209 significant changes, in the A2780DXL line there were 955 changes, and in the A2780CBNDXL line there were 1336 changes. The majority of changes in each cell line were unique, indicating that novel changes in gene expression occur in the dual line.

A Functional Interaction Network-based analysis was conducted on the microarray data identify important gene clusters acting in the drug resistant A2780 ovarian cancer cell lines. Ten major clusters were found in the A2780CBN line, 8 clusters in the A2780DXL line and 10 clusters in the A2780CBNDXL line. Although similar clusters occurred among the lines, the genes in them were different and several unique clusters occurred in the dual line. Functional enrichment analysis will be done for every cluster and the most significant pathways will be taken into further consideration for validation.

A Review of Inuit Oncology Patients Treated at the Ottawa Hospital Cancer Centre

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ABSTRACT:
Background: The Ottawa Hospital Cancer Center serves as the referral center for the eastern region of Canada's largest territory, Nunavut. The treatment of malignancy is usually not performed in the territory, rather patients travel great distances to Cancer Centres in Ottawa, Winnipeg, or Edmonton. The distance from Nunavut to Ottawa is over 2100km.

Methods: A chart review of all patients from Nunavut seen at the Ottawa Hospital Cancer Centre between January 2002 and August 2007 was conducted. In addition, this chart review is being extended to encompass patients treated between the months of September 2007 to December 2010. Demographic information, ethnicity, diagnosis, stage of disease, treatment, outcome, complications of care, TB exposure, and the use of translation were recorded.

Results: Between 2002 and 2007, 113 cancer patients of Inuit descent were treated. 55 were diagnosed with lung cancer; over half of these patients having metastatic disease. This number, along with the number of colorectal and cervical cancer patients exceeds the national incidence. A high rate of previous TB infection was found in this population, however only one case of reactivation was noted after commencing treatment. There are differences in the patterns of disease in Canada's north versus the country as a whole. High rates of smoking and subsequent lung cancer suggest more effort is required in the area of smoking cessation. Cancer prevention programs should be explored to address the high rates of cervical and colorectal cancers as well. Overall, there are medical, social and cultural issues that pose barriers to the delivery of effective treatment in this population.

Do Guidelines Influence Physician Behaviour? Case Study of MMT in British Columbia: 1996-2007

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ABSTRACT:
Dosing patterns in methadone maintenance treatment (MMT) for opioid dependence were examined for adherence to clinical guidelines regarding starting doses, titration, maintenance dose, carries and tapering at the population level in British Columbia, 1996 - 2007.

MMT prescriptions were extracted from BC PharmaNet database and organized into treatment episodes, with continuous retention in treatment defined as no interruptions greater than 30 days. Treatment episodes were divided into weekly intervals to determine patterns and changes in daily doses, including the length of dose titration and tapering, and length and variation in the stabilized dose.

While the number of patients in treatment grew throughout the study period, the percentage of doses above the recommended daily dose of 60mg grew only slightly. Adherence to guidelines on starting doses and carry doses was low, but improved over time. Among non-censored episodes (n=25,545) only 58.2% featured at least one week of dose titration, but among these only 7.8% titrated at a rate faster than recommended. The optimal daily maintenance dose (at least 60mg per day) was reached in only 62.8% of these episodes, while dose tapering was attempted at least once in 40.9% (N=10,439) of the completed episodes. The majority of these episodes featured at least one reversed taper attempt, with 3,187 having multiple dose reversals. The recommended rate of dose tapering was adhered to in 71.2% of all taper episodes, however over 80% of all tapers were initiated within the first year of treatment, and only 6.3% (n=1621) of all non-censored episodes resulted in a successful taper.

Even in the setting of MMT where multiple oversight mechanisms are employed to effect safe physician practice, adherence with evidence-based prescribing guidelines is low. Other mechanisms are needed to promote a number of specific methadone prescription guidelines in order to maximize the benefits of this valuable treatment.

Cystathionine γ-lyase and hypoxia: Implicating hydrogen sulfide in the hypoxic stress response

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ABSTRACT:
Objective: Hydrogen sulfide (H_2S) is a novel and important gasotransmitter for the cardiovascular system, where it is generated by cystathionine γ-lyase (CSE). Indeed, mice genetically deficient in CSE exhibited increased blood pressure, decreased H_2S level and compromised vasorelaxation (Yang et al., 2008). Using vascular smooth muscle cells (SMCs) isolated from this unique model, we have recently shown that over-proliferation of CSE-deficient (CSE-KO) SMCs contributes to the observed hypertension (Yang et al., 2010). In the present study, we characterize the responses of these CSE-KO SMCs to hypoxic stress, a hallmark of vascular pathologies. Specifically, we investigate cellular viability, death, redox balance, and expression of hypoxia-inducible factor-1α (HIF-1α).

Methods: A commercial hypoxia tissue culture chamber afforded 12h cell incubations at 1% O_2. Cellular viability/proliferation and superoxide dismutase (SOD) activity were assessed via colorimetric assays. Intracellular reactive oxygen species (ROS) and apoptosis were determined via fluorescence flow cytometry assays. Expression of HIF-1α was evaluated via quantitative real-time PCR.

Results: Under basal conditions, CSE-KO cells featured significantly greater proliferation and ROS versus their WT counterparts ($p < 0.01$). Hypoxic stress caused significantly decreased viability of CSE-KO ($p < 0.01$) but not WT cells, and significantly greater apoptosis of CSE-KO versus WT cells ($p < 0.01$). Hypoxia induced similar increases in SOD activity in CSE-WT and KO cells ($p < 0.05$), but only CSE-KO cells exhibited significantly higher ROS versus control ($p < 0.01$). Hypoxia elicited greatly increased expression of HIF-1α in CSE-WT cells ($p < 0.01$), but only a modest increase in KO cells ($p < 0.01$) versus control.

Conclusions: Taken together, these data suggest that endogenous CSE/H_2S pathway modulates redox status and is essential for SMC survival under hypoxic conditions. Moreover, the observation of blunted HIF-1α expression in hypoxic CSE-KO cells indicates a potential connection between CSE/H_2S pathway function and HIF-1-mediated signal transduction.

Cluster Suicide in Northern Ontario

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ABSTRACT:
Hypothesis: Suicide in Northern Ontario First Nations communities occurs in clusters, with individuals linked by relationship, time, and place. The presence of mental illness is less important that the relationships between people who commit suicide.

Method: A structured retrospective review of 15 years of death investigation files of suicide in Northern Ontario completed by the Office of the Chief Coroner. Comparison will be made to a control group of suicides from all of Ontario. Analysis will be focussed on family and peer relationships; location, timing, and method of suicide; psychiatric and medical history and demographic features. The research is not a study of mental health, rather of the relatedness of people committing suicide. GIS and SPSS will assist with data analysis.

Rationale: Youth suicide rates in First Nations communities in Canada are two to ten times the national rate, and vary from community to community. Traditional mental health approaches focus on mental illness in the individual, with cluster suicide seen as very rare. If cluster suicide is found to be common in Northern Ontario, then prevention strategies could be put in place to specifically and appropriately provide support. The Northern Ontario Medical School is the “natural home” for this study – given its social accountability mandate and geography.

Proposal: The “Cluster Suicide in Northern Ontario” study, with the Coroner’s Office, be based at the Northern Ontario School of Medicine – clinicians, medical students, and researchers are sought for the research team.

Wait-times and mental health service delivery: The impact of Shared Care on waiting for mental health services

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ABSTRACT:
Increasing access to service is perceived to be one of the contributions of collaborative care. This study was designed to examine changes in waiting time for mental health care in Thunder Bay, Ontario with the addition of two new shared mental health care services to the local mental health system. Data was sought from referrals made between January 2001 and December 2005 (N = 5986). The data was collected from 6 sites of mental health services in Thunder Bay, four existing services, and the two shared care services that were introduced during the study period. Within one year of starting, shared care sites accounted for 1/3 to 1/2 of all referrals. Pre-post analysis of overall wait times for the existing services revealed that the wait times decreased after initializing shared care services at the first location. The same analysis conducted for the second shared care service did not indicate significant change. An analysis of wait times by service type (shared care vs. non shared care) indicated that the mean shared care service wait time (M = 50.6, SD = 39.83) was significantly lower than the mean wait time for non shared care services (M = 84.84, SD = 65.46). These results indicate that shared mental health care may be an efficient way to provide mental health care, and although causality cannot be determined with this naturalistic design, the addition of shared care services may lower wait times for other mental health services.

Retrospective Drug Use Evaluation of Ceftriaxone in Northern Ontario Hospitals

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ABSTRACT:
Background: As bacterial resistance to antimicrobial agents has grown due to the increasing use of antimicrobial agents, we sought to evaluate the suitability of ceftriaxone usage (representative of third generation Cephalosporins) at a Northern Ontario General Hospital.

Methods: We retrospectively evaluated the appropriateness of antibiotic usage in 200 adult patients who received ceftriaxone between April 1, 2010 and June 30, 2010. Drug utilization evaluation (DUE) methods were based on standards set forth by the American Society of Heath care Professionals (ASHP). The DUE criteria used in this study were modified to be more suitable in our hospital setting: justification of empirical drug use, critical and process indication, and Post culture de-escalation.

Results: The average patient age was 59.4 years. The utilization of ceftriaxone was appropriate in 51 cases (28.5%) for the justification of use, while inappropriate use was observed in 149 cases (71.5%). Common reasons for inappropriate use of ceftriaxone included continued empiric use for presumed infections, prophylactic peri-operative injection, and empiric therapy for fever, skin/dental infections. Most inappropriate use occurred in ER department (75.5%) where majority of cases were discharged after single dose of IV ceftriaxone. Most of the critical indicators showed a high rate of suitability (66.5-78.5%). Complications occurred in 11 cases (5.5%). With respect to outcome measures, clinical responses were observed in 60.7% of cases. Local antibiogram of all isolates studied has shown the absence of serious multidrug resistant organisms.

Conclusions: Appropriate use (25.5%) of ceftriaxone was lower than inappropriate use (74.5%) at the Northern Ontario Hospital. Inappropriate utilization, including continued empiric use for presumed infections and prophylactic injection, remained high especially in emergency Department. Intensification of educational programs and antibiotic control systems for ceftriaxone is needed to improve the suitability of antimicrobial use.

Maternal Fluids During Parturition, Neonatal Output, & Newborn Weight Loss: An Observational Study to Determine Associations

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ABSTRACT:
Background: Neonatal weight measurements are used as an indicator of breastfeeding adequacy. Formula supplementation is often based on weight loss.
Purpose: To explore associations among three variables: maternal fluids during parturition, neonatal output, and newborn weight loss.

Hypotheses: In the first 72 hours postpartum, there is a positive association between: (a) fluids given to a woman during parturition and newborn weight loss; (b) fluids given to a woman during parturition and neonatal output; and (c) neonatal output and the newborn weight loss.

Methods: We collected data about maternal oral and IV fluids during labour or before cesarean sections. Participants (n = 109) weighed their newborns every 12 hours for 3 days and then daily up to 14 days, and they weighed neonatal output (i.e., diapers) for 3 days. Data was analyzed for descriptive statistics and for correlations (Spearman's rho and Pearsons correlation) based on the hypotheses.

Results: At 60 hours (nadir of loss), mean loss was 6.57% (SD 2.51; n = 96, range 1.83-13.06). When groups, based on maternal fluids, were compared (≤1200 mls [n = 21] versus > 1200 [n = 53]), newborns lost 5.51% versus 6.93% ($p = 0.03$). For the first 24 hours, results show positive relationships between a) output and weight loss ($r(96) = .341$, $p < .0001$); and b) maternal IV fluids (final 2 hours) and output ($r(17) = .426$, $p = .044$) which explained 12% and 18% of the variability in weight loss, respectively. At 60 hours, there was a positive correlation between grams of weight lost and maternal fluids ($r(83) = .199$, $p = .035$).

Conclusions: Neonates appear to diuresis in the first 24 hours and some weight loss is a correction. We recommend that baseline to assess newborn weight change should be a measurement at 24 hours instead of birth weight.

The metabolic networks mediating cell survival in Pseudomonas fluorescens challenged by nitric oxide, an endogenous anti-bacterial agent

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AUTHOR(S):
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AFFILIATIONS:
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ABSTRACT:
The discovery, characterization and implementation of antibiotics in Western medicine are arguably some of the greatest achievements in science. However, the over exploitation of this technology has lead to the evolution of various drug resistant strains of common pathogens, such as methicillin-resistant Staphylococcus aureus (MRSA). The problem is multifactorial, spanning from education to big business and government regulation. Still, at its core, the solution is quite simple. Our focus needs to be redirected towards the development of new and improved antibiotics. Hence, research into bacterial physiology and metabolism is paramount.

In this work, we have investigated the activity of key metabolic pathways and the role they play in energy production and detoxification in response to varying concentrations of nitric oxide (NO) in the model microbe, Pseudomonas fluorescens. NO, a free radical released by macrophages as a response to infection, is noxious to organisms due to its ability to attack crucial biomolecules such as lipids, proteins and DNA. We show that, despite the inactivation of aerobic respiration, this bacterium survives the onslaught of NO via a metabolic reconfiguration designed to generate energy in an O2-independent manner. These discoveries will pave the way to devise biochemical strategies to thwart microbial invasiveness.

Future Practice of Medical Students at the Northern Ontario School of Medicine– Part 1: Methodology and Intended Medical Discipline

PRESENTING AUTHOR:
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ABSTRACT:
The Centre for Rural and Northern Health Research and the Northern Ontario School of Medicine (NOSM) are collaborating on a multi-year tracking study of NOSM students and residents. The research programme comprises a series of studies that examine students and residents as they move through NOSM's undergraduate and postgraduate medical education curriculum. This presentation will focus on intended medical discipline of medical students at entry to the undergraduate program and prior to their exit from the program.

The tracking study, which has been running since the charter class commenced in 2005, uses administrative data from NOSM and external sources as well as surveys and interviews with students and residents. Our analysis uses data from the first and second cohorts for which we have paired survey data at entry and at exit for 63 of 107 (59%) students.

Results indicate that the proportion of respondents intending to practice in family medicine (College of Family Physicians of Canada) has increased significantly from 44% at entry to 60% at exit (McNemar test p=0.05). There was a concomitant significant decrease in respondents intending to practice in one of the Royal College of Physicians and Surgeons of Canada specialties. Data from the Canadian Residency Matching Service (CaRMS) confirms that 59% of NOSM students are now enrolled in family medicine residency programs. The percentage of respondents intending to practice in northern Ontario showed a slight and non-significant decrease from entry (63%) to exit (60%) (McNemar test p=0.407).

Preliminary results suggest that students have become more inclined towards family practice and maintain their intent towards practice in northern Ontario. These intentions bode well for increasing the supply of family physicians in northern Ontario, the impact of which should begin to be felt in the next year as the first group of family physicians enters independent practice.

Inhalation exposure to transition metals can facilitate sensitization to an innocuous protein antigen

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ABSTRACT:
Air pollution is a heterogeneous mixture of elements and its chemical composition is greatly influenced by local factors. The particulate component of air pollution is known to exacerbate cardiovascular and respiratory diseases, but has also been shown to be able to act as an adjuvant for the development of allergic responses. In this study, our objective was to examine the role of transition metals present in particulate air pollution in its adjuvant activity.

We used nickel subsulfide (Ni3S2), because it is thought to be the primary component of the nickel present from smelting and mining products in Sudbury, and zinc chloride (ZnCl2) because zinc is common in urban centres with high volumes of traffic. Female Balb/c mice were given intranasal instillations of either Ni3S2 (50 ng, 250 ng or 1000 ng) or ZnCl2 (4784 ng) for 11 days and concurrently exposed to aersolized ovalbumin (OVA) or saline for 10 days. Airway inflammation was assessed in bronchoalveolar lavage fluid. Airway eosinophilia was observed in animals exposed to metal along with OVA. After a resting period of approximately 5-6 weeks the remaining groups were rechallenged with OVA to evaluate the recall immune responses.

Preliminary findings indicate that the lower doses of Ni3S2 were able to facilitate sensitization to OVA such that there was an eosinophilic airway inflammatory response after rechallenge. Analysis of Th1/Th2 cytokine expression and OVA-specific immunoglobulins will be conducted to further characterize the response. These data indicate that inhalation exposure to the transition metals present in particulate air pollution is able to influence immune responses to unrelated antigens, and suggest that they may promote allergic sensitization.

Future Practice of Medical Students at the Northern Ontario School of Medicine – Part 2: Intended Practice Location

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ABSTRACT:
The Centre for Rural and Northern Health Research (CRaNHR) and the Northern Ontario School of Medicine (NOSM) are collaborating on a multi-year tracking study of NOSM students and residents. The research programme comprises a series of studies that examine students and residents as they move through NOSM's undergraduate and postgraduate medical education curriculum. This presentation will focus on population size and geographic region of medical students' intended practice location as reported at entry to and prior to exit from the undergraduate program. Our analysis uses data from the first and second cohorts for which we have paired survey data at entry and exit for 63 of 107 (59%) medical students.

Results indicate the percentage of respondents moderately or strongly inclined to practice in urban areas of 500,000 or more people has increased significantly from 20% to 36% from entry to exit (McNemar test p=0.021). There was a corresponding decrease in the percentage of respondents inclined to practice in smaller communities (<5,000; 10,000-50,000; 50,000-100,100), but these were not statistically significant (p>0.600), though a decrease from 67% to 53% for communities with 5,000-10,000 people approached significance (p=0.096). The percentage of respondents intending to practice in northern Ontario showed a slight and non-significant decrease from entry (63%) to exit (60%) (McNemar test p=0.407).

These preliminary results suggest that students have maintained their strong inclination towards practice in northern Ontario, but have become slightly more inclined towards practice in larger urban centres. It is not clear whether this change is due to their medical education or to reduced social desirability bias. The change may also reflect the practice needs of the respondent's specialty, a different understanding of geography or an alteration in students' priorities. It is also not known whether this reduced intent will translate into actual practice location when students begin independent practice.

The Supportive Care Oncology Network – NE Region: Screening for Distress in Northeastern Ontario – Implications for Practice in Rural Health Care

PRESENTING AUTHOR:
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ABSTRACT:
Distress as the 6th Vital Sign has been endorsed by the Canadian Strategy for Cancer Control (2004) and the Canadian Association of Psychosocial Oncology (2009) and is now a standard of practice in the Accreditation Canada guidelines (7.9;2009). The Supportive Care Oncology Network-NE Region, in partnership with the Canadian Partnership Against Cancer-Cancer Journey Action Group (CPAC-CJAG) and the Community Oncology Clinic Network (COCN) has implemented Screening for Distress at 14 COCN sites where patients receive chemotherapy closer to home.

This presentation will describe processes and preliminary results of this two year quality improvement project (April 2009 – March 2011). Patients are screened with the Edmonton Symptom Assessment System scale (ESAS) and the Canadian Problem Checklist (CPCL) at each cycle of chemotherapy. Patients rate their level of distress for physical, social, psychological and practical domains. Nurses delivering chemotherapy complete a Nursing Outcome Form which details nursing interventions and referral patterns in addressing patients' distress. The Cultural Demographic Form further assists in our understanding the needs of patients in our region. A comprehensive knowledge translation plan supports health care professionals in their practice to meet the needs of cancer patients in Northeastern Ontario.

As of June 2010, all 14 COCN sites were screening patients for distress. This presentation will report on the rates of screening and the successes and opportunities in leading this project. This project is informing our next steps in the development of referral pathways specific to each COCN site and the modality options for the delivery of psychosocial and supportive care services in rural communities.

Notes.

Poster Abstracts.

The research work in the following abstracts are all original and innovative. The poster presentation abstracts are in alphabetical order by presenter.

Abstracts have been published exactly as submitted.

An aqueous ginseng extract modulates the production of virulence factors, stimulates twitching and adhesion, and eradicates biofilms of Pseudomonas aeruginosa

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ABSTRACT:
This study was carried out to examine the antibacterial activity of an aqueous extract of Panax quinquefolius isolated from the North American ginseng (NAGE) root. The minimum inhibitory concentrations of reference and clinical isolates of Pseudomonas aeruginosa were measured by a standard agar-dilution method. At subinhibitory concentrations, the secretion of virulence factors, motility on agar, and adhesion to 96-well microplates were studied on the non-mucoid P. aeruginosa O1 (PAO1) strain. At supra-inhibitory concentrations, the activity against mature PAO1 biofilm complexes formed in the Calgary Biofilm Device and the Stovall flow cell were assessed. The NAGE possessed an antibacterial activity against all of the P. aeruginosa strains at 1.25 to 2.5% w/v. The NAGE also significantly attenuated pyocyanin ($P<0.05$), pyoverdine and lipase concentrations ($P<0.001$), elevated elastase concentrations ($P<0.001$), stimulated twitching ($P<0.001$), and attenuated swarming and swimming motility ($P<0.001$). At 1.25% w/v, the NAGE augmented adhesion ($P<0.001$), and at 5% w/v detached 1 day old biofilms in microplates ($P<0.01$). The extract also eradicated mature biofilms (5% w/v) and fluorescence microscopy displayed a reduction of live cells and biofilm complexes compared to non-treated biofilms. The NAGE was effective in inhibiting P. aeruginosa growth, attenuating virulence factors, and eradicating mature biofilms.

The Effect of Omega-3 PUFAs on Anxiety in Rats

PRESENTING AUTHOR:
Slim Babay

AUTHOR(S):
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ABSTRACT:
Omega-3 polyunsaturated fatty acids are a class of lipids which have been linked to some cancers, mental health, immune function, and cardiovascular disease. Meta-analyses of previous studies have suggested that omega-3 PUFA supplementation may be as effective in treating major depressive disorder as conventional antidepressants. Given that there exists significant comorbidity and pharmacological overlap between mood and anxiety disorders, it suggests that both types of disorders may be mechanistically related. Supported by recent clinical and in vitro data, it is also plausible to hypothesize that omega-3 supplementation may also be used as an anxiolytic. Since omega-3 supplementation is usually administered as marine oils which are made up of various types of fats, supplementation of EPA, DHA, and ALA was given to different test groups to in order to investigate the biochemical and physiological effects of each omega-3 PUFA in vivo. 32 rats were given a diet consisting of 10% by weight total fat, composed of 1% supplemented omega-3 and 9% palm oil, ad libitum for a period of 8 weeks. Anxiety was assessed using the open field test and the elevated plus maze. A cortisol assay was also used to support the findings and indicate the animals overall level of stress. Lipid analysis of the brain and liver was also performed to confirm the uptake of the supplemented omega-3 PUFA.

Facilitation of Martial Arts as Leisure: Empowering First Nations Youth as a form of Community Process

PRESENTING AUTHOR:
Carol Cameletti and Sonny Lee

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ABSTRACT:
This study investigates the nature of the process of martial arts facilitation as a form of community process towards empowering First Nations youth who have faced adversity. Current research literature suggests that leisure participation in martial arts may promote positive health status, a greater awareness of community and a commitment to shared interests. A general question, however, is: How would the process of martial arts facilitation as leisure most positively affect First Nations youth who have faced adversity? Ungar et al. (2008) suggest that having a sense of identity and empowerment in connection and responsibility to community may positively enhance resiliency in First Nations youth. A contextual framework that has emerged in the literature is the need to view resiliency as an artifact of both an individual's capacity to navigate their way to health resources and their community capacity to provide access to resources in culturally meaningful ways. By exploring the process of facilitating martial arts as leisure, this study examines the assumptions and perspectives of martial arts facilitators in considering issues of resiliency to adversity. A comparison is thus made between facilitation of martial arts as a form of leisure as exercise and that of martial arts as a leisure activity that embodies meaning and/or mentorship as a worldview or spiritual way of life. As martial arts facilitation is often intended to give direction and focus to the student mentee through self-discovery as a form of individual and community responsibility, the goal of this study is to discern the nature, effect and process of such mentorship. By examining assumptions, beliefs and observations of participant facilitators over a range of community programs in Ontario, this analysis is made to gain insight into the process of facilitation that may positively empower or affect the lived experiences of First Nations youth.

Reflecting on the Experience of the Placement of First Year Medical Students in First Nation and Métis Communities

PRESENTING AUTHOR:
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ABSTRACT:
The Northern Ontario School of Medicine (NOSM) has a social accountability mandate to serve the needs of Northern Ontario that includes educating first year medical students early in their young careers about Culture, more specifically the needs of First Nation and Métis Communities and the Socio-Cultural Determinants of Health that affect these communities. NOSM opened in 2005 and has successfully run this program for four years placing usually 2 students in 28 different types of communities, some fly-in reserves, others closer-by. The students usually go in with some trepidation not knowing what to expect but after a month living-in the community their minds are opened. Culture is a fluid and dynamic process which can only be experienced to be realized or felt. This final module that is mandated at the end of first year for all medical students has been a great success but also takes a lot of effort to organize. This presentation will give three different perspectives, one of the small group facilitator self-reflecting on what his experience has been teaching these students via tele-conference, another from students, both Native and Non-Native, and finally from the First Nation coordinator who ensured the system functioned securely through community site visits to maintaining the students' safety on each reserve.

The Treatment of Intergenerational Trauma, Resiliency in First Nation Peoples and the Experience of Residential School Exposure

PRESENTING AUTHOR:
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ABSTRACT:
Intergenerational Trauma and Resiliency Promotion are both very important in Aboriginal Mental Health. The Experience of the Residential School System has had a pervasive and ongoing effect on many First Nation Peoples causing a multitude of many mental health problems. There exists a multiplier effect from one generation to the next due to maladaptive coping mechanisms initially instilled individually that can be arguably traced back to the Residential School Experience. The ghosts of that exposure has left scarring in many concerning issues including pride and shame; intimidation and humiliation, traumatic memories of abuse and consequent issues of poor parenting skills, substance abuse, depression and domestic violence. The transmission of this vector of memory to the children has led to solvent abuse, fetal alcohol spectrum disorders (FASD), depression, anxiety and suicide clusters or chains either by parents, relatives, friends or the children themselves. This presentation discusses these issues via case study analysis and differences in counseling techniques as well as placing this plethora of problems in a same category of Post-Traumatic Stress Disorder except in a Generational Construct under Residential School Intergenerational Syndrome or Post-Colonial Syndrome.

“Self-Esteem” as a Culturally-Biased Construct and Using of Narrative Story-telling to enhance Resiliency in First Nation Mental Health

PRESENTING AUTHOR:
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ABSTRACT:
Many articles written on the nature of “Self-Esteem” as it applies to men and women but also as it is based in social and cultural stereotypes. Critics have pointed out that these scales are gender-biased based on different social and cultural levels. This literature will be reviewed in a historical context for this presentation. This construct may hinder the success rate of Natives seeking counseling isolating the underlying mechanisms of failure to First Nation youth or their parents who have the courage to seek counseling. A novel approach to First Nation Mental Health counseling is the usage of different technique. This modality encourages the client to tell their story via narrative methods, the therapist acts as a guide allowing the story to emerge and then act accordingly. This empowerment model allows those who have suffered via self-silencing or through a crisis of fragmentation of identity to uncover their own personal strengths in a safe environment. The presentation will elaborate more on these techniques, the mode of delivery and promote resiliency through the establishment of a healthy self-concept. Involving the concept of the Resilient Spirit Within to disengage from negative construct from the past can aid in the rediscovery of pride-in-person. As the model hopes to re-initiate the strengths in the individual via narrative, the hope is it will be enough to send the person back to toxic environment they are within. The usage of one or several initial in person sessions to establish a therapeutic rapport using a trust relational introductory model which may also involve a translator prior to any video-conferencing is necessary for this modality to be successful for any treatment from afar. It is important that the translator/other mental health workers at the site learn these techniques in case of relapse or in hopes of other referrals.

A Pilot Project for Mental Health Service Treatment Provision for Residential School Survivors

PRESENTING AUTHOR:
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ABSTRACT:
This presentation outlines the mental health treatment services delivery model for a pilot project (the KO Indian Residential School Survivors Program - IRSSP) being jointly proposed by the Sioux Lookout First Nations Health Authority (SLFNHA) NODIN Child and Family Intervention Services and by Keewaytinook Okimakanak (KO – Northern Chiefs). The overall purpose of the KO Indian Residential School Survivors Program (IRSSP) is to: provide appropriate and sufficient community-based therapy and support services to promote healing from IRS trauma for survivors and families within their home community. Unfortunately, the conventional models of mental health treatment services delivery for survivors of Residential Schools from remote northern Ontario First Nations have generally resulted in client recidivism. As well, high costs associated with the conventional models of service delivery have meant that service delivery must be highly structured to control costs. High travel costs mean reduced access to client services. This pilot project would enable the KO IRSSP video-enabled therapy and traditional healing would address some of the existing service delivery challenges as well as others. Counselling environment, successful client engagement and confidentiality issues during video therapy sessions and remote sessions with a traditional healer or other professional will be addressed by applying existing guidelines / protocols established by Keewaytinook Okimakanak Tele-Medicine (KOTM) over the last five years. These practices are articulated in the KOTM documents and will be presented.

The Conundrum of Accommodation: The Status of Overt and Covert Disability in Medical Training

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ABSTRACT:
This purpose of this paper is to better understand and help accommodate medical learners, and disabled learners in general, either undergraduate or postgraduate who find themselves in difficulty either through Overt Disability (i.e. being in a wheelchair) or Covert Disability (i.e. Having a Chronic Illness). According to philosophers of mind and body, there is no distinction. Learning disabilities are either innate, neurological disorders or social constructions that serve to undermine responsibility attributions in Educational settings. For disability theorists, in contrast, learning disabilities do not exist as such, but learning difficulties are the result of environments in which non-normative thinking and thinkers are labelled disabled. In both disciplines, the learning disabled are typically the objects rather than the authors of such studies. The categorization of learning difficulties as disabilities, moreover, is highly contested by thinkers in both fields. This paper, especially meant for those in Admission and Learner Affairs at different levels of Medicine, shall explore different and divergent topics and their implications for medical learners. Case Studies will be presented. Topics for discussion will include medical preconceived notions on disability and the way learning disabilities and persons with disabilities are portrayed historically, with special attention to the assumptions at work in these accounts as well as misconceptions about the disabled person. If we are to make headway in resolving some of these disputes, we need to have open discussions around real case studies, some tragic, to generate new accounts of learning disabilities.

Shared care mental health and its problems in the interprofessional and intraprofessional context

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ABSTRACT:
Interdisciplinary shared care mental health intervention in family health care teams, consisting of a short-term counselling-based treatment provided by mental health counsellors, increases communication between health care providers. The use of family physicians, psychiatrists, nurse practitioners and social workers has become a novel method of delivering health care to the outpatients that need psy¬chiatric help. Patients demonstrated significantly improved scores for depression, anxiety and somatoform illness. This growing body of literature on shared care interventions has demonstrated positive impacts in mental health outcomes. For instance, a recent randomized control study of a multifaceted intervention involving members of the shared care team providing behavioural therapy for patients with depression led to improved depression scores and significant improvements in medication adherence versus routine care by their family physician. Measurable improvements have been found in reducing the impact of mental illness on patients' functionality and disability. It has also been found to improve work attendance and a more balanced home rou¬tine.

Ironically, in urban, rural, and remote settings, these shared cared family health teams have not become as popular as evidence suggests they should be. There are barriers in the intraprofessional context, especially between specialists and the family doctor, and in the interprofessional context with respect to economics and scarcity of qualified personnel. Without decreasing the tensions between the vari-ous health care disciplines involved in this type of interprofessional collaboration, mental health care will remain selective to some areas but elusive in the remainder of the country.

A pilot study exploring Interprofessional attitudes, knowledge, and skills between students and non-students in the health care disciplines – a preliminary five-factor model

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AUTHOR(S):
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ABSTRACT:
Interprofessional Education and Collaboration (IP) is important in terms of patient-centred care and educating future health care professionals. In this pilot study we used a 29-item survey tool to examine IP attributes and analyse the effects and interactions in both students and non-students (status) in the health care disciplines (medicine and non-medicine). 419 participants took part in the study. In the initial principal factor analysis, Cattell's scree test uncovered five distinct factors. Subsequent analyses of the item clusters revealed the five factors were Communications, Observations, Interactions, Roles, and Professional Identity.

Analysis of variance was conducted on the factor scores for each of the five factors. We found that status was a significant main effect for Communications and was part of a significant interaction effect between status and discipline. Observations revealed a main effect with respect to discipline, while Interactions showed no significant main effects or interactions. Roles was significant for discipline as a main effect and also showed interaction effects for status by discipline and status by discipline by sex. Professional Identity showed main effects by discipline and interaction effects with status by discipline.

That discipline seemed to be a thematic recurrence should not be surprising considering the IP literature regarding role socialization, power asymmetry and communication. Limitations to this study include survey item specificity and modifying items to be more sensitive for each factor. With refinement, this tool could be used to help create a more meaningful IP dialogue with policy makers and academic institutions.

Effectiveness of a Wellness and Exercise based Oncology Program

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AUTHOR(S):
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AFFILIATIONS:
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ABSTRACT:
Background:
Oncology exercise programs support cancer patients to remain physically active and incorporate active living as part of their recovery. The Wellness and Exercise for Individuals with Cancer program (WE-Can) incorporates exercise, wellness and an environment of social support for a ten-week period consisting of twenty sessions. The WE-Can program explores the effectiveness of improving functional ability and quality of life, and decreasing fatigue that is associated with cancer treatment.

Methods:
Data was analyzed from two sessions of WE-Can program participants currently in treatment or post treatment. The Senior Fitness Test, handgrip strength, Short Form Health Survey- 36 item (SF-36), Functional Assessment of Chronic Illness Therapy – Fatigue Scale (FACIT-F), the Brief Fatigue Inventory (BFI) and the Patient Specific Functional Scale (PSFS) were used to assess fitness levels, quality of life, fatigue and perceived functional ability. Data was analyzed using PASW v.18. Paired sample t-tests were used to examine differences in the above measures. Qualitative subjective reports were transcribed.

Results:
Significant improvements were seen in lower body strength (N=15), upper body strength (N=14) and flexibility measures (N=15), along with BFI (N=13) and PSFS measures (N=12). Other improvements were noted in cardiovascular endurance (N=7), quality of life subscales (N=15), and in most FACIT-F subtypes (N=13).

Conclusion:
The WE-Can program was effective in significantly increasing functional ability, improving quality of life and demonstrated marked improvements in fatigue levels. The group exercise class format acted as a social support network and the educational sessions enhanced concepts of behaviour modification and healthy lifestyle change. These findings may have implications regarding the need for more wellness and exercise programs for individuals with cancer and for ongoing maintenance classes. Future research is needed to find ways to encourage adherence and motivation to continue self-guidance. Project ongoing.

Biological Properties of the herb Origanum vulgare

PRESENTING AUTHOR:
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AUTHOR(S):
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ABSTRACT:
Terpenes are a major class of biologically active molecules. These lipid-based compounds are found in several plant extracts. Origanum vulgare sp. has been found to contain a wide array of terpenes promoting biological activity, plant colour, and anti-oxidant effects. In this study, an organic extract of Wild Origanum vulgare sp. herb obtained from Greece was assessed for its biological activities. The chemical characterization of the extract was assessed via GC/MS and NMR spectrometry and found to contain several compounds with aromatic and hydroxyl activity including caryophyllene and thymol. Treatment of A549 alveolar basal epithelial cells with low concentrations of the terpene extract protected the cells against the hydrogen-peroxide-induced cytotoxicity. Challenge of lung cancer cells (A549 cells) and breast cancer cells (MCF-7 cells) with higher concentrations of the terpene extract demonstrated a concentration-dependent increase in cell death demonstrating its chemotherapeutic properties. The extract was also shown to have antibacterial activity as demonstrated by its ability to inhibit the growth of several Gram-positive and Gram-negative strains of bacteria, including P. aeruginosa, B.cepacia, and S.aureus. So far, these data show that the oregano extract has antioxidant, antibacterial and chemotherapeutic properties.

Key Factors in Conducting a Successful Orientation

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AUTHOR(S):
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AFFILIATIONS:
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ABSTRACT:
Background: joining the medical profession can be daunting with many potential problems for both the novice and the institution. Orientation for the MD program at the Northern Ontario School of Medicine (NOSM) involves an intense week of social events and travel, and meetings between learners, faculty and the many communities with which the School engages. Our hypothesis that the orientation process at NOSM is a critical step in transforming undifferentiated learners into medical students. The authors conducted a study in order to explore this hypothesis.

Methods: the CANOE Project has investigated the orientation process at NOSM using a combination of surveys, interviews, artifact analysis and direct observation. The orientation week for 2010 was the main focus but with samples and impacts considered from the previous six years as well as a review of orientation practices in other institutions. Analysis involves a grounded theory approach using thematic triangulation across the data followed by participant validation and commentary.

Results: the study has identified a number of both short-term and long-term factors and dynamics within the orientation process that have an impact on learners' abilities and preparedness to be medical students and subsequently. We have also identified the important alignment between orientation and organizational culture as well as a number of process and economic factors.

Discussion: the current study is the first stage in a multi-year project. This presentation will focus on methodology, analysis and the preliminary results. We will also discuss the ways in which the study can and is changing practice at NOSM.

Treatment Utilization by Problem Gamblers in Northwestern Ontario

PRESENTING AUTHOR:
Sara Craig

AUTHOR(S):
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ABSTRACT:
The Catalyst database contains information on all clients who entered addiction treatment programs in Ontario. The present study used this database to explore factors that may be related to treatment non-compliance and the number of admissions in the population of clients receiving addiction treatment in Thunder Bay between 2003 and mid-2006. The distinction between Primary and Secondary Gamblers identified by Nguyen (2007) was explored to determine whether this distinction is useful in predicting if the two groups differ in treatment non-compliance and the number of admissions. A total of 2,743 clients were examined. Comparisons were made between those who presented for treatment of gambling as their primary problem (N = 138), those who presented for a substance addiction (N = 280) with gambling as a secondary problem, and those who had only a substance addiction (N = 2,178). Non-compliant individuals are more likely to be gambling clients, younger, female, have a higher education level, better income source, better employment, and no legal problems. An individual with more admissions to treatment is more likely to be a Secondary Gambler or Substance Problem Only client, older, have a poorer source of employment and have legal problems. The distinction between primary and secondary gamblers was not found to be useful for predicting treatment non-compliance but did predict the number of admissions. It appears that these two outcome variables are measuring different aspects of treatment utilization and that it is important to consider each separately, as they both provide useful program planning information for addiction treatment services.

Assessment of epidermal growth factor receptor mutation status in non-small cell lung cancer patients at the Algoma District Cancer Program

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ABSTRACT:
Epidermal growth factor receptor (EGFR) is a tyrosine kinase receptor implicated in cell proliferation and survival. It is frequently overexpressed in many cancerous cells, including tumours of non-small cell lung cancer (NSCLC). The drug Iressa (gefitinib) is a tyrosine kinase inhibitor that specifically targets the EGFR protein of the tumour, blocking its downstream signalling pathways. Studies have shown that Iressa prolonged progression-free survival and improved the quality of life of adenocarcinoma patients who posses a mutation in the EGFR. Studies have also shown that mutations of the EGFR is a characteristic occurring in about 10-15% of NSCLC in Europe and 30-40% in Asia. It has also been significantly associated with females and people who have never smoked. The objective of this retrospective chart audit is to assess the EGFR mutational status of NSCLC patients at the Algoma District Cancer Program. Patients diagnosed with pulmonary adenocarcinoma (a form of NSCLC) had biopsy samples tested for EGFR mutations in order to determine if Iressa is a viable treatment option. Their charts were then audited to determine if the frequency of EGFR mutations conform to what recent studies have shown. Preliminary results show that six of eight patients tested were found to be positive for the EGFR mutation. Furthermore, of the patients that were found to be positive, four were male and all had a history of smoking, which is in stark contrast to the mutational frequency that has been found in recent studies. It is not yet clear why this sample of people has a higher than normal occurrence of the mutation in the EGFR protein and further investigation is required. However, findings from our case series suggest that Iressa may have great potential to improve the longevity and quality of life for many people who suffer from adenocarcinoma in the Algoma region.

Identifying risk factors for acute pneumonia in Northwestern Ontario

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ABSTRACT:
Pneumonia is the inflammation of lung tissue caused by bacterial or/and viral infections. Pneumonia is a leading cause of death worldwide and the most common lethal infectious disease. There are no previous studies on risk factors for pneumonia in Northwestern Ontario.

The objective of this study is to identify groups of risks for acute community-acquired pneumonia in Northwestern Ontario by retrospective chart review of all cases admitted to TBRHSC during the last 5 years (2005-2009). Parameters analyzed were gender, age, residency, co-morbidities, smoking, ICU stay, hospitalization length, mortality, and etiology. After reviewing approximately 5000 charts, 1370 charts were included in the study. The distribution by demographic factors was the following: 46.2% female, 53.8% male, 86% urban and 14% rural residents, 5.4% children < 1 year of age, 5.4% children 1-5 year old, 4.1% 6-19 years old, 8% 20-39 years old, 18.1% 40-59 years old and 59% >60 years old. Among the cases, 126 were transferred to ICU, and 78 died.

In young children (0-5 years old), the most common risk factor was lung disease (20%), i.e. asthma and reactive airway disease. In older children and young adults (6-19 years old), lung disease was also common (29.8%). In 20-50 years old adults, smoking (38.1%) was the most frequent risk factor. In 51-101 years old patients (53.1% of charts), the main risk factor was history of cardiovascular disease (71.2%), such as hypertension, congestive heart failure, and coronary artery disease.

Etiology was established in 16.9% of cases; Streptococcus pneumoniae was identified as a cause of pneumonia in 4% of cases. Similarly to other North American studies, we have found that cardiovascular disease (in older adults) and lung disease (in children and young adults) were some of the most common risk factors for hospitalized community acquired pneumonia.

A structure-activity relationship study of pyrazoloquinazolinecarboxilate analogues to inhibit nerve growth factor in vitro

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ABSTRACT:
Nerve growth factor (NGF) is known to regulate the development and survival of select populations of neurons via its binding/activation of the TrkA and p75NTR receptors. Molecular modeling studies predict a number of NGF antagonists share conserved molecular features and have the ability to bind to and modify the molecular topology of NGF preventing it from interacting with its receptors. In order to understand the putative mechanism of binding, we synthesized a pyrazoloquinazolinecarboxilate analogue series and tested each compound in a NGF-dependent differentiation assay using PC 12 cells. In vitro data confirms that the pyrazoloquinazolinecarboxilate analogues bind and functionally inhibit NGF's agonist effects on PC12 differentiation. The structure activity relationship of the analogue series provides evidence to refine the proposed binding mode of the scaffold. The strategy of targeting the growth factor rather than the receptor may provide new therapeutic avenues for treating diseases where neurotrophin dysregulation has been implicated.

Cortisol and dexamethasone induced hypertension increased intramuscular nitric oxide levels in fetal programmed hypertensive rats

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ABSTRACT:
The purpose of this present study was to determine skeletal muscle nitric oxide (NO) concentrations in fetal programmed (FP) hypertensive rats. Hypertension was induced via subcutaneous injection of either 1) saline (control; C), 2) cortisol (Cort; 25 mg/kg) or 3) dexamethasone (Dex; 0.1 mg/kg) in pregnant rats at day 14 until day 21. Hypertension was confirmed as mean arterial blood pressure was increased (P<0.05) with Cort 16.8 ± 3.0 mmHg and Dex 20.9 ± 3.7 mmHg as compared to control. Animals were sacrificed (n = 6) on week 17, medial and lateral gastrocnemius as well as soleus muscles were excised. Intramuscular (IM) NO levels were higher (P<0.05) in the soleus as compared to the medial and lateral gastrocnemius of the saline and Cort treated animals, while no differences were observed between muscles in the Dex treated animals. Cort and Dex treatment resulted in higher IM NO concentration in all muscle groups as compared to control (Fig. 1).

	Medial gastrocnemius	Lateral gastrocnemius	Soleus
Control	0.99 µM/g	1.02 µM/g	1.06 µM\g †
Cortisol	1.12 µM/g *	1.15 µM/g *	1.35 µM\g *†
Dexamethasone	1.19 µM/g *	1.22 µM/g *	1.24 µM\g *

Figure 1. * Denotes significance (P<0.05) compared to control. † Denotes significance (P<0.05) between muscle groups.

These data clearly show that Cort and Dex induced hypertension resulted in an increase in IM NO concentrations. Interestingly, Cort and Dex have been suggested to inhibit the enzymatic activity of nitric oxide synthase (NOS) in several cell types; however in this study they increased IM NO levels in the offspring. Consequently, it appears that hypertension and not Cort or Dex was responsible for the increase in IM NO and thus overrides the pharmacological down regulation of NOS.
Supported by NSERC

A Retrospective Chart Review Examining Post-Diagnosis BMI Changes in Breast Cancer Patients in the Algoma Region after the Implementation of Wellness Initiatives

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ABSTRACT:
The objective of this retrospective chart review is to monitor post-diagnosis body mass index (BMI) changes in breast cancer patients receiving treatment at a Northern Ontario institution after the implementation of a Wellness Class, which helps patients adopt a healthy lifestyle. The aim of this review is to collect and examine data regarding BMI changes during and post-treatment and to determine if the Wellness Class has a positive influence on BMI post-diagnosis. A list of all patients diagnosed with breast cancer in 2007 was compiled from previously existing statistics. Those who received IV chemotherapy were included in the review and information about their age, height, and weight at diagnosis, six and twelve months post-diagnosis were obtained from their charts. The same method was used to collect data for patients diagnosed in 2008 and 2009, and will be used to collect data from patient's diagnosed in 2010. The 2007 cohort will act as the control group, since they did not have access to the Wellness Class, which began in 2008. Preliminary results showed that the control group experienced an average gain of 1.27 kg at one year post-diagnosis. The 2008 cohort of patients experienced a 2.0 kg loss at one year post-diagnosis. The 2009 cohort of patients experienced a 0.74 kg loss at one year post-diagnosis. The chart review also identified that 78% of patients were overweight or obese at diagnosis, which is consistent with findings from previous studies. The lack of intervention for the baseline cohort resulted in ongoing weight gain throughout the observation period, while women in the 2008 and 2009 cohorts experienced an average loss after diagnosis. The 2008 cohort received the greatest access to wellness initiatives and community support and consequently displayed the best results. These results could be attributed to the success of the Wellness Classes.

Body Surface Area and Chemotherapy Dosing Guidelines at the Algoma District Cancer Program, A Cross-Canada Survey

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ABSTRACT:
In oncology, the dosing of nearly all cytotoxic drugs is dependent on a patient's body surface area (BSA). BSA calculations are based on the relationship of a patient's height and weight, and are used as a standard for dose calculations as it is thought to reduce inter-patient variability of exposure and drug effects. There is no universally accepted protocol with regard to the upper limit of BSA and chemotherapy dosing. The purpose of this study is to determine the general trend in chemotherapy dosing in accordance with BSA at centers across Canada. A cross-Canada survey was conducted. Twelve cancer centers were interviewed by phone or via email to determine the formula used for calculating BSA, general guidelines or policies pharmacists/oncologists use when dosing chemotherapeutic agents, the establishment of a BSA maximum dose, and dose variations when dealing with adjuvant, neoadjuvant, metastatic, etc. cases. No protocol outlining a BSA maximum for the dosing of cytotoxic drugs has been established. However, most physicians tend to cap at a BSA between 2.0 and 2.2 m^2. In accordance with survey results, a guideline was implemented at the Algoma District Cancer Program (ADCP). Highlights of this clinical guideline include a BSA cap of 2.1 m^2 to be implemented for all metastatic oncology patients whose BSA is above 2.1 m^2, while patients undergoing adjuvant treatment are dosed based on BSA as is.

Integrated Primary Care Screening Project

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ABSTRACT:
Currently, in conjunction with the Blue Sky Family Health Team, Mihealth is conducting an Integrated Primary Care Screening Project. The purpose of the project is to determine the root causes of the care gaps in chronic disease management and close these gaps. The process involves systemizing the approach of chronic diseases such as Diabetes and Osteoporosis. It is vital that both the patient and health care provider work together to ensure successful self-management of the chronic disease. This includes advanced access for diabetic patients and referral to services within the community for further self-management.

We will be using Mihealth to test mobile healthcare technology and the role it plays in monitoring 1000 patients with chronic disease including diabetes. Mihealth is a consumer health application that provides patients with access to their own and their family member's health information along with secure, two way messaging between patients, doctors and clinical workers... Anytime, Anywhere. Mihealth allows patients to access their complete, vital and up to date doctor validated health information via the internet or a cell phone.

The initial results of the pilot were extremely favourable with over 100 participants' ages 18-81 and all aspects of the socio-economic spectrum participated. Parents with small children, patients with chronic disease and patients with acute care health concerns saw the relevance of promptly receiving personal health information. Participants (57% having attended ER once per year and 33% twice per year) expressed interest in use of Mihealth for appointment bookings and follow-up for results. Over 51% engaged in self-care at home and 69% wanted a referral to an MD endorsed website for their chronic illness. 97% of participants wanted to securely e-mail their family physician about results.

Immune response to Haemophilus influenzae type b (Hib) vaccine in patients with chronic renal failure

PRESENTING AUTHOR:
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ABSTRACT:
Objective: Patients with end-stage renal disease undergoing peritoneal or hemodialysis are immunocompromised and therefore at high risk for septicemia and other severe infections. In non-vaccinated adults, protection against Haemophilus influenzae type b (Hib) is mediated by natural anti-capsular polysaccharide antibodies. We hypothesized that adults with chronic renal failure (CRF) who have not been vaccinated against Hib lack protective antibodies against this pathogen, but may respond to the pediatric Hib vaccine.

Methods: Serum anti-Hib IgG levels were studied in 60 patients with CRF and 38 healthy controls of similar age using standard ELISA. Thirty-two CRF patients were immunized with one dose of Act-HIB, containing Hib capsular polysaccharide conjugated to tetanus toxoid; serum antibody levels were assessed before and 4 weeks after vaccination. Functional antibody activity was studied using a serum bactericidal test. Antibodies will also be assessed at 6, 9, and 12 months post-vaccination.

Results: Almost 90% of controls, but only 43% of non-vaccinated CRF patients had protective anti-Hib antibody levels (>1.0 mcg/ml). Geometrical mean concentrations (GMC) and 95% confidence intervals in controls were 1.07 (0.41-2.29) versus 0.13 (0.04-0.41) in CRF patients. Following vaccination, all but one patient (97%) have developed protective antibody levels with a 14-fold increase in GMC ($P<0.05$); in 29 out of 32 (91%) the antibody exhibited bactericidal activity in the presence of complement. The vaccine response did not depend on the patients' age, but was significantly lower in CRF patients who had type 2 diabetes mellitus or chronic obstructive pulmonary disease, compared to the rest of the group.

Conclusion: Majority of adult patients with CRF are at an increased risk of acquiring invasive Hib disease because they lack protective antibodies. The pediatric Hib vaccine is highly immunogenic in these patients. This study provides rationale for immunization of adult CRF patients with this vaccine to achieve protective immunity.

Enhancing Competencies, Improving Care: The Success of the Kenora Wound Care Pilot Project

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ABSTRACT:
This poster highlights findings from a 2010 evaluation of the Kenora Wound Care Pilot Project, which addressed gaps in wound care services by enhancing provider competencies, streamlining referrals, and supporting client education, across primary care, acute care, community care and long-term care settings. The initiative was funded by Health Force Ontario.

Prior to the pilot, most clients received care from the local emergency department; a few also accessed services from home care nurses or family physicians. After implementation of the collaborative care model, clients in Kenora, its surrounding rural areas and First Nations could access care from several sources: complex care through Weekly Wound Assessment Team Clinics, staffed by an interdisciplinary team of wound care nurses, surgeon, chiropodist, physiotherapist, occupational therapist, diabetes nurse educator and dietician; ongoing care and treatment, including suture/staple removals, dry/complex dressings, and education by RNs and RPNs at the Sunset Country Family Health Team; continuing care and education was also available through community nursing and long-term care.

Overall, the Kenora Pilot Project was viewed as a resounding success, as evidenced by fewer serious wounds and complications. Dissemination of best practice guidelines and workshops enhanced provider competencies across the community, as front-line RNs and RPNs acquired specialized wound care skills. The “one stop shopping” model, whereby clients could obtain referrals to and from any of the participating organizations, facilitated more timely access to care. Client education materials also promoted more effective self-management..

Once the project ended, however, the collaborative care model in its entirety could not be sustained. Some organizations were unable to find sustained funding for specialized staffing, education, supplies and administrative supports, so the seamless system of care created no longer exists. There was, however, widespread agreement that the model could be transferred to other small towns and rural communities, provided supports were in place.

A community-based participatory planning process and program design: Toward eliminating smoking during pregnancy and decreasing health inequities in North Bay

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ABSTRACT:
Rates of maternal smoking in North West Ontario are considerably higher than the overall rates for the province. In addition, there may be an increasing trend in the rate of cigarette smoking during pregnancy in North West Ontario (26% in 2004 to 34% in 2008). This finding is concerning and require action to ensure that pregnant women receive information and support regarding this modifiable and harmful behaviour.

Public policies and programs can either support or undermine pregnant women's well-being; especially when dealing with a stigmatized behaviour (smoking) during a vulnerable time (pregnancy). This presentation describes one intervention – beginning with a community engagement process of pregnant women living in North Bay and leading to the creation of a holistic and comprehensive program – that attempts to help pregnant women living in North Bay quit smoking and remain smoke free for at least 6 months after delivery. Pregnant women participating in the initial community engagement event were presented with the best practices available from the Cochrane Collaboration review and from BBEWH "Expecting to Quit" documents. After a reflective discussion in small groups, a consensus process was facilitated, in which participants designed a smoking cessation program for pregnant women in their community. Women suggested the program had to be holistic, accessible (have free transportation and childcare) and involve Elders, as well as incentives. Echo, in partnership with the North Bay Indian Friendship Center, is establishing a program honouring the consensus achieved during this session. Through the example of this project we seek to reinforce the argument for community-based programming and policymaking and to put forth a model for community outreach to vulnerable populations by health agencies.

Impact of redox-cytokine interaction in cardiac remodeling

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ABSTRACT:
Elevated oxidative stress and inflammation are key features of cardiac remodeling process and are each implicated independently in the development and progression of cardiovascular conditions including cardiomyopathy and heart failure. Their interaction is also evident throughout the process of cardiac remodeling. The linkage between excessive reactive oxygen species production and the cytokine elaboration is manifested in shared elements such that a positive feedback relationship can exist. Furthermore, an optimal balance between pro-inflammatory and anti-inflammatory cytokines is proposed to be of crucial importance in mitigating both inflammation and oxidative stress processes leading to cardiac dysfunction. We have recently demonstrated the role of pro and anti-inflammatory mediators in acute and chronic cardiovascular stress conditions including iron overload, diabetes and hypoxia. The impact of redox-cytokine interaction in cardiac remodeling will be discussed.

Evaluating the effect of transition metal exposure on the expression of metallothionein in airway epithelial cell cultures: Challenging analysis of a difficult molecule

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ABSTRACT:
Metallothionein (MT) is a ubiquitous low molecular weight protein (aprox. 7kDa) whose proposed functions include a role in homeostasis of essential metals, intracellular storage of metal ions, as well as pro-oxidant and antioxidant balance. A key characteristic of MT is its large number (27) of cysteines within the molecule. In the present study, we have examined the effects of transition metals, with emphasis on nickel in particular, on the expression of MT in cultured airway epithelial cells. A549 lung epithelial cells were treated with a 250mM of NiCl2 or Ni3S2, as soluble and insoluble forms of nickel respectively, and cells harvested at varying timepoints after exposure. For protein isolation, the cells were lysed using RIPA lysis buffer, and a Bradford assay protein analysis was performed, followed by an immunoblot for MT with gels of various acrylamide concentrations. MT has proved difficult to concretely identify due to its ability to aggregate and form intermolecular disulfide bonds. We would have expected to see MT in the 7 to 10kDa range; it has however consistently been found in the 30 to 40kDa range, likely due to the formation of MT polymers due to the abundant cysteine residues, as has been described previously by others. We have used multiple approaches to overcome this issue. First, we replaced the β-mercaptoethanol found in the sample buffer with dithiothreitol (DTT), as it is a strong reducing agent known to help in the breaking of disulfide bonds. Second, we introduced iodoacetamide to the samples after the disulfide bonds were broken with DTT due to its nature to form covalent bonds with free thiol groups. After attempting to address these concerns, the expression of MT after metal exposure was quantified. Preliminary data shows that the expression of MT is increased after treatment with Nickel.

The Influence of Spiritual, Emotional and Social Wellness on the Management of Type 2 Diabetes Among First Nations People

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ABSTRACT:
Aboriginal people worldwide are increasingly affected by an epidemic of Type 2 Diabetes Mellitus (T2DM). Clinical guidelines for the management of the disease focus on the physical aspects of the disease, however many Aboriginal people see health as holistic, encompassing more than the physical aspects of health. Yet little is known about how spiritual, emotional and social wellness affects T2DM management among Aboriginal people. As part of the Manitoulin Diabetes Care and Prevention Project we examine the impact of spiritual, emotional and social wellness on the management of T2DM among the Anishinaabek people in Northern Ontario.

Western epistemologies have been described as aggressive vis-à-vis Aboriginal epistemologies and Aboriginal scholars have argued that research is often a manifestation of euro-western cultural narcissism. We intended to bridge the divide between Aboriginal views of wellness and illness prevention/health promotion using the concept of “ethical space” by purposefully articulating Aboriginal and Western epistemologies.
Using a participatory action research approach and engaging Aboriginal stakeholders in all phases of the research project we conducted semi-unstructured life history interviews with 20 Aboriginal people with T2DM whose level of glycemic management was known. We explored spiritual, emotional and social wellness and their relationship to coping with diabetes.

Participants articulated wellness and illness management as a way of life situated within a broader historical, social and political context of Aboriginal people and Canadian mainstream culture. Several participants made direct connections between diabetes management spirituality as well as past and present Indigenous cultural practices; all interviewed discussed the impact of the changing life ways of the Anishinaabek on the managmentT2DM. Diabetes health intervention efforts must be informed by Indigenous understandings of spiritual, emotional and social wellness to improve people’s responses to the stressful reality of living with T2DM.

DiabeTEXTs – Innovative Diabetes Education through SMS Texting

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ABSTRACT:
Living with diabetes makes great educational demands on a family – for children, parental support and involvement play a central role in management of the disease. Information and communication technology could provide the means for greater flexibility and independence (Wangberg, Arsand, & Andersson, 2006). As the availability of mobile access advances rapidly, mobile phones are now widely available at a low cost (Kollmann, Riedl, Kastner, Schreier, & Ludvik, 2007). The potential in using mobile phones for supporting and educating diabetes patients is increasingly being recognized (Wangberg, Arsand, & Andersson, 2006) (Franklin, Waller, Pagliarit, & Greene, 2006) (Ferrer-Roca, Cadenas, Diaz-Cardama, & Pulido, 2004). However, this proposed service has not yet been explored in a Canadian First Nations community context, especially when First Nations people in Canada experience a disproportionate burden of type 2 diabetes mellitus (Dyck, Osgood, Hsiang, Gao, & Stang, 2010). With the establishment of Keewaytinook Mobile (KM) and Dryden Mobility (DMTS), local cellular and data services are becoming readily available to more First Nations communities across Northern Ontario. This provides a great opportunity to see if utilizing cell phones to provide educational information for First Nations diabetes patients and their caregivers can be an effective and long-term health care support strategy. The DiabeTEXTs project, started in Winter 2010 by K-NET services, allows diabetes workers in the five KO communities to send regular SMS texts containing important and relevant diabetes information to multiple patients simultaneously. This poster presentation will outline the development, current use, and feedback from the project and opportunities for research in the future.

Relationship Between Cardiac Diastolic Function and Exercise Tolerance

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ABSTRACT:
Prevalence of cardiac diastolic dysfunction (DD) increases with age. In an ageing population, up to half of patients presenting in heart failure (HF) have diastolic heart failure with normal systolic function. [1] Usually a patient in HF will be assumed to have coronary artery disease until proved otherwise, and a graded exercise stress test (GXT) will be performed. During a GXT many subjects fail to achieve target heart rates or workloads sufficient to exclude cardiac ischemia. Without indications of ischemia, however, the reason for low exercise tolerance often remains unknown.

Given the high prevalence of DD, it was postulated that DD may be an important contributing factor when low exercise tolerance is found during a GXT. Charts of 160 consecutive patients who had both a GXT and echocardiography within a six month period were reviewed retrospectively. Subjects whose GXTs were inconclusive (tests terminated for non-cardiac reasons), and those whose diastolic function could not be determined echocardiographically were excluded. Of 106 patients who had normal GXTs, 26 had DD (24.53 percent). Of 38 patients with abnormal GXTs, 17 had DD. (44.74 percent). The difference of 20.21 percent was statistically significant. Z= -2.3354, p=0.0195, two-tailed. Z for CI = 1.9600. 95% Confidence Interval (-0.3717, -0.0325). Results confirm findings by Grewal et al. who found diastolic function inversely related to exercise capacity. [2] This finding has prognostic implications for many ambulatory outpatients who do not achieve a normal GXT, but who display no evidence of cardiac ischemia during that procedure. The probability of DD in such patients may be much higher than is generally appreciated.

[1] Senni M et al. Use of echocardiography in the management of congestive heart failure in the community. JACC 1999;33:164-170.

[2] Grewal J et al. Left ventricular function and exercise capacity. JAMA 2009;301:286-294.

Validating gene expression changes detected by microarray analysis in drug resistant ovarian cancer cell lines using Q-PCR

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ABSTRACT:
The development of drug resistance is a major problem associated with chemotherapy of ovarian cancer. Specific changes in gene expression are thought to contribute to drug resistance. These changes in expression can be measured using microarray analysis and quantitative polymerase chain reaction (Q-PCR). Microarray analysis is used to establish genome-wide changes in gene expression, and Q-PCR is the commonly used technique for validation of the microarray observations. Microarray observations and Q-PCR data may result in disagreement as each method has a fundamentally different approach for normalization and transcript specificity. In the present study, 16 genes were selected based on microarray observations of changes in gene expression in the parent and the drug resistant cell lines, for validation using Q-PCR. Primers were designed to be transcript specific and the ribosomal S28 gene was used as reference gene against which other gene expression changes were calibrated. Two sample t-test was performed to determine whether the differences in gene expression between parent and the resistant cell lines are significantly different. Of the genes being verified by Q-PCR, significant changes in expression between the parent and resistant cell line was observed for 14 genes with a p value <0.05. The Q-PCR technique detected changes in gene expression in other cell lines which were not detected by microarray. To determine if any of the resistant cell lines had significant difference compared to the other cell line, one way ANOVA was performed and significance was seen for 12 genes. Overall, Q-PCR generally confirmed the changes observed in microarray.

Functional antibody activity following immunization of end-stage renal disease patients with Haemophilus influenzae type b (Hib) conjugate vaccine

PRESENTING AUTHOR:
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ABSTRACT:
Haemophilus influenzae is a Gram-negative bacterial pathogen which is a common cause of pneumonia and otitis media. Invasive disease such as sepsis and meningitis is most often caused by the encapsulated H. influenzae type b (Hib). The widespread immunization of infants with Hib conjugate vaccines since the 1990s has greatly reduced the overall incidence of invasive Hib disease; although the elderly and those with secondary immunodeficiency remain at a high risk of infection. Patients with end-stage renal disease are part of the latter risk group. In order to mount an effective immune response to Hib, antibody mediated activation of the complement system is critical. We speculated that the pediatric Hib conjugate vaccine would induce a protective antibody response in groups vulnerable to infection. To evaluate the efficacy of vaccination for patients with end-stage renal disease we employed a serum bactericidal assay (SBA). This in vitro test directly measures the functional activity of antibodies via the classical pathway of complement activation. The viability of Hib is determined after the addition of active complement and patient serum antibodies. Briefly, the serum antibodies are serially diluted at two-fold intervals ranging from 1/4 to 1/16384; followed by the identification of the highest serum dilution that destroys greater than 50% of Hib. Serum antibodies of immunized patients were able to eliminate 50% of Hib at a median serum dilution of 1/512. Following vaccination, 91% of patients possessed antibodies that exhibited some bactericidal activity. This metric overcomes a significant limitation associated with direct quantification of antibody by enzyme-linked immunosorbent assay (ELISA) as ELISA is unable to distinguish between functional and ineffectual antibodies. For vaccine response, the SBA is a valuable tool for measuring protective immunity to Hib in vaccinated subjects.

A Retrospective Study Of Child And Adolescent Psychiatric And Multidisciplinary Teleconsultations

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ABSTRACT:
Knowledge about how child and adolescent psychiatric teleconsultations are provided and about the groups that receive such services continues to be extremely limited despite the increasing popularity of this type of service. This present study described how one centre's psychiatric and multidisciplinary child and adolescent outpatient teleconsultation service was accessed and delivered in northeastern Ontario. A retrospective review of 147 new outpatient teleconsultation patient files, over a three year period, was completed. Variables included patient characteristics (e.g. age, gender), access/utilization measures (e.g. referral source, waiting time, attendance of patient and family to session) and process measures (e.g. DSM-IV diagnosis given in session, recommended medications and psychotherapies). The service provided psychiatric evaluations which included diagnosis, medication and psychosocial recommendations, and screenings by social work and psychology professionals. The service was responsive and the average wait time for services was comparable to a similar teleconsultation service, but was considerably less than previously reported wait times to access regular services from children's mental health services in Ontario. Results indicated that patients were referred mainly for emotional and behavioural problems. Notably, there was a significant difference in access as the program served mainly female patients from an older developmental period referred from physicians with internalizing types of problems and as such the service largely focused on later onset mental illness and its management. It is expected that adding to the knowledge concerning teleconsultations will inform the general future implementation, delivery and planning of mental health services and will help improve local teleconsultation services.

Maternal-Infant Indicators of Quality Care

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ABSTRACT:
Preterm birth is the most significant cause of perinatal morbidity and long-term neurodevelopmental morbidity. The rate of preterm births in Canada has been gradually increasing over the last 30 years and little progress has been made in improving the outcomes of preterm infants. Several reports have revealed that significant variations in outcomes among Canadian neonatal intensive care units (NICUs) and others may be attributed to differences in practices as a result of ineffective mechanisms for knowledge translation. Recent linking of existing neonatal databases in Canada to form the single, integrated Maternal-Infant Care (MICare) database has provided clinical and non-clinical health professionals with a valuable tool for providing evidence-based best practices and enhanced methods for knowledge translation to improve quality of care. The objective of the current study is to identify and validate neonatal indicators of care that measure processes of care, patient safety, organizational efficiency and clinical outcomes. Systematic review of published literature related to best practices in perinatal care for the five major perinatal morbidities will be performed to establish a list of potential indicators for each stage of perinatal care. Subsequently, the most suitable indicators will be selected using an expert panel and a modified Delphi process. Finally, the MICare database will be used to validate the identified candidate indicators. The agreed indicators of neonatal quality care established from this study will assist in monitoring outcomes in NICUs across Canada, allowing for national and regional reporting on NICUs for comparative purposes and aiding in the establishment of guidelines for continuous quality improvement.

Oxidative stress and inflammation in cardiac iron overload: Role of SDG

PRESENTING AUTHOR:
Stephanie Puukila

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ABSTRACT:
Iron overload is the accumulation of iron in the body, which is then deposited in a variety of tissues, including the heart. Cardiac iron overload directly correlates with cardiac arrhythmias and heart failure. Although recent studies have suggested that altered calcium metabolism and increase in oxidative stress play a role in iron overload induced cardiac dysfunction, the exact mechanism/s of oxidative stress mediated cardiac and matrix remodeling are still unclear. Secoisolariciresinol diglucoside (SDG), a component of flaxseed is reported to be cardioprotective in various cardiovascular conditions. However, there have been no studies to date that have examined the role of SDG on oxidative stress and inflammation in cardiac iron overload conditions. We have previously reported that iron overload in H9c2 cardiac cells resulted in increased oxidative stress which correlated with compromised cell viability and increase in apoptosis. Furthermore, we also demonstrated that cardiac iron-overload resulted in increased gene expression of tumor necrosis factor-alpha, interleukin-10, and matrix metalloproteinase (MMP)-2 and MMP 9. Using the H9c2 cardiac cell line, we currently examined the effects of iron overload on the gene expression of microtubule-associated protein 1 light chain 3 as well as the antioxidant glutathione reductase. We demonstrated an increase in the above mentioned genes, suggesting an adaptive response to the increase in oxidative stress and inflammation. Pre-treatment with SDG attenuated the increase in oxidative stress as observed in the iron overload condition. Collectively, the results indicate that iron overload-induced oxidative stress and antioxidant response leads to cytokine activation resulting in increased MMP expression. This study also suggests the antioxidant potential of SDG in cardiac iron overload condition.

A Review of Thyroid Cancers Referred to the Algoma Regional Cancer Program 2007-2010

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ABSTRACT:
In Canada, Thyroid Cancer incidence is increasing at a rate of 5.5% in men, and 10.1% in women per year since 1997. Similar increases have been noted in Europe and the United States. Mortality rates have remained stable. Thyroid Cancer is the third most common cancer in young adults, age 20-44 years old. The incidence in young women appears to be increasing the most rapidly. To illustrate, the 2008 incidence per 100 000 population in females in Canada is 19: Ontario has the highest incidence of 26 amongst the provinces and Prince Edward Island the lowest at 6 amongst the provinces. The reasons for the variability seen are unclear. Literature review suggests that papillary thyroid cancer represents 70- 75 % of lesions resected. Other data including patient characteristics and demographics were accumulated. Thyroid cancer referrals at the Algoma Regional Cancer Program were reviewed for 2007-2010. We characterize the predominant pathology, the presenting complaint and stage as well as patient characteristics and demographics. This data will be reviewed and compared to North East Ontario and Canadian data in our presentation. Further specific data as to possible causes unique to our Region will be presented.

Modulation of Gene Expression in Vascular Endothelial Cells by Extracellular Matrix

PRESENTING AUTHOR:
Laura Rossi

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ABSTRACT:
Angiogenesis is the expansion of the existing vascular network. Signalling mechanisms initiated by vascular endothelial growth factor (VEGF) and, sphingosine 1-phosphate (S1P) a lipid activator of angiogenesis, have been linked in recent studies where S1P signalling was mediated through VEGF receptor (VEGFRs) transactivation. In human umbilical vein endothelial cells (HUVECs) stimulated with VEGF or S1P, Janus kinases (JAKs) become activated and stimulate downstream signal transducers and activators of transcription (STAT) proteins that regulate target gene expression via VEGFR signalling. Inhibition of VEGFR-2 blocks VEGF- or S1P-induced JAK activation, indicating dependence on VEGFR transactivation. Furthermore, JAK inhibition in HUVECs attenuates chemotaxis and differentiation; both fundamental processes in angiogenesis. As VEGF and S1P are both strong proangiogenic factors and the JAK/STAT pathway mediates gene expression downstream of VEGFRs, we screened for the expression of 27 soluble cytokines in S1P- and VEGF-treated cells using Bio-Plex technology. Of these factors, expression levels of IL-6, IL-8 and MCP-1 increased with VEGF or S1P treatment, and the expression was enhanced through interactions of endothelial integrins with the extracellular matrix (ECM) proteins collagen I, collagen IV, fibronectin and laminin I. Integrin activation in ECs enhances VEGFR signalling by increasing VEGFR phosphorylation. With chemical inhibitors, we determined that downstream of VEGFR activation, IL-6 and MCP-1 expression is dependent on JAK1 and/or JAK2, STAT3 and STAT5 activation, whereas IL-8 expression was only dependent on JAK1 and/or JAK2 and STAT5. The ERK-MAPK cascade, Src and NF-kappaB also play an important role in the upregulation of these three factors. Since many diseases including cancer, atherosclerosis and chronic inflammatory diseases depend on angiogenesis to progress and sustain the disease state, determining the signalling mechanisms and gene targets downstream of VEGF- or S1P-induced VEGFR activation will identify therapeutic targets to combat these pathogeneses.

Inhalation of nebulized diesel exhaust particles: A safety trial.

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ABSTRACT:
Diesel engines are widely used in modern industry. Of the many components of exhaust, the health effects of Diesel Exhaust Particles (DEPs) are of particular concern because they are readily respirable, penetrate the alveolar spaces, eliciting inflammation locally and systemically. To facilitate research in this area, a more practical method is required which is safe, portable, and cost-effective. In our study, we developed a novel method to study the effects of inhaled DEP.

Central Hypothesis: Inhalation of DEPs via nebulization is a safe method to deliver DEPs for experimental study.

Objectives: i) establish a novel, portable method for exposure to DEPs; ii) identify the lowest dose of DEPs capable of eliciting inflammatory responses in the airways and blood; iii) characterize local and systemic inflammatory responses to DEPs.

Methods: Ten healthy subjects (9:female; 1:male) who were non-smokers were studied in a non-blinded, non-randomised study consisting of four arms. As a safety trial, subjects were examined by a physician prior to the study. For each arm, subjects visited the lab on 3 consecutive days:
Day 1 & 3: measures of blood, oximetry, sputum, heart rate and FEV1;
Day 2: subjects inhaled nebulized saline 0.9% (placebo) or 3 different concentrations of DEPs suspended in 0.9% saline (0.075, 0.15 and 0.3mg/ml). FEV1 was followed for 2 hours. Sputum and blood was sampled at 2 hours.

Results: DEP inhalation was well tolerated at all doses. Mild, reversible bronchoconstriction occurs within 30 minutes of inhalation with the highest two doses; which resolved in two hours. There was evidence that macrophages had internalized particles at 2 & 24 hrs post inhalation at 0.15 and 0.3mg/ml doses. Systemic inflammation was not present.

Conclusion: These results suggest that inhalation of nebulized DEP is a safe and effective method to facilitate research on the health effects in healthy humans.

Overview of the Diagnostic Pathway of a Lung Cancer Patient in Sault Ste Marie: A retrospective chart audit

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Algoma District Cancer Program

ABSTRACT:
Most lung cancers are diagnosed with advanced stages due to lack of efficient screening procedures and vagueness of the symptoms of the disease. The objective of this retrospective chart audit is to observe the time intervals between various checkpoints in the diagnostic spectrum of lung cancer for patients referred to the Algoma District Cancer Program in the year 2009. The aim of this investigation is to show possible improvements which could be made in our diagnostic/referral process, specifically regarding timelines and process efficiency. It was found that those patients who first sought care at an emergency room or walk-in clinic were actually transitioning through the spectrum faster than those who were being seen by a family doctor. However, these patients presented with advanced disease symptoms in the majority. The mean and median number days between first seeking care and first visit to an oncologist was found to be 37 and 18 days, respectively. It was also found that 54.5% of patients transitioned the entire diagnostic spectrum, from first seeking care to visit to oncologist, within 30 days, and 72.7% transitioned within 50 days. 18.2% of patients were outliers, transitioning the spectrum in over 100 days. These outliers were found to have been seen by other medical professionals, such as cardiologists, over the period of their diagnosis. From the data collected, it is evident that implementing a patient navigator may allow for improved flow throughout the process. We now intend to review outliers and define specific remedies which would allow a more equitable, rapid and efficient diagnostic process. By implementing a more rapid and efficient diagnosis process, doctors are hopeful patients can be diagnosed at earlier stages where life-prolonging treatments like surgery, chemotherapy and radiation will be more beneficial to the patient.

Clinical and Psychosocial Effectiveness of Dance Based Cardiac Rehabilitation- Pilot Project

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ABSTRACT:
Participation in exercise based cardiac rehabilitation is known to result in positive changes that control cardiac symptoms, reduce the risk of sudden cardiac death, and stabilize or reverse the atherosclerosis process. Unfortunately, many patients do not participate in rehabilitation programs when referred or drop out before completion of a standard length program. Modified cardiac rehabilitation programs have been shown to increase program participation and adherence while reducing program costs. Dancing, a popular form of alternative exercise, has been proven to improve functional capacity in patients with stable chronic heart failure and has been suggested as a safe and fun alternative form of cardiac rehabilitation. To evaluate the clinical and psychosocial effectiveness of dance based rehabilitation, a 12 week dance based program has been developed and will be compared to a 12 week traditional program of identical exercise frequencies. Pre-post clinical and psychosocial factors for the dance rehabilitation group (n=15-20) and traditional rehabilitation group (n=15-20) will be compared. The clinical factors that will be investigated include blood pressure, high-density lipoprotein, low-density lipoprotein, diabetes fasting sugar (HBA1), ExTT- Bruce Protocol (No. METS), ejection fractions, and body mass index (BMI). Psychosocial factors will be compared using an adapted Hospital Anxiety and Depression Scale and an adapted SF-36(tm) Health Survey. Attendance and drop out rates will also be recorded for both groups. It is anticipated that there will be no significant differences in clinical and psychosocial factors between the traditional and dance rehabilitation, proving that dance based rehabilitation is a valid form of cardiac rehabilitation. It is also anticipated that program participation and adherence in the dance based program will be greater compared to the traditional program due to the enjoyable and social exercise atmosphere.

Pilot Project Anticipated Completion: May 2011

Atrial Tachycardia/Fibrillation in the Connexin 43 G60S Mutant (Oculodentodigital Dysplasia) Mouse

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ABSTRACT:
Introduction: Atrial fibrillation (AF), the most common cardiac arrhythmia seen in general practice, can be promoted by conduction slowing. Cardiac impulse conduction depends on gap junction channels, which are composed of connexins (Cxs). While atrial Cx40 and Cx43 are equally expressed, AF studies have primarily focused on Cx40 reductions. The G60S Cx43 mutant ($Cx43^{G60S/+}$) mouse model of Oculodentodigital dysplasia has a 60% reduction in Cx43 in the atria. $Cx43^{G60S/+}$ mice were compared to Cx40 deficient (Cx40-/-) mice to determine the role of Cxs in atrial tachycardia/fibrillation (AT/F).

Methods and Results: Intracardiac electrophysiological studies were done in 6-month-old male C57BL/6 $Cx43^{G60S/+}$ mutant, littermate (Cx43+/+), Cx40-/- and wild type (WT) mice. AT/F induction used an extra stimulus during sinus rhythm, programmed electrical stimulation, or burst pacing (1 ms pulses, 50Hz, 400 ms train), in the absence and presence of carbachol (CCh) a parasympathetic agonist. Atrial effective refractory periods did not differ between strains. $Cx43^{G60S/+}$ mice were more susceptible to induction of sustained AT/F (duration >2 min, 9 of 12; maximum >35 min) compared to Cx43+/+ mice (3 of 11, $X2=5.24$, $P=0.02$). CCh enhanced sustained AT/F susceptibility in WT (from 1 of 12 without, to 7 of 10 with CCh, $X2=8.98$, $P<0.01$), but not in Cx40-/- mice (1 of 13 without vs 2 of 9 with CCh, $X2=0.95$, P=NS). The pattern of epicardial recordings during AT/F in $Cx43^{G60S/+}$ mice was left preceding right, with left atrial fractionated activation patterns consistent with clinical observations of AF.

Conclusions: While $Cx43^{G60S/+}$ mice had severe AT/F, Cx40-/- mice were resistant to carbachol induced AT/F. As AF can be a silent disease, it may be wise to monitor patients with ODDD as there are reports of cardiac phenotypes and they may have increased age-related risk of AF. Published in Am J Physiol Heart Circ Physiol. 2011 Jan 14

Junctional Tachycardia in the Mouse can be Prevented by Pacemaker Channel (If) Blockade

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ABSTRACT:
Overview: Atrioventricular nodal re-entrant tachycardia (AVNRT) and junctional tachycardia (JT) are common, electrocardiographically similar, arrhythmias. AVNRT relies on circular conduction between the fast (FP) and slow (SP) AV nodal input pathways. JT mechanisms are unknown, but may involve the autonomic nervous system. JT occurring following cardiac surgery in neonates increases mortality risk by 5.6-14%. The SP, formed by the inferior extension of the compact AV node (INE), contains the dominant AVN pacemaker, expresses pacemaker funny channels (I_f), and may be involved in JT. In this study, we investigate the mechanisms of junctional arrhythmia in male wild type C57BL/6 mice.

Methods and Results: Programmed electrical stimulation mapped antegrade AVN conduction and observed SP conduction in (8/19), single re-entrant beats in (3/19), but rarely elicited AVNRT (1/19). His electrogram amplitude alterations were observed during SP vs FP activation of the His (0.15±0.03mV vs 0.10±0.02 mV, P=0.01) suggesting functional longitudinal dissociation of the mouse His bundle. Rapid ventricular pacing (RVP, 50 Hz, 400 ms, 10-30 bursts), induced junctional arrhythmia in 74% of mice (14/19) producing a 32% increase in rate (325∀15 vs 429∀19 BPM, P<0.001). Pacing distinguish AVNRT from JT. Premature FP activation did not terminate the arrhythmia (0/14) indicating JT. RVP caused decreases (46∀2.6%) in diastolic blood pressure and enhanced nodal conduction following 10 bursts (pre-pacing AH=31∀1ms vs post-pacing AH=28∀1ms, P<0.001, n=14), suggesting involvement of a baroreflex response in JT initiation. Both Vagal nerve stimulation (5/5) and propranolol (7/7) prevented JT induction, confirming a role for the autonomics. Ivabradine hydrochloride (1mg/kg), a selective If blocker, inhibited JT in 8 of 9 mice (X2=14.4, P<0.001).

Conclusions: AVNRT is inducible but infrequent in the mouse. The mouse is susceptible to induced JT, which can be prevented by If channel blockade. As such Ivabradine might be useful in patients with JT.

Characteristics of community acquired pneumonia in the rural population of Northwestern Ontario

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ABSTRACT:
Pneumonia is a leading cause of death in Canada and internationally. Previous studies have identified the highest rates of pneumonia hospitalization in the northern and rural areas of Ontario. Aboriginal populations in Canada experience higher rates of pneumonia morbidity than non-Aboriginal populations. We sought to characterize community-acquired pneumonia (CAP) requiring hospitalization in a rural Northern Ontario hospital serving a primarily First Nations population. A retrospective chart review of all hospitalized CAP cases at Meno Ya Win Health Centre from 2007-2009 was carried out. We have identified 287 confirmed cases of CAP, corresponding to an incidence of 319 pneumonia-related hospitalizations per 100.000 (higher than the rate [242 per 100,000] reported for Ontario as a whole). Among the cases, 87% were First Nations, 48% males, 52% females, and 92% were overweight (BMI > 25). Adverse outcomes (defined as death or transfer due to ICU requirement) occurred in 10 (3.5%) and 35 (12%) of cases, respectively. In multivariable logistic regression models, we identified three independent predictors of adverse outcome: renal disease (odds ratio [OR] 2.90, 95% CI 1.25 to 6.72), COPD (OR 2.56, 95% CI 1.14 to 5.74), and non-receipt of azithromycin (odds ratio 2.30, 95% CI 1.15 to 4.59). There was a non-significant trend towards increased risk of adverse outcome in those with First Nations ethnicity (OR 3.46, 95% CI 0.92 to 13.06, P = 0.07). Other factors that have been identified as predictive of poor outcome in individuals with CAP, including non-receipt of pneumococcal vaccine and advanced age were not found as predictors of poor outcome in this analysis. Our findings emphasize importance of pneumonia prevention in First Nations communities in Northern Ontario, the need to cover atypical microbes in the empirical treatment of CAP, and the need for primary research focusing on the distinct epidemiology of CAP in this vulnerable population.

Antimicrobial activity of natural products recovered from the flora of Northern Ontario

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ABSTRACT:
Antimicrobial resistance is presently an increasing public health crisis. There are few antimicrobials left that can be used against multidrug-resistant bacteria. As a result of the possibility of a post-antimicrobial era, studies on antimicrobial agents derived from plants are increasing in popularity. The main purpose of this study is to assess the antimicrobial activity of natural substances extracted from plants originating from Northern Ontario. These substances have been tested against pathogens presently demonstrating antimicrobial resistance, such as Escherichia coli, Staphylococcus aureus, Pseudomonas aeruginosa and Candida albicans. The antimicrobial activity of the natural substances was determined by using a microtiter plate assay, in which the minimum inhibitory concentration (MIC) of the natural substances was discovered. Preliminary results have shown the antimicrobial activity of two plant extracts out of twenty five against Staphylococcus aureus, with MICs of 250-500µg/mL and 1000µgmL respectively. Substances showing positive results will be further examined to determine if the antimicrobial effects are microbicidal or microbiostatic by using viable plate counts and time-kill curves. Furthermore, fractionation of the complex natural substances will be performed in order to determine if the simple compounds have an antimicrobial activity by themselves or if the antimicrobial effect is due to synergism. The results obtained should confirm the potential use of the plant extracts as novel and effective antimicrobials.

Observed, Estimated, and Projected Fatality Trends

PRESENTER:
Bruce Weaver

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ABSTRACT:
Background/Objectives: Using 1975-2008 data from the United States' Fatality Analysis Reporting System, we a) examined fatality trends, b) estimated the number of fatalities expected if fatalities had continued to occur at the 1975 rate, c) projected future fatality trends to 2025, and d) examined whether fatalities differed by gender.

Method: Data for driver and passenger fatalities were stratified by sex and age group (younger: 20-34 years; middle-aged: 35-54 years; older: 65+ years) before using the curve fit method to fit models to the data. These models were used to perform fatality projections to 2025. Using the 1975 fatality rate, we estimated the number of fatalities expected due to increased exposure to determine whether efforts to decrease fatalities were working.

Results: Fatalities involving younger and older adults decreased, while fatalities for middle-aged adults increased. Estimated fatalities were higher than that observed for younger adults, but were similar for middle-aged and older adults. Fatalities were projected to decrease through to 2025 for younger adults, increase for middle-aged adults, and level off for older adults. Males and females showed a similar pattern of fatalities but female fatalities were consistently lower. A cohort effect was found for older adults, whereby from 1975-2008, the younger members of the group (65-74 years) accounted for an increasingly smaller proportion of fatalities.

Conclusion: The recent decrease in older adult fatalities is remarkable given their increased number and exposure. Observed fatalities for younger adults were lower than that estimated after controlling for increased exposure, suggesting interventions (e.g., policy change) have made a positive difference for this cohort; interventions may now need to focus on middle-aged and older adults. The cohort effect suggests recent older drivers are involved in a smaller proportion of fatal crashes than their predecessors, possibly due to improved driver training, education, and road and vehicle design.

Screening for Medically At-Risk Drivers with the SIMARD-MD: A Failure to Apply the CIHR Knowledge-to-Action Framework

PRESENTING AUTHOR:
Bruce Weaver

AUTHOR(S):
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ABSTRACT:
The “2010 BC Guide in Determining Fitness to Drive”, which is published by the Office of the Superintendent of Motor Vehicles (OSMV), stipulates that health care providers in British Columbia must use the SIMARD-MD (Screen for Identification of Medically-at-risk Drivers, a Modification of the DemTect) for screening individuals who “may have cognitive impairment or dementia that could affect their ability to drive”. Individuals who score above a certain cut-off on the SIMARD-MD are sent to DriveABLE for further assessment. (DriveABLE is a University of Alberta spin-off company that provides both cognitive testing and on-road driving assessments.) The policy rationale section of the guide begins by questioning the utility of other well known cognitive tests for making decisions about fitness to drive. [That list of tests includes the Mini Mental Status Exam (MMSE), Trails A and B, Digit Span, and the Montreal Test of Cognitive Impairment (MOCA).] It concludes by describing the superior properties of the SIMARD-MD. However, no actual numbers are reported.

As our title suggests, the steps described in the CIHR Knowledge-to-Action Framework have not been followed in this case. The CIHR defines knowledge translation as “a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system.” The SIMARD-MD stumbles badly at the first hurdle, synthesis. Currently, only one published article advocates the use of the SIMARD-MD as described above, so synthesis is not yet possible. Given the dearth of evidence, the adoption of the SIMARD-MD by the British Columbia OSMV and the BC Medical Association strikes us as very puzzling and extremely premature.

Oxidative stress and inflammation in type 2 diabetes

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ABSTRACT:
Pronounced oxidative stress and inflammation are increasingly recognized as key features in various cardiovascular complications, including diabetes. Physical activity is considered to be an effective lifestyle management technique in type 2 diabetes. Although there is abundant literature on the beneficial role of physical activity, its effect on peripheral markers of inflammation and cardiac oxidative stress in type 2 diabetes is largely unknown. We tested the hypothesis that physical activity will modulate peripheral markers of inflammation and cardiac oxidative stress in rats with type 2 diabetes that have undergone exercise training. Male Sprague-Dawley rats were fed either a standard low fat diet (LFD) or a high fat diet (HFD) for a period of 8 weeks. After 2 weeks of the dietary manipulation, HFD rats were injected with a low dose of Streptozotocin to induce diabetes. The HFD animals were then divided into two subgroups: 1) a sedentary HFD control group; 2) a HFD plus treadmill running group (HFD+Run). Serum levels of pro-inflammatory cytokine, Tumor necrosis factor-α (TNF-α) and anti-inflammatory cytokine Interleukin-10 (IL-10) was obtained by using commercially available luminex kit. The gene expression of the antioxidants peroxiredoxin (Prx6) and superoxide dismutase (SOD2) was assessed in the heart via qPCR. The IL-10/TNF-α ratio was attenuated in the HFD group compared to the LFD group both at the gene expression and protein level and this ratio was partially improved in the HFD+Run group. The gene expression of Prx6 and SOD2 was significantly decreased in the HFD group as compared to the LFD group and the levels were improved in the HFD+Run group. Future studies are directed towards elucidating the mechanisms governing exercise induced modulation of the markers of oxidative stress and inflammation. (Support from the NOSMFA Research and Development Fund and FedNor is greatly acknowledged)

Author Index.

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Notes.

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