

Health Research Grants Funded Applicants: 2003-2004

- 1. Assessing Optic Nerve Shape to Detect Glaucoma**
Paul Artes, Department of Ophthalmology, Dalhousie University
Syed Abidi, Department of Computer Science, Dalhousie University

There is no single test that can detect glaucoma with high accuracy, and half of all cases remain undetected. This is of particular importance in Nova Scotia where eye-care services are not easily accessible in many areas. Laser imaging of the eye can detect glaucoma in high-risk patients. However, diagnostic tools that can be applied by non-specialists are needed. Using modern image-analysis techniques, this project will work toward establishing better, more comprehensive methods to interpret optic nerve images, which would be made available to ophthalmologists.

- 2. Mother-Infant Skin-to-Skin Contact**
Ann Bigelow, Department of Psychology, Saint Francis Xavier University

Positive interactions between mothers and infants foster maternal sensitivity and mutual responsiveness, which have long-term beneficial effects on physical and emotional health. This project will study the health benefits of mothers providing skin-to-skin contact with their infants for a few hours each day. It will assess if there is a reduction in postpartum depression and stress reduction in the mothers, and quiet alertness and reduced stress in the infant. It will also assess if there are any improvements in the general health and well-being of the mother and child.

- 3. The WEST Study**
Edward J. Cain, Emergency Health Services
Iqbal Bata, Division of Cardiology, QEII Health Sciences Centre

Heart disease is a significant health problem for Nova Scotians. There is growing evidence that reducing the time to treatment improves outcomes for patients. The WEST study will focus on providing care at the earliest point in time, either in the pre-hospital or emergency department setting. It will compare three contemporary treatment strategies for patients to determine the best options for delivering care and obtaining optimal outcomes, while using the existing services as efficiently as possible.

- 4. Primary Health Care in Nova Scotia: Development of a survey to measure quality**
Frederick I. Burge, Community Health & Epidemiology/Family Medicine, Dalhousie University

The key to improving our health care system is said to lie in improving primary care. In order to do this, we must be able to measure the quality of that care as the public sees it. Unfortunately, there are no existing surveys to do this in Canada. In this project, a well-established survey from the United Kingdom will be modified for use in Canada and piloted in Nova Scotia. The results will be analyzed and presented for discussion among health planners and providers to see how useful such information would be. The final survey will then be made available more broadly for wider use in primary health care

planning and evaluation.

5. Brain Injury Outcomes in Nova Scotia
David Clarke, Department of Neurology, QEII Health Sciences Centre

Traumatic brain injury is common in Nova Scotia and can have devastating consequences. Most of these injuries affect young people in the prime of their lives. Evidence suggests that the best opportunity for a favourable outcome depends on optimal pre-hospital care, prompt delivery to neurosurgical care, and access to early rehabilitation services. This study proposes to use data collected at each stage of care to answer questions concerning the treatment of persons with brain trauma to identify risk factors and those elements of care that can be changed to improve health outcomes.

6. Dental Implant Surface Modification to Improve Clinical Performance
Mark Filiaggi, Faculty of Dentistry and School of Biomedical Engineering, Dalhousie University

Tooth loss can have a profound impact on the overall quality of life. Significant tooth loss or long-term loss is strongly linked to general health deterioration. Bridges and dentures offer some relief, both aesthetic and functional. However, dental implants allow a more complete long-term functional and aesthetic restoration. This project seeks to develop a technology that will actively promote localized bone formation and subsequent long-term implant fixation, thus making this therapeutic intervention more feasible. Involving both Acadia and Dalhousie universities, this study will also create research opportunities and training for students in the province.

7. Work-Related Stress: An Examination of Employees and Organizations in Nova Scotia
Lori Francis, Department of Psychology, Saint Mary's University

Work-related stress is becoming increasingly common and severe. According to the United States' National Institute of Occupational Safety and Health, occupational stress is one of the 10 leading causes of death in the workplace. It is commonly considered to be an epidemic in North America. This research will consider the degree and nature of work-related stress in Nova Scotia and attempt to increase understanding of common work stressors and their long-term health impact. It will also look at programs provided by employers aimed at helping manage and reduce workplace stress, and will identify factors that are damaging to the well-being of employees.

8. The CT Stroke Outcome Study
Gordon Gubit, Department of Neurology, QEII Health Sciences Centre

We need to know more about how stroke patients are doing after they are discharged from hospital. It would also be helpful if we had tools that could predict whether people are likely to develop problems with day-to-day activities, thinking and memory. One tool that may be very useful for this is a type of X-Ray called a CT scan. Almost all patients who are admitted to hospital with a stroke have a CT scan of their head to look for changes from the stroke, and possibly other changes that may have been there previously. We may be able to use information from the CT scan to predict how people are likely to do after they have been discharged from hospital. In our research study,

people who are discharged from the Stroke Unit at the QEII Health Sciences Centre in Halifax will be followed up as outpatients.

**9. Health Climate at Capital Health
Kevin Kelloway, School of Management, Saint Mary's University**

Working with Capital Health, a series of studies will be conducted that examine organizational health climate, i.e., how organizations contribute and detract from individual employee health. Specific aspects of the work-environment (e.g., shift work, job stress, work/family balance) will be examined as well as what organizations can, and should, do to help employees develop healthy lifestyles. The proposed research is integrated with Capital Health's strategic goal of "healthy people in healthy communities," and the results will be useful to all organizations wishing to enhance health in the workplace.

**10. A Consultation Process to Develop a Survey Instrument to Assess Adolescent Health in Nova Scotia
Donald Langille, Department of Community Health and Epidemiology,
Gail Tomblin Murphy, School of Nursing
Dalhousie University**

Adolescence is a time of growth and experimentation, sometimes involving behaviours that increase risks to health. Through a community-consultation phase, this research will develop a survey instrument to assess adolescent health status that will introduce an element of standardization for tracking and comparing youth health in Nova Scotia. This will enhance the ability of school-based health centres to provide relevant health and support services, and will improve the ability of policy-makers to develop and implement appropriate youth health policies and programs.

**11. New Targets for Treatment of Cystic Fibrosis Lung Disease
Paul Lindsell, Department of Physiology and Biophysics,
Dalhousie University**

Cystic fibrosis (CF) is a genetic disease that results from mutations in a single gene (CFTR). Most of the disease symptoms in CF are the result of lung disease that is ultimately fatal in most cases. Considerable research effort has been focused on either replacing the defective gene or rescuing its function in CF patients. This research is beginning to look more closely at the function of proteins existing in the same lung cells where CFTR is most vital to determine their suitability as CFTR "replacements" in the lungs of CF patients, which may lead to new potential treatments for the disease.

**12. Identifying Mechanisms Involved in Colorectal Cancer
Paola A. Marighani, Department of Biochemistry and Molecular Biology,
Dalhousie University**

The incidence of colorectal, or colon, cancer in Nova Scotia is higher than in the rest of the country. This research will identify key signaling partners of a tumor suppressor protein kinase (LKB1) and will make clear the normal signaling pathway mediated by LKB1. It will examine the loss of LKB1 activity and the loss of association with members of the LKB1-Brg1 complex. The successful development of cancer therapies and cures relies on a thorough understanding of how otherwise normal signaling pathways become irregular. This research will potentially lead to the development of anti-cancer agents or

strategies for specifically targeted gene therapy.

13. Medical Doctor-Prescribed Exercise Training Programs: Feasibility and Cost to the Health Care System

René Murphy, Department of Kinesiology, Acadia University

Regular physical activity has significant long-term implications for the health of seniors and is a proactive approach to health care. The purpose of this research is to look at the impact and benefits of “prescribed” exercise programs in a medical setting and at the cost benefit analysis of these interventions. Regular, appropriate exercise programs suggested by the physician and implemented and monitored by a kinesiologist/health educator would assist seniors to maintain independence, aid in the prevention and treatment of type 2 diabetes, and save on health care costs. The results of this research will provide information to various health services providers and policy-makers.

14. Inflammatory Mechanisms in Multiple Sclerosis

George S. Robertson, Department of Pharmacology, Dalhousie University

Multiple sclerosis (MS) is a progressive neurological disorder that afflicts thousands of young adults in Nova Scotia. MS is an attack on the myelin sheath that insulates electrically conductive portions of nerve cells (axons). Destruction of the myelin sheath impairs the conduction of electrical impulses through axons, resulting in loss of motor coordination, weakness and numbness in the extremities, and visual deficits. This study will determine whether a new class of anti-inflammatory drugs being developed for the treatment of asthmas and arthritis may also be effective in the treatment of MS.

15. Economic Evaluation of Extended Anti-thrombotic Prophylaxis Following Total Hip Replacement

Chris Skedgel, Department of Medicine, QEII Health Sciences Centre

As the Canadian population ages, total hip replacement procedures are becoming more prevalent. Complications, such as deep vein thrombosis and pulmonary embolism, can occur up to 5-10 weeks following surgery and extended preventative therapy with anticoagulants (blood thinners) has been suggested as a method of reducing these complications. This study will perform a cost-effectiveness analysis comparing the use of extended preventative therapy with three alternative anticoagulants with a no-treatment alternative. The results will help guide which medication(s) should receive support from third-party payers such as provincial pharmacare programs.

16. An International Collaboration to Study Resilience in Children Across Cultures

Michael Ungur, School of Social Work, Dalhousie University

This study will identify unique and culturally specific ways to foster health in children and youth growing up under adversity. It will develop the tools necessary to understand the survival strategies and characteristics of vulnerable child populations. The study brings together resilience researchers from different disciplines and cultural backgrounds who have methodologically diverse approaches.

17. A Brief Cognitive-Behavioural Approach to Reducing Anxiety Sensitivity

Margo Watt, Department of Psychology, Saint Francis Xavier University
Sherry Stewart, Department of Psychology, Dalhousie University

Anxiety sensitivity refers to a fear of anxiety-related sensations. High-anxiety sensitivity is a risk factor for anxiety disorders, such as panic disorder and social anxiety, as well as depression and substance abuse. First-year students with high-anxiety sensitivity would seem to be at increased risk to develop an anxiety or other disorder. This study proposes to test a brief therapeutic intervention designed to reduce anxiety sensitivity levels in first-year students. Affective adjustment, alcohol consumption and academic performance in the treatment group will be compared with those who receive no treatment, and measured. Follow-up assessments will be conducted.