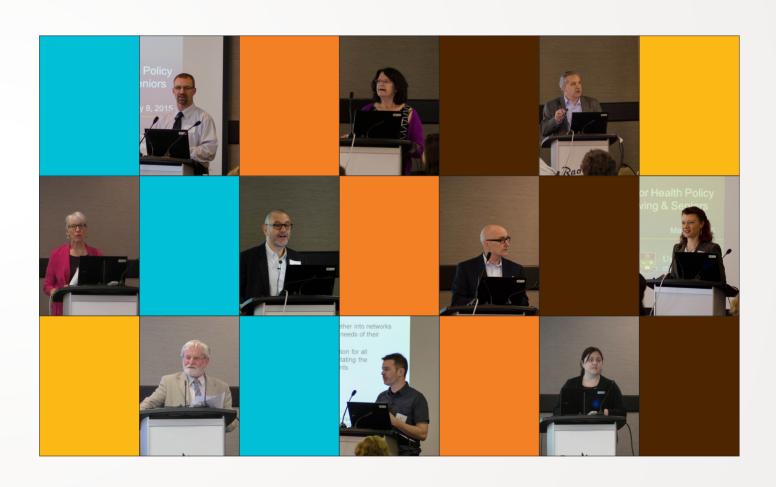
TRAILBLAZER CHALLENGER VISIONARY INNOVATOR ADVENTURER REBEL TRAI

2014/15 MCHP ANNUAL REPORT





ABOUT THE MANITOBA CENTRE FOR HEALTH POLICY

The Manitoba Centre for Health Policy (MCHP) is located within the Department of Community Health Sciences, in the College of Medicine, Faculty of Health Sciences, at the University of Manitoba. The mission of MCHP is to provide accurate and timely information to healthcare decision—makers, analysts and providers, so they can offer services which are effective and efficient in maintaining and improving the health of Manitobans. Our researchers rely upon the unique Population Health Research Data Repository (Repository) to describe and explain patterns of care and profiles of illness and to explore other factors that influence health, including income, education, employment, and social status. This Repository is unique in terms of its comprehensiveness, degree of integration, and orientation around a de-identified population registry.

Members of MCHP consult extensively with government officials, healthcare administrators, and clinicians to develop a research agenda that is topical and relevant. This strength, along with its rigorous academic standards, enables MCHP to contribute to the health policy process. MCHP undertakes several major research projects every year under contract to Manitoba Health, Healthy Living and Seniors. In addition, our researchers secure external funding by competing for research grants. We are widely published and internationally recognized. Further, our researchers collaborate with a number of highly respected scientists from Canada, the United States, Europe, and Australia.



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MCHP VISION, MISSION AND VALUES

Vision:

The Manitoba Centre for Health Policy sets the international standard for using population-based administrative data to create new knowledge that informs health policy, social policy, and service delivery.

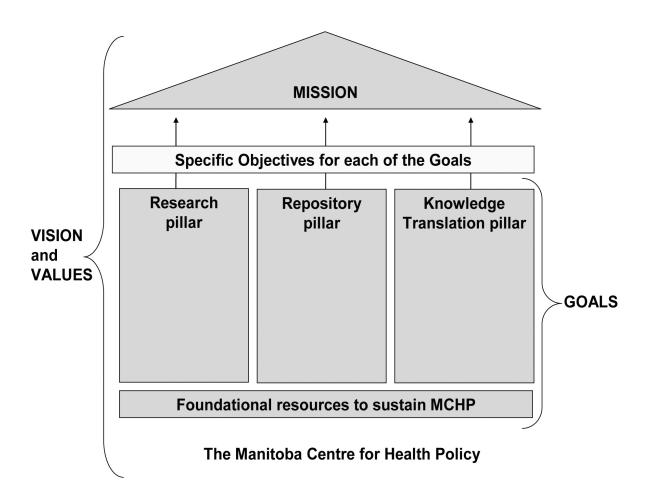
Values:

- · Innovation and Excellence
- · Collaboration and Teamwork
- · Social Relevance and Stewardship

Mission:

The Manitoba Centre for Health Policy (MCHP) is a research centre of excellence that conducts world class population-based research on health services, population and public health, and the social determinants of health. MCHP develops and maintains the comprehensive population-based data repository on behalf of the Province of Manitoba for use by the local, national and international research community. MCHP promotes a collaborative environment to create, disseminate and apply its research. The work of MCHP supports the development of evidence-informed policy, programs, and services that maintain and improve the health and well-being of Manitobans.

The University of Manitoba's mission is to create, preserve and communicate knowledge, and thereby, contribute to the cultural, social and economic well-being of the people of Manitoba, Canada and the world. MCHP is situated within the University of Manitoba Strategic Plan Framework and the College of Medicine Strategic Framework.



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Dr. Patricia J. Martens | 1952 - 2015

It is with great sadness that we mourn the loss of Dr. Patricia J. Martens. Pat joined the Manitoba Centre for Health Policy in 1999, and served as Director from 2004 to 2014. Two years ago she was diagnosed with mesothelioma. She passed away peacefully at home with her family on January 10, 2015.

Throughout her distinguished career, Pat made substantial contributions to health services and health policy research. She served on several national committees, including the Governing Board of the Canadian Foundation for Healthcare Improvement and the CIHI Expert Advisory Group on Health System Performance. Pat's huge contribution to population health and health services research in Manitoba, Canada, and internationally has been recognized by the many awards she has received, including the Fellowship in the Canadian Academy of Health Sciences, the Emmet Hall Memorial Lectureship, Fellowship in the Royal Society of Canada, and the Order of Canada.



Pat was a gifted scientist with the ability to take complex ideas hidden in tables and graphs and tell compelling stories in everyday language. Few will forget how she could get a room of 200 health-system professionals to put their arms up in the shape of a bell curve to visualize how a small "shift and squish" can have a large impact on the health of Manitobans. Using this gesture she showed that if the bell curve could be shifted as a whole in the right direction, the gains in population health would be significant, but the gap between the least healthy and most healthy—represented by her elbows, or the "tails" of the curve—would remain the same. The "squish" involved tucking in the left elbow to narrow that gap. Pat used this gesture to show how interventions that addressed the entire population could be effective, but that overall population health meant reducing health inequality through targeted efforts to improve the condition of those who are least healthy.



Her own research has reflected this concern since her master's degree, for which she studied barriers to breastfeeding among First Nations women. Her PhD thesis was an intervention using trained peer counsellors that increased breastfeeding rates in the same population, and also reduced premature births and rates of low birth weight. Most recently, Pat led a team that was awarded a major CIHR grant that brought together all of the MCHP scientists to study the impact of multiple child health programs on health inequity.

Knowledge translation was one of Pat's major strengths. In 2001 she created *The Need to Know* team (p. 47), based on a revolutionary new model of "integrated knowledge translation," which involves decision-makers from government and the health system "before the beginning" of the research process. This ongoing dialogue has significantly increased the relevance and applicability of population-health research in Manitoba.

It was Pat's original intention to step down as Director after 10 years, leaving the centre open to renewal and change. That this period concluded with her illness and death was a tragedy.

But she will be remembered most at MCHP by the students, scientists, and staff whom she mentored closely. MCHP's close community, and its leadership, are very much a product of Pat's careful stewardship of the centre over the last decade.



Message from the Director



"Change before you have to." — Jack Welch

I am humbled to be the Director of MCHP. I am reminded of the incredible achievements of the centre under our previous leadership. Dr. Pat Martens led us through 10 years of significant growth with a unique style, great interpersonal skills, and a remarkable commitment to the centre's success. She knew the importance of change, having planned to step down from the directorship long before she had to. Some of the changes that occurred during her tenure were planned based on perceived need or a unique opportunity that arose, while others were made due to changes in the environment that were beyond our control. All were well thought out. Whatever the precipitating factor, each of these changes was made with one goal in mind: to strengthen the ability of MCHP to address its mission.

One of Pat's most significant legacies is the close community she built at work. MCHP could often be mistaken for a family, and very few people could say they did not benefit greatly from her leadership, compassion, creativity, or mentorship. As a result, Pat's untimely death was felt deeply. The impact Pat had in her professional community, and the contributions she made to her field have been recognized by numerous prestigious awards over the years, but the presence she had amongst her colleagues was registered by the outpouring of emotion at her loss.

MCHP's 24 years of international leadership in population and health-services research is remarkable. Whatever changes are in MCHP's future must be made while recognizing all that has been achieved, how it was achieved, and where our strengths lie. Before we decide where we want to go we need to understand where we are now.

The past five years saw remarkable growth in the Population Health Research Data Repository, enabled by a substantial grant from the Canada Foundation for Innovation. We improved our data-quality processes and data documentation to facilitate creative and innovative use of this growing resource. The Repository is the most diverse health-related data repository in Canada, and probably in the world. This rich source of information provides unique opportunities for health and policy-oriented research but also places a significant responsibility on MCHP to ensure that this resource is used to its maximum potential. We need to explore and overcome whatever barriers might be preventing the full exploitation of this remarkable resource. This is not a single event but an ongoing process that will sustain our future.

Much of the Repository's recent growth has been in "social" data. These data often address the social determinants of health, the importance of which has been widely accepted. While our capacity to study the health of Manitobans is greatly enhanced by this data, we should not neglect its value for exploring the social phenomena themselves.

Other challenges and opportunities are on the horizon as "big data" analysis is driving a new understanding of the potential value and use of data repositories such as ours. Locally this provides both challenges and opportunities which we will explore over the next few years. The Canadian National Observational Drug Safety and Effectiveness Studies (CNODES) grant has allowed us to work with pharmaco-epidemiologists from across Canada to perform disseminated studies using common

protocols without the data leaving any of the participating jurisdictions (see p. 34). This model of research provides a blueprint for future cross-jurisdictional studies. We are looking forward to providing national leadership in groundbreaking research of this nature and exploring the potential of new analytic techniques that evolve from the growth of big-data analytics.

The centre's success depends on several key relationships and the support of many people. We often talk about organizations like MCHP and forget the people who make up that organization. I am privileged to rely on a remarkable group who consistently do outstanding work to support our mission. In particular my own transition to the leadership of MCHP would not have gone as smoothly as it has without the remarkable assistance that I have received from Executive Assistant and office manager Carole Ouelette. Joining Carole on our executive team for the past year, have been Mark Smith, Charles Burchill, and Randy Fransoo. This team has worked tirelessly to ensure our success.

We have benefited from the wisdom and support of an outstanding Advisory Board chaired by Dr. Sharon Macdonald in addition to the contributions of Dr. Brian Postl, Dean of the Faculty of Health Sciences, and Department Head Dr. Stephen Moses. Our critical relationship with the Ministry of Health is expertly managed by Deborah Malazdrewicz, who has provided essential guidance, support and advice. I am indebted to the deputy ministers within the Manitoba Government who meet with me regularly amid their busy schedules to support the work of the centre. In particular, Karen Herd, Deputy Minister of Health, Healthy Living and Seniors has provided me with the support and guidance to build on our already strong 24-year relationship with the ministry.

Our relationship with the Healthy Child Committee of Cabinet and Healthy Child Manitoba Office continues to grow and flourish in part due to the ongoing work on the PATHS Equity for Children CIHR team grant. Child health research emerged as an area of research excellence at MCHP some years ago and continues to be an area of focus. The growth of the George and Faye Yee Centre for Healthcare Innovation as the home of the CIHR funded SUPPORT Unit has opened opportunities for new collaboration. We will be working together to exploit each of our strengths to support innovative health research in Manitoba.

I look forward to working with our partners to build on the solid foundation established by my predecessors. We have the ingredients to address the population health research needs of the future at MCHP and will strive to ensure that our work makes a difference to the health and wellbeing of Manitobans.

Alan Katz



MCHP WORKGROUPS

Research Scientists

Research scientists at MCHP design and manage population-health research projects. Projects include deliverables for Manitoba Health, Healthy Living and Seniors, and studies funded through peer-reviewed research grants. MCHP scientists apply for grants to fund research in their areas of expertise. They also devote significant time to knowledge translation in the form of public presentations, educational presentations, briefings for government, op-eds, and radio and television interviews. Most of our scientists also teach undergraduate or graduate courses in Community Health Sciences, and supervise or mentor graduate students. Several also teach undergraduate medical students.

Research Project Coordinators

This group coordinates deliverable project activities through all phases, acting as project managers and providing research assistance. Research project coordinators ensure procedures are followed for data access and use, report structure, and knowledge translation. They help develop analysis plans, document decisions for research methodology, create and monitoring timelines, and facilitate communication in project teams and with external partners. Project coordinators also conduct literature searches on project topics and contribute to the presentation of results, including writing some sections of the report, presentations, and posters.

Data Management

This group supports the development and use of the Population Health Research Data Repository including the initial acquisition, conversion and installation of databases, annual updates, and ongoing maintenance of over 70 research-ready databases. Through the development and dissemination of data dictionaries, data quality assessments, data models, and other web-based resources such as MCHP's Concept Dictionary and Glossary, the Data Management Group provides detailed information about the Repository to researchers, analysts, and Remote Access Site (RAS) users.

Data Analysts

Analysts provide data analysis and statistical support and consulting for research projects being carried out at MCHP. Analysis and data tasks fall in five general categories: 1) sampling strategies to identify and select relevant records and population cohorts; 2) techniques for aggregating person-level records to form longitudinal histories of health care utilization and social services interactions; 3) the integration of information from records maintained in different databases held in the Repository; 4) development of summary and descriptive statistics; 5) advice on the use and application of inferential statistical (significance testing and modeling to make inferences about populations) procedures of a range of complexity.

Research Support

This group provides research, administrative, and clerical support to researchers in the completion of deliverables, peer-reviewed journal articles, and grant proposals. Research Support group members perform tasks that fall under three general categories: 1. Deliverables (support for the production of report figures and tables, editing and preparing MCHP reports for publication); 2. Promotional and informational materials (overseeing MCHP printing requirements); and 3. Supporting public engagement (reception, planning knowledge-translation events, etc.).

Information Technology

This unit manages all information technology services at MCHP. This includes end-user support, application development, hardware, software, networking, partner access, security, and related services. The MCHP environment consists of over 120 endpoints and 40 servers/appliances that support research and operational requirements. All services are self-contained within MCHP in order to maintain a privacy-compliant environment.

Communications

The MCHP Communications Officer provides communications support to MCHP, develops and implements communication plans, and provides media relations expertise and advice.

Finance Grants Accountants

The MCHP Finance team provides accounting and personnel administration in the management and maintenance of MCHP finances. This involves the setup and daily administration of 46 grants and approximately 65 employees/students in the 2014/15 fiscal year. The MCHP Finance team ensures all granting agency and payroll guidelines are met. The team also acts as on-site support for travel and purchasing inquiries.

Research Assistants

MCHP research assistants are students who provide support primarily to the Research Coordinator and Research Support groups. They may carry out a variety of tasks, such as creating and editing graphs, tables, and presentations; literature searches and other background research; creating reference lists; proofreading documents and checking data; updating documents; and occasional reception relief.

MCHP FACULTY & STAFF*

From data to deliverables, research questions to knowledge translation, MCHP continues to thrive because of the work of a dedicated and talented staff. These people are the foundation of the centre's many achievements.

Executive

Dr. Alan Katz, Director
Dr. Randy Fransoo, Associate Director (Research)
Mark Smith, Associate Director (Repository)
Charles Burchill, Associate Director (Data Access and Use)
John Dziadek, Associate Director (Administration)
Carole Ouelette, Executive Assistant

Researchers

Dr. Marni Brownell, Associate Professor, Senior Research Scientist

Dr. Mariette Chartier, Research Scientist

Dr. Dan Chateau, Assistant Professor, Research Scientist and Statistician

Dr. Malcolm Doupe, Associate Professor, Senior Research Scientist

Dr. Greg Finlayson, Research Scientist

Dr. Randy Fransoo, Assistant Professor, Senior Research Scientist

Dr. Alan Katz, Professor, Senior Research Scientist

Dr. Lisa Lix, Professor, Research Scientist

Dr. Patricia Martens, Professor, Senior Research Scientist

Dr. Coleen Metge, Director of Research and Evaluation at the Winnipeg Regional Health Authority, Associate Research Scientist

Dr. Nathan Nickel, Research Scientist

Dr. Colette Raymond, Research Scientist

Dr. Leslie Roos, Founding Director, Professor, Senior Research Scientist

Dr. Noralou Roos, Founding Director, Professor, Senior Research Scientist

Mark Smith, Research Scientist

Research Coordinators

Ruth-Ann Soodeen, Lead Research Coordinator Chun Yan Goh, Research Coordinator Ina Koseva, Research Coordinator Chelsey McDougall, Research Coordinator Kari-Lynne McGowan, Research Coordinator Jennifer Schultz, Research Coordinator Tamara Thomson, Research Coordinator Jeff Valdivia, Research Coordinator

Special Projects

Elaine Burland, Research Manager

Data Management and Documentation

J. Patrick Nicol, Lead Data Acquisition Officer Say Hong, Data Management Analyst Jaime Kirkland, Documentation Coordinator Justine Orr, Data Acquisition Officer Tyler Ostapyk, Documentation Coordinator Gurpreet Pabla, Repository Data Analyst Angela Tan, Data Acquisition Officer Dave Towns, Data Acquisition Officer Ken Turner, Repository Data Analyst

Repository Access and Documentation

Jo-Anne Baribeau, Repository Access Coordinator Emily English, Repository Access Assistant

Program and Analysis Systems

Heather Prior, Lead Data Analyst Wendy Au, Data Analyst Ankona Banerjee, Data Analyst Hui Chen, Data Analyst Matt Dahl, Data Analyst Shelley Derksen, Data Analyst Natalia Dik, Data Analyst Roxana Dragan, Data Analyst Oke Ekuma, Data Analyst Say Hong, Data Analyst Milton Hu, Data Analyst Sazzadul Khan, Data Analyst Leonard MacWilliam, Data Analyst Yao Nie, Data Analyst Joykrishna Sarkar, Data Analyst Carole Taylor, Data Analyst Randy Walld, Data Analyst Marina Yogendran, Data Analyst

Research Support

Eileen Boriskewich, Research Support Theresa Daniuk, Research Support Kara Dyck, Research Support Joshua Ginter, Research Support Wendy Guenette, Research Support Christina Kulbaba, Research Support Scott McCulloch, Research Support Leanne Rajotte, Research Support Shannon Turczak, Research Support

Information Technology

Rod McRae, Information Technology Manager Darrin Halabuza, Information Technology Support

Finance

Sophie Buternowsky, Senior Grants Accountant Ariel Bautista, Grants Accountant Jeannie Chen, Grants Accountant Tannis Wills, Grants Accountant

Research Assistants and Students

Mireille Bohemier

Susan Burchill

Leah Crockett

Jessica Jarmasz

Meghan Kjarstanson

Alex Peden

Jason Randall

Iresha Ratnayake

Deepa Singal

Tamara Tailieu

Camilla Tapp

Elizabeth Wall-Wieler

ADVISORY BOARD MEMBERSHIP

Members by Position

Advisory Board Chair

Dr. Sharon Macdonald

MCHP Director

Dr. Alan Katz

Founding Directors

Dr. Noralou Roos and Dr. Leslie Roos

Deputy Minister of Health

Karen Herd

Manitoba Health Liaison

Deborah Malazdrewicz

Dean of the College of Medicine, Faculty of Health Sciences, University of Manitoba

Dr. Brian Postl

Head of Community Health Sciences, Faculty of Health Sciences, University of Manitoba

Dr. Stephen Moses

Treasury Board Representative

Barb Dryden

Members Appointed by Manitoba Health

Harvey Bostrom, Deputy Minister, Aboriginal and Northern Affairs

Joy Cramer, Deputy Minister, Family Services

Gerald Farthing, Deputy Minister, Education and Advanced Learning

Donna Miller, Deputy Minister, Justice

Jeff Parr, Deputy Minister, Housing and Community Development; Labour and Immigration

Monique Vielfaure Mackenzie, Executive Director, Regional Health Authorities of Manitoba

Members appointed by the University of Manitoba

Dr. David Collins, Vice Provost (Integrated Planning and Academic Programs), University of Manitoba

Dr. Digvir Jayas, Vice President (Research and International), University of Manitoba

Kevin Kavanagh, Member of the Community

Dr. Terry Klassen, CEO and Scientific Director, Manitoba Institute of Child Health

Lori Lamont, Vice-President Interprofessional Practice, Winnipeg Regional Health Authority

Dr. S. Leonard Syme, Professor Emeritus, Epidemiology and Community Health University of California, Berkeley

Reg Toews, Member of the Community

Ex Officio Members

Charles Burchill, Associate Director (Data Access and Use), MCHP John Dziadek, Associate Director (Administration)
Dr. Randy Fransoo, Associate Director (Research), MCHP
Mark Smith, Associate Director (Repository), MCHP

MCHP Staff Support to Advisory Committee

Carole Ouelette, Executive Assistant

AWARDS & HONOURS

Dr. Malcolm Doupe

Nominee, Royal Society of Canada College of New Scholars. February, 2015.

Dr. Alan Katz

President's Award, Northern American Primary Care Research Group. 2014.

Manitoba Health Research Council/Heart and Stroke Foundation Primary Prevention Research Chair. 2012–2017.

Dr. Patricia Martens

Fellowship in the Canadian Academy of Health Sciences. September, 2014.

Nominee, CIHR Barer-Flood Prize in Health Services and Policy Research. September, 2014.

Emmet Hall Memorial Lectureship, The Justice Emmet Hall Memorial Foundation. Canadian Association of Health Services and Policy Research Conference, 2014.

Dr. Leslie Roos

MacNaught Taillon Leadership Award in Health Policy, Health Information, and Health Services Research. The Justice Emmett Hall Memorial Foundation.

MCHP RESEARCH SCIENTISTS

Dr. Marni Brownell

Research Focus: Child health and well-being, with a particular focus on the social determinants of health, developmental disabilities, children in out-of-home care, developing population-level indicators of child health, and evaluations of programs designed to improve childhood development.



Dr. Mariette Chartier

Research Focus: Prevention and early intervention programs for children and their parents, mental health promotion, child abuse and neglect, perinatal health, health risk behaviours, and health of vulnerable populations.



Dr. Dan Chateau

Research Focus: Population health research methods, area-based socioeconomic measures, social determinants of health, health equity analysis, and population health intervention effectiveness.



Dr. Malcolm Doupe

Research Focus: Health services use and the aging population, risk factors of home care and nursing home use, factors that influence quality care in in nursing homes, and health services use of emergency departments.



Dr. Greg Finlayson

Research Focus: funding methodologies and cost of healthcare for chronic conditions.



Dr. Randy Fransoo

Research Focus: Indicators of population health and health service use, rural health, obesity, cardiac care, and critical care.



Dr. Alan Katz

Research Focus: Primary-care health-service delivery, quality of care indicators, knowledge translation, and disease prevention.



Dr. Lisa Lix

Research Focus: Health services research methodology, quality of administrative health databases, the analysis of repeated measures and longitudinal data, and robust statistical methods for patient-reported outcomes.



Dr. Patricia Martens

Research Focus: Health status and healthcare use of Manitoba's rural and northern residents, mental health, use of healthcare services by those with mental illness, the health of Aboriginal people, child health (including evaluating community intervention strategies to increase breastfeeding rates), and health inequities.



Dr. Nathan Nickel

Research Focus: Maternal and Child Health (MCH), using a lifecourse perspective; applying epidemiological methods of causal inference to MCH research; evaluations of programs and policies for improving MCH outcomes and reducing inequities; implementation research for evidence-informed healthcare practices; breastfeeding support and related health outcomes.



Dr. Les Roos

Research Focus: Uses of information-rich research environments, longitudinal studies, child development, and research methods.



Dr. Noralou Roos

Research Focus: Use of administrative data for managing the healthcare system, relationship between healthcare use and population health, child health and wellbeing, with a particular focus on the social determinants of health. As Director of EvidenceNetwork.ca, Dr. Roos communicates evidence on these issues through the media.



Mark Smith

Research Focus: Administrative data, mental health, chronic disease surveillance, social housing, homelessness, and poverty.



In addition to conducting research, MCHP Research scientists also teach and supervise students, as well as contribute to numerous committees. A list of educational and committee involvements is given in Appendix 4 and Appendix 5, respectively.

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DELIVERABLE RESEARCH FINDINGS

Evaluation of the Manitoba IMPROVE Program

In June 2011, Manitoba Health launched the IMPROVE program (Improving Medication Prescribing and Outcomes Via Medical Education). The program was a first of its kind in Canada and is expected to improve the safety and health outcomes for Manitobans receiving medications for mental-health conditions. IMPROVE is administered by Comprehensive Neurosciences of Canada (CNSC), using proprietary clinical algorithms and a proven audit-and-feedback intervention. CNSC conducts monthly reviews of Drug Program Information Network (DPIN) pharmacy claims data to evaluate the appropriateness of the prescriptions of psychiatric and related behavioral medications, in order to identify patients at risk due to potentially inappropriate prescriptions. If a potentially inappropriate pattern of prescriptions is identified, a feedback alert in the form of an educational mailing package is sent to the prescriber.

The purpose of this study was to evaluate IMPROVE by examining changes in prescribing practices of physicians, and what characteristics of physicians or their practices may be associated with a positive impact of the educational mailing packages. Using comparison groups, MCHP found that doctors who received educational packages significantly reduced potentially inappropriate prescribing for sleeping pills and benzodiazepines. Fewer inappropriate prescribing patterns will result in fewer adverse events, and, in turn, reduce the burden on the healthcare system, including emergency rooms and the prescribing doctors themselves. MCHP's evaluation results will inform how IMPROVE continues to be administered, making it more effective by changing or adding medications or prescribing patterns included in the program. The success of this pilot program in Manitoba will help direct how other provinces look to improve the prescribing practices of their doctors.

Physician Integrated Network: A Second Look

This deliverable evaluates the impact of the Physician Integrated Network (PIN) initiative on health service provision and primary care—specifically through an aspect of the program that gives clinics extra funding for meeting certain targets in providing preventative and chronic-disease care to appropriate patients. The program was initiated by Manitoba Health in 2006. Lessons learned from this study will inform ongoing changes to primary care in Manitoba.

The study analyzed results from 12 clinics, involving over 180 physicians and 163,000 patients. It looked at 23 indicators of primary-care quality related to prevention and screening, disease management, and healthcare delivery. Three aspects of care tied to incentive funding showed clear improvement: older adults and people with respiratory illness were more likely to receive annual flu shots; rates of immunizations for pneumonia and related infections also improved among older adults; and more patients suffering from heart failure started to take recommended medication. The study also revealed an increase in the continuity of care patients received at clinics participating in PIN. PIN clinics also reduced the number of non-recommended "routine" electrocardiograms for patients who didn't have heart disease. The study results are not all good news. Even among the positives, there were large differences in quality between clinics. In some areas, such as immunizations for two-year-olds, all clinics and comparison groups fared poorly: only 50% to 80% of two-year-old children had received all the immunizations recommended (and fully covered in Manitoba) for newborns and toddlers.

DELIVERABLE RESEARCH IN PROGRESS

The Cost of Publicly Supported Housing for Seniors: Implications for Future Funding Approaches

Canada's population is rapidly aging and we can expect that by 2030 about one in five Manitobans will be 65 years or older. Older adults are the predominant users of nursing homes in Canada, and policy makers have recently implemented various aging-in-place initiatives as community-based alternatives to nursing-home care. Within Manitoba, the majority of these initiatives are currently being piloted in Winnipeg, and Supportive Housing for Seniors is designed as the major strategy to offset future nursing home demands. While research at MCHP estimates that this will be at least partially successful, client payment structures for supportive housing (where clients pay for rent, meals, laundry, housekeeping, and drugs) and nursing homes (where per diem fees cover all services) are currently very different. Client affordability may therefore impact use of supportive housing care. There is also limited evidence comparing the government funded operational costs and additional healthcare use costs of these two services (e.g., for clients who are transferred to emergency room visits, are hospitalized, etc.). This type of information is essential to ensure that supportive housing strategies are a cost-effective alternative to nursing-home use.

This study will compare the costs of supportive housing versus nursing homes in Winnipeg, Manitoba, to ensure that supportive housing is a viable financial alternative to nursing-home care. Knowledge developed from this research can be used to help plan future aging-in-place initiatives in Winnipeg and other health regions.

Determinants of Patient Flow in Winnipeg Emergency Departments

The overall goal of this research is to define the relative impact that input factors (e.g., volume of lower acuity patients), throughput factors (e.g., number and timing of diagnostic tests performed, number and type of medical consults, the presence of a nurse practitioner), and output factors (e.g., volume of patients waiting for hospital, nursing home, and home-care admission) have on emergency department (ED) wait times in the Winnipeg Health Region (WHR). Previous research has shown that WHR adult ED sites vary substantially by wait times and also patient characteristics (e.g., age, acuity status). In this research we will further analyze the extent to which wait times vary by site, and determine how much these differences can be attributed simply to differences in patient characteristics versus other factors (e.g., we may find increased volumes of hospital-admitted patients increases wait times at some but not all sites). The results of this study will contribute to ED healthcare policy and practice reform both provincially and nationally, by identifying factors associated most strongly with increased wait times, and in particular highlighting common (i.e., across all sites) versus site-specific differences in study findings, allowing decision makers to look for "in-house" solutions for improving wait times.

Within the province of Manitoba, wait times have been identified as one of four healthcare reform priorities, recognizing that many challenges are associated with transitioning patients across different sectors of healthcare delivery. Based on the conceptual model of Asplin et al. (2003)¹, our research plan reflects this holistic approach to healthcare reform. We will identify not only how ED process factors (i.e., throughput) affect wait times, but also how various input factors (e.g., do patients with timely access to primary care visit EDs for low-acuity reasons? To what extent do lower acuity visits impact wait

times, both overall and for higher acuity visits?), and output factors (e.g., how often do patients leaving an ED require admission to hospital, nursing homes, and home care? How much ED visit time is spent waiting for this transitional care? What is the relative impact that each of these has on ED wait times?) contribute to the increase of wait times.

Evaluation of the Manitoba InSight Program

Identified as an evaluation priority by the Manitoba Government's Fetal Alcohol Spectrum Disorder (FASD) Interdepartmental Committee, the province's Stop FASD mentoring program has collected a decade's worth of primary data on program participants, including outcome data not available elsewhere on this population of women at elevated risk for having children affected by FASD. Following the transfer of this data into the MCHP repository in 2010/11, this deliverable is able to analyze the long-term health, social, and learning outcomes of Stop FASD participants and their children over the past 10 years, drawing on key indicators from the MCHP repository. This deliverable will set the stage for later FASD-focused research at MCHP to support Manitoba's life-course FASD Strategy.

Identification of Factors and Supports that Contribute to the Educational Success of Students in Foster Care (a Healthy Child Committee of Cabinet Deliverable)

The study will attempt to identify the major factors and supports present in schools that contribute to the educational success of students in the care of foster families. Such factors and supports would include not only those pertaining to individual students but, as well, those pertaining to foster families. The study will make recommendations regarding how to ensure that such positive factors and supports are present in all schools. It will also identify further areas of research regarding what schools, school divisions and the Department of Education might be able to do to further contribute to the educational success of students in foster care.

The Future of Treatment and Care of Manitobans Living with Kidney Failure

In January 2011, the Canadian Institute for Health Information (CIHI) released the Canadian Organ Replacement Register (CORR) Annual Report: Treatment of End-Stage Organ Failure in Canada, 2000–2009, which included information about kidney failure. According to the CIHI CORR report, the number of Canadians living with kidney failure—also referred to as end-stage renal disease (ESRD)—has been increasing for 20 years, but the report also suggests that rates appear to be stabilizing since 2005. Manitoba Health, Health Living and Seniors does not agree with the statement that the rate of people living with kidney failure is declining and the Manitoba Renal Program (MRP) projects that 2010/11 will see at least a 7%–8% increase in patients diagnosed with kidney failure and

Asplin BR, et al. A conceptual model of emergency department crowding. Ann Emerg Med 2003;42:173-180.

requiring dialysis. The MRP further advises that there will be a need for more dialysis stations, home haemodialysis, peritoneal dialysis, and funding for human resources to deliver the MRP service in the future. Understanding what the true need in Manitoba is will be important to future planning of equipment and resources. An MCHP deliverable could assist in answering these key questions:

- What are the future needs for the renal health services (peritoneal dialysis, home haemodialysis and in-centre dialysis in Manitoba?
- What are the characteristics of the future population of Manitoba residents who will require renal replacement treatment (RRT) by dialysis (peritoneal, home haemodialysis or in-centre haemodialysis)?
- What is the geographic distribution of this population?
- What preventive, screening, or education measures or affiliations with existing programs might reduce the number of Manitobans who will require dialysis? (Description of modifiable risk factors.)

Public Reporting Template for Long-Term-Care Quality Indicators

There is a growing interest across Canada for greater accountability around personal care home (PCH) standards and quality-of-care indicators through public reporting. Manitoba Health is in the process of developing its Provincial Long Term Care strategy, and a public "report card" would support some of the goals and objectives of this strategy. As well, the WRHA recently organized a Public Accountability Working Group that is pursuing public reporting of Manitoba Health standards and Minimum Data Set (MDS) Quality Indicators and will be looking at the feasibility of including measures from the Translating Research in Elder Care (TREC) research project at some time in the future. Finally, recent recommendations from the Auditor General challenged the healthcare system to move to more public reporting of key PCH performance measures. Both the department and the Winnipeg RHA would like to begin that work.

An MCHP deliverable to develop a template of PCH quality indicators using MDS data from the Winnipeg RHA, and incorporating both provincial standards and best practices from the literature would benefit Manitoba Health planners, the WRHA, and a public reporting framework that could be rolled out to the rural regions when MDS-LTC is launched rurally.

The Costs of Smoking

The costs of smoking will be determined through a linkage of data from the Canadian Community Health Survey (CCHS) with healthcare-use data, mainly through the Population Health Research Data Repository at MCHP. In the CCHS, several definitions of exposure to tobacco products are included in the survey questions, including both current and past smoking. Differences in healthcare-use patterns by smoking status will be analyzed, and include the use of information on physician and hospital visits, use of long-term-care facilities, prescription drug use, cancer incidence, and mortality.

Smoking cost estimates can be adjusted for the effects of other risk factors such as body weight, alcohol consumption, and sociodemographic information (including geography) obtained both through the CCHS at the individual level and through the Repository at aggregate area levels. This study is designed to provide estimates of cost for the population of Manitoba (not by individual areas of the province) to determine the smoking-attributable fraction of healthcare expenditures. A collaboration with CancerCare Manitoba will enable the inclusion of the costs of actual cancer treatments (such as radiation and chemotherapy), which are not available in the Repository.

Management Information System (MIS) Information and Hospital Resource Implications

As a by-product of the previous MCHP deliverable on MIS and hospital costs, some anomalies were evident. The average daily resource intensity weight could be considered a measure of the average "level of sickness"—and associated cost of treatment—of people treated, by hospital, type of hospital, and RHA. However, there were two interesting observations in that deliverable. First, the rank ordering of facilities was not what would have been expected (e.g., The Pas had the third most complex and costly patients, and Victoria was well down the list). Secondly, there was often substantial variability in the rank between years (e.g., Concordia's rank went from 23 in 2003/04 to 4 in 2005/06). There are a variety of things that could produce these observations. This deliverable will discuss what might be driving the higher or lower ranking and variability, and why Manitoba is spending a greater percentage of its healthcare dollars on hospitals than the overall Canadian results (according to the National Health Expenditure Trends Report from CIHI). Are there factors unique to Manitoba? If so, are these factors consistent across hospitals in the province or are there varying trends within Manitoba facilities that should inform health-system planning?

CancerCare Manitoba Data Acquisition

In follow up to recommendations from MCHP's five-year external review, and to support a broader base of cancer research in Manitoba (including additional support to the Cancer Patient Journey), this will be a "data-acquisition" deliverable. The Manitoba cancer registry maintained at CancerCare Manitoba will be added to the Population Health Research Data Repository. Manitoba Cancer Registry data is collected by specially trained health professionals (cancer registrars) at CancerCare Manitoba. It includes patient demographics, cancer diagnosis, and treatment information for Manitobans diagnosed in any facility in Manitoba. Diagnoses data is available from 1984 to 2011, and treatment data is available from 1984 to 2011.

The Mental Health of Manitoba's Children: Prevalence and Use of the Healthcare System

Canadian studies suggest that 1 in 7 children experience mental health disorders at any given time. However, less than a quarter of these children receive the clinical treatment services they require (Waddell, Offord, et al., 2002). This project will look at treatment prevalence of mental health disorders in children, by diagnostic categories, age, sex, geographic region, and socioeconomic status. Diagnostic categories will include ADHD, Autism spectrum disorders, conduct disorder, oppositional defiant disorder, as well as mood disorders and substance abuse in adolescents. Use of health services for mental health disorders, including hospitalizations, physician visits, treatment at the Manitoba Adolescent Treatment Centre, and prescription medications will be explored. Use of other health and social services for those identified with mental health disorders will also be examined, as well as the relationship between mental health and educational outcomes. Additional analyses may examine the impact of mental health status of one or both parents, and the bi-directional impact of physical health and mental health. This report will inform ongoing work by the Healthy Child Manitoba strategy, the provincial mental health strategy Rising to the Challenge, and provide important data to support the new Oversight Committee for Child and Youth Mental Health.

Models of Primary-Care Delivery

There is much debate in today's healthcare system on the most effective primary care model in regards to activity, efficiency, reaching a targeted clientele, and quality of care. Four models of service delivery exist in Winnipeg and this study seeks to compare and evaluate them directly in this context: fee-for-service physicians; Physician Integrated Network (PIN) and non-PIN sites, community health clinics and the WRHA-managed Access centres (integrated social services model).

An evaluation of type of patient served (socioeconomic status, presence of chronic disease, age and sex distribution), strength of affinity to the clinic (continuity of care) and quality-of-care indicators will be explored across each model with a discussion on the strengths and weaknesses of each, how well the model has been implemented and recommendations for how each could be improved.

Alcohol and the Associated Health and Healthcare Burden in Manitoba

The Chief Provincial Public Health Officer's 2011 report on the Health Status of Manitobans cites addictions and substance abuse as a primary health concern. In the report it is estimated that 14% of Canadians are high-risk drinkers, which means that their pattern of drinking is either currently harmful or significantly increases the likelihood of future harm. The Manitoba rate of high-risk drinkers among adults is over 25%. At the same time, alcohol-related harms also occur through episodic heavy drinking and moderate drinking.

While most Manitobans drink responsibly, there is evidence that several alcohol-related health conditions contributes to, or causes morbidity and mortality including cancer, cardiovascular conditions, diabetes, infectious diseases, and gastrointestinal conditions. Although moderate drinking does have cardio-protective benefits for people in certain age groups, it is also linked to an increased risk of cancer and other diseases. While a significant number of injuries are alcohol-related, alcohol misuse also contributes to mortality in such forms of impaired driving and suicide. On a global scale alcohol is alongside tobacco as one of the leading causes of preventable causes of death and disability.

In September 2013 Manitoba announced the development of an alcohol strategy with the objective of reducing or eliminating alcohol related harms through various population-health prevention and intervention initiatives. The development of the strategy is in its early stages, work already done on the global level, national level, and in other provinces suggest some of the interventions may include policy changes such as increasing the cost of alcohol products with high alcohol content, changes to minimum pricing, and increasing screening and brief intervention for alcohol abuse. To understand the effectiveness of the strategy, interventions need to be assessed against a reduction in alcohol-related harm.

The scope of this deliverable includes the collection and analysis of provincial trends over a 10-year period, including:

- emergency room visits and hospitalizations for injuries where alcohol was a major factor;
- chronic disease associated with alcohol use;
- mortality associated with alcohol use; and
- utilizing the CCHS.

Outpatient Oral Cancer Medications in Manitoba

Most Manitobans who receive treatment for cancer do so with intravenous therapy at CancerCare Manitoba. However, in recent years, the use of oral medications for cancer treatment has increased dramatically. Traditionally, prescriptions for these medications are filled at community pharmacies through the usual system of prescription drug coverage. This placed an increased cost burden on patients. In 2012, the Home Cancer Drug (HCD) Program was launched. This is a program for Manitobans diagnosed with cancer that allows access to eligible outpatient oral cancer drugs and specific supportive care drugs at no cost to the patient. This research project seeks to determine usage of oral medications for the treatment of different types of cancer, changes in patterns of use over time, and the impact of the HCD program on use of oral medications for the treatment of cancer. Using prescription drug data for outpatients we are examining prescription-use trends, costs associated with such therapies and patterns of health-services use.

Homecare: (a) Data Acquisition and Validity; (b) An Exploration of the Use of Homecare by Manitobans

This is one deliverable with two parts; the first is the re-acquisition of the person-level homecare data from Manitoba eHealth repository through Manitoba Health; the second is high-level descriptive information about what is seen in the data (ie., a description of regional homecare service use). The questions that could be answered will depend on the data available, but some examples are: what is the prevalence and incidence of homecare use by RHA (and small areas), i.e., new and open homecare cases? What is the wait time for homecare (if available)? What are the patterns and frequencies of homecare use by patient age, from pediatric cases to older adults? What "diseases" are being serviced through homecare (chronic-disease management, palliative care etc.); or, if this is not available, what types of people (profiled from healthcare-use data) are enrolled in homecare? Are there geographical areas where homecare patterns of use appear to differ substantially?

High Utilizers of Health Services for Primary-Care Network Planning

While primary-care networks (PCNs) are intended to improve service coordination for all Manitobans, evidence regarding medical home/neighbourhood models suggests that a key way they add value is by facilitating the coordinated care of patients who are high utilizers of health services, often because of their complex needs. It is important that Manitoba PCNs are able to identify and understand the characteristics of their own high utilizing, complex patient populations; this has been designated as an early priority for each PCN to explore and begin addressing through service plans. However, PCNs need assistance in finding and understanding these populations. This deliverable will assist current and future PCNs by identifying specific patient populations at the sub-regional level which involve high utilizers of services, high-complexity patients (perhaps correlating with high need for coordination among family physicians and other providers) or patients for whom there would be high value to the health system if their care could be better managed to reduce system use, including hospitalizations.

RESEARCH PARTNERSHIPS AND COLLABORATIONS

Adjunct Scientists

The Adjunct Scientist designation at MCHP was created to recognize the valuable contribution made to its research by external participants. Adjunct Scientists are involved in collaborative research with an MCHP researcher, have an ongoing commitment to health services research, have previous research involvement with scholarly publications, or have clinical or policy expertise that is of assistance to MCHP scientists in framing research questions, interpreting results of particular analyses, and advising on the policy implications of the findings.

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Shelley Buchan, MD, FRCP, Medical Officer of Health, Southern Regional Health Authority

Shawn Bugden, BSc (Pharm), M.Sc., Pharm.D., Associate Professor, College of Pharmacy, Faculty of Health Sciences, University of Manitoba

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Meir Kryger, MD, FRCPC, Professor, Yale University School of Medicine

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Laura Targownik, MD, Associate Professor, Department of Internal Medicine, College of Medicine, Faculty of Health Sciences, University of Manitoba

Collaborators

Our research benefits from the contributions of a variety of people with project-specific expertise. Collaboration on research projects gives MCHP scientists a fuller understanding of the data and its real-world implications.

Rakesh Arora, University of Manitoba Meghan Azad, University of Manitoba Charles N. Bernstein, University of Manitoba James F. Blanchard, University of Manitoba Songul Bozat-Emre, University of Manitoba Brenda Comaskey, University of Manitoba Carrie Daymont, University of Manitoba Jino Distasio, University of Winnipeg Wendy Doig, University of Manitoba Jamie Falk, University of Manitoba Justin Gawaziuk, University of Manitoba Luiz Guidolin, University of Manitoba Ana Hanlon-Dearman, University of Manitoba Brett Hiebert, University of Manitoba Carol Hitchon, University of Manitoba Douglas Hobson, University of Manitoba

Sarita Jha, University of Manitoba Depeng Jiang, University of Manitoba Paul Komenda, University of Manitoba Lisa LaBine, University of Manitoba Chris Lalonde, University of Victoria Ariella Lang, VON Canada Michael Law, University of British Columbia Jeff Leiter, University of Manitoba Christine Leong, University of Manitoba Javier Mignone, University of Manitoba Zoann Nugent, University of Manitoba Helene Ouellette-Kuntz, Queens University Christine Peschken, University of Manitoba Rasheda Rabbani, University of Manitoba Clare Ramsey, University of Manitoba Colette Raymond, University of Manitoba Leigh Anne Shafer, University of Manitoba Harminder Singh, University of Manitoba Carolyn Snider, University of Manitoba Donna Turner, CancerCare Manitoba Julia Witt, University of Manitoba

FEATURED PROJECTS

Pathways To Health and Social (PATHS) Equity for Children

The PATHS program of research aims at understanding what works to reduce inequity in children's outcomes. This program includes collaborations with external partners. Multiple interventions are being evaluated to determine their impact on the overall health and well-being of children, and inequities in child health and well-being by (a) socioeconomic status, (b) geographic region, and (c) sex at different points during childhood.

PATHS comprises a series of 15 interrelated sub-projects, each designed to assess the impact of a different intervention. Each sub-project has its own team and set of objectives, but all projects will assess whether the intervention (a) reached its target population (i.e., universal or targeted), (b) improved outcomes, and (c) reduced outcome inequities (i.e., by socioeconomic status, geographic and/or gender). The final sub-project will be an integrative analysis that will be completed at the end of the grant. It will look at the interventions holistically to see whether combinations of programs are more effective than individual interventions, and whether combinations are more effective simultaneously or sequentially.

In 2014/15, a methods paper on the PATHS research cohort was published in the International Journal of Epidemiology, and three sub-projects were completed, resulting in two publications:

• Full-Day Kindergarten

Brownell MD, Nickel NC, Chateau D, Martens PJ, Taylor C, Crockett L, Katz A, Sarkar J, Burland E, Gohand CY, the PATHS Equity Team. Long-term benefits of full-day kindergarten: a longitudinal population-based study. Early Childhood Development and Care, 2015: 185.2:291–316.

Social Housing

Martens PJ, Chateau DG, Burland EMJ, Finlayson GS, Smith MJ, Taylor CR, Brownell MD, Nickel NC, Katz A, Bolton JM, the Paths Equity Team. The effect of neighborhood socioeconomic status on education and health outcomes for children living in social housing. American Journal of Public Health, 2014: 104.11:2103–2113.

The Healthy Baby Program project is complete and a manuscript is being submitted for publication. Twelve more sub-projects are in progress or upcoming:

- Baby Friendly Hospital Initiative (BFHI)
- Physician Integrated Network (PIN)
- In-School Teen Clinics
- Families First Home Visiting Program
- Healthy Buddies
- Roots of Empathy (ROE)
- Early Intervention for Attention Deficit Hyperactivity Disorder
- Early Psychosis Prevention and Intervention Program (EPPIS)
- Community Schools Investigators' (CSI) Summer Learning Enrichment Program
- · PAX Good Behavior Game
- Qualitative analysis: understanding mechanisms of inequality
- Public Health Sensitive Conditions (PHSC)
- · Integrative analysis

Canadian Network for Observational Drug Effectiveness Studies (CNODES)

CNODES is an assembly of the top pharmacoepidemiologists across Canada, working collaboratively to conduct post-marketing drug safety and effectiveness studies. CNODES is funded by the Drug Safety and Effectiveness Network (DSEN) which has been established at the Canadian Institutes of Health Research (CIHR) in partnership with Health Canada as part of the federal government's Food and Consumer Safety Action Plan (FCSAP).

Even though prescription drugs undergo safety and effectiveness studies before they are approved, an estimated 10,000 Canadians die each year and 150,000 are hospitalized from adverse drug reactions. Research is being conducted in individual provinces, but the databases used are often not large enough to study rare and serious adverse reactions, drugs used for uncommon diseases, and newly introduced medications.

CNODES is using existing healthcare databases on over 27 million people across Canada and internationally to conduct expedited evaluations of the risks and benefits of certain medications and disseminate this information widely to clinicians, patients, and decision-makers.

The CNODES Manitoba site leads are Drs. Dan Chateau, and Patricia Caetano. The Manitoba site team includes Dr. Alan Katz, Dr. Colette Raymond, Dr. Colleen Metge, Dr. Laura Targownik, Dr. Salah Mahmud, Dr. Shawn Bugden, Dr. Silvia Alessi-Severini, Mr. Matt Dahl, and Dr. Elaine Burland.

To date, there have been 11 CNODES sub-projects, four of which have been completed. In 2014/15, five were in-progress for which manuscripts are being prepared. Two related projects focused on Manitoba results are also in progress: a sub-analysis of the study on Proton Pump Inhibitors and Community Acquired Pneumonia, led by Laura Targownik; and a project led by Colette Raymond and Dan Chateau examining the use of prescription medications before, during, and after pregnancy, led by Colette Raymond and Dan Chateau. Two more projects are in the very early stages, and feasibility assessments are underway for two proposed projects.

Ongoing Projects

- Serotonin-Norepinephrine Reuptake Inhibitors and Renal Failure (Manitoba site lead: Salah Mahmud)
- Isotretinoin Use Among Women of Reproductive Age and the Risk of Pregnancy and Adverse Pregnancy
 Outcomes Including Spontaneous Abortion and Major Congenital Malformation (Manitoba site lead:
 Shawn Bugden)
- Domperidone Use in Parkinson's Disease and Risk of Serious Cardiac Events (Manitoba site lead: Shawn Bugden)
- Safety of Incretin-based Therapies with Regards to Incidence of Pancreatitis and/or Pancreatic Cancer. (Manitoba site lead: Laura Targownik)
- Safety of Opiods since Introduction of OxyNEO (Manitoba site lead: Patricia Caetano)

Towards Flourishing Mental Health Promotion Strategy (TF-MHP)

The TF-MHP is a collaborative project between MCHP, the Winnipeg Regional Health Authority (WRHA), and Healthy Child Manitoba (HCMO). Dr. Mariette Chartier (MCHP), Dr. Jennifer Volk (HCMO) and Ms. Marion Cooper (WRHA) were awarded a competitive grant of \$2.6 million over four years from Public Health Agency of Canada's Innovation Strategy (PHAC-IS)—Equipping Canadians: Mental Health Throughout Life—to develop and evaluate the strategy. The funding from PHAC ended in March 2015; however, Healthy Child Manitoba has provided funding to sustain the strategy and continue data collection.

The multi-layered TF-MHP strategy aims to promote the mental well-being of parents and their children through augmentation of an existing province-wide home visiting program. In response to an earlier evaluation of the home visiting program, which indicated a need for additional intervention around mental health promotion, the TF-MHP strategy includes training for public health staff, a mental health promotion facilitator role to support public health teams, mental health screening, curriculum-based education and evidence-based strategies for parents, and improved access to supports and services.

The partnership between government, a regional health authority and MCHP involved in leading TF-MHP has been paramount to the effective implementation of the strategy. Knowledge transfer and exchange with high level decision-makers and service providers occurs at all stages from the development of the strategy to reviewing and interpreting results to sustainability planning.

A step-wedge randomized trial evaluates the effectiveness of the strategy in improving parent and child outcomes and qualitative research examines how the strategy is working in practice. Parents have reported that the everyday strategies fostered relaxation, positive thoughts and feelings, and improved their mental health literacy and awareness of available resources. Longitudinal follow-up will evaluate long-term impacts by linking the TF-MHP data to health, social services, and educational data housed at MCHP. Data collection on comparison families is complete. Collection of mental health surveys will continue until data from 1,000 families who have received the TF-MHP strategy is obtained. Currently, there are 500 surveys from comparison families and 500 surveys from intervention families.

ONLINE RESEARCH RESOURCES

MCHP maintains internal and external versions of a glossary and a concept dictionary as aids for researchers, readers, and internal staff. These tools were developed at MCHP to support the application of a variety of theoretical frameworks, analytical techniques, statistical approaches and mapping resources appropriate for use with the Population Health Research Data Repository (Repository).

This year, 76 new terms were added to the glossary, expanding it to 2,454 terms. Eighteen new concepts were added to the Concept Dictionary and 12 had major content updates. The total number of concepts, including those currently under development, is now 308.

MCHP Concept Dictionary

The concept dictionary describes concepts developed at MCHP for analyzing data from the Repository. These are detailed, operational definitions of variables or measures used in MCHP research. They include a discussion of the issue(s) involved, approaches used, programming tips or cautions, SAS code (where not restricted for internal use), suggested readings, and references. This year's new concepts are:

- Elixhauser Comorbidity index
- · Grade Level Assessments
- · Smoking Cessation Prescriptions
- Referral Rates for Primary-Care Physicians to Specialists
- Routine Electrocardiography Electrocardiogram (ACG or EKG)
- Asthma Care Controlled by Medication Use
- Acute Myocardial Infarction (AMI) / Myocardial Infarction (MI) Definition, Rates and Post-AMI Management
- Grade 12 Language Arts (LA) Test Performance Outcomes by Socioeconomic Status (SES)
- Coding Cause of Death in Manitoba Vital Statistics Death Data
- Education Data
- Administrative Health Data
- Education Overview: Links to Education-Related Data, Concepts and Glossary Terms
- Population Health Research Data Repository (Repository)
- Health Indicators: Indicators of Health Status and Healthcare Use
- Home Care Episodes of Care: Methods for Creating Home Care Episodes
- · Special Needs Children Method of Identification from Education Data
- Considerations When Working With the Drug Program Information Network (DPIN) Data (available internally)
- · Alternate Level of Care (ALC) Patients Method of Identification

Existing content in the Concept Dictionary is also reviewed and updated as new information becomes available from MCHP research projects.

MCHP Glossary

The glossary documents terms commonly used in population-health and health-services research. Each glossary term contains a brief definition (and its source), links to related glossary terms and concepts in the concept dictionary, and links to relevant external sites.

The MCHP Glossary is updated regularly with the release of new deliverables, which may contain new terms or revised definitions of existing terms. This year, many terms were included or updated from two deliverables: Evaluation of the Manitoba IMPRxOVE Program and Physician Integrated Network: A Second Look.

Data Management

THE POPULATION HEALTH RESEARCH DATA REPOSITORY

The Repository housed at MCHP is a comprehensive collection of administrative, registry, survey, and other data primarily composed of residents of Manitoba. It was developed to describe and explain patterns of healthcare and profiles of health and illness, facilitating research in areas such as health, education, social services, and justice.

195 active projects

- 15 deliverables
- 61 projects led by MCHP investigators
- 94 externally administered research projects
- 25 thesis projects

The approval process for all research projects accessing the Repository is managed by the Repository Access Unit (see p. 42). The project information above reflects the number of projects that were active during the 2014/15 fiscal year. A complete list is given in Appendix 8. Some of these projects were completed before March 31, 2014, but maintained access approvals to facilitate additional publications or presentations based on the same research.

Data Provider Meetings

In December 2014, MCHP met with the individuals who review and recommend data-use approvals on behalf of each of our data providers. Data provider meetings are held annually to review the approval process for use of data held at MCHP. With new data sets added in 2014, this meeting provided insight into how each of the data providers review projects. The meeting focused on making the approval process consistent between providers.

New Data Acquisitions

The Repository continues to expand, with notable data acquisitions this year:

National Ambulatory Care Reporting System (NACRS)

NACRS includes data for all hospital-based and community-based ambulatory care. Emergency department records are submitted to one of three CIHI data collection levels. MCHP has acquired submission level 1, which includes data elements required for emergency department wait time indicators; and level 3, records for day surgery and other ambulatory care visits. Data is currently available from April 2014 to September 2014.

Figure 1: Total Number of Databases in the MCHP Repository

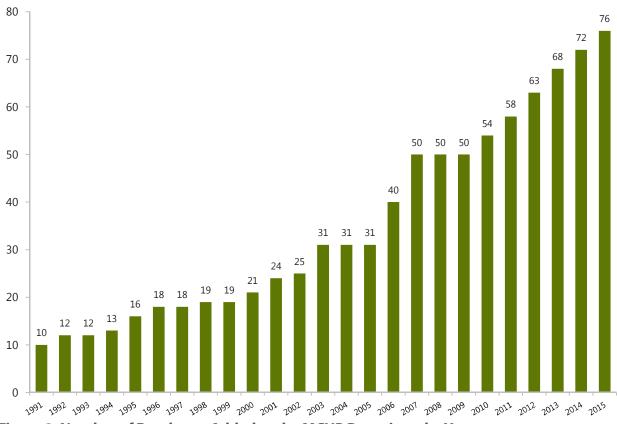
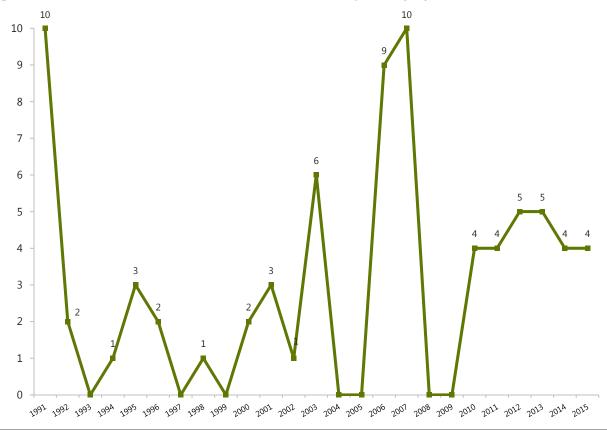


Figure 2: Number of Databases Added to the MCHP Repository by Year



Cardiac Surgical Database

The Cardiac Surgical Database contains detailed data on all patients who have undergone a cardiac surgical procedure in the Health Sciences Centre, and St. Boniface General Hospital between 1995 and 2014. Preoperative status, medication data, procedural, and postoperative information are included in the database.

Canadian Primary Care Sentinel Surveillance Network (CPCSSN)

CPCSSN data comprises electronic medical record information collected from participating primary-care providers in Manitoba. Data includes patient characteristics, diagnoses, lab testing, provider information, risk factors, and vaccinations. Data is available for 1998 to 2013.

Manitoba Cancer Registry

Manitoba Cancer Registry data is collected by specially trained health professionals (cancer registrars) at CancerCare Manitoba. It includes patient demographics, cancer diagnosis, and treatment information for Manitobans diagnosed in any facility in Manitoba. Diagnoses data is available from 1984 to 2011, and treatment data is available from 1984 to 2011.

Infrastructure for Sharing Knowledge (ISK)

The ISK was formed in September 2009 with the purpose of advancing and promoting best practices in administrative data documentation, developing common tools for documentation and data quality assurance, and facilitating communication of new developments in data management among researchers, analysts, and data managers from data centres across Canada.

In March 2014, MCHP held an ISK web seminar that described the data-quality-evaluation process at MCHP. Meeting attendees included people from the British Columbia's Ministry of Health, Statistics Canada, Health Quality Council (Saskatchewan), the University of Saskatchewan, the Institute for Clinical and Evaluative Sciences, the Canadian Cardiovascular Society, Nova Scotia's Department of Health and Wellness, and the Newfoundland Centre for Health Information.

Many MCHP staff attended the International Health Data Linkage Network (IHDL) conference held April 2014 in Vancouver. Members of MCHP's Data Management group gave presentations on topics relating to data-quality evaluation, record linkage processes, documentation, and metadata.

A smaller group that includes a number of ISK members, known as the Data Knowledge and Metadata working group (DKM) is more international in scope and focuses more specifically on comparing metadata tools and methodologies across organizations. The DKM met in April 2014 at the IHDL conference, where a successful turnout revealed a strong interest in metadata across organizations.

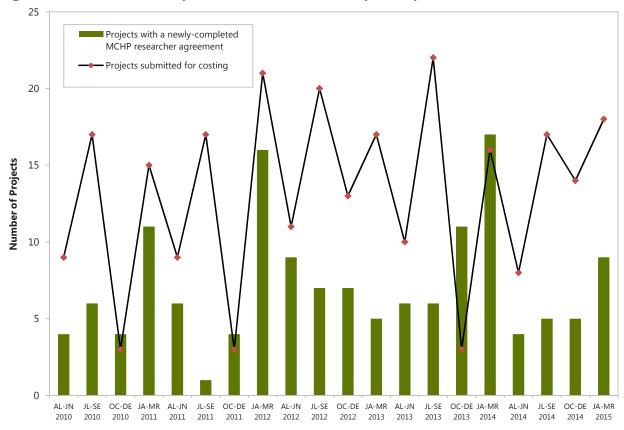
Metadata Repository

The MCHP Metadata Repository is a documentation library that stores knowledge about the databases in the Population Health Data Repository. It provides a consistent set of documentation components:

- · an overview description of each database;
- a data-model diagram of the relationships between datasets within a database;
- a data-quality report that evaluates data-element quality, illustrates data trends, looks at the agreement and linkability of datasets, etc.;
- a data dictionary that gives statistical and descriptive details about each data element in a dataset;
- project and source-agency documents and reports;
- links to concepts in the MCHP Concept Dictionary; and
- a blog for content-related discussions.

Over the past several years the Metadata Repository has grown to represent more than 70 databases in the Population Health Research Data Repository. More statistical content has been added to allow users to examine field content further in specific datasets. Researchers and analysts have the opportunity to add discovered details about data they are working with, either in the blog or as a note at the data-element level. This knowledge base will be invaluable to future research activities.

Figure 3: New Research Projects that use the MCHP Repository



DATA ACCESS AND ACCREDITATION

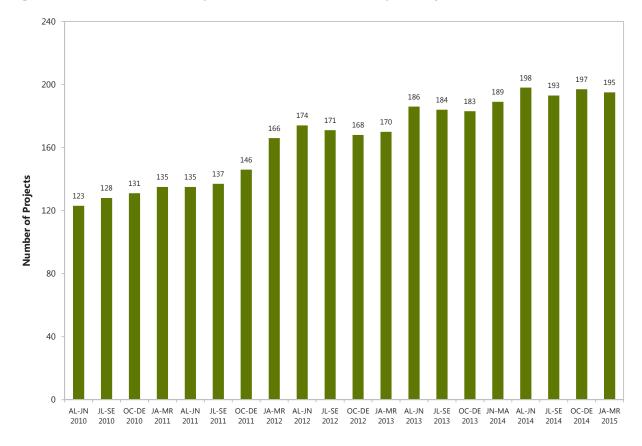
Repository Access Unit

The Repository Access Unit manages the approval processes for all research projects that make use of the Repository; it oversees compliance with MCHP policies and procedures that pertain to research projects and data use, including the requirements of data providers, the Health Research Ethics Board, the Health Information Privacy Committee, and other organizations. The access unit also tracks proposal

- 94 people attended accreditation sessions
- 215 people with current accreditation status
- 57 projects reviewed for feasibility and costs
- 23 projects signed researcher agreements

reviews, including feasibility and cost estimates, project-specific approvals and researcher agreements; and administers University of Manitoba PHIA pledge-of-privacy training. The access unit also runs accreditation sessions for all researchers and analysts working on approved projects (see below), and it oversees other processes to ensure compliance with existing data-sharing agreements, legislation, and any other applicable regulations. Additionally, the access group provides support for researchers when contacting data providers, including standardized approval processes, and follow-up.

Figure 4: Active Research Projects that use the MCHP Repository



MCHP Accreditation

MCHP Accreditation sessions are held at least once every month to provide new researchers and analytic staff with an overview of MCHP and information on the process relating to data access and use. This session provides an overview of the data available at MCHP and allows researchers and analyst an opportunity to ask questions about the data, structure, content, and use. Often the sessions are tailored to the individual needs and interests of those attending providing more personal and tangible examples. The session includes the completion of the University of Manitoba PHIA training module and the University of Manitoba PHIA pledge of privacy. This pledge is required by any project involving human subjects and submitted to the Health Research Ethics Board. The accreditation information is renewed annually by completing an online review of the approvals and use requirements.

Visitors with Data-Related Interests

External organizations and individuals are often interested in learning about various aspects of the data at MCHP, including the centre's approach to data agreements, data management, documentation, etc. In May 2014, MCHP was visited by James Boyd, Director of the Population Health Research Network (PHRN) Centre for Data Linkage at Curtin University (Australia); Dr. Phil Anderson, Head of the Data Linkage Unit, and Dr. Kerrin Bleicher, from the Australian Government's Bureau of Health Information; and Sarah Lowe, from the Welsh Government. Our visitors had a particular interest in data-related issues and spent time with the data management team and with some executive and research team members. In July 2014, MCHP was visited by staff from the New Brunswick Health Council, who gave a presentation on their organizational structure and activities.

Remote Access Sites (RAS)

RAS enable data analysts and researchers access to the repository from locations outside of the physical MCHP office areas. These sites only provide terminal access to specific applications within MCHP. There is no opportunity for direct data transfer or printing. Remote analysts can request aggregate data and statistical results be transferred off of the system through an electronic vetting request.

Support for the RAS sites from the CFI Leading Edge Fund "The Manitoba Centre for Health Policy LEADERS initiative: Leading Edge Access and Data Enhancement Research Strategy" was ended October 31, 2014. Since that time the sites have been supported by a site access fee associated with individual projects or sites. The site access represents cost recovery for the maintenance and documentation of the repository, and the analytic servers and software.

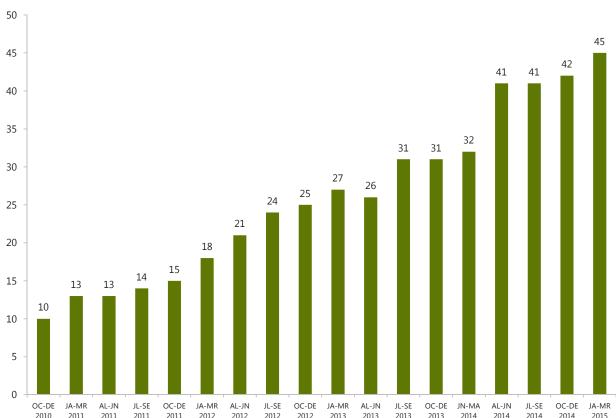
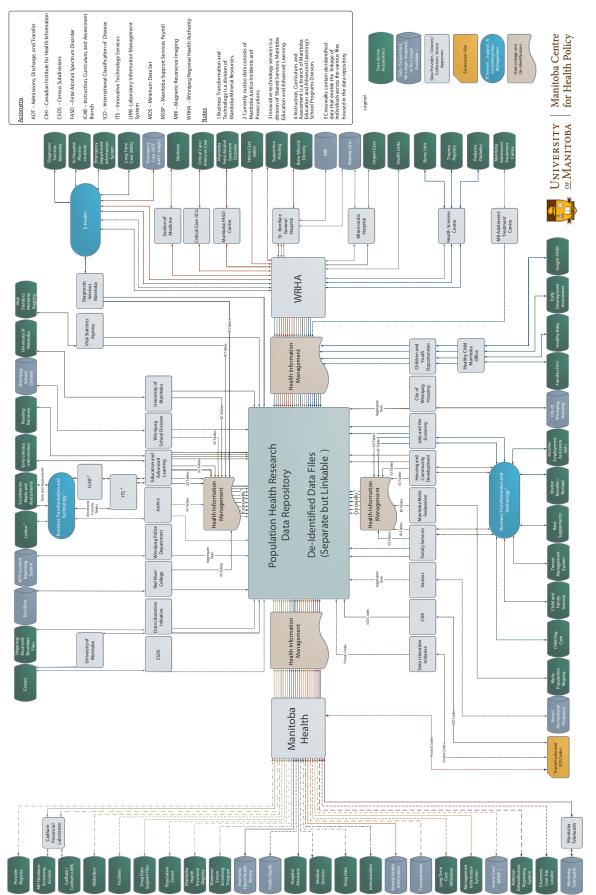


Figure 5: Active Research Projects that use the MCHP Repository via Remote Access Sites

RAS terminals are located at these sites:

- Room T155, Manitoba Centre for Health Policy, Department of Commnity Health Sciences, College of Medicine, Faculty of Health Sciences, University of Manitoba
- Department of Family Social Sciences, Faculty of Human Ecology, University of Manitoba
- · College of Pharmacy, Faculty of Health Sciences, University of Manitoba
- George and Fay Yee Centre for Health Care Innovation, University of Manitoba (terminal currently at Children's Hospital Research Institute of Manitoba)
- Centre for Global Public Health, College of Medicine, Faculty of Health Sciences, University of Manitoba
- Vaccine and Drug Evaluation Centre, College of Medicine, Faculty of Health Sciences, University of Manitoba
- Concordia Hip & Knee Institute, Winnipeg Regional Health Authority
- St. Boniface Cardiac Sciences Program, I.H. Asper Clinical Research Institute, Winnipeg Regional Health Authority
- Manitoba Renal Health Program, Seven Oaks General Hospital, Winnipeg Regional Health Authority

Population Health Research Data Repository Data-Flow Map



Knowledge Translation

INFORMING PLANNERS AND STAKEHOLDERS

The Need To Know Team

Since its establishment in 2001, *The Need to Know* Team (NTK) has enabled a remarkable collaboration between MCHP, the Regional Health Authorities (RHAs), and the provincial department of health. This collaboration has provided an opportunity for knowledge exchange and learning between researchers, planners, and policy-makers. The Team has co-authored numerous MCHP reports, and driven health policy change in a variety of areas, and along the way, it has been recognized by several national organizations.

NTK meets in Winnipeg three times per year for two days at a time. These meetings are designed to create an environment for the NTK team to work together on team projects, increase capacity for, and use of, RHA-relevant research, and to learn about other health-related initiatives happening in Manitoba. The fall meeting precedes MCHP's annual RHA Workshop, where NTK facilitates roundtable discussions of MCHP deliverables. This year's NTK meetings were held June 2–3, 2014, October 20–21, 2014 and January 19–20, 2015.

NTK also provides ideas for and helps review potential deliverable projects led by MCHP. To date, the team has co-authored seven deliverables. Many team members also sit on advisory groups for other deliverables, where they contribute the unique perspective of their RHA. Currently NTK is co-leading two deliverable research projects:

- MIS Information and Hospital Resource Implications
- Homecare: (a) Data Acquisition and Validity; (b) an Exploration of the use of Homecare by Manitobans

In 2014/15, NTK was also involved as a regional consultation group for the CIHR "PATHS Equity for Children" projects.

As many readers of this report will know, *The Need to Know* Team was created by the late Dr. Patricia Martens. The ideas behind its formation were among the most important insights she brought to MCHP. Foremost among these was the need to engage external partners "before the beginning" of research projects, to ensure relevance and applicability. Though these are well-established principles of what's now called Integrated Knowledge Translation, they were absolutely novel, indeed revolutionary, at this time, shortly after Pat joined MCHP in 1999. Among her first tasks was to coordinate MCHP's 6th annual Rural and Northern Healthcare Day. Rather than having the traditional day-long agenda made up of a succession of speakers, Pat had regional stakeholders participate in roundtable discussions to discuss research results from that region's perspective. Her plan was met with significant resistance among

MCHP researchers and leaders; but she persevered, and for the better, changed how we do research. The success of that workshop led to sharp increases in subsequent attendance, and was essentially the conception of *The Need to Know* Team. In 2000, with Dr. Charlyn Black, Pat successfully applied for support for the team from a new CIHR funding competition called Community Alliances for Health Research. Out of more than 200 applications Pat's was one of 17 chosen to be funded for five years. Pat led the team through a period of remarkable success until her health declined 2014. The team is now led by former Co-Director Dr. Randy Fransoo, whom Pat had mentored for this role.

Members of the team include MCHP researchers, staff, and students, as well as high-level planners and decision-makers from Manitoba Health, Healthy Living and Seniors, and each RHA (as chosen by the RHA's CEO). In 2014, the team expanded in scope, adding representatives from CancerCare Manitoba, and Diagnostic Services of Manitoba.

As described above, *The Need to Know* Team was originally funded through the Canadian Institutes of Health Research (2001–2006). Subsequent meeting expenses have been funded through a series of awards: the CIHR KT Award for regional impact (2007–2008), the Evidence to Action research project (2005-2008), Dr. Martens' CIHR/PHAC Applied Public Health Chair Award (2008-2013), and Dr. Fransoo's Gerry McDole Professorship Award in Improved Healthcare Delivery to Rural, Remote and Underserved Populations of Manitoba (2010–2013). The team is also the KT partner for the ongoing PATHS Equity for Children project (see p. 33).

Team Members

Interlake-Eastern RHA

Suzanne Dick Katherine Podaima Dr. Karen Robinson Jo-Ann Welham

Northern RHA
Dr. Randy Gesell
Lorraine Larocque
Vivian Salmon
Michelle Taylor
Joy Tetlock

Southern Health-Santé Sud

Dr. Shelley Buchan

Jane Curtis Ales Morga

Prairie Mountain Health

Jody Allan

Maggie Campbell Michelle Gaber Nancy McPherson

Winnipeg RHA Trish Bergal Philip Jarman Dr. Colleen Metge Patti MacEwan Diagnostic Services Manitoba

Ayn Wilcox

CancerCare Manitoba

Marc Geirnaert

Manitoba Health, Healthy Living and Seniors

Kristin Anderson Della Beattie

Sonia Busca Owczar Nathan Hoeppner Rachel McPherson Ciara Shattuck Heather Sparling

Centre for Healthcare Innovation

Dr. Kathryn Sibley Dr. Kristy Wittmeier

MCHP

Dr. Patricia Martens (NTK Director)
Dr. Randy Fransoo (Co-Director)

Dr. Alan Katz
Dr. Elaine Burland
Heather Prior
Charles Burchill
Mark Smith
Kara Dyck

INFORMING GOVERNMENT

MCHP - Manitoba Health, Healthy Living and Seniors Workshop

June 19, 2014

The 11th annual MCHP - Manitoba Health, Healthy Living and Seniors (MHHLS) workshop was attended by about 80 people, including representatives from the following units of MHHLS: Health Information Management, Primary Health Care, Public Health, and Acute, Tertiary and Specialty Care. The day included two keynote presentations given by Dr. Randy Fransoo on The 2013 RHA Indicators Atlas and Who is in Our Hospitals... and Why? Each keynote was followed by a roundtable discussion. Other MCHP reports were previewed at this workshop—specifically, Physician Integrated Network: A Second Look by Dr. Alan Katz, The Costs of Smoking by Dr. Nathan Nickel, and The Cost of Publicly Supported Housing for Seniors: Implications for Future Funding Approaches by Dr. Malcolm Doupe.

RHA Workshop

October 21, 2014

One hundred fifty people attended the 21st annual MCHP RHA Workshop Day, including representatives from all regional health authorities, Manitoba Health, Healthy Living and Seniors, the Canadian Institute for Health Information, the Public Health Agency of Canada, and graduate students from the Western Regional Training Centre. The morning focused on Optimizing Primary Care in Manitoba which consisted of two MCHP deliverables: Physician Integrated Network (PIN): A Second Look, presented by Dr. Alan Katz and Evaluation of the Manitoba Health Program IMPROVE, presented by Dr. Dan Chateau. The afternoon's keynote presentation was delivered by Dr. Malcolm Doupe and was on the topic of "The Cost of Publicly Supported Housing for Seniors: Implications for Future Funding Approaches." Following each keynote presentation were roundtable discussions among RHA staff and board members, who were divided according to health region. Discussion was facilitated by local members of The Need to Know Team. These discussions allow participants to dig deep into the study results and find data relevant to the stories that unfold in specific regions. Along with the keynotes, there was an update given by Louise Lalonde of the Canadian Institute for Health Information, and previews of three upcoming MCHP deliverables including The Costs of Smoking by Dr. Nathan Nickel, The Future of Treatment and Care of Manitobans Living with Kidney Disease by Dr. Mariette Chartier and The Evaluation of the Manitoba InSight Program by Dr. Chelsea Ruth.

Manitoba Government Annual Workshop

March 5, 2015

This was the third annual knowledge exchange between MCHP and the Manitoba Government. This event was designed to share research results with non-health government departments and discuss how MCHP research might relate to other kinds of policy planning. Many government departments were represented by close to 90 people in attendance, including Children and Youth Opportunities, Housing and Community Development, Family Services, Healthy Child Manitoba, Justice, Education and Advanced Learning, and Jobs and the Economy.

Dr. Gerald Farthing, Deputy Minister of Education and Advanced Learning, opened the day and reflected on the importance of using evidence in decision making. Later in the day, Dr. Rob Santos, Associate Secretary to the Government of Manitoba's Healthy Child Committee of Cabinet (HCCC), discussed how MCHP's research has contributed to policy changes.

An overview of MCHP and the Data Repository was presented by Dr. Alan Katz. Dr. Randy Fransoo gave a brief presentation on statistical research. The morning keynote presentation was delivered by Dr. Marni Brownell on the "The Educational Outcomes of Children in Care in Manitoba." The afternoon began with a preview of the upcoming deliverable, Evaluation of the Manitoba InSight Program, given by Dr. Chelsea Ruth. This was followed by an overview of the PATHS Equity for Children Program of Research (PATHS) presented by Dr. Marni Brownell, along with three of its projects including "Are Manitoba's Healthy Baby Prenatal Benefit and the Families First Home Visiting Programs Effective at Improving Outcomes for Vulnerable Children? A PATHS Equity Project" by Dr. Mariette Chartier and "Early Psychosis Prevention and Intervention Program (EPPIS)" by Dr. Dan Chateau. There was also a preview of the deliverable The Mental Health of Manitoba's Children: Prevalence and Use of the Health Care System, given by Dr. Mariette Chartier.

Roundtable discussions were held in the morning and afternoon to discuss The Educational Outcomes of Children in Care in Manitoba and PATHS. To encourage cross-sectoral collaboration, each table included representatives from several government departments.



EVIDENCE NETWORK.CA

The Evidence Network of Canadian Health Policy, commonly known as EvidenceNetwork.ca is a non-partisan, web-based project funded by the Canadian Institutes of Health Research and Research Manitoba, in partnership with the George and Fay Yee Centre for Healthcare Innovation. It exists to make the latest evidence on controversial health policy issues available to the media. This project links journalists with over 80 health policy experts to provide access to credible, evidence-based information, and creates original OpEds, articles, infographics, posters and videos on health policy topics for publication in the mainstream media.

Four MCHP research scientists are EvidenceNetwork.ca experts: Dr. Marni Brownell (Social Factors in Children's Health), Dr. Malcolm Doupe (Aging Population, Nursing Homes, Home Care), Dr. Alan Katz (Primary Care Delivery and Disease Prevention), and Dr. Noralou Roos (Poverty and Well Being). Other Manitoba-based experts include Dr. Eric Bohm, Dr. Jino Distasio, Dr. Rick Linden, Dr. Verena Menec, Dr. Jitender Sareen, and Dr. Robert Schroth.

Since 2011, EvidenceNetwork.ca has had nearly 2,000 original articles and OpEds appear in every major newspaper across the country, as well as a wide range of regional and niche media outlets both in English and French.

In 2014, EvidenceNetwork.ca created 142 original OpEds which have been published 155 times in Canada's top seven outlets alone: the Globe and Mail, the Toronto Star, the Huffington Post (English and French), La Presse, Le Devoir and the National Post. This year, our OpEds were published 781 times in every major media outlet across the country.

EvidenceNetwork.ca has developed backgrounders on pharmaceutical policy, obesity, and mental health, with a significant level of interest and uptake from journalists. Two of the backgrounders already account for some of the most popular content on the EvidenceNetwork.ca website over the past year. We now have 15 backgrounders posted on the site and several more are under review.

EvidenceNetwork.ca's journalist intern for 2015 is Melanie Meloche-Holubowski. She has created new OpEds, backgrounders, and expert interviews, and created podcasts relating to our expert's OpEds. She also works at Radio-Canada and has been helping us find ways to better connect and distribute our work to French media outlets.

EvidenceNetwork.ca has 30 videos and podcasts featuring our experts' research on healthcare topics posted on our website—with thousands of views on YouTube. EvidenceNetwork.ca has been highly successful in leveraging multiple types of social media platforms, boasting over 6,500 Twitter followers, and hundreds of posters, infographics, videos, podcasts, articles, and OpEds being retweeted or shared on other platforms. EvidenceNetwork.ca brings researchers and evidence into social media, where journalists, policy makers and the public are turning to for their information.

A few of the key highlights demonstrating how EvidenceNetwork.ca facilitates practice and policy change include:

- In October 2014, Dr. Michael Law, Centre for Health Services and Policy Research, and Associate
 Professor, University of British Columbia, wrote several OpEds about generic drug prices that were
 published widely including in the province of Alberta. The Government of Alberta's Minister of Health,
 the Honourable Fred Horne, acknowledged the importance of Dr. Law's OpEds in a letter to the
 University of British Columbia stating:
 - I wanted to commend the efforts taken by Dr. Michael Law in sharing his knowledge and advice with my office and my department in supporting policy changes. Dr. Law's assistance in analysis of the impact of generic drug pricing changes and in communicating that information to my office and to the public through availability to the media greatly assisted in providing more evidence-informed public debate.
- In July 2014, the Canadian Blood Services criticized an OpEd written by Dr. Ryan Meili, a physician from Saskatoon, Saskatchewan and Dr. Monica Dutt, Medical Officer of Health for Cape Breton, titled "Cash for blood products a flawed policy." Shortly after, the Government of Ontario brought back legislation that would ban payments to people for their blood and plasma.
- In August 2014, shortly after the publication of an EvidenceNetwork.ca OpEd, Health Canada toughened
 prescription-narcotic warning labels to combat abuse. The OpEd was written by Roojin Habibi, an
 MSc candidate in the Global Health Program at McMaster University and Research Fellow at the
 Pharmaceutical Policy Research Collaboration, and Joel Lexchin, Professor in the School of Health Policy
 and Management at York University.

Education

MCHP's commitment to population-health and health services research includes growing the next generation of scientists. Our scientists supervise and advise undergraduate and graduate students in the fields of

26 supervised graduate students25 thesis projects accessing the repository

epidemiology and health services research. MCHP researchers teach courses, lead tutorials, and give guest lectures in graduate and undergraduate university programs. Details of teaching activities are given in Appendix 5. MCHP also provides educational resources to students and professionals, and recognizes student achievement.

Student Supervision

Student supervision is a core activity of full-time researchers at MCHP. These activities facilitate collaborations at the University of Manitoba, and at institutional, provincial, national, and international levels. In 2014/15, the majority of MCHP researchers supported students in supervisory and advisory roles, as thesis committee members, or as external examiners (see Appendix 6). In addition to supervising 25 University of Manitoba graduate students, MCHP researchers participated as thesis committee members and external reviewers for another 30. Ten graduate students from other Canadian institutions were supported in various capacities.

Ongoing and Completed Thesis Projects Accessing the Repository

Thesis projects benefit significantly from the data available in MCHP's Population Health Research Data Repository. Students who require access to the Repository must apply and obtain accreditation training from MCHP's data access unit and are required to perform their own analyses using SAS statistical software. Access can be maintained throughout a thesis project and after its completion to facilitate publications. Appendix 8 shows all ongoing and completed graduate and undergraduate thesis projects that accessed the Repository in 2014/15. Some projects were completed before March 31, 2014, but maintained access to facilitate publications.

Evelyn Shapiro Award for Health Services Research

Financial support up to \$5,000 is provided by MCHP to students who are enrolled in a graduate program at the University of Manitoba and whose thesis research uses the Population Health Research Data Repository. This award was designed to support the work of graduate students in an area of health services research by subsidising the cost of data access. To qualify, applicants must demonstrate academic achievement (min. cumulative 3.75 GPA) and show strong research potential in the field of health services. This award was established by the late Dr. Evelyn Shapiro, a renowned health services researcher whose career contributions include the development of Manitoba's home care program. Three students were awarded this year:

Jason Randall, PhD Student

Validation of Administrative Data for Self-Harm Outcomes

Community Health Sciences, Faculty of Graduate Studies

Advisor: Dr. Leslie Roos

Karla Willows, MSc Student

Effectiveness of the Quadrivalent Human Papillomavirus against Anogenital Warts in Manitoba

Community Health Sciences, Faculty of Graduate Studies

Advisor: Dr. Salah Mahmoud

Lorena Vehling, MSc Student

Children with Autism Spectrum Disorder in Manitoba: Characteristics and Psychiatric Medication Use Community Health Sciences, Faculty of Graduate Studies

Advisor: Dr. Marni Brownell

Educational and Technical Resources

MCHP's educational contributions extend to the provision of educational and technical tutorials and workshops. Most of these resources are provided on our website, on the Educational Resources page: http://umanitoba.ca/medicine/units/mchp/education/index.html. This page links to site-specific and off-site teaching materials, including readings and lecture materials for CHSC 7310 Epidemiology of Health Care, a graduate course taught by MCHP researchers. These materials link to MCHP research resources like the MCHP Concept Dictionary and student research guidelines.

Technical resources available on the resources webpage include workshop materials and offsite tutorials for using SAS software, and structural equation statistical modeling techniques. The SAS system provides a way of creating and/or accessing a variety of data sets, with techniques for manipulating the data to obtain output ranging from simple frequency tables to complex three-dimensional graphs. The goal of the MCHP online SAS tutorial is to provide new users with enough SAS knowledge to translate basic research questions into code. This level of training enables the completion of the research project required by CHSC 7310 Epidemiology of Health Care. Intermediate training material is also available for new users. This documentation covers arrays, do loops, first/last by-group processing, retain statements, and how to work with dates. This year, MCHP offered five in-person SAS tutorials, ranging from beginner to intermediate levels. These 20-hour courses were developed and are led by Associate Director Charles Burchill (Data Access and Use at MCHP).

Financial Report

The Manitoba Centre for Health Policy gratefully acknowledges the support of the Manitoba Government through a five-year funding agreement with Manitoba Health, Healthy Living and Seniors (MHHLS). The budget given in Table 1 demonstrates the expenditures charged against this fund. In addition to the \$2.325M received from MHHLS, MCHP researchers secure funding from individual and multi-project grants and career awards. MCHP also generates revenue in the form of repository-access and remote-access fees paid by externally administered research grants. In 2014/15, new funds from these sources totaled approximately \$2.8M (Table 1). A five-year trend of our most-recent funding is given in Figure 7.

Table 1: Manitoba Centre for Health Policy Yearly Budget, April 1, 2014 – March 31, 2015

<u>Salaries</u>	
Staff	1,628,325.89
Staff Benefits	289,730.27
Payroll Levy	38,292.13
External Contracts	38,026.08
Transfer to CFI Matching*	 86,625.00
Salaries Subtotal	\$ 2,080,999.37
Other Expenditures	
General Office Expenses	113,966.25
Purchases	
Equipment	21,072.63
Maintenance	41,606.98
Travel	42,145.25
Transfer to CFI Matching*	198.33
Other Expenditures Subtotal	\$ 218,989.44
TOTAL EXPENDITURES	\$ 2,299,988.81

^{*} These funds were approved (June 1, 2005) to be transferred for use as a Partner Contribution to the Centre's CFI grant

Cambro ata		<u>Amount</u>
<u>Contracts</u>		
Manitoba Health	<u> </u>	2,325,000.00 2,325,000.00
Research Grants		2,323,000.00
	ation for Innovation	
Martens PJ	CFI - Infrastructure Operating Fund	428,634.00
		428,634.00
Canadian Institu	ites of Health Research	.,
Chartier	PAX-good behavoiur game in First Nations communities: Enhancing and adapting a school-	
C.i.u. c.e.	based mental health promotion and suicide prevention program.	7,150.00
Martens PJ	Canadian Network for Observational Drug Effect Studies, database team	310,000.00
Martens PJ	Canadian Network for Observational Drug Effect Studies, knowledge translation team	20,000.00
Martens PJ	PATHS equity for children: A program of research into what works to reduce the gap for	20,000.00
	Manitoba's children.	400,000.00
Roos NP	Injecting evidence into health policy coverage: Working with the media	127,973.00
		865,123.00
Manitoba Health	h Research Council	
Brownell M	Investigating the characteristics of health care utilization of women who give birth to	F 000 00
Nickel, NC	children with fetal alcohol spectrum disorder. Manitoba Infant Feeding Database - A capture recapture study.	5,000.00 79,998.50
· ···ene.i, · · · e		84,998.50
Manitoha Institu	ue of Child Health	0.,000.00
Brownell M	Building a program of rsearch to investigate antenatal risk factors for adverse childhood	
DI OWITEII IVI	outcomes using Manitoba's Data Repository	33,075.00
	<u> </u>	33,075.00
Public Health Ag	gency of Canada	
Brownell M	Validation Study on Manitoba Administrative Data for the Purpose of ASD Surveillance	
		78,551.00
Chartier M	Towards Flourishing: Improving the mental health among new mothers in the Manitoba Families First home visiting program	436,455.00
		515,006.00
University of To	ronto	
Katz A	Paying for primary care: Relationship between incentives and patient/provider characteristics	
		20,000.00
		20,000.00
_		
<u>Revenue</u>		
Data Access/Ren	note Access Site Fees	753,497.11
		753,497.11
Endours auto/A	aude	
Endowments/Awa		
Endowed Chair i		98,306.48
Research Start-u	ip runas	75,000.00
		173,306.48

Total MCHP Funding

5,198,640.09

Figure 6: Funding Sources as a Percentage of Annual Budget, April 1, 2014 – March 31, 2015

Endowments

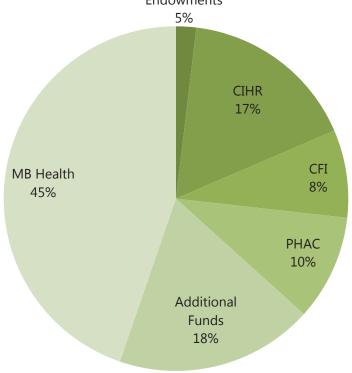
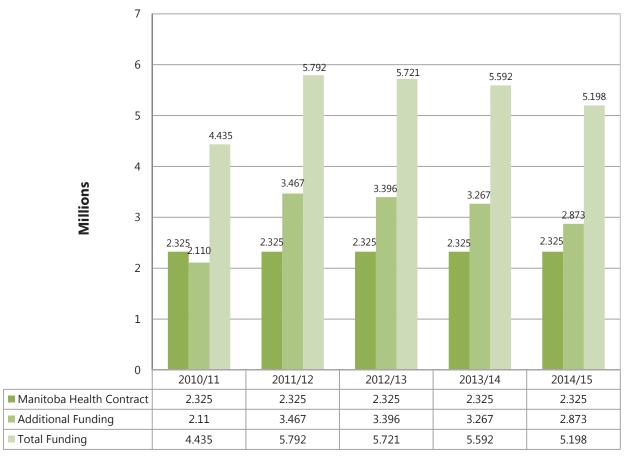


Figure 7: MCHP Total Annual Budget, Five-Year Trend



Endowments/Gifts

Endowed Chair in Child Health Awarded by the Department of Science, Technology, Energy and Mines, Province of Manitoba to support an outstanding child health researcher to coordinate and lead child health research at MCHP.

Evelyn Shapiro Health Services Research Award Provides support to a graduate student in the Faculty of Graduate Studies, specifically in the College of Medicine, whose thesis research will use the Population Health Research Data Repository housed by the Manitoba Centre for Health Policy.

MCHP-Administered Research Grants

Canadian Foundation on Fetal Alcohol Research

Brownell M, Hanlon-Dearman A, Elias B, Chateau D, Chudley A, Phillips-Beck W, Roos N, Longstaffe S. \$50,000, 2011–2013. "Utilization of Health and Social Services by Manitoba First Nations Children with FASD."

Canada Foundation for Innovation

Martens PJ. \$1,453,780, 2010–2014. "Leading Edge Access and Data Enhancement Research Strategy". Matching funds provided by MRIF.

Martens PJ. \$436,134, 2014–2015. Canadian Foundation for Innovation Infrastructure Operating Fund (CFI_IOF).

Canadian Institutes of Health Research

Chartier MJ, Sareen J. \$7,150, 2014–2015. "PAX – Good Behaviour Game in First Nations Communities: Enhancing and Adapting a School-Based Mental Health Promotion and Suicide Prevention Strategy."

Martens PJ, Caetano PA, Alessi-Severini S, Chateau D, Katz A, Mahmud S, Metge C, Raymond C, Vercaigne L, Bugdan S, Targownik L. \$320,000, 2011-2015. "Canadian Network for Observational Drug Effect Studies, Database Team."

Martens PJ, Caetano PA, Levy A, Sketris I. \$75,000, 2011–2015. "Canadian Network for Observational Drug Effect Studies, Knowledge Translation Team."

Martens PJ, Brownell M, Katz A, Chateau D, Chartier M, Fransoo R, Lix L, Metge C, Nickel N, Roos L, Santos R, Bolton J, Doupe M, Hertzman C, Jutte D, Katz L, Raymond C, Roos N. \$1,900,000, 2011–2016 "Pathways To Health and Social Equity for Children: A program of research into what works to reduce the gap for Manitoba's children." Programmatic grant with Heart and Stroke Foundation of Canada.

Roos LL, Bolton JM, Brownell M, Jutte DP, Katz L, Roos N, Samuel SM, Strohschein LA. \$98,984, 2011–2014. "Childhood Social Factors in Development – the CHILDSOC Project."

Roos NP, Nuamah O, Martens PJ, Buist S, Cassels AK, Harasymchuck J, Hirst N, Park P, Silversides AE, Slywchuck G, Verma J, Barer ML, Driedger SM, Henry D, Katz A, Manson Singer SE. \$397,321, 2012–2015. "Injecting Evidence into Health Policy Coverage: Working with the Media." (Matching MRHC Award).

Children's Hospital Foundation Inc.

Brownell M, O'Donnell M, Gilbert G, Ubbessen M. \$3,570, 2013-2014. "Factors that predict out-of home care during childhood: A comparison of three developed countries."

Manitoba Health Research Council

Brownell M, Singal D. \$5000, 2014–2017. "Investigating the characteristics of health care utilization of women who give birth to children with fetal alcohol spectrum disorder." Dissertation award.

Doupe M. \$100,000, 2011-2014. "Linking unique clinical and health care use files to better understanding nursing home quality care."

Fransoo R. \$51,580, 2010–2013. "Temporal Trends and Sex Differences in Acute Myocardial Infarction (AMI) incidence, mortality, and treatments in Manitoba 1985 to 2010."

Nickel NC. \$161,448, 2014-2016 "Manitoba Infant Feeding Database – A capture recapture study."

Roos NP, Nuamah O, Martens PJ, Buist S, Cassels AK, Harasymchuck J, Hirst N, Park P, Silversides AE, Slywchuck G, Verma J, Barer ML, Driedger SM, Henry D, Katz A, Manson Singer SE. \$94,000, 2012–2015 "Injecting Evidence into Health Policy Coverage: Working with the Media." (Matching CIHR award.)

Manitoba Institute of Child Health

Brownell M, Ruth C, Flavin M, Day M.. \$33,075, 2014-2015. "Building a program of research to investigate antenatal risk factors for adverse childhood outcomes using Manitoba's data repository."

Manitoba Research and Innovation Fund

Martens PJ. \$1,453,780, 2010–2014. "Leading Edge Access and Data Enhancement Research Strategy". Matching funds provided by CFI.

Public Health Agency of Canada

Brownell M, Ouelette-Kuntz H, Shooshtari S, Hanlon-Dearman A. \$150,000, 2012–2014, "Validation Study on Manitoba Administrative Data for the Purpose of ASD Surveillance."

Chartier M. \$2,584,085, 2011–2015. "Towards Flourishing: Improving the Mental Health Among New Mothers in the Manitoba Families First Home Visiting Program." Phase II.

Sunnybrook Research Institute (CIHR collaborative sub-agreement)

Stukel TA, Katz A. \$132,216, 2011–2012. "Health Care System Sustainability through Longitudinal Efficiency: Improve Quality and Lower Costs."

University of Toronto (sub-agreement of CIHR)

Katz, A. \$60,000, 2012–2016. "Paying for Primary Care: Relationship Between Incentives and Patient/ Provider Characteristics.

Winnipeg Rh Institute Foundation Inc.

Doupe, M. \$12,000, 2013-2018 "2012 Rh Award."

York University (sub-agreement of SSHRC)

Doupe M. \$6,000, 2010–2017. "Re-Imagining Long-Term Residential Care: An International Study of Promising Practices."

CHALLENGER VISIONARY INNOVA PIONEER CREATOR	ATOR ADVENTURER REBEL PIONEER C EXPLORER DEFENDE	CREATOR EXPLORER DEFENDER TR R TRAILBLAZER CH	AILBLAZER CHALLENGER VISIONA ALLENGER VISIONA	RY INNOVATOR ADVENTURER RE RY INNOVATOR AD	BEL PIONEER CREATOR EXPLORI VENTURER REBEL	ER DEFENDER TRAILBLAZER CHA PIONEER CREATO	ILLENGER VISIONARY INNOVATO R EXPLORER DEFE

APPENDIX 1: PUBLICATIONS

Journal Articles

2015

Arim RG, Kohen DE, Brehaut JC, Guèvremont A, Garner RE, Miller AR, McGrail K, **Brownell M**, Lach LM, Rosenbaum PL. Developing a non-categorical measure of child health using administrative data. Health Reports 2015;26(2):9-16.

Bolton JM, **Walld R, Chateau D, Finlayson G**, Sareen. J. Risk of suicide and suicide attempts associated with physical disorders: A population-based, balancing score-matched analysis. Psychological Medicine 2015;45:495-504.

Bozat-Emre S, **Doupe M**, Kozyrskyj AL, Grymonpre R, Mahmud SM. Atypical antipsychotic drug use and falls among nursing home residents in Winnipeg, Canada. International Journal of Geriatric Psychiatry, 2014; Nov 3. doi: 10.1002/gps.4223. [Epub ahead of print].

Brennan SL, Yan L, **Lix LM**, Morin SN, Majumdar SR, Leslie WE. Sex and age specific associations between income and incident major osteoporotic fractures in Canadian men and women: A population-based analysis. Osteoporosis International 2015;26(1):59-65.

Brownell M, Nickel NC, Chateau D, Martens PJ, Taylor C, Crockett L, Katz A, Sarkar J, Burland E, Goh CY, the PATHS Equity Team. Long-term benefits of full-day kindergarten: A longitudinal population-based study. Early Child Development and Care 2015;185(2):291-316.

Coleman N, Halas G, Peeler W, Casaclang N, Williamson T, **Katz, A**. From patient care to research: A validation study examining the factors contributing to data quality in a primary care electronic medical record database. BMC Family Practice 2015;16(1:11):Epub ahead of print.

Coo H, Ouellette-Kuntz H, Lam YM, **Brownell M**, Flavin M, **Roos LL**. The association between the interpregnancy interval and autism spectrum disorder in a Canadian cohort. In press, Canadian Journal of Public Health.

Dart AB, Ruth CA, Sellers EA, **Au W**, Dean HJ. Maternal diabetes mellitus and congenital anomalies of the kidney and urinary tract (CAKUT) in the child. American Journal of Kidney Diseases 2015;Epub ahead of print.

Halas G, Schultz AS, Rothney J, Goertzen L, Wener P, **Katz A**. A scoping review protocol to map the research foci trends in tobacco control over the last decade. BMJ Open 2015;5(1:e006643).

Henriksen CA, Stein MB, Afifi TO, Enns M, **Lix LM**, Sareen J. Identifying factors that predict longitudinal outcomes of untreated common mental disorders. Psychiatr Serv 2015;66(2):163-170.

Kohen DE, Brehaut JC, Guèvremont A, Garner RE, Miller AR, McGrail K, **Brownell M**, Lach LM, Rosenbaum PL. Developing a service use measure of child health: Applying the CSHCN Screener to administrative health data. Health Reports 2015;26(2):9-16.

Leslie WD, Majumdar SR, Morin SN, **Lix LM**. Why does rate of bone density loss not predict fracture risk? J Clin Endocrinol Metab 2015;100(2):679-683.

Nickel NC. Look before you leap: Can we draw casual conclusions from breastfeeding research? Journal of Human Lactation 2015 Feb 19; Epub ahead of print.

Randall JR, Vokey S, Loewen H, Martens PJ, Brownell M, Katz A, Nickel NC, Burland E, Chateau D. A systematic review of the effect of early interventions for psychosis on the usage of inpatient services. Schizophr Bull. 2015 Mar 5; E-Pub ahead of Print.

Safdar N, O'Horo JC, Ghufran A, Bearden A, Didier ME, **Chateau D**, Maki DG. Chlorhexidine-Impregnated dressing for prevention of catheter-related bloodstream infection: A meta-analysis. Crit Care Med 2014;42(7):1703-1713.

Shiff N, **Lix LM**, Oen K, Joseph L, Duffy C, Stringer E, Tucker LB, Svenson LW, Belisle P, Bernatsky S. (2015). Chronic inflammatory arthritis prevalence estimates for children and adolescents in three Canadian provinces. Rheumatol Int 2015;35(2):345-350.

Singh H, Nugent Z, Targownik LE, El-Matary W, **Brownell M**, Bernstein CN. Health care use by a population-based cohort of children with inflammatory bowel disease. Clin Gastroenterol Hepatol 2015 Jan 28; Epub ahead of print.

Singh H, Nugent Z, **Brownell M**, Targownik LE, **Roos LL**, Bernstein CN. Academic performance among children with inflammatory bowel disease: A population-based study. The Journal of Pediatrics 2015 Jan 15; Epub ahead of print.

Singh H, Zoann N, Targownik LE, El-Matary W, **Brownell M**, Bernstein C. Health care utilization among a population based cohort of children with IBD. In press, Clinical Gastroenterology and Hepatology.

Stergiopoulos V, Hwang SW, Gozdzik A, Nisenbaum R, Latimer E, Rabouin D, Adair CE, Bourque J, Connelly J, Frankish J, Katz LY, Mason K, Misir V, O'Brien K, Sareen K, Schutz CG, Singer A, Streiner D: Vasiliadis HM, Goering PN, the At Home/Chez Soi Investigators. Effect of scattered-site housing using rent supplements and intensive case management on housing stability among homeless adults with mental illness. A randomized trial. JAMA 2015;313(9):905-915.

Yallop L, **Brownell M**, **Chateau D**, Walker J, Warren M, Bailis D, LeBow M. Lifetime prevalence of attention deficit hyperactivity disorder in young adults: is the socioeconomic gradient childhood limited? In press, Canadian Journal of Psychiatry.

2014

Alessi-Severini S, Bolton JM, Enns MW, **Dahl M**, Collins DM, **Chateau D**, Sareen J. Use of benzodiazepines and related drugs in Manitoba: A population-based study. CMAJ Open 2014;2(4):E208-E216.

Alsabbagh MH, Lemstra M, Eurich D, **Lix LM**, Wilson TW, Watson E, Blackburn DF. (2014). Socioeconomic status and nonadherence to antihypertensive drugs: A systematic review and meta-analysis. Value Health 2014;17(2):288-296.

Beck V, **Chateau D**, Bryson GL, Pisipati A, Zanotti S, Parrillo JE, Kumar A, The cooperative antimicrobial therapy of septic shock (CATSS)database research group. Timing of vasopressor initiation and mortality in septic shock: A cohort study. Critical Care 2014;18(3):R97.

Bernstein CN, Nugent, Targownik LE, Singh H, **Lix LM**. Predictors and risks for death in a population based study of persons with IBD in Manitoba. Gut; 2014 Sep 16; Epub ahead of print.

Berthelot J-M, Bouchard L, Casteigts A, **Chartier M**, Trugeon A, Warnke J. L'adaptation et la modélisation des systèmes d'information à l'échelle régionale. Global Health Promotion 2014;21(Supp. 1):15–22.

Bozat-Emrie S, **Doupe M**, Kozyrskyj AL, Grymonpre R, Mahmud SM. Atypical antipsychotic drug use and falls among nursing home residents in Winnipeg, Canada. Int J Psychiatry 2014 Nov 3; Epub ahead of print.

Brennan SL, Leslie WD, **Lix L**, Johansson H, Oden A, McCloskey E, Kanis JA. FRAX provides robust fracture prediction regardless of socioeconomic status. Osteoporos Int 2014;25(1):61-69.

Chartier MJ, Finlayson G, Prior H, McGowan K-L, Walld R, de Rocquigny J. Are there mental health differences between Francophone and Non-Francophone populations in Manitoba? Can J Psychiatry 2014;59(7):366-375.

Dart AB, Wicklow BA, Sellers EA, Dean HJ, Malik S, Walker J, **Chateau D**, Blydt-Hansen TD, McGavock JM, iCARE Investigators. The improving renal complications in adolescents with type 2 diabetes through the REsearch (iCARE) cohort study: Rationale and protocol. Can J Diabetes 2014;38(5):349-355.

Davies B, Ward H, Leung S, **Turner KM**, Garnett GP, Blanchard JF. Heterogeneity in risk of pelvic inflammatory diseases after Chlamydia infection: a population-based study in Manitoba, Canada. J Infect Dis 2014;210(Suppl 2):S549-S555.

Deber R, Lam KCK, **Roos LL**. Four flavours of health expenditures: A discussion of the potential implications of the distribution of health expenditures for financing health care. Can Public Policy 2014;40(4):353-363.

Dormuth CR, Filion KB, Paterson JM, James MT, Teare GF, **Raymond CB**, Rahme E, Tamim H, Lipscombe L, **Canadian Network for Observational Drug Effect Studies Investigators**. Higher potency statins and the risk of new diabetes: Multicentre, observational study of administrative databases. BMJ 2014;May 29;348:g3244.

Garland A, Olafson K, Ramsey C, **Yogendran M, Fransoo R**. Distinct determinants of long-term and short-term survival in critical illness. Intensive Care Med 2014;40(8):1097-1105.

Garland A, Olafson K, Ramsey C, **Yogendran M, Fransoo R**. A population-based observational study of ICU-related outcomes: With emphasis on post-hospital outcomes. Ann Am Thorac Soc 2014 Dec 18; Epub ahead of print.

Greiver M, Williamson T, Barber D, Birtwhistle R, Aliarzadeh B, Khan S, Morkem R, Halas G, Harris S, **Katz A**. Prevalence and epidemiology of diabetes in Canadian primary care Practices: A Report from the Canadian Primary Care Sentinel Surveillance Network. Canadian Journal of Diabetes 2014;38(3):179-185.

Halas G, Styles C, **Katz A**. A newly implemented EMR. Family Medicine Forum Research Proceedings 2013. Can Fam Physician 2014;60((Suppl 1)):S2.

Katz A, Martens P, Chateau D, Bogdanovic B, Koseva I. Do primary care physicians coordinate ambulatory care for chronic disease patients in Canada? BMC Fam Pract 2014;15(1):48.

Katz A, Levitt C, Grava-Gubins I, Fredo S. Section of researchers' blueprint for family medicine research success 2012-2017. Laying the foundation for our future. Can Fam Physician 2014;60(10):877-879.

Leslie WD, Aubry-Rozier B, Lix LM, Morin SN, Majumdar SR, Hans D. Spine bone texture assessed by trabecular bone score (TBS) predicts osteoporotic fractures in men: The Manitoba Bone Density Program. Bone 2014;67:10-14.

Letourneau KM, McDonald K, Soni R, Karlicki F, Horne D, Hall PF, Fransoo R. A simple effective protocol to increase prenatal detection of critical congenital heart disease. Journal of Diagnostic Medical Sonography 2014;30(2):60-66.

Marrie RA, Bernstein CN, Peschken CA, Hitchon CA, Chen H, Fransoo R, Garland A. Intensive care unit admission in multiple sclerosis: Increased incidence and increased mortality. Neurology 2014;82(23):2112-2119.

Marrie RA, Garland A, Peschken CA, Hitchon CA, Chen H, Fransoo R, Bernstein CN. Increased incidence of critical illness among patients with inflammatory bowel disease: A population-based study. Clinical Gastroenterology and Hepatology 2014;12(12):2063-2070.

Martens PJ, Chateau DG, Burland EM, Finlayson GS, Smith MJ, Taylor CR, Brownell MD, Nickel NC, Bolton JM, the PATHS Equity Team. The effect of neighborhood socioeconomic status on education and health outcomes for children living in social housing. Am J Public Health 2014;104(11):2103-2113.

Morin SN, Lix LM, Leslie WD. The importance of previous fracture site on osteoporosis diagnosis and incident fractures in women. J Bone Miner Res 2014;29(7):1675-1680.

Mutter TC, Chateau D, Moffatt M, Ramsey C, Roos LL, Kryger M. A matched cohort study of postoperative outcomes in obstructive sleep apnea: Could preoperative diagnosis and treatment prevent complications? Anesthesiology 2014;121(4):707-718.

Nickel NC, Martens PJ, Chateau D, Brownell MD, Sarkar J, Goh CY, Burland E, Taylor C, Katz A, the PATHS Equity Team. Have we left some behind? Monitoring trends in socioeconomic inequalities in breastfeeding: A population-based study. Can J Public Health 2014;105(5):e362-368.

Nickel NC, Chateau DG, Martens PJ, Brownell MD, Katz A, Burland EMJ, Walld R, Hu M, Taylor CR, Sarkar J, Goh CY, the PATHS Equity Team. Data resource profile: Pathways to health and social equity for children (PATHS Equity for Children). International Journal of Epidemiology 2014;43(5):1438-1449.

Olafson K, Ramsey C, Yogendran M, Fransoo R, Chrusch C, Forget E, Garland A. Surge capacity: Analysis of census fluctuations to estimate the number of intensive care unit beds needed. Health Services Research 2014;50(1):237-252.

Raghavan M, Martens PJ, Burchill C. Exploring the relationship between socioeconomic status and dog-bite injuries through spatial analysis. Rural and Remote Health 2014;14(3):2846.

Randall JR, Walld R, Finlayson G, Sareen J, Martens PJ, Bolton JM. Acute risk of suicide and suicide attempts associated with recent diagnosis of mental disorders: A population-based, propensity scorematched analysis. Can J Psychiatry 2014;59(10):531-538.

Ravinsky E, Gartner JG, Chateau D. Recommendations on quality assurance practices stemming from the findings of an audit of randomly selected negative breast core biopsies. Canadian Journal of Pathology 2014;6(4):115-121.

Roos LL, Walld R, Witt J. Adolescent outcomes and opportunities in a Canadian province: Looking at siblings and neighbors. BMC Public Health 2014;14(1):506.

Ruth CA, **Roos NP**, Hildes-Ripstein E, **Brownell MD**. Early term infants, length of birth stay and neonatal readmission for jaundice. Paediatr Child Health 2014;19(7):353-354.

Shooshtari S, **Brownell M, Dik N, Chateau D**, Yu CT, Mills RSL, **Burchill CA**, Wetzel M. A population-based longitudinal study of depression in children with developmental disabilities in Manitoba. Journal of Mental Health Research in Intellectual Disabilities 2014;7(3):191-207.

Singh H, Nugent Z, **Brownell M**, Targownik LE, **Roos LL**, Bernstein CN. Academic performance among children with inflammatory bowel disease: A population-based study. The Journal of Pediatrics 2015; Jan 15. pii: S0022-3476(14)01159-7. doi: 10.1016/j.jpeds.2014.12.010. Epub ahead of print.

Sivananthan SN, **Doupe M**, McGregor MJ. Exploring the ecology of Canada's publicly funded residential long-term care bed supply. Canadian Journal of Aging 2014;2014 Dec 30. Epub ahead of print:1-15.

Spiwak R, Mullins M, Isaak C, Barakat S, **Chateau D**, Sareen JS. Medical students' and postgraduate residents' observations of professionalism. Education for Health 2014;27(2):193-199.

Trachtenberg AJ, **Dik N, Chateau D, Katz A**. Inequities in ambulatory care and the relationship between socioeconomic status and respiratory hospitalizations: A population-based study of a Canadian city. Annals of Family Medicine 2014;12(5):402-407.

Turcotte D, **Doupe M**, Torabi M, Gomori A, Ethans K, Esfahani F, Galloway K, Namaka M. Nabilone as an adjunctive to Gabapentin for multiple sclerosis-induced neuropathic pain: A randomized controlled trial. Pain Med 2014;Epub ahead of print.

Frankel C, Intrater H, **Doupe M**, Namaka M. Opioid misuse in Canada and critical appraisal of aberrant behavior screening tools. World Journal of Anesthesiology 2014; 3(1): 61-70.

Books and Book Chapters

2014

Lix L, Leslie WD, Metge C. Health-related quality of life in Aboriginal and non-Aboriginal populations. In Michalos AC (Ed.) Encyclopedia of quality of life and well-being research. Dordrecht, Netherlands: Springer; 2014:2781-2784.

Roos NP, O'Grady K, **Turczak, S**, **Tapp C**, Jolivet L. Making Evidence Matter in Canadian Health Policy. 2014. Available in Apple, Kindle, Google Play, Google Books. Also available in PDF format: http://umanitoba.ca/outreach/evidencenetwork/archives/17545

Roos NP, Manson Singer S, O'Grady K, **Tapp C**, **Turczak S**. Canadian Health Policy in the News: Why Evidence Matters. 2013. Available in Apple, Kobo, Google Play, Scribd, Goodreads.com, and Blurb. Also available in PDF format: http://umanitoba.ca/outreach/evidencenetwork/archives/8941.

APPENDIX 2: PRESENTATIONS

2015

Brownell M. PATHS Equity for Children: Overview. Evidence to Action. Presented at: The Third Annual Knowledge Exchange Between MCHP & Manitoba Government; March 5, 2015; Winnipeg, MB. (invited)

Brownell M. Educational outcomes of children in care in Manitoba. Presented at: Evidence to Action. Keynote presentation at: Third Annual Knowledge Exchange between MCHP & Manitoba Government; March 5, 2015; Winnipeg, MB. (keynote presentation)

Brownell M. How are Manitoba's children doing? Presented at: Frontier School Division 37th Annual School Committee Conference; February 13, 2015; Winnipeg, MB. (invited)

Brownell M. PATHS Equity for Children: a program of research into what works to reduce the gap for Manitoba's children. Presented at: Children's Hospital Research Institute of Manitoba, Research Rounds; February 12, 2015; Winnipeg, MB. (invited).

Brownell M. Educational outcomes for Manitoba children. Presented at: United Way of Winnipeg, Education and Neighbourhood Impact Councils meeting; January 19, 2015; Winnipeg, MB.

Heaman M, Kingston DA, **Brownell MD**, Helewa ME, **Derksen SA**, **McGowan KL**. Factors associated with preterm birth: A population-based study in Manitoba. Poster presented at: Canadian National Perinatal Research Meeting; February 24, 2015; Montebello, QC.

Heaman M, Kingston D, **Brownell M**, Helewa M, **Derksen S**, **McGowan KL**. Predictors of prenatal and postpartum psychological distress: A population-based study in Manitoba. Poster presentation at: Canadian National Perinatal Research Meeting; February 24, 2015; Montebello, QC.

Roos NP. Improving Canada's (dismal) international ranking in child well-being. Presented at: Pediatric Grand Rounds, University of Manitoba; March 12, 2015; Winnipeg, MB.

2014

Brennan SL, Yan L, **Lix LM**, Morin SN, Majumdar SR, Leslie WD. Sex-specific associations between income and incident major osteoporotic fractures: A population-based analysis. Presented at: ASBMR Annual Meeting; September 12-15, 2014; Houston, TX.

Brownell M. Educational outcomes for Manitoba children. Presented at: United Way of Winnipeg, Education and Neighbourhood Impact Councils meeting; January 19, 2015; Winnipeg, MB.

Brownell M. The whole really is greater than the sum of its parts! What we can learn about children's health through data linkage. Presented at: Canadian Association of Paediatric Health Centres Webinar; November 12, 2014.

Brownell M, Hanlon-Dearman A, **Chateau D**, **MacWilliam L**, **Singal D**, Phillips-Beck W, Longstaffe S, Elias B, Chudley A, **Roos NP**. Use of health, education and social services by First Nations Manitobans with Fetal Alcohol Spectrum Disorder. Presented at: Living Well: FASD and Mental Health Conference; November 5, 2014; Winnipeg, MB.

Brownell M, Chartier M, Au W, MacWilliam L, Schultz J, Guenette W. Linking data for child welfare research: Using linked administrative data to describe educational outcomes of children in care in Manitoba. Presented at: the 20th International Congress on Child Abuse and Neglect; September 16, 2014; Nagoya, Japan.

Brownell M, Nickel NC, Chateau D, Martens PJ, Taylor C, Crockett L, Katz A, Sarkar J, Burland E, Goh CY and the PATHS Equity Team. Are there long-term academic benefits of full-day kindergarten? A PATHS Equity for Children project. Canadian Public Health Association Annual Conference, Toronto, ON: May 27, 2014.

Brownell M, Chartier M, Nickel NC, Martens PJ, Chateau D, Burland E, Sarkar J, Taylor C, Goh CY, Jutte D. Impact of the Healthy Baby Prenatal Benefit on perinatal outcomes: A PATHS Equity for Children Project. Presented at: Canadian Public Health Association Annual Conference; May 27, 2014; Toronto, ON.

Brownell M. PATHS Equity for Children: a program of research aimed at monitoring equity in children's outcomes. Presented at: Panel on Reporting on Health Inequalities, Canadian Public Health Association Annual Conference; May 28, 2014; Toronto, ON.

Brownell M, Chartier M, Chateau D, Nickel N, Martens P, Sarkar J, Burland E, Goh CY, Taylor C. Impact of the Healthy Baby Prenatal Benefit on perinatal outcomes: A PATHS Equity for Children Project. Presented at: Canada Public Health Association Annual Conference; May 26-29, 201; Toronto, ON.

Brownell M, Martens P, Katz A, Chateau D, Nickel N. PATHS Equity for Children: A Program of Research for Understanding What Works for Children. Presented at: CAHSPR; May 14, 2014; Toronto, ON.

Brownell M. An homage to Clyde Hertzman's legacy: using population level data to monitor child development. Presented at: Social Policy and Health Inequalities: an International Perspective; May 7, 2014; Montreal, QC.

Brownell M, Hanlon-Dearman A, **Chateau D, MacWilliam L, Singal D**, Phillips-Beck W, Longstaffe S, **Roos N**, Elias B, Chudley A. Use of health, education and social services by First Nations Manitobans with Fetal Alcohol Spectrum Disorder. Presented at: International Health Data Linkage Conference; April 28, 2014; Vancouver, BC.

Chartier M. Why is early childhood education and childcare so crucial to Francophones living in a minority context? Presented at: Child Care 2020: From Vision to Action Conference; November 15, 2014; Winnipeg, MB.

Chartier M, Brownell M, Santos R, **Ekuma O, Au W, Sarkar J, MacWilliam L, Burland E, Koseva I, Guenette W**. How are Manitoba Kids Doing? Presented at: the Northern Summit; October 21, 2014; Thompson, MB.

Chartier M, Dart A, Tangri N, Komenda P, **Walld R, Bogdanovic B, Burchill C, Koseva I, McGowan KL, Rajotte L, Thomson T**. Care of Manitobans Living with Chronic Kidney Disease.
Presented at: the Regional Health Authority Workshop, October 21, 2014.

Chartier M, Knoll-Kowk L, Volk J, Cooper M and **the Towards Flourishing Team**. The Towards Flourishing Project: Preliminary Results. Presented to: the Families First Home Visitors; October 15, 2014; Selkirk, MB.

Chartier MJ, Volk, J, Cooper, M and **the Towards Flourishing Team**. Developing and Sustaining Mental Health Promotion for Children and Families within the Public Health Care System: Lessons Learned from the Towards Flourishing Strategy. Presented to: the Health Senior Leadership Council; October 9, 2014; Winnipeg, MB.

Chartier M, Brownell M, Isaac M, **Chateau D, Nickel N, Martens P, Sarkar J, Burland E, Goh CY, Taylor C**. Are home visiting programs for at-risk families effective in improving child outcomes? A PATHS Equity for Children project. Presented to: the Winnipeg Regional Health Authority; October 7, 2014; Winnipeg, MB.

Chartier M, Volk J, Cooper M, and **the Towards Flourishing Team**. Developing and Sustaining Mental Health Promotion for Children and Families within the Public Health Care System: Lessons Learned from the Towards Flourishing Strategy. Presented to: the London Congress; September 2014; London England.

Chartier M, Volk J, Cooper M and **the Towards Flourishing Team**. The Towards Flourishing Project: Preliminary Results. Presented at: Families First Provincial Coordinator's Meeting; September 17, 2014; Winnipeg, MB.

Chartier M. Do Early Childhood Development Programs Make a Difference? Presented to: the Social Pediatrics Program, University of Manitoba; August 13, 2014; Winnipeg, MB.

Chartier M, Brownell M, Leonard MacWilliam, Milton Hu, Jeff Valdivia, Jennifer Schultz, Charles Burchill. The Mental Health of Manitoba's Children: Prevalence and Use of Health Care System. Presented to: Manitoba Health; June 19, 2014; Winnipeg, MB.

Chartier M, Brownell M, Isaac M, **Chateau D, Nickel N, Martens P, Sarkar J, Burland E, Goh CY, Taylor C**. Are home visiting programs for at-risk families effective in improving child outcomes? A PATHS Equity for Children project. Presentation to: the Need to Know Team; June 3, 2014; Winnipeg, MB.

Chartier M, Brownell M, Isaac M, **Chateau D, Nickel N, Martens P, Sarkar J, Burland E, Goh CY, Taylor C,** and **the PATHS Equity Team**. Are home visiting programs for at-risk families effective in improving child outcomes? A PATHS Equity for Children project. Presented at: the 2014 CAHSPR Conference; May 13, 2014; Toronto, ON.

Chartier M, Volk J, Cooper M, **Quddus F**, McCarthy JA, and **the Towards Flourishing Team**. Relationship between Positive Mental Health and Mental Distress Among At-Risk Women in the Post-Partum Period: Results from the Towards Flourishing Project. Presented at: Canadian Public Health Association Annual Conference; May 26-29, 2014; Toronto, ON.

Chartier M, Volk J, Cooper M. Integrating a mental health promotion strategy for families in the postpartum period within an existing public health program: Perspectives from parents, home visitors, and public health nurses. Presented at: the 4th International Conference on Families with Parental Mental Health Challenges: Addressing the Needs of the Whole Family; April 2014; Berkeley, California.

Chateau D. Patient complexity in Winnipeg primary care clinics. Presented at: The Family Medicine Primary Care Regional Meeting; December 1, 2014; Winnipeg, MB.

Chateau D, Taylor C, Metge C, **Chartier M**, Shaw S, **Goh CY**, **Burland**, **E Martens P**, and **the PATHS Equity Team Members**. The Timing of Teen Pregnancy and High School Enrollment: A PATHS Equity for Children Project. Presented at: the Canadian Public Health Association Annual Conference; May 26-29, 2014; Toronto, ON.

Chateau D, Taylor C, Chartier M, Metge C, Shaw S, **Goh CY, Burland E, Martens P**, and **the PATHS Equity Team Members**. The timing of teen pregnancy and high school enrollment: A PATHS Equity for Children project. Poster presentation. Presented at: Canadian Association of Health Services and Policy Research (CAHSPR); May 15, 2014; Toronto, ON.

Chateau D, Enns M, **Ekuma O**, **McDougall C**, **Koseva I**, **Kulbaba C**. The impact of and audit and feedback intervention to reduce potentially inappropriate prescriptions: Evaluating the IMPRxOVE program in Manitoba. Presented at: Canadian Association of Health Services and Policy Research (CAHSPR); May 13, 2014; Toronto, ON.

Chateau D, Targownik L, Fillion K, Dahl M. Addressing confounding through creative cohort construction: CNODES analysis of PPIs and Pneumonia. Presented to: Manitoba Centre for Health Policy, University of Manitoba; April 30, 2014; Winnipeg, MB.

Chateau D, Enns M, **Ekuma O**, **McDougall C**, **Koseva I**, **Kulbaba C**. Evaluating the IMPRxOVE program: cooperative data sharing amongst private industry, government and academia. Presented at: International Health Data Linkage Conference (IHDL); April 28, 2014; Vancouver, BC.

Doupe M. Integration of Care Across the Continuum. Presented at: Best Practices in Rehabilitation 2014: Collaborate, Innovate, Rehabilitate; June 6, 2014; Winnipeg, MB.

Doupe M, Finlayson GS, Mason G, **Schultz J, Yogendran M, Khan S**. Supportive housing and nursing homes for older adults: Having the right place to live. Presented at: CAHSPR; May 13, 2014; Toronto, ON.

Fransoo R. Using data from the 2013 RHA Atlas for planning in Northern Health Region. Keynote presentation at: first annual Northern Health Summit; November 18, 2014; Thompson, MB.

Fransoo R. Control issues: Fostering research innovation, better public policy, and health equity through the integration of gender and sex in linked population-based health data. Panel member for Sub-Plenary session coordinated by CIHR Institute of Gender and Health, at the International Health Data Linkage Conference; April 29, 2014; Vancouver, BC.

Gingerich JR, Lambert PJ, Pitz MW, Daeninck PJ, **Doupe M**. The risks of debilitating falls (DFs) in patients (pts) with cancer: The Manitoba experience. Presented at: 2014 ASCO Annual Meeting; May 30 – June 3, 2014; Chicago, II.

Goertzen L, Halas G, Rothney J, Schultz A, Wener P, **Katz A**. A Systematic Scoping Review of a Decade of Research: Lessons for Primary Prevention, Physical Activity, and Population Health Research. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 23, 2014; New York, NY.

Halas G, Goertzen L, Rothney J, Schultz A, Wener P, **Katz A**. Mapping the Last Decade of Tobacco Control Literature Relevant to Primary Prevention Strategies: A Scoping Review. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 23, 2014; New York, NY.

Halas G, Temple B, **Katz A**, Schonwetter D. Poster Presentation. Receptiveness to Health Education and the Influence of Provider-Patient Communication. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 22, 2014; New York, NY.

Heaman M, **Martens P, Brownell M, Chartier M**, Helewa M, Thiessen K, **Derksen S**. Predictors of inadequate prenatal care: a population-based study in Manitoba. Presented at: The Society of Obstetricians and Gynaecologists of Canada 70-th Annual Clinical and Scientific Conference; June 11, 2014; Niagara Falls ON.

Heaman MI, Kingston DA, **Brownell MD**, Helewa ME, **Derksen SA**, **McGowan KL**. Predictors of prenatal and postpartum psychological distress: A population-based study in Manitoba, Canada. Presented at: Society for Gynecologic Investigation 61st Annual Scientific Meeting; March 28, 2014; Florence, Italy.

Hitchon CA, **Khan S**, Elias B, El-Gabalawy HS, **Katz A**, Peschken CA. Disparities in the treatment of rheumatoid arthritis in First Nations: A population based study. Presented at: CRA Annual Scientific Meeting & AHPA Annual Meeting; February 5, 2015; Frontenac, Quebec City.

Israeli E, Graff L, Clara I, Walker J, **Lix LM**, Targownik L, Bernstein C. Disability rates a decade after diagnosis in a population based IBD cohort. Presented at: Digestive Disease Week; May 4-6, 2014; Chicago, II.

Karaceper MD, **Brownell M**, Casey R, Chakraborty P, Coyle D, Dodds L, Feigenbaum A, Fell D, Grosse S, Guttmann A, Laberge AM, Mhanni A, Miller F, Nakhla M, Rockman-Greenberg C, Sparkes R, Vallance H, Wilson B, Wilson K, Potter BK on behalf of the Canadian Inherited Metabolic Diseases Research Network (CIMDRN). The epidemiology and health services impact of medium-chain acyl-CoA dehydrogenase definciency among affected children and those with false positive newborn screening results in Ontario. Presented at: 2014 Joint Garrod and Canadina Newborn & Child Screening Symposium; May 29, 2014; Ottawa ON.

Katz A, Goertzen L, Halas G, Rothney J, Wener P, Schultz A. Team Approaches for Creating a Foundation of Research: A Systematic Scoping Review of Reviews. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 22, 2014; New York, NY.

Katz A. Small "r" Research for Community Docs. Presented at: Family Medicine Forum; November 14, 2014; Quebec.

Katz A, Levitt C, Johnston J. Developing Communications Tools to Support the Goals of the Section of Researchers' Blueprint. Poster Presentation. Presented at: Family Medicine Forum; November 12, 2014; Quebec.

Katz A. Big Data Analytics Research Forum. Keynote Speaker: September 24, 2014; Winnipeg, MB.

Katz A. Scoping a decade of tobacco dependence research: where have we been and where can we go? Presented at: The Cancer and Primary Care Research International Network (CaPRI) Conference; June 12, 2014; Winnipeg, MB.

Katz A. Screening, Prevention and Risk Guide. Presented at: the Cancer and Primary Care Research International Network (CaPRI) Conference; June 10, 2014; Winnipeg, MB.

Katz A. Symptom-Based Diagnosis Guide. Poster Presentation. Presented at: the Cancer and Primary Care Research International Network (CaPRI) Conference. June 10, 2014; Winnipeg, MB.

Katz A. Primary Healthcare Renewal: No measurable short term gain. Poster. Presented at: CAHSPR; May 15, 2014; Toronto, ON.

Kuwornu JP, **Lix LM**, Quail J, Teare GF, Osman M, Wang E. Duration of episodes of healthcare utilization for exacerbations of chronic obstructive pulmonary disease. Presented at: International Health Data Linkage Network Conference; April 28-30, 2014; Vancouver, BC.

Leslie WD, **Lix LM**, Didier H, Morin S, Majumdar S. Effect of vertebral artifact and exclusions on fracture prediction from lumbar spine BMD and TBS (Trabecular Bone Score). Presented at: The Manitoba BMD Cohort. ASBMR 2014 Annual Meeting; September 12-15, 2014; Houston, TX.

Leslie WD, **Lix LM**, Morin S, Majumbar S. Does diabetes modify the effect of FRAX risk factors for major osteoporotic and hip fracture prediction? Presented at: The Manitoba BMD Cohort. ASBMR 2014 Annual Meeting; September 12-15, 2014; Houston, TX.

Levitt C, **Katz** A, Mang E, Safarov A. The Most Notable Family Medicine Research Studies in Canada: A Retrospective. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 24, 2014; New York, NY.

Levitt C, Mang E, **Katz A**, Safarov A. The Most Notable Family Medicine Research Studies in Canada: A retrospective. Poster Presentation. Presented at: Family Medicine Forum; November 12, 2014; Quebec.

Lix LM, Wu X, Hopman W, Mayo NE, Sajobi TT, Liu J, Sawatzky R. Differential item functioning in the SF-36 physical functioning and mental health sub-scales: A population-based analysis from Canada. Presented at: ISOQOL 21st Annual Conference, October 15-18, 2014; Berlin, Germany.

Lix LM. Estimating completeness of administrative health databases for ascertaining chronic disease cases: A numeric example with Parkinson's disease. Presented at: Canadian Association of Health Services and Policy Research Conference; May 12-15, 2014; Toronto, ON.

Lix LM, Smith M, Sanmartin C, Levy A, Dai S. The Science of Data Quality: Identifying Research Priorities. Poster presented at: the International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Lix LM, Yao X, Sikdar K, Kephart G, Quan H, **Smith M**, Kuwornu JP, Manoharan M. Estimating the Completeness of Physician Billing Claims for Diabetes Case Ascertainment. Presented at: the International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Macdonald S, **Roos N**. Child poverty: A practical tool for primary care – poverty interventions for child health. Presented at: Pediatric Residency Academic Half Day Program; June 18, 2014; Winnipeg, MB.

Macdonald S, **Roos N**. What doctors can do to address their patients' poverty. Presented at: Winnipeg Regional Health Authority Integrated Tuberculosis Services Journal Club Meeting; May 30, 2014; Winnipeg, MB.

Manyanga T, **Fransoo R, Doupe M**, Sellers E. Does the increase in BMI associated with initiation of Insulin Therapy among youth newly diagnosed with Type 1 Diabetes Mellitus (T1DM) predict Obesity at age 18? Presented at: The 17th Annual CDA/CSEM Professional Conference and Annual Meetings; October 22-25, 2014; Winnipeg, MB.

Martens PJ. Building partnerships with decision-makers: Lessons from MCHP and the award-winning Need to Know Team. Invited plenary speech. Presented at: Cancer Research and primary Care International Meeting; June 11, 2014; Winnipeg, MB.

Martens PJ. Telling stories – the art of making our health services research "stick". Presented at: The Emmett Hall Memorial Lectureship: CAHSPR Conference; May 14, 2014; Toronto, ON.

Martens PJ, Nickel N, Prior H, Walld R, Soodeen RA, Forget E, **Lix L**, Turner D, **Rajotte L**. Smoking: The burden attributable to smoking on the healthcare system. Presented to: the Canadian Public Health Association; May 26-29, 2014; Toronto, ON.

Martens PJ, Nickel N, Prior H, Walld R, Soodeen RA, Forget E, **Lix L**, Turner D, **Rajotte L**. Smoking: A population-based analysis of burden on the hospital system in Manitoba, Canada. Presented at: International Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Menear M, Levitt C, Ruffalo F, **Katz A**. Building a National Community of Practice in Primary Health Care Research. Poster Presentation. Presented at: Family Medicine Forum; November 12, 2014; Quebec.

Metge C, Chateau D, Shaw S, Taylor C, Chartier M, Martens P, Charette C, Santos R, Lix L, and the PATHS Equity Team Members. Missing the Mark? Comparing rates of pregnancy and STIs among non-enrolled and in-school adolescents: Results from the PATH Equity for Children project. Presented at: the Canadian Public Health Association Annual Conference; May 26-29, 2014; Toronto, ON.

Nickel NC. Causal inference in health equity research. Panel-PATHS Equity for Children: A program of research for understanding what works for children. Presented at: Canadian Association for Health Services and Policy Research, 2014 Annual Conference; Toronto ON.

Nickel NC, Martens PJ, Sarkar J. What's the real burden of formula feeding on the healthcare system-A Manitoba population-based study. Presented at: Canadian Association for Health Services and Policy Research, 2014 Annual Conference; May 12-15, 2014; Toronto ON.

O'Donnell M, **Brownell M**, MacLean, M. Entering out-of-home care during childhood: cumulative incidence study in two developed countries. Presented at: 20th International Congress on Child Abuse and Neglect; September 15, 2014; Nagoya, Japan.

O'Donnell M, **Brownell M**, MacLean, M. Entering out-of-home care during childhood: cumulative Heaman MI, Martens PJ, Brownell MD, Chartier MJ, Helewa ME, Derksen SA, Lennon S. The association of inadequate prenatal care and maternal-infant outcomes: a population-based study. Presented at: The Society of Obstetricians and Gynaecologists of Canada 70-th Annual Clinical and Scientific Conference; June 11, 2014; Niagara Falls, ON.

Pei J, Santos R, Plesuk D, **Brownell M**, Andrew K, Tremblay M, Bryans M. Evaluation: What's all the fuss about? Panel presentation at: Living Well: FASD and Mental Health Conference; November 6, 2014; Winnipeg, MB.

Platt RW, Henry D, Dormuth C, Ernst P, **Chateau D, Lix LM**. Observational studies of drug safety in distributed data networks: experience from Canadian Network for observational drug effect studies. Presented at: International Health Data Linkage Network Conference; April 28-30, 2014; Vancouver, BC.

Potter BK, Chakraborty P, Coyle D, Kronick JB, Wilson K, **Brownell M**, Dodds L, Dyack, S, Feigenbaum A, Fell D, Geraghty M, Gillis J, Rockman-Greenberg C, Guttmann A, Hernandez M, Khan A, Khangura SD, Laberge AM, Little J, MacKenzie J, Maranda B, Mhanni A, Miller F, Mitchell JJ, Mitchell G, Nakhla M, Potter M, Prasad C, Siriwardena K, Sparkes R, Speechley KN, Stockler S, Tingley K, Trakadis Y, Turner L, Vallance H, Van Karnebeek C, Wilson B, Yuskiv N on behalf of the Canadian Inherited Metabolic Diseases Research Network (CIMDRN). Building a pan-Canadian practice-based research network for inherited metabolic diseases: the first two years of the Canadian Inherited Metabolic diseases Research Network (CIMDRN). Presented at: 2014 Joint Garrod and Canadina Newborn & Child Screening Symposium; May 29, 2014; Ottawa ON.

Radbone C, Morris A, Iron, K, Basso P, Thayer D, **Smith M**. Researchable Data Repositories - Establishing and running DataBanks. Invited Presentation. Pre-conference workshop at the International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Ramsden V, **Katz A**, Levitt C. Preparation for Research Education/Excitement/Enhancement/Engagement in Practice Action Group. Poster Presented at: Family Medicine Forum; November 12, 2014; Quebec.

Riediger N, **Lix LM**, Bruce S. Predictors of longitudinal change in apoB in a First Nation cohort: The importance of sex. Presented at: CIHR-ICRH Young Investigator Forum; May 26-28, 2014; Edmonton, AB.

Riediger N, **Lix L**, Bruce SG. Progression of cardiometabolic disease in a Canadian First Nation cohort: The importance of sex. Presented at: Organization for the Study of Sex Differences (OSSD); April 24-26, 2014; Minneapolis, MN.

Robitaille C, Dai S, Waters C, and the **Canadian Chronic Disease Surveillance System Heart Disease Working Group**. Ischemic heart disease prevalence and incidence in Canada. Presented at: Canadian Cardiovascular Congress; October 25-28, 2014; Vancouver, BC.

Roos LL. What are we doing here: Large databases and the human touch. Keynote Panel Presented at: Big Data for Health Policy Research; November 3-6, 2014; Toronto, ON.

Roos LL. What are we doing here: Large databases and the human touch. Presented at: the Manitoba Centre for Health Policy Research Forum; October 22, 2014; Winnipeg, MB.

Roos LL, Smith M, Towns D, Turner K, Ostapyk T, Burchill C. An Information-Rich Environment: Opportunities and Challenges for the Next Generation. Inaugural Lecture Presented at: The Farr Institute of Scotland; May 19, 2014; Edinburgh, Scotland.

Roos LL. Predicting risk of health and adverse education outcomes over the life course. Presented at: The 2nd International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Roos N, Buist S. Investigative journalism and human rights. Invited speaker at 'Holding Power to Account – Investigative Journalism, Democracy and Human Rights'; June 13, 2014; Winnipeg, MB.

Roos N, Brownell M. What social and educational data resources add to understanding children's outcomes. Invited speaker: Inaugural Lecture, Farr Institute Seminar; May 19, 2014; Edinburgh, Scotland. Also on You Tube: https://www.youtube.com/watch?v=g6tbvgzyeN0

Roos N. Pushing health policy evidence to the media: EvidenceNetwork.ca. Invited speaker: First do No Harm – the Second International Conference on Health Journalism; May 18, 2014; Coventry, United Kingdom.

Sajobi T, **Lix LM**, Singh G, Fick GH. Statistical inference on discriminant function coefficients in the presence of non-normality and covariance heterogeneity. Prsented at: Annual Meeting of the Statistical Society of Canada; May 27, 2014; Toronto, ON.

Schultz A, Goertzen L, Halas G, Rothney J, Wener P, **Katz A**. Exploring How Equity is Situated Within the Tobacco Control and Physical Activity Literature: A Scoping Review of Reviews From the Last Decade. Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 23, 2014; New York, NY.

Singal D, Brownell M, Chateau, D, Roos, L, Longestaffe S, Hanlon-Dearman A. The mental health of women who give birth to children with Fetal Alcohol Spectrum Disorder in Manitoba. Presented at Living Well: FASD and Mental Health Conference; November 5, 2014; Winnipeg, MB.

Singal D, Brownell M, Chateau, D, Roos, L, Longestaffe S, Hanlon-Dearman A. Utilizing administrative databases to capture information in the drug and alcohol use of women who give birth to children with Fetal Alcohol Spectrum Disorder in Manitoba. Presented at: Living Well: FASD and Mental Health Conference; November 5, 2014; Winnipeg, MB.

Singal D, Menard C, Friessen C, Zarychanski R, Hanlon-Dearman A, Chudley A, Brownell, M. A systematic review of treatments for children and adolescents with Fetal Alcohol Spectrum Disorder. Presented at: Living Well: FASD and Mental Health Conference; November 5, 2014; Winnipeg, MB.

Singer A, Yakubovitch S, **Katz A**. Is Our EMR Data Reliable? An analysis of data quality in Manitoba. Presented at: Family Medicine Forum; November 12, 2014; Quebec.

Singh G, Sajobi TT, Fick GH, Lix LM. Estimating transition probabilities between reversible health states: A comparison of statistical method. Presented at: SSC Student Conference; May 24, 2014; Toronto, ON.

Smith M, Finlayson G, Martens P, Dunn J, Prior H, Soodeen RA, Taylor C, Burchill C, Hinds A, Guenette W. Social Housing in Manitoba: A First Look. Presented at: Canadian Association of Health Services and Policy Research (CAHSPR); May 2014; Toronto, ON.

Smith M. Data Quality Evaluation -What does it cost? What difference does it make? Presented at: International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Smith M, Ostapyk T, Nicol JP, Burchill C, Dziadek J. Population Health Research Data Repository - Data Flow Diagram. Poster presentated at: the International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Smith M, Hong S, Lix L, Burchill C, Azimaee M. Data quality evaluation -What does it cost? What difference does it make? Presented at: International Health Data Linkage Conference; April 28-30, 2014; Vancouver, BC.

Volk JS, Chartier M, Cooper M, Quddus F, McCarthy J-A, the Towards Flourishing Team. Relationship between Positive Mental Health and Mental Distress Among At-Risk Women in the Post-Partum Period: Results from the Towards Flourishing Project. Presented at: the Canadian Psychological Association Annual Conference; May, 2014; Vancouver, B.C.

Wall-Wieler E, Roos L, Chateau D. Early Childhood is Overrated - A Life Course Perspective Using Siblings and Populations. Poster presented at: the Canadian Society for Epidemiology and Biostatistics National Student Conference; May 9-10, 2014; Hamilton, ON.

Winzenrieth R, Morin SN, Majumbar SR, Lix LM, Hans D, Leslie WD. Clinical performance of an updated version of trabecular bone score in men and women: The Manitoba BMD cohort. Presented at: ASBMR Annual Meeting; September 12-15, 2014; Houston, TX.

Wong ST, Katz A. Continuity of Care: Does Having the Same Primary Care Provider Over Time Matter? Presented at: North American Primary Care Research Group (NAPCRG) Annual Meeting; November 22, 2014; New York, NY.

Wong S, Katz A, Wodchis W, Teare G, Burge F. QUALICO-PC in Canada, Australia, and New Zealand: Recruitment, Responses, and Initial Cross Country Comparison with Australia and New Zealand. Presented at: CAHSPR; May 13, 2014; Toronto, ON.

Wu X, Sawatzky R, Hopman W, Mayo NE, Sajobi TT, Liu J, Lix LM. Latent variable mixture models for differential item functioning: Application to the SF-36 physical functioning and mental health subscales. Presented at: ISOQOL 21st Annual Conference; 15–18 October, 2014; Berlin, Germany.

Yao S, Lix L, Teare G, Shevchuk Y, Champagne A, Blackburn D. Impact of a provincial drug plan policy limiting out-of-pocket payment for seniors: A population-based study in Saskatchewan, Canada. Presented at: Canadian Association for Population Therapeutics 2014 Conference; November 2-4, 2014; Toronto, ON.

Yao S, Lix L, Teare G Shevchuk Y, Champagne A, Blackburn D. Medication copayment for seniors impacts prevalent but not incident users of chronic medications. Presented at: Canadian Association for Population Therapeutics 2014 Conference; November 2-4, 2014; Toronto, ON.

Published Abstracts

Bucher O, Leggett C, Turner D, Buchan S, Metge C, **Katz A**, Malazdrewicz D, Pitz M, Griffith J. Noonan G, Shu E, Lu HM. Transitioning patients from primary care: identifying the tipping point from primary care to cancer diagnostic specialists. European Journal of Cancer Care; September 2014; p 33.

Halas G, Styles C, **Katz A**. A newly implemented EMR Effects on work flow and communication in family practice training. Canadian Family Physician. July 2014.

Katz A, Schultz A, Halas G, Rothney J. Goertzen L. Wener P. Scoping a decade of tobacco dependence research: where have we been and where can we go? European Journal of Cancer Care; September 2014; p34.

APPENDIX 3: MEDIA FEATURES

Brownell M, Nickel N. Why did Manitoba students perform so poorly on the latest national school report? http://www.ottawalife.com/2014/11/why-did-manitoba-students-perform-so-poorly-on-the-latest-national-school-report/. Ottawa Life Magazine. November 5, 2014.

Brownell M, Nickel N. Why did Manitoba students perform so poorly on the latest national school report? Battleford News Optimist. October 27, 2014.

Brownell M, Nickel N. Addressing poverty the answer to improving educational outcomes. The Battleford News-Optimist. October 27, 2014. http://www.newsoptimist.ca/addressing-poverty-the-answer-to-improving-educational-outcomes-1.1583070.

Brownell M, Nickel N. Addressing poverty the answer to improving educational outcomes. Miramichi Leader. 2014.

Brownell M, Nickel N. Why did Manitoba students perform so poorly on the latest national school report? EvidenceNetwork.ca. October 1, 2014. http://umanitoba.ca/outreach/evidencenetwork/archives/20803.

Fransoo R. Obesity Prevalence in Canada. CBC National News interview with Cameron McIntosh, March 5, 2014.

Fransoo R. Challenges in using data from the 2011 National Household Survey. The Current (CBC national radio), February 2, 2015.

Katz A. Interview with CTV regarding the Conference Board of Canada's provincial health report card. Feb 12, 2014. Available at: http://winnipeg.ctvnews.ca/video?clipId=549932&binId=1.1206882&playlistPageNum=1.

Katz A. The Conference Board of Canada's provincial health report card. Interview with Richard Cloutier of CJOB, February 12, 2014.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. Fox Creek Times. November 18, 2014.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. The Hill Times. November 17, 2014.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. Miramichi Leader. September 26, 2014.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. EvidenceNetwork.ca. http://umanitoba.ca/outreach/evidencenetwork/archives/20258.

O'Grady K, **Roos N**. Cinq faits généralement méconnus sur le système de soins de santé canadien. http://umanitoba.ca/outreach/evidencenetwork/archives/20387.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. Huffington Post. September 16, 2014. http://www.huffingtonpost.ca/kathleen-oagrady/canada-healthcare b 5825582.html.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. Kings County Record. September 16, 2014.

O'Grady K, **Roos N**. Five things people get wrong about Canada's health system. KevinMD.com. September 14, 2014. http://www.kevinmd.com/blog/2014/09/5-things-people-get-wrong-canadashealth-system.html.

O'Grady K, **Roos N**. Five things people get wrong about Canada's health system. New Brunswick Telegraph Journal. September 13, 2014.

O'Grady K, **Roos N.** Five things most people get wrong about Canada's health-care system. Ottawa Life Magazine. September 12, 2014. http://www.ottawalife.com/2014/09/five-things-most-people-get-wrong-about-canadas-health-care-system/.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's health-care system. Medical Post., September 12, 2014.

O'Grady K, **Roos N**. Five things most people get wrong about Canada's healthcare system. National Newswatch. September 11, 2014. http://www.nationalnewswatch.com/2014/09/11/five-things-most-people-get-wrong-about-canadas-healthcare-system/#.VBI1qBgo7AU.

O'Grady K, **Roos N**. Five things Canadians get wrong about the health system. The Globe and Mail. September 5, 2014. http://www.theglobeandmail.com/globe-debate/five-things-canadians-get-wrong-about-the-health-system/article20360452/.

Roos N. Seeing healthcare clearly. Canada's healthcare system performs well with a human touch. EvidenceNetwork.ca. http://umanitoba.ca/outreach/evidencenetwork/archives/19874.

Roos N. Seeing clearly: Canada's healthcare system performs well with a human touch. Ottawa Life. September 16, 2014. http://www.ottawalife.com/2014/09/seeing-clearly-canadas-healthcare-system-performs-well-with-a-human-touch/.

Roos N. Canada's healthcare system thrives when there's a human touch. Huffington Post. September 13, 2014. http://www.huffingtonpost.ca/noralou-roos/canadas-healthcare-system_b_5812098.html.

Roos N. Despite reports, health system gets good marks. Chronicle Herald. September 12, 2014. http://thechronicleherald.ca/opinion/1236070-despite-reports-health-system-gets-good-marks.

Roos N. Le système canadien de soins de santé fonctionne bien, avec une touche d'humanité. Le Huffington Post. September 4, 2014. http://quebec.huffingtonpost.ca/noralou-roos/le-systeme-canadien-de-soins-de-sante-fonctionne-bien-avec-une-touche-dhumanite_b_5768320.html.

Roos N. Comment: Canadians ambivalent about our health system. Victoria Times Colonist. September 3, 2014. http://www.timescolonist.com/opinion/op-ed/comment-canadians-ambivalent-about-our-health-system-1.1338943.

Roos N. Canada's healthcare system performs well with a human touch. National Newswatch. September 2, 2014. http://www.nationalnewswatch.com/2014/09/02/canadas-healthcare-system-performs-well-with-a-human-touch/#.VA0T5Fb6RMY.

Roos N. Canada's healthcare system performs well with a human touch. Windsor Star. August 27, 2014.

Roos N. Canada's healthcare system performs well with a human touch. Trail Daily times. August 27, 2014.

Roos N. Canada's healthcare system performs well with a human touch. Medical Post. August 26, 2014.

APPENDIX 4: COMMITTEE INVOLVEMENT OF MCHP RESEARCH SCIENTISTS

Dr. Marni Brownell

Council of Canadian Academies Expert Panel on Timely Access to Health and Social Data for Health Research and Health System Innovation

Technical Working Group for the PHAC/CIHI "Pan Canadian Baseline Report on Health Inequalities

Expert Working Group, for CIHI Report "Trends in Health Inequity in Canada

Child Data Centre Development Project Advisory Group

Pan-Canadian EDI Academic Group

Congenital Anomalies Surveillance System in Manitoba Advisory Group

Member, CIHR Peer Review Committee – Health Research Training B

Member, Forum for Early Child Development Monitoring

International EDI Technical Group

Advisory Committee on the Development of an Economic Impact Model for Fetal Alcohol Spectrum Disorder

Member, Manitoba Centre for Health Policy Research Funding Committee

Member, College of Reviewers for the Canada Research Chairs Program

St. Amant Centre Community Research Advisory Committee

Dr. Mariette Chartier

Table de Recherche – Coalition francophone de la petite enfance

Executive Committee of Department of Community Health Sciences

Provincial Healthy Child Advisory Committee Mental Health Summit Network

National FASD and Mental Health Conference Planning Committee PreVail Research Group

Family Service, Housing and Community Development – Early Learning and Child Care

Working group for "Offre active des programmes et services en français au enfants françophones du Manitoba de 0 a 6 ans et a leurs familles".

Dr. Dan Chateau

Health Information Privacy Committee

Health Sciences Centre Foundation Grant Review Committee

Dr. Malcolm Doupe

Peer Review Committee Member, Saskatchewan Health Research Foundation.

Peer Review Committee Member, Social/Population Health Scientific Committee, Manitoba Health Research Council (MHRC)

Scientific Advisory Committee for the CancerCare Manitoba Foundation Research Operating Grants

Peer Review Committee Member, Canadian Institutes of Health Research, Health Policy and Systems Management.

Member, Interim Board of Directors, Middle Church Home of Winnipeg

Member, Planning Committee to Develop the Manitoba Framework for Alzheimer's Disease and Related Dementias.

Member, Aging in Place Implementation Advisory Committee: Community Housing with Services Review (Manitoba Health).

Member, PhD Comprehensive Examination Committee, Department of Community Health Sciences.

Member, Executive Committee, Department of Community Health Sciences.

Member, Graduate Committee, Community Health Sciences.

Chair, Annual Knowledge Translation Workshop between the Winnipeg Ongoing Health Region and Manitoba Centre for Health Policy.

Dr. Greg Finlayson

Member, Canadian Association for Health Services and Policy Research

Director, Carolyn Sifton Foundation Inc.

Director, Shared Support Services of Southeastern Ontario

Member, Audit and Resources Committee, Shared Support Services of Southeastern Ontario

Director, Seniors Association of Kingston Region

Review panel member, Michael Smith Foundation for Health Research

Dr. Randy Fransoo

CIHI Pan-Canadian forum on high users of health care

CFHI Northern & Remote Collaborative

CIHI Expert Advisory Group on Hospital Performance

CIHI Sparsely Population Regions Advisory Panel

Department of CHS Graduate Program Committee

Manitoba Critical Care Research Group

Cardiovascular Health and Research in Manitoba (CHARM) group

Manitoba Community Health Assessment Network

Dr. Alan Katz

Advisor, Population Risk Assessment Grouper clinical group, Canadian Institutes of Health Information

Chair, Research Committee, Department of Family Medicine

Executive Management Committee, Department of Family Medicine

Fiscal Committee, Department of Family Medicine

Undergraduate Education Committee, Department of Community Health Sciences

Advisory Board, Health, Leisure, and Human Performance Research Institute, University of Manitoba

Dr. Lisa Lix

Scientific Officer, Health Services Evaluation & Interventions Research Review Committee, #3, Canadian Institutes of Health Research

Co-Chair, Scientific Committee, Canadian Chronic Disease Surveillance System, Public Health Agency of Canada

Grant Review Committee, Manitoba Health Research Council

Saskatchewan Academic Health Sciences Network, Health Data Access Working Group

Advisory Committee, Saskatoon Health Region Public Health Observatory

Expert Advisor, Manitoba Longitudinal Study of Young Adults

Synthesis Panel, National Population Health Study of Neurological Conditions

Case Studies Committee, Statistical Society of Canada

Planning Committee, 2014 meeting of the International Health Data Linkage Network

Dr. Patricia Martens

Journal of Human Lactation Editorial Board

Selection committee for the Chair in Health Systems Innovation, University of Manitoba

Scientific Advisory Committee, 2014 meeting of the International Health Data Linkage Network

Invited Core Member of the Australian National Health and Medical Research Council's International Expert Review Panel (IERP) for the Partnership Centres Program

Promotion and Tenure Committee, Department of Community Health Sciences, University of Manitoba

Senate Committee on University Research, University of Manitoba

Dr. Nathan Nickel

Treasurer, University of North Carolina at Chapel Hill, Department of Maternal and Child Health Alumni Committee

Advisory Group Member, Innovation, Evaluation and Replication: Reaching Underserved Populations Through Translating Research Into Interventions: A W.K. Kellogg Foundation-Supported Grant

Chair-Elect, American Public Health Association, Breastfeeding Forum, Scientific Program

Dr. Leslie Roos

College of Reviewers, Canada Research Chairs Program

Dr. Noralou Roos

Canadian Academy of Health Sciences Communications Committee

Canadian Academy of Health Sciences, Standing Committee on Assessments (SCA)

College of Reviewers, Canada Research Chairs Program

United Way of Winnipeg, Early Childhood and Education Working Group

Drug Safety and Effectiveness Network Steering Committee

Provincial Health Child Advisory Committee, Healthy Child Manitoba

International Faculty Member of the Robert Wood Johnson Health and Society Scholars Program, Universities of San Francisco and Berkeley

United Way Board of Trustees

Chair, Promotion and Tenure Committee, Department of Community Health Sciences, University of Manitoba

Member (Scientist), Manitoba Institute of Child Health

Mark Smith

Chair, IPDLN Working Group on Data Knowledge and Metadata

Chair, Infrastructure for Sharing Knowledge (ISK), Canadian Consortium on Data Validation and Documentation of Administrative Data

Co-Chair, Mental Health Surveillance Advisory Committee, Public Health Agency of Canada

Member, Canadian Chronic Disease Surveillance System – Science Committee, Public Health Agency of Canada

Cardiovascular Diseases Surveillance Working Group, Public Health Agency of Canada

Manitoba Chronic Disease Surveillance Advisory Committee, Manitoba Health

Chronic Respiratory Surveillance Working Group, Public Health Agency of Canada

Outcomes Research Task Force, National Hypertension Surveillance Strategy, Public Health Agency of Canada

APPENDIX 5: COURSES TAUGHT BY MCHP RESEARCH SCIENTISTS

Undergraduate Courses Taught by MCHP Research Scientists

Department	Course Title	Course Number	Role of MCHP Scientists
		PH105	Nathan Nickel (instructor)
		PH109	Alan Katz (instructor)
		PH113	Nathan Nickel(instructor)
	Population Health and Medicine (Block I):	PH124	Alan Katz (instructor)
Medicine		PH125, PH126, PH127, PH128	Dan Chateau (instructor)
Medicine		PH130, PH134	Dan Chateau, Nathan Nickel (co-instructors)
		PH142	Dan Chateau (instructor)
		PH147	Dan Chateau, Nathan Nickel (co-instructors)
		PH149	Nathan Nickel (instructor)
		PH151	Dan Chateau (instructor)

Graduate and Professional Courses Taught by MCHP Scientists

Department	Course Title	Course Number	Role of MCHP Scientists
	Methods in Health Services Research and Evaluation	CHSC 7130	Randy Fransoo, Nathan Nickel (co-instructors)
	Epidemiology of Health Care	CHSC 7310	Marni Brownell (instructor)
	Core Concepts in Public Health	CHSC 7500	Randy Fransoo (co-instructor)
Community Health Sciences	Introduction to Structural Equation Modeling	CHSC 7610	Lisa Lix (instructor)
	Topics in Health Services Research	CHSC 7730	Malcolm Doupe (instructor)
	Senior Seminar in Community Health Sciences	CHSC 8600	Leslie Roos (instructor)
International Medical Graduate Program	Critical Thinking and Clinical Reasoning: International Medical Graduate Program (Orientation)		Alan Katz (instructor)

APPENDIX 6: STUDENT RESEARCH

Continuing PhD Students Supervised by MCHP Scientists

Student Name	Topic	Department	MCHP Scientist Role
rickson, Julie	Changes in the health status of older adults with mental illness admitted to personal care homes	Psychology	Co-Advisor: Malcolm Doupe
linds, Aynslie	Public housing, health, and residential mobility: a population-based analysis	Community Health Sciences	Advisor: Lisa Lix, Patricia Martens
Cuwornu, J.P.	Episodes of care for measuring patient-oriented healthcare use and costs	Community Health Sciences	Advisor: Lisa Lix
Randall, Jason	Validation of administrative data for self-harm outcomes	Community Health Sciences	Advisor: Leslie Roos. Co- Advisor: Patricia Martens
Reider, Nadia	Health services research and epidemiology specializing in the aging population	Community Health Sciences	Advisor: Malcolm Doupe
Singal, Deepa	Investigating the characteristic and health care utilization of women who have given birth to children with Fetal Alcohol Spectrum Disorder	Community Health Sciences	Advisor: Marni Brownell
/illafranca, Alex	M.I.R.A.C.L. clinical trials promising to "C.U.R.E." and "H.E.A.L.": The potential for patient manipulation in clinical trial naming	Interdisciplinary Studies	Co-Advisor: Malcolm Doupe

Continuing PhD Students Supported by MCHP Scientists

Student Name	Topic	Department	MCHP Scientist Role
Halas, Gayle	n/a	Interdisciplinary	Committee Member: Alan Katz
Han, Jing	Applied Microeconomics; Applied Econometrics	Economics	Committee Member: Malcolm Doupe
Hinds, Aynslie	Public housing, health, and residential mobility: a population-based analysis	Community Health Sciences	Committee Member: Leslie Roos
Lemaire, Jackie	The community health assessment process and exploring outcome-based impacts	Applied Health Sciences Program	Committee Member: Patricia Martens
Peden, Alexander	n/a	Community Health Sciences	Committee Member: Malcolm Doupe
Penner, Karen	Developmental neuropsychological studies on former preterm infants, focusing on assessment of executive function and its substrates (attention, working memory, visual processing)	Psychology, Brain & Cognitive Sciences	External Committee Member: Patricia Martens
Randall, Jason	Risk and protective factors for suicidal behavior in adolescents and young adults	Community Health Sciences	Committee Member: Lisa Lix
Singal, Deepa	Investigating the characteristics $\&$ health care utilization of women who give birth to children with FASD in Manitoba	Community Health Sciences	Committee Member: Leslie Roos
Spiwak, Rae	Mental health needs of survivors of suicide, or anyone that has experienced the loss of a loved-one through suicide	Community Health Sciences	Committee Member: Patricia Martens
Taillieu, Tammy	Pregnancy and intimate partner violence: assessing the long-term physical and mental health outcomes	Applied Health Sciences Program	Committee Member: Marni Brownell

Graduating PhD Students Supported by MCHP Scientists

Student Name	Topic	Department	MCHP Scientist Role
Comaskey, Brenda	Maternal depression and school readiness: A Manitoba population-based study	Community Health Sciences	Advisor: Noralou Roos. Committee Member: Marni Brownell
Feduik, Jenna	Thromboxane receptor signaling and Rho GTPase activation on actin polymerization and contraction in hypoxic neonatal pulmonary arterial myoctes	Physiology	Committee Member: Nathan Nickel
Lavigne, Salme	Effects of power toothbrushing on caregiver compliance and on oral and systemic inflammation in a nursing home population	Community Health Sciences	Advisor: Malcolm Doupe
LeClair, Leanne	Community supports for parents of young children: a needs assessment	Community Health Sciences	Committee Member: Noralou Roos
Reidiger, N.	Characterizing cardiovascular risk in a Manitoba First Nation	Community Health Sciences	Committee Member: Lisa Lix

External Continuing PhD Students Supported by MCHP Scientists

Student Name	Topic	Institution	MCHP Scientist Role
Alsabbagh, A.	Cardiovascular health & medication adherence	Pharmacy & Nutrition, University of Saskatchewan	Committee Member: Lisa Lix
Hsu, Amy	An investigation of approaches to performance measurement: an application to long-term care in Ontario	Institute of Health Policy, Management, and Evaluation, University of Toronto	External Advisor: Malcolm Doupe

External Continuing PhD Students Supported by MCHP Scientists

Student Name	Topic	Institution	MCHP Scientist Role
Benchimol, Eric	The Ontario Crohn's and Colitis Cohort: incidence and outcomes of childhood-onset inflammatory bowel disease in Ontario, Canada	University of Toronto	External Examiner: Marni Brownell
Boyko, J.	Adherence to INR monitoring in the community among VKA-treated patients in Saskatchewan: an observational study	Pharmacy and Nutrition, University of Saskatchewan	Committee Member: Lisa Lix
Brinkman, Sally	The validation and use of a population measure of early childhood development in	University of Western	External Examiner: Marni
Dillikillali, Jally	Australia: the Australian Early Development Index	Australia	Brownell
Gibbings, Justine	Characteristics of maternal employment and rural & research concerning inequality and children's outcomes	University of New Brunswick	External Examiner: Marni Brownell
		School of Medicine and	
Lo, Thomas	n/a	Public Health, University of	External Examiner: Lisa Lix
		Newcastle, Australia	
Malacova, Eva	Developmental pathways to childhood literacy and numeracy: the role of early health	University of Western Australia	External Examiner: Marni Brownell
Soo, Andrea	n/a	Community Health Sciences, University of Calgary	External Examiner: Lisa Lix

Continuing MSc Students Supervised by MCHP Scientists

Student Name	Topic	Department	MCHP Scientist Role
Crockett, Leah	Long-term follow-up of late preterm births in Manitoba: What is the association between socioeconomic status and later childhood outcomes?	Community Health Sciences	Advisor: Marni Brownell
Kroeker, K.	Statistical methods for combining diagnostic validity estimates in administrative health data: application to juvenile rheumatic disease	Community Health Sciences	Advisor: Lisa Lix
Vehling (Plastino), Lorena	Children with Autism Spectrum Disorders in Manitoba: population characteristics and psychiatric medication use	Community Health Sciences	Advisor: Marni Brownell
Preveen, Saila	n/a	Community Health Sciences	Supervisor: Alan Katz
Turner, Sarah	Breastfeeding and child development	Community Health Sciences	Co-Advisor: Marni Brownell
Wall-Wieler, Elizabeth	Early adult outcomes: a life course exploration of childhood and adolescent development	Community Health Sciences	Advisor: Leslie Roos
Zinnick, Shauna	Developing and implementing a validated tool to define the types of care provided by nursing home health care aides, and to allocate their time spent doing these different activities	Community Health Sciences	Advisor: Malcolm Doupe

Continuing MSc Students Supported by MCHP Scientists

Student Name	Торіс	Department	MCHP Scientist Role
Briggs, Gemma	Examining traffic injury prevalence and severity using individual-level factors	Community Health Sciences	Committee Member: Marni Brownell
Fulcher, Jennifer	n/a	Nursing	Committee Member: Malcolm Doupe
Heinrichs, Dustin	A population-based comparative study of health and health care utilization of Manitoba children with and without intellectual disabilities in care	Ecology and Human Development	Committee Member: Marni Brownell
Mies, Tia	n/a	Medial Rehabilitation	Committee Member: Malcolm Doupe
Skelton, Heather	Fine motor/visual motor skills as a component of school readiness: What can we learn from the Early Development Instrument?	Medical Rehabilitation	Committee Member: Marni Brownell
Turnbull, Danielle	Psycho-stimulant medication use in the absence of attention deficit hyperactivity disorder	Department of Psychology	External Committee Member: Marni Brownell
Turner, Sarah	Breastfeeding and child development	Community Health Sciences	Committee Member: Nathan Nickel
Vehling, Lorena	Children with autism spectrum disorder in Manitoba: characteristics and psychiatric medication use	Community Health Sciences	Committee Member: Nathan Nickel

Graduating MSc Students Supported by MCHP Scientists

Student Name	Topic	Department	MCHP Scientist Role
Abraham, Sneha	Transitions towards the end of life in older home care adults	Community Health Sciences	Committee Member: Malcolm Doupe
Boyce-Gaudreau, Krystal	Substance related presentations to the emergency department in Winnipeg from January 1/2011 until December 31/2013.	Nursing	Committee Member: Malcolm Doupe
de Rocquigny, Janelle	Manitoba's Francophone children: What determines EDI scores?	Community Health Sciences	Advisor: Noralou Roos
Erickson, Tannis	Chronic disease risk factor surveillance, community-based health surveys of school students and interventions in rural Manitoba	Community Health Sciences	Supervisor: Patricia Martens
Graumann, Lori	The relationship of gluteus medius strength and endurance to stability, targeting and agility	School of Medical Rehabilitation	Committee Member: Malcolm Doupe
Manyanga, Taruwona	Does the increase in BMI associated with initiation of insulin therapy among youth newly diagnosed with type 1 diabetes predict overweight or obesity at age 18?	Community Health Sciences	Supervisor: Randy Fransoo. Committee Member: Malcolm Doupe
McArthur, Jennifer	The role of social engagement in health services use for baby-boomers and older adults	Community Health Sciences	Committee Member: Malcolm Doupe
Nie, Yao	Completeness of rheumatoid arthritis prevalence estimates from administrative health data: comparison of capture recapture models	Community Health Sciences	Advisor: Lisa Lix. Committee Member: Nathan Nickel

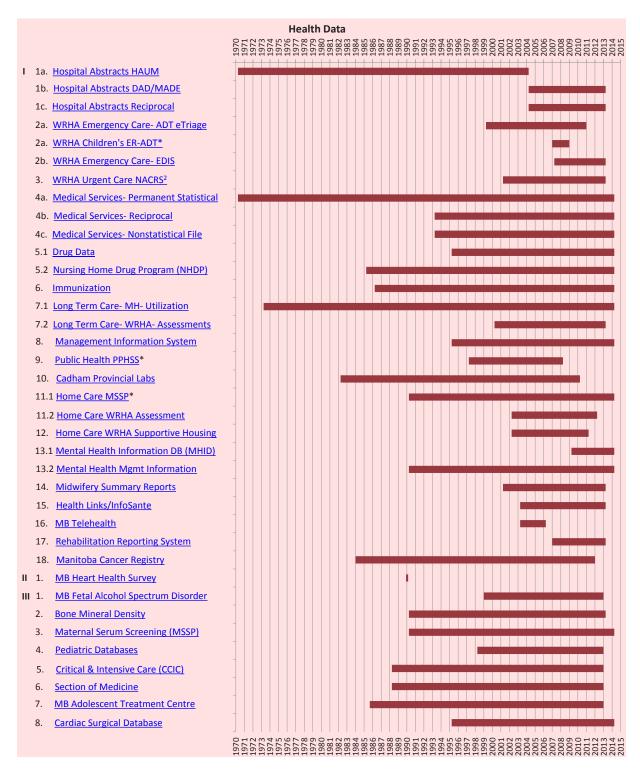
External Continuing MSc Students Supported by MCHP Scientists

Student Name	Topic	Institution	MCHP Scientist Role
Aftab, H.	Health service utilization in individuals with psychiatric co-morbidities, A population-based analysis	Community Health and Epidemiology, University of Saskatchewan	Co-Advisor: Lisa Lix
Radhakrishnan, Dhenuka	Examining trends in the incidence of asthma in children in Ontario	Paediatrics, University of Toronto	External Examiner: Marni Brownell
Reynolds, Shannon	A comparative analysis of long-term care policies and placements	Institute of Health Policy, Management and Evaluation, University of Toronto	External Advisor: Malcolm Doupe
Yao, S.	Impact of Saskatchewan Seniors' Drug Plan benefit to medication utilization and adherence among Saskatchewan residents	Pharmacy and Nutrition, University of Saskatchewan	Committee Member: Lisa Li

External Graduating MSc Students Supported by MCHP Scientists

Student Name	Topic	Institution	MCHP Scientist Role
Glew, R.	Discontinuation of antipsychotics among residents of Saskatchewan long-term care facilities	Community Health and Epidemiology, University of Saskatchewan	Co-Advisor: Lisa Lix
Kendall, C.	Testing longitudinal change in the presence of measurement error	Mathematics and Statistics, University of Saskatchewan	Co-Advisor: Lisa Lix
Kouokam, A.	Validation of prediction models for estimating completeness of physician billing claims	Statistical Modeling, Universite de Bretagne-Sud, Vannes, France	Advisor: Lisa Lix

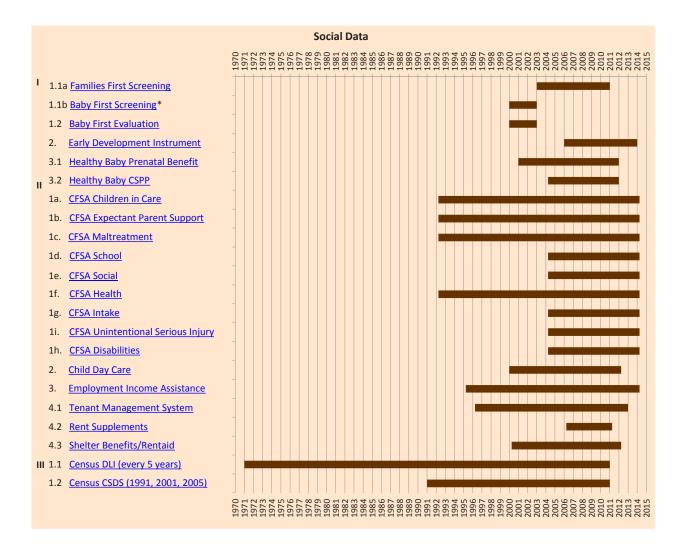
APPENDIX 7: MCHP REPOSITORY: AVAILABLE YEARS OF DATA

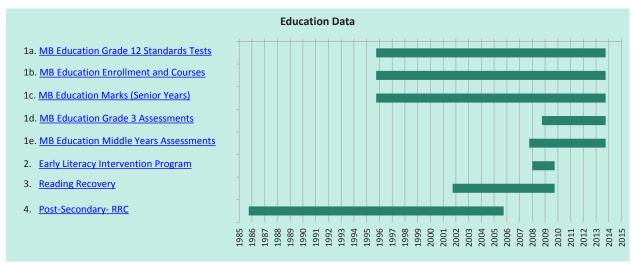


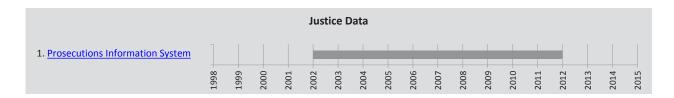
¹ Data years are displayed according to calendar year (ending Dec. 31). Not all repository data are acquired at the same regula r intervals and some repository data are obtained by fiscal year (April 1-March 31). Available fields and coding rules may differ from year to year for many data files. Examples include changes in legislation, ICD coding classifications, changes in CMG coding, and the introduction of new computer or software resources over time. The numbering corresponds with the Data Repository Data List.

 $^{^{2}\,\}mbox{Urgent}$ care data are not available for the years 2005/06 to 2009/10

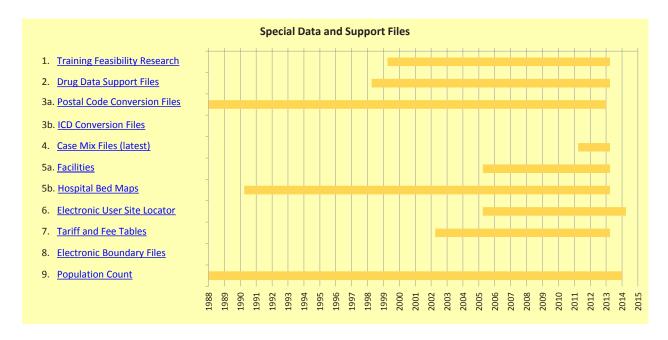
^{*} These data are not available in their current form beyond the last year shown in this chart. There may be alternative sou rces for some of the discontinued information (for example EDIS replaces ADT).











APPENDIX 8: RESEARCH PROJECTS ACCESSING THE POPULATION HEALTH RESEARCH DATA REPOSITORY

MCHP Researcher Projects

Alessi-Severini S, Biscontri R, Collins D, Enns M, Kozyrskyj A, Vasilyeva I, **Burchill C, Dahl M**. 2007-2015. Use of antipsychotic agents in Manitoba: prescribing and cost-effectiveness. MMSF.

Alessi-Severini S, Bhangoo D, Bolton J, **Chateau D**, Collins D, Enns M, Keyes K, Leslie WD, Sareen J, **Dahl M**. 2009-2015. Use of psychotropic medications in Manitoba: A population-based study. HSCF.

Alessi-Severini S, Noor B, **Derksen S**. 2013-2016. Use of prescription medications for smoking cessation in the Province of Manitoba. Pfizer.

Arora R, Burchill C, **Hiebert B**. 2014-2015. Impact of physical activity on depression after cardiac surgery. Pfizer.

Becker A, Douville R, Kozyrskyj A, Liem J, Curtis L, **Dahl M**, Huq SI. 2002-2015. Origins of asthma in childhood: The role of gene: environment interactions. CIHR.

Bernstein C, Blanchard JF, Nguyen G, Shaw S, Singh H, Targownik L, **Burchill C**, Nugent C. 2011-2015. Manitoba IBD long-term outcomes study. Personal HSC Funds.

Bernstein C, **Chateau D**, Nguyen G, **Roos L**, Targownik L, **Banerjee A**, **Burchill C**. 2014-2015. The relationship between mode of maternal delivery and inflammatory bowel disease. HSC.

Bolton J, **Chateau D**, Sareen J, **Burchill C**, **Randall J**, **Walld R**. 2014-2015. Improving the prediction of suicide in a high-risk emergency department cohort. Brain and Behaviour Research Foundation.

Bolton J, Katz L, **Martens P**, **Roos L**, Sareen J, **Au W**, **Walld R**. 2010-2015. Consequences of suicide bereavement: A population-based study in Manitoba. CIHR

Bolton J, **Chateau D**, Leslie WD, **Martens P**, Sareen J, **Walld R**. 2014-2015. Mental disorders and treatment needs among parents bereaved by offspring sudden death. CIHR, MHRC.

Brownell M, Ouellette-Kuntz H, Shooshtari S, Hanlon-Dearman A, Coo H, Burchill C, MacWilliam L, Nie Y. 2014–2016. Autism spectrum disorder validation study on Manitoba administrative data: step 1: identifying clinically diagnosed cases of autism and linking their information to the administrative data.

Brownell M, Ruth C, Flavin M, Day M. 2014-2015. Building a program of research to investigate antenatal risk factors for adverse childhood outcomes using Manitoba's Data Repository.

Brownell M, Hanlon-Dearman A, Elias B, Chudley A, Longstaffe S, **Roos N, Chateau D**, Phillips-Beck W. 2011–2015. Utilization of health and social services by Manitoba First Nations children with FASD.

Brownell M, O'Donnell M, Gilbert G, Ubbessen M. 2013-2014. Factors that predict out-of-home care in childhood: A comparison of three developed countries.

Bugden S, **Burchill C**, **Dik N**, Friesen K, **Khan S**. 2012-2015. Cross sectional analysis of opioid use in Manitoba. URGP.

Bugden S, **Banerjee A**, **Burchill C**, Friesen K. 2014-2016. Risk and response to citalopram cardiac toxicity. Centre on Aging Fellowship.

Chartier M, Volk J, Alix-Roussin A, Cooper M, Attawar D, McCarthy JA, Facundo E, Keyes C, Embry D, Walker J, **Brownell M**, Santos R. 2011-2015. Towards Flourishing: Improving the Mental Health of New Mothers and Families in Manitoba's Families First Home Visiting Program.

Cui Y, **Metge C**, Moffatt M, Oppenheimer L, **Burchill C**, **Khan S**. 2012-2015. Analysis to use predictive models to describe the need for admissions to virtual wards: A program for reducing hospitalization and re-admission to hospital. WRHA.

Daymont C, Dart A, Ruth C, **Burchill C, Dahl M**. 2014–2016. Adherence to antibiotics in children after discharge from hospital. Jointly funded by MMSF.

Deber R, Barnsley J, Glazier R, **Katz A**, Laporte A, **Roos L**, Stukel T, Wodchis D. 2011-2015. Paying for primary care: Relationship between incentives and patient/provider characteristics.

Doupe M, Burchill C, Dik N, Khan S. 2011–2015. Linking unique clinical and health care use files to better understanding nursing home quality care.

Ducharme F, Blais L, **Brownell M**, Doucet M, FitzGerald M, Kozyrkyj A, Quail J, Sadatsafavi M, Tse Sze Man, Ungar W. 2014-2018. Long-term clinical and financial impact of asthma control during pregnancy and preschool years on disease evolution until adulthood.

Elias B, Dufault B, Kaufert P, Kliewer E, **Martens P**, Migone J, **Burchill C**, **Hong S**, **Nicol P**, **Prior H**. 2010-2015. Manitoba First Nations health care report: A collaborative network project to understand health disparities – Indicators of population health status for registered First Nations people living in Manitoba. CIHR.

Finlayson ML, Marrie RA, Jiang D, **Finlayson GS**. 2013–2015. A longitudinal, multi-method investigation of transitions into nursing homes among people with multiple sclerosis.

Fransoo R, Ducas J, **Ekuma O**, **Prior H**, **Taylor C**. 2010-2015. Temporal trends and sex differences in acute myocardial infarction (AMI) incidence, mortality, and treatments in Manitoba 1985 to 2010.

Garland A, Bernstein C, **Fransoo R**, Hitchon C, Marrie RA, Peschken C, **Burchill C**, **Chen H**, **Derksen S**, **Yogendran M**. 2010-2015. Program: The interface between critical illness and Chronic Inflammatory Disease. CIHR.

Graham R, **Brownell M**, **Chateau D**, **Fransoo R**, **Burchill C**, **Dragan R**. 2013-2015. Academic performance in healthy young children exposed to general anesthesia. MICH.

Hanlon-Dearman A, Andrews K, **Brownell M**, Chudley, Ens C, Gammon H, Mayer T, McArthur P, Santos R, **Burchill C**, **Ekuma O**. 2014. Exploring the feasibility of using EDI to identify children with FASD in Manitoba. PHAC.

Hart M, Avery Kinew K, Lalonde C, **Burchill C**. 2014–2015. Moving beyond the BC Model: Exploring the relations between cultural continuity and suicide and risk. Health Canada.

Heaman M, **Brownell M**, Kingston D, **Derksen S**, **Ekuma O**. 2010–2015. Pathways between pre- and post-natal maternal psychological distress and childhood anxiety. MICH.

Heaman M, **Brownell M**, **Chartier M**, Helewa M, Lennon S, **Martens P**, Thiessen K, **Bogdanovic B**, **Burchill C**, **Derksen S**. 2009–2015. Predictors and outcomes of prenatal care: vital information for future service planning. CIHR Maternal and Child Health Operating Grant.

Hitchon C, El-Gabalawy H, **Finlayson G**, **Katz A**, Peschken C, **Burchill C**, **Chen H**, **Khan S**. 2011-2016. Health care use and costs in rheumatoid arthritis. HSCF.

Hitchon C, Elias B, **Katz A**, Peschken C, **Banerjee A**, **Burchill C**, **Chen H**, **Khan S**. 2012 –2015. The burden of rheumatoid arthritis and systemic autoimmune rheumatic disease in Manitoba First Nations people: A pilot study. HSCF.

Hobson D, Leslie W, **Lix L**, Azimaee M, **Burchill C**. 2007–2015. Who isn't receiving care in Manitoba? A study of variation in the prevalence and incidence of individuals with Parkinson 's disease and their patterns of medical care in Manitoba, 1984–2006. National Parkinson Foundation Comprehensive Care Award.

Katz A, Lavoie J, Sinclair S, **Dahl M, Yogendran M**. 2013–2018. Mapping hospitalizations for ambulatory care sensitive conditions in First Nations and rural and remote communities.

Katz A, Stukel T, Peden A, **Bogdanovic B, Dik N, MacWilliam L**. 2009–2016. Healthcare system sustainability through longitudinal efficiency: improved quality and lower costs.

Katz A, Wong S, Black C, Cutler F, Haggerty J. 2010-2014. Canadian perspectives on the quality of primary health care.

Katz L, Distasio J, **Martens P**, Penner-Goeke K, Sareen J, **Smith M**, **Burchill C**, **Khan S**. 2009–2015. Research demonstration project in mental health and homelessness (Winnipeg): 12-month administrative health outcomes study. Mental Health Commission of Canada.

Kowalski S, **Fransoo R**, **Burchill C**, **Prior H**, **Walld R**. 2013–2015. The effects of high spinal anesthesia on peri-operative patients undergoing cardiac surgery: A retrospective study. University of Manitoba Department of Anesthesia, AOC Grant Competition.

Kozyrskyj A, Becker A, Field C, To T, Azad M, **Burchill C**, **Derksen S**, **Nicol P**. 2013–2015. Antibiotic use during infancy and development of overweight in childhood. CIHR.

Kozyrskyj A, Azad M, Becker A, **Brownell M**, **Chartier M**, Letourneau N, **Burchill C**, **Dahl M**, **Ekuma O**. 2010–2015. Maternal distress and the development of atopic disease in children: Potential pathways and interventions. AllerGEN NCE Inc.

Kozyrskyj A, HayGlass K, Becker A, MacNeil, McGrath P, Mai XM, Dreger L, **Dahl M**. 2005–2015. Maternal stress in early childhood and the development of asthma: a cohort study of health care database records and immune system function.

Kozyrskyj A, Azad M, Becker A, Befus D, Chari R, Field C, Guttman D, HavGlass H, Mandhane P, Moabel R, Scott J, Turvey S, **Burchill C**, **Derksen S**. 2012–2014. The Impact of antibiotics on intestinal microbiota of infants. CIHR.

Kozyrskyj A, Becker A, Azad M, **Burchill C**, **Derksen S**. 2008–2015. Increasing use of gastroesophgeal reflux disease drugs in infants: Impact on their intestinal microbiota. CIHR.

Kozyrskyj A, Becker A, Ernst P, Ramsey C, **Dahl M**, Rabbani R. 2003–2015. Do antibiotics in early life contribute to the development of asthma in children?

Kraut A, **Raymond C**, Shafer LA, **Burchill C**, **Ekuma O**. 2012–2016. A comparison of usage of opioid medications by Workers' Compensation Board claimants and other Manitobans. WCB.

Lang A, Strumpf EC, Bolton J, **Doupe M**, Huckstep S, **Brownell M, Finlayson G**, Sareen J, **Chateau D**, Heaman M. 2013-2016. Health and social impacts on the family following fetal/infant death.

Leong C, Alessi-Severini S, **Chateau D**, Enns M, Sareen J, **Prior H**. 2014–2015. Characterizing the trend in benzodiazepine use associated with a new antidepressant prescription among older adults in Manitoba. University of Manitoba Office of VP, and Faculty of Pharmacy.

Leslie W, Cooke A, **Doupe M**, Greenberg C, **Lix L**, **Metge C**, O'Neil J, **Roos L**, Salamon EA, Tenenhouse A, Weiler H, Yuen CK. 2004–2015. First Nations bone health study (FMBHS II): Longitudinal measurements and outcomes. Canadian Institutes of Health Research.

Leslie W, Brennan S, Caetano PA, Cram P, Kanis J, Kuzyk P, Lam A, **Lix L**, Majumdar S, **Metge C**, Morris S, **Roos L**, Sadatsafavi M, **Burchill C**, Huq SI, **Khan S**, Lin Y, **Walld R**, Yan L, Yang S, **Yogendran M**. 2008-2015. Program: Epidemiology of osteoporosis in Manitoba. i3 Innovus.

Leslie W, **Lix L**, Azimaee M, **Burchill C**. 2009-2015. Economic burden of osteoporosis in Manitoba and Canada. PATH.

Leslie W, Bolton J, Cooke A, Cree M, Jette N, **Lix L**, McChesney J, **Metge C**, O'Neil J, **Roos L**, Roulette L, Sareen J, Targownik L, **Burchill C**, **Yogendran M**. 2003-2015. Program: Epidemiologic study of osteoporosis in aboriginal Manitobans. CIHR.

Liu M, Anhalt A, Lau V, **Burchill C**, **Walld R**. 2014-2015. A population study on the relationships between autism spectrum disorders and prenatal, perinatal, and comorbid conditions. University of Manitoba – Michelle Liu Start-Up funds, MICH.

Liu M, Anhalt A, Fazio J, Rabbi MFA, **Roos L**, **Burchill C**, Burrough C, **Walld R**. 2011-2015. A Feasibility Study for 'The Manitoba twin registry: A resource for genetic and epigenetic Studies'. University of Manitoba – Research Start-Up funds.

Lix L, Kephart G, Sikdar K, Quan H, Kuwornu JP. 2012-2015. Completeness of Physician Billing Claims Administrative Health Databases in Canada. University of Saskatchewan.

Lix L, Bowman C, Hobson D, Leslie W, Manuel D, Quan H, **Roos L**, Targownik L, Wang L, **Yogendran M**. 2009–2015. Classification algorithms to distinguish chronic disease cases from non-cases in administrative data. CIHR.

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