Institute of Population and Public Health

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Population Health Intervention Research

Introduction

In September 2006, IPPH was proud to co-host the first meeting of the Population Health Intervention Research Initiative for Canada (PHIRIC). Over two days in the beautiful town of Banff, 50 people from across Canada met to work towards a common understanding of population health intervention research and to commit to moving the initiative forward, on behalf of and with, the population and public health community in Canada.

In the Spotlight:

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By Dr. John Frank & Erica Di Ruggiero—Scientific & Associate Directors, CIHR—IPPH.

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As the co-chairs of PHIRIC, Penny Hawe and Stephen Samis, describe in the feature interview in these pages, producing knowledge about population and community-level programs and policies that have the potential to improve health is crucial if we want to capitalize on many natural experiments and policy and program changes already unfolding across Canada. The need for such research is well established, but barriers such as insufficient financial and human resource investments, and an inability to align research efforts with actual policies, programs and practices on the ground has worked against a "healthy" developmental approach to intervention research capacity in Canada.

PHIRIC is a ten-year initiative that aims to address these historical challenges — by building capacity in population health intervention research and its quantity, quality and use by policy makers and practitioners. This means increasing the profile of this type of research, creating a supportive environment for it in Canada, and bringing cultures together — different working cultures, as well as researchers, practitioners ad policy makers.
At CIHR, PHIRIC is strongly supported by IPPH and the Institute of Nutrition, Metabolism and Diabetes (INMD). In addition to providing ongoing support for intervention research within its strategic funding, INMD has also launched initiatives such as Canada on the Move, an online physical activity research project which brought together population health intervention researchers, health promotion and disease prevention practitioners, policy makers and private industry. This collaboration generated new knowledge and partnerships and highlighted the strong demand for innovative research tools to support the creation and use of population health intervention research.

At IPPH, we are guided by previous consultations that underscored the need for more applied research to assess the impact of interventions aimed at improving the health of populations. An analysis of CIHR funding for population health intervention research highlighted that there are several opportunities for CIHR to better support population health level intervention research and we are now collaborating to support new funding opportunities across sectors. In addition, we are also leading, in partnership with the Public Health Agency of Canada's Office of Public Health Practice, related capacity development efforts, such as the Applied Public Health

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Chairs program, doctoral and post-doctoral research awards and the Professional Masters of Public Health Program.

The seven IPPH-funded Centres for Research Development also have an explicit focus on strengthening the evidentiary base for effective population-level and community-level interventions by creating interdisciplinary research environments in which research relevant to practice can be encouraged.

We are therefore proud to dedicate this first IPPH Research Spotlight to population health intervention research. We hope that our feature interview with the co-chairs of the PHIRIC initiative will encourage all our readers to become engaged with PHIRIC's activities, as the initiative picks up steam. We also wanted to showcase some of the exciting population health intervention research already taking place around the country. In Toronto, James Dunn and Leah Steele are leading a study to investigate the effects of a major public housing redevelopment on the health and well-being of residents. In Montréal, Louise Potvin and her team are evaluating a healthy eating intervention for school children and their parents. A team led by Lois Jackson of the Atlantic Networks for Prevention Research is reviewing a ten-year housing mobility intervention in the United States, to determine whether and how a change in neighbourhood can impact health. And at the Centre for Urban Health Initiatives in Toronto, a project led by Donald Cole to evaluate the effectiveness of different strategies to reduce urban outdoor pesticide use is already informing the City of Toronto.

We hope that you enjoy this publication and are inspired by and engaged in this exciting research field. As always, we welcome your feedback.

John Frank
Scientific Director, Institute of Population and Public Health

Erica Di Ruggiero
Associate Director, Institute of Population and Public Health

FEATURE INTERVIEW

ASSESSMENT OF AN INNOVATIVE INTERVENTION IN SCHOOL NUTRITION

Petits cuistots - parents en réseaux (junior cooks – parents network) is an innovative school nutrition intervention project in Montréal that is designed to encourage healthy eating among children and their parents. Through school-based activities, children from kindergarten level up to the sixth grade are taught food preparation and cooking habits through cooking and nutrition workshops hosted by a community organization, Les ateliers cinq épices. Parents participate in the workshops and are also invited to join mutual health networks in collaboration with neighbourhood community organizations.

The project is being piloted in eight primary schools in Montréal, in both disadvantaged areas and multi-ethnic neighbourhoods. The Commission scolaire de Montréal and the Fondation Lucie et André Chagnon, a privately run charitable foundation, have provided funding for the project since 2001. In 2005-2006, the project reached over 2000 children.

Dr. Louise Potvin, co-chair of the CIHR-funded Centre de recherche Léa-Roback sur les inégalités sociales et de santé de Montréal, leads a multidisciplinary research team, in collaboration with Johanne Bédard of the Centre de recherche sur l'intervention éducative at l'Université de Sherbrooke, to evaluate the project.

Bringing together specialists in public health, nutrition and education in a three-year study, Dr Potvin and her team are focusing on the educational and instructional aspects of the Petits cuistots - parents en réseaux project. In particular, they aim to examine how education professionals and nutritionists and social development officers from Les ateliers cinq épices make the necessary adjustments among themselves to develop educational practices in a school environment that brings together teaching professionals and parents. The team also aims to analyze the effects of the project on the nutritional skills, attitudes and conduct of the children and their parents, as well as broader effects on school-family-community relations.

The study is being conducted in partnership with Les ateliers cinq épices; the Table de concertation sur la faim et le développement social du Montréal métropolitain, a network of several community organizations working in the field of food security and social development; and the aforementioned funders of the project. The participating schools, teachers and parents also play an active role in the study by collecting data, including interviews with personnel conducting the intervention, questionnaires for teachers, discussion groups and surveys of fifth and sixth grade students.

Representatives from all the partner organizations sit on an advisory review committee with the principal investigators. Administrators at the participating schools and interested personnel are also engaged through yearly updates on research activities and on some of the preliminary analyses. Since the study's inception, the research team has provided specialized coaching for professional staff at Les ateliers cinq épices via training sessions and a reflective discussion approach to support, develop and consolidate the intervention. Representatives of the research team also participate in the organization's annual general meeting, where they are called upon to make presentations and to communicate with participants.

FEATURE INTERVIEW

AN EXAMINATION OF POPULATION HEALTH INTERVENTION RESEARCH

With Professor Penny Hawe and Mr. Stephen Samis

1) What is population health intervention research and why and to whom is it important?

Intervention research is concerned with producing knowledge about policy and program interventions that have the potential to impact health at the population level. Interventions can operate either within or outside the health sector – we may assess things like the impact of changes in taxes, or investments in education, or decisions made in environmental management. But it's not just research on impacts or effects. It includes research that looks at the reach of interventions, their processes, differential uptake, sustainability, dissemination and so on. It covers all aspects.

We take a somewhat broader definition of intervention research than may have traditionally been used. We include in our definition evaluation research, which has often been seen as distinct, and also community-based intervention research. We also view both controlled and uncontrolled interventions as valid areas for research.

Population health intervention research is important because many policies and programs both within and outside the health sector impact on the health of individuals, communities and entire populations across Canada. But many of these initiatives lack the research components needed for rigorous assessment, systematic learning and the application of knowledge to future decision-making. Through intervention research we build the evidence base concerning the population health impacts of policies and programs, and identify what works to improve health and the social and physical environments in which we work, live, play and learn.

2) What are some of the great successes (and failures) of developing intervention research capacity in Canada?

There have been many innovative attempts to facilitate intervention research capacity in Canada (e.g. the Canadian Heart Health Initiative, which engaged multiple levels of government) but these efforts have often not been systematic nor sustainable over time. Developing a sustainable intervention research agenda for Canada must include:

- Aligning research efforts with actual policies, programs and practices at the federal, provincial/territorial, regional and local levels.
- Long-term commitment to intervention research funding to build human resource capacity and to demonstrate the health and other impacts of policies and programs over time, not only in the short-term (moving beyond "pilot studies").
- Sufficient data infrastructure to link research to practice.
- Recognition from research funders of the importance of intervention research and allocation of significant research funding resources.

3) What are some of the challenges facing this field?

The economic and social costs of health care in Canada demand the design and implementation of effective interventions. If intervention research is going to contribute to the uptake of effective policies and practices, then intervention researchers will need a complex set of skills in relevant areas, such as policy analysis, communication, ethics and change dynamics.

That means that in Canada, we need research funding and data systems that attract and retain the best minds and harness the energy and dynamism of researchers from a variety of disciplines. Presently, Canada does not have enough researchers trained in intervention research, nor do we have the coordinated and sophisticated data infrastructure to track the outcomes of interventions over the life course. Closer alliances need to be forged between researchers in a variety of fields, as well as between policy makers and practitioners both within the health domain and beyond.

A shared effort is particularly important because intervention research can be difficult and expensive. Testing a causal theory is quite easy to do in clinical research when an intervention might be a drug and patients are allocated to getting it or not. But in population health we are interested in interventions that work on a large scale and change the distribution of risk and the health outcomes of populations. To test an intervention and to make a convincing causal argument may involve sub-populations, whole neighbourhoods or municipalities. So the logistics of the research design and the data measurement can be challenging.

In addition, researchers often have little or no control over an intervention – such as different combinations of restrictive policies and practices in tobacco control and the most effective combination of these. This means using large data sets to examine how "exposure" to the intervention (i.e. policy combinations) plays out (in the case of tobacco control, in terms of sales of cigarettes, smoking rates and ultimately cardiovascular disease and lung cancer rates). It's often a challenge to isolate and identify causal patterns when there is lack of traditional "experimental" control.

What else makes intervention research a challenging science? For one thing, working on the design, delivery and testing of population health interventions means working in partnership in communities and with agencies and people responsible for the health and well-being of the population. Shaping research questions that are relevant to a variety of decision makers and the context in which interventions take place is complex. And, of course, intervention researchers have to

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FEATURED RESEARCH

Research team:
Lois Jackson – Atlantic Networks for Prevention Research
Jim Frankish – Department of Health Care and Epidemiology, University of British Columbia
Jean Hughes – School of Nursing, Dalhousie University
Lynn Langille – Atlantic Health Promotion Research Centre, Dalhousie University
Renee Lyons – Canada Research Chair in Health Promotion and Knowledge Translation, Dalhousie University

Collaborators/Community Partners:
Colleen Cameron –Guysborough Antigonish Strait Health Authority
Fiona Chin-Yee – Public Health Agency of Canada, Atlantic Regional Office
Andrea Hilchie-Pye – Public Health Association of Nova Scotia.
Clare O'Connor – Heart and Stroke Foundation of Nova Scotia
Brad Osmond – Eastern Kings County Community Health Board
Sandra Toze – School of Information Management, Dalhousie University

Community-level Interventions that Modify Social Environments and Influence Health

Research suggests that one's neighbourhood impacts health and well-being. However, there are few evaluations of the health impacts of moving from a poor neighbourhood to a higher income neighbourhood.

In the United States, a 10-year research demonstration across five cities called Moving to Opportunity (MTO) has helped move 860 very low-income families from poverty-stricken urban areas to low-poverty neighbourhoods. In this randomized intervention, families chosen for the experimental group were given rental assistance and counseling to help them move into modestly priced private housing in neighbourhoods with ample educational, employment and social opportunities. MTO thus aimed to test the impact of housing, counseling and other assistance on housing choices, as well as the long-term effects of access to low-poverty neighbourhoods on the housing, employment, and educational achievements of the assisted households.

In Canada, Dr. Lois Jackson and her research team, which includes community collaborators, are now preparing a systematic review of the literature evaluating the MTO intervention. This systematic review, which focuses in particular on the health impact of the change in neighbourhood, will help to inform policy-making in terms of health, neighbourhoods and housing.

Using the "Realist Review" method of analyzing social interventions, this study will examine the theories underlying MTO and its anticipated health outcomes, and will explain what worked and what did not, for whom the program was effective and for whom it was not, and the context surrounding MTO and influencing its outcomes. The evaluations include published and report-style assessments of the intervention.

Results will be presented in academic papers and presentations. A report will also be prepared and disseminated to appropriate stakeholders and published on the Atlantic Networks for Prevention Research website.
http://preventionresearch.dal.ca/default.php

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maintain an objective stance on the intervention and its potential health impacts. But it is the job of partner policy makers and practitioners to believe in the positive benefits of their interventions. While difficult to manage at times, this rather precarious position can be incredibly rewarding when the research contributes to knowledge that can really make a difference to the health of individuals and communities in the medium to long term.

4) What does the Population Health Intervention Research Initiative (PHIRIC) for Canada aim to do? Why Canada? Why now?

PHIRIC is trying to address some of these challenges by building capacity in population health intervention research – its quantity, quality and use by policy makers and practitioners. We want to increase the profile and understanding of this type of research and make a supportive environment for it in Canada. This means the funding, the training and the use of results. It means bringing cultures together – evaluation researchers, policy makers and population health researchers, for example.
One of PHIRIC's initial priorities is working towards a common understanding of what population health intervention research is. Discussion papers have been developed and are being broadly circulated to researchers and others in Canada for feedback. The PHIRIC partners are also considering lessons learned from other initiatives to guide future capacity building efforts. We hope that feedback from these discussions and workshops with key leaders in the field will strengthen intervention research capacity that supports the generation of relevant, timely and rigorous evidence to inform policy, program and practice decisions.

PHIRIC would also like to see funding for evaluation that is often buried within many of the major programs across the country "surfaced" and used in more coordinated ways to allow for improved understanding of the determinants of population health. For example, how can Canadian policy makers use data and research to inform and support many of the health promotion investments currently underway across the country – in early childhood education and housing affordability, for example? We need to get out there and unearth the causal stories about population health change. That is one of PHIRIC's roles – getting other sectors excited about this and willing to work on it. Not just researchers, but decision makers and practitioners.

Why now? Well, we are ready! There has never been a better time. The science of population health is sufficiently mature. We have done the groundwork, the mapping of inequalities, the policy debates, the international comparisons, the calls for urgency. We don't just need the niceties that come from more descriptive analyses or more precision in our estimates of population health attributable risk. We can't say that our research helps improve health unless we make a bigger effort to focus the research on interventions. Researchers can and must help in this effort. The time to make the difference is now.

FEATURED RESEARCH

Principal Investigator:

Dr. James R. Dunn – Centre for Research on Inner City Health, St. Michael's Hospital

Investigating the Impact of Toronto's Regent Park Redevelopment

Toronto's Regent Park, home to 7,500 people living in 2,083 social housing units, is one of Canada's oldest and largest publicly funded housing communities. Occupying over 69 acres in the east end of Toronto, it was built more than 50 years ago with the intent to create a "garden city" – a place where buildings sit in park-like settings, streets are removed and the community is set apart from the remainder of the city.

In the past several years, however, Regent Park has come to be known for its deteriorating buildings, poorly planned public spaces and its concentration of some of the ills of urban life: violence, drug use, poor health and educational outcomes and a general lack of opportunity. It is arguably now one of Toronto's most vulnerable and marginalized neighbourhoods. More than half of its population are immigrants and over 50% are children aged 18 years and younger. The average income for Regent Park households is less than $15,000 a year.

Over the next 12-15 years, Toronto Community Housing, which owns and manages Regent Park, will demolish and re-build the entire community in phases. The redevelopment will replace aging rent-geared-to-income units with new homes. The community will grow to more than 5,100 units of mixed housing, including rent-geared-to-income social housing units, market rentals, privately owned condominiums and some affordable home ownership units.

Dr James Dunn, from the Centre for Research on Inner City Health at St. Michael's Hospital, is leading an interdisciplinary research team to investigate the effects of the first phase of redevelopment on the health and well-being of residents. The Phase 1 redevelopment affects 370 households and 1,160 people, a large proportion of whom are expected to take occupancy of new homes in the reconstructed Regent Park in late 2008. The research team aims to determine whether the health and well-being of residents improves after redevelopment, and whether there are specific health outcomes for which the effect differs. They also want to explore whether the redevelopment has effects on other known determinants of health, such as social support, labour force attachment, fear of crime, residential satisfaction and chronic stress.

According to Dr Dunn, the significance of this study is that it represents an unprecedented opportunity to understand how interventions in the built environment may reduce health inequalities and improve the lives of low-income, urban populations. "There are three elements of the redevelopment plan that are of particular interest from a research and policy perspective," says Dr Dunn. "These are that the plan seeks to a) create social mix; b) promote positive social interaction (using innovative architectural and urban designs); and c) improve access to services that enhance individual and community capacity."

In the literature on the determinants of health, there is some preliminary evidence of the influence of each of these factors, but very little evidence from interventions. "In other words," says Dr Dunn, "there is evidence of positive health benefits from living in socially mixed areas; that some community designs afford more positive social interactions; and that access to both public and commercial services is beneficial to health. This study has the capacity to provide evidence that these effects can be created using radical interventions in the built environment, which is valuable to both researchers and policy makers."

To facilitate ongoing knowledge translation, the project has been overseen from its inception by a multi-sectoral, policy and community-based steering committee, which involves representatives from local, provincial and federal government departments, Toronto Community Housing, local health care and social service providers, and community groups and unaffiliated tenants. Project findings will be disseminated via newsletters and at conferences across the country and regular updates will also be provided to the standing Inter-Ministerial Committee on Regent Park.

Given that the majority of Canada's social housing developments were built in the 1960s and 1970s, over the next several years many jurisdictions in Canada and elsewhere will face renovation and redevelopment needs for aging social housing stock. The Regent Park Phase 1 Redevelopment Study will have the capacity to inform such redevelopments, filling a relative evidence vacuum in this area. Information from this study will also help to inform Toronto Community Housing's operations with respect to subsequent phases of the Regent Park redevelopment. In addition to the health, social and economic data collected from residents, they will have an opportunity to tell interviewers how the relocation process could be improved in the future.

Funders of this project include the Canada Mortgage and Housing Corporation, the Ontario Ministry of Municipal Affairs and Housing, Toronto Community Housing and St. Michael's Hospital.

FEATURED RESEARCH

Research team:

Dr. Donald Cole — Department of Public Health Sciences, University of Toronto

Dr. Loren Vanderlinden, Dr. Monica Bienefeld, Ms. Carol Mee and Mr. Rich Whate — Environmental Protection Office, Toronto Public Health

Evaluating Urban Pesticide Reduction Strategies

Environmental groups, the public and, increasingly, municipal public health authorities, are advocating for reductions in pesticide use in urban areas, primarily because of concerns about potential adverse health impacts. In Ontario, municipalities have responded with a variety of approaches designed to reduce the amounts of pesticides used in their jurisdictions, ranging from public education and voluntary activities such as industry accreditation, to implementation and enforcement of by-laws.

In 2004, the IPPH-funded Centre for Urban Health Initiatives (CUHI) at the University of Toronto provided funding for research that would pilot an evaluation of the effectiveness of different strategies to reduce urban outdoor pesticide use. The resulting project partnered researchers from the University of Toronto and Toronto Public Health in a series of activities aimed at developing indicators to track the impacts of pesticide use reduction programs on an ongoing basis.

Between October 2004 and February 2005, the research team interviewed key informants from municipal government, industry, health care and environmental organizations about the range and types of strategies they used to reduce pesticide use. The most common approach is education, but by-laws are also under discussion in many municipalities. The respondents recognized the challenges of measuring effectiveness or evaluation of efforts and committed in principle to continuing a partnership on a long-term evaluation project.

The research team also conducted a literature review to review the success of pesticide-use by-laws in changing individual behaviours. They found that the use of outdoor space and aesthetic considerations surrounding lawns and gardens (the primary reason for residential pesticide use) are complex and deeply-rooted socio-cultural phenomena. The desire for a "perfect" lawn and garden is aggressively advertised and can act as a status symbol, often reinforced by a sense of community responsibility to "keep standards high." As a consequence, residents are unlikely to change their patterns of pesticide use unless legal prohibitions are in force. But to be effective, by-laws must be accompanied by education and information campaigns that address socio-cultural and socio-economic barriers to change.

On the basis of these activities, the research team proposed seven possible indicator domains for evaluation of pesticide use reduction programs, including community behaviour and response, education and outreach, legal enforcement, and environmental contamination. Many of the research findings from this pilot project are now informing a City of Toronto initiative to evaluate the success of its own pesticide by-law, which has been in place since April 2004. This evaluation will be reported to the Toronto Board of Health in the spring of 2007.

"Ideally, we would be comparing the levels of pesticide use over time across multiple municipalities: then we'd have the best kind of evidence about what is the most effective type of public health protection intervention in this situation," explains Dr. Monica Bienefeld. She notes, however, that, "Because this particular issue is very multi-disciplinary, multi-jurisdictional and politically sensitive, it has been challenging to put together a specific proposal for evaluation. Instead, we have focused on developing and promoting a collaborative strategy, wherein we encourage other local jurisdictions to gather the same information that we are collecting (e.g. self-reported pesticide use) in compatible ways (e.g. using the same survey questions). We hope that in the future we may be able to use the data collected for a large-scale comparative evaluation of pesticide-use reduction by-laws and education campaigns."

The group has also been exploring ways to research the impacts of other aspects of the interventions. For example, the initial work has resulted in a spin-off project now funded by the Social Sciences and Humanities Research Council. The Multicultural Yard Health & Environment Project (MYHEP) is exploring how ethno-cultural groups in the City of Toronto receive, interpret and respond to information and outreach campaigns about pesticide use reduction and, by extension, whether the public health is protected to varying degrees across different communities. This collaborative project between Toronto Public Health, the University of Toronto, the University of Western Ontario and local organizations will share its findings with the community in early 2007 and has already led to new partnerships with community groups engaged in outreach on environmental issues from the Chinese and Spanish-speaking communities in Toronto.

Current Intervention Research Funding Opportunities

Healthy Living and Chronic Disease Prevention (CIHR-INMD, CIHR-IPPH & partners)

The purpose of this Request for Applications is to support prompt initiation of intervention and evaluation research on programs, events, and/or policy changes that have been initiated by others and have the potential to impact healthy living and chronic disease prevention among Canadians at the population level. Researchers are encouraged to collaborate with community, non-profit, private, and/or public partners, where appropriate, to maximize knowledge exchange and learning for all parties.

Letters of Intent (LOI) and invited full applications will be accepted on a rolling basis until available funding has been depleted. Applicants who have submitted successful LOIs will receive invitations to submit full applications within 2-3 weeks of LOI receipt. Full applications must be submitted within 3 months of the LOI decision. Full applications received after this time will be re-evaluated for continued relevance to this program prior to being peer reviewed. Notification of decision is within 3-4 months of receipt of full application. Earliest start date is within 1 month of notification of decision. This funding opportunity announcement will expire on December 15, 2007. INMD is planning to re-launch this RFA on December 15, 2007 and December 15, 2008 funds permitting.

(www.cihr.ca/e/32835.html)

Built Environment, Obesity and Health (HSF and partners)

The primary objective of this strategic initiative is to support policy-relevant collaborative projects that advance knowledge and its translation on how the built environment (defined as the outcome of community planning, design and implementation) —in the context of contributing to obesity— is influenced by, and/or impacts on, the following factors:

- obesity and well-being
- policies and standards for community planning, design and implementation
- physical activity levels and/or nutrition
- social, economic, and policy environment
- socioeconomic status, gender, ethnicity and age
- individual choices and behavior

letter of intent deadline is March 1, 2007
(www.cihr.ca/e/32850.html)