



KNOWLEDGE TO ACTION:

A Knowledge Translation Casebook



CIHR IRSC



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CIHR IRSC

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FOREWORD

Knowledge translation is all about turning research into action. It is about closing the gap between *knowing* and *doing*. It's *about* accelerating the capture and practical application of the knowledge uncovered by research.

For the Canadian Institutes of Health Research (CIHR), the benefits of knowledge translation (KT) include better health for Canadians, improved health services and products, and economic growth.

There remains much to be learned about how we can increase the application of research knowledge, whether it's the commercialization of scientific discoveries or changes to current health care practices and policies. However, what is certain is that as a society we will not reap the full benefits of our investments in health research unless the resulting discoveries are acted upon by other researchers, policy-makers, health care providers, patients, the public, and by the private, voluntary, and public health sectors.

Historically, this field has largely consisted of what we call “end-of-grant knowledge translation”. This includes publishing in peer-reviewed journals, presenting to peers at conferences, and, less frequently, taking advantage of the media to convey research findings to the public. This model of KT works fairly well with basic or fundamental research that is focused primarily on advancing science and driven by the curiosity of researchers, because the audiences most interested in these findings are the researchers' peers.

However, not only is science increasingly becoming an interdisciplinary effort, society is showing greater interest in how science can be relevant to the lives of the public. Researchers will need to consider how best to reach their counterparts in other disciplines, as well as audiences beyond the scientific world, when this is warranted by their findings. Some of the following KT case studies describe traditional KT methods, including publishing papers, making presentations, and hosting workshops. Others detail innovative “end-of-project” strategies, including social marketing and the use of “Research Ambassadors” to promote the widespread dissemination of findings and encourage their application.

In health research, we have also expanded this understanding of knowledge translation to include what we call “integrated knowledge translation”. This involves building knowledge translation into the research process, recognizing that if research evidence is to be successfully applied, the people who will ultimately use the knowledge need to be meaningfully engaged in the research process itself. Often referred to as “Mode 2” research, this approach is collaborative, participatory, and focussed on solutions. Many of the projects discussed in this publication used an integrated KT approach, and you will read about how those who were to directly benefit from the research were integrated into the research process.

In this publication, you will learn about some very diverse and interesting KT initiatives. They run the gamut from working to make Canadian children safer by banning baby walkers (Case study 6) to ensuring that a Saturday night out at the bar is less likely to be a violent occasion (Case study 8), to helping some of the world's poorest children receive the nutrients they need to grow and thrive (Case study 3). This series of KT cases provides valuable insights into the real world of researchers and knowledge users as they do knowledge translation.

A number of important lessons about successful knowledge translation, both end-of-grant and integrated, emerge from these cases:

- **Involve the End-Users**

For certain types of research, the people who will use the results of the research should be involved throughout the research process, starting with helping to identify the problem and refining the research question. This participation of knowledge users helps to ensure that research responds to an identified need, and also increases the chances that the findings will influence the programs and policies over which the knowledge users have influence. This two-way exchange of knowledge can likewise have a direct impact on researchers. For example, the trainees in the Hepatitis C training program (Case study 5) had both their lives and their lab work enriched by the time they spent with individuals, families and friends suffering from liver disease. Knowledge users can also help identify broader audiences who would benefit from the research findings and help tailor implementation activities to reach them. Janet Smylie (Case study 10) worked closely with the Ottawa Council of the Métis Nation of Ontario to design gatherings that would interest the Métis population and ensure that the information provided came from within the community.

- **Consider all Potential Stakeholders**

The focus of knowledge translation can and should be directed to all stakeholder audiences. For example, the Sprinkles case (Case study 3) involved focussing KT on the food industry, non-governmental organizations (NGOs), three United Nations agencies, and several foreign governments. Gilles Paradis and his colleagues (Case study 4) discovered they could bear political influence when they focussed their efforts on facilitating an informed debate about the Supreme Court's Chaoulli ruling on private health insurance (Case study 4). Targeting the health-care system, the Alberta Bone and Joint Health Institute's initiative (Case study 2) developed unique strategies to engage orthopaedic surgeons, family physicians, regional health authorities, the provincial ministry of Health and Wellness and, of course, patients.

- **Customize the Message**

Clearly focussing the message for specific audience(s) of the research findings and crafting it to have resonance with them is critical. Joan Bottorff and her colleagues in the FACET (Case study 9) program discovered that focussing on the health of fetuses and babies was not effective in getting pregnant women and new mothers to stop smoking. Instead, they found that situating smoking in the context of women's lives and their relationships was a more effective approach. Several of the cases also reveal the value of tailoring the message and the communication tools used to better reach and meet the informational needs of the intended audience. For example, the SPHERU team (Case study 1) developed maps, fact sheets, and other easy-to-use products to inform policy-makers in Saskatoon of the areas in greatest need of early childhood intervention.

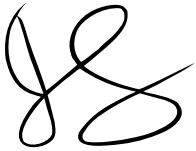
- **Help End-Users Overcome Usage Obstacles**

Considering the barriers that may prevent specific audiences from using research knowledge and then selecting and tailoring knowledge translation strategies accordingly can improve research use. The KT cases described here illustrate strategies ranging from the more traditional training, education and commercialization of a product, to quite innovative strategies, such as integrating knowledge users into the research process to ensure the resulting intervention is tailored to the audience (Case studies 1, 9, 10), facilitating citizen participation (Case study 7), engaging the media in public debate (Case study 4), and enlisting change agents (Case studies 3, 7).

- **Communicate the Benefits of KT**

As demonstrated by the impact each initiative has had to date, it's clear that knowledge translation can make a real difference. This impact has meant more evidence-informed programs and services (Case studies 1, 8, 9), more evidence-informed policy (Case studies 4, 6), commercialization of research (Case study 3), improved access to health services (Case study 2) and improved health (Case studies 3, 9 10). Many of the cases are also likely to improve health in the long term as a result of sustained activity and the scaling-up of their initiatives. These cases clearly demonstrate the importance of evaluating the impact of KT so as to help potential knowledge users better appreciate the importance of, and need for, doing knowledge translation.

CIHR is unique in having a mandate that requires it not only to create new knowledge, but also to translate that new knowledge into health benefits for Canadians and individuals around the world. The researchers you will meet in this KT Casebook are breaking new ground in many ways and are successfully translating knowledge into action. On behalf of CIHR, I thank them for their work.



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1. BUILDING PARTNERSHIPS TO IMPROVE CHILDREN'S HEALTH

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A recently completed study on early childhood development in Saskatoon found that children in the city face significant challenges. According to the study, *Understanding the Early Years in Saskatoon* (UEY), Saskatoon children, as a group, lag behind national norms in physical health and well-being, language and cognitive development, communication skills and general knowledge. Their parents similarly scored below average on parenting skills and their mothers scored below average on maternal mental health. The study also found Saskatoon children to have higher than average levels of behavioural problems.

The study found links between the families and neighbourhoods where children lived and how likely they were to thrive in learning environments when they arrived at school. The research determined children's readiness to learn using a standardized checklist completed for each child by their kindergarten teacher. This Early Development Instrument covers physical health and well-being, social skills, emotional maturity, language and cognitive development, communication skills and general knowledge.

The KT challenge

Getting schools to implement changes, based on research evidence, to improve children's learning outcomes

The research team disseminated its findings to school boards, provincial ministries, community agencies and associations, aboriginal organizations, and municipal politicians and planners. As a result, many of these organizations developed methods to improve learning outcomes for children that they put into practice by expanding and improving their services.

Knowledge users driving the research cycle

As population health researchers working in the area of children's health, the research team knew that developing relationships with policy-makers and practitioners could help their research findings have an impact on both policy-making and the delivery of "on-the-ground" services. The team's experience confirms what is noted in the literature: The earlier decision-makers are involved in the research process, the greater the use of research findings in policy and practice. In fact, this involvement of partners can drive the full research cycle, from conception through to the research itself and then its interpretation, synthesis, dissemination and uptake.

The *Understanding the Early Years in Saskatoon* study, which was conducted between 2000 and 2007, is an example of this approach. The study was a community-university partnership between the Saskatchewan Population Health and Evaluation Research Unit (SPHERU) at the University of Saskatchewan and Communities *for* Children, Saskatoon's planning council for a child and youth friendly community, in association with Saskatoon public and separate school boards. It was funded by Human Resources and Social Development Canada.

Understanding the Early Years in Saskatoon: A research and policy challenge

The UEY study, as part of a national initiative, endeavoured to determine whether kindergarten children in Saskatoon came to school ready to learn. It also aimed to identify the factors in local communities that both helped and hindered children's preparedness so that Saskatoon could develop better programs and services to meet the needs of children. The study used neighbourhood surveys and mapping techniques to show the relationships between physical and social environments, resources and amenities, and kindergarten children's outcomes.

The study found many associations between the neighbourhood a child was from and how they fared in kindergarten. For example, children's outcomes were better in neighbourhoods where more people were employed. Children who came from an area where people moved more frequently fared less well. The study also measured changes over time by studying children in kindergarten in 2001, 2003 and 2005. One of the key findings was the higher the level of poverty in a neighbourhood, the greater the decline in physical health outcomes between 2001 and 2005.

Of particular worry was the study's finding that Aboriginal children scored lower in measurements of early development than other children in Saskatoon. Nearly one-fifth (18%) of kindergarten children in Saskatoon are Aboriginal and this proportion is expected to grow. This created a sense of urgency for the team, as the number of children at risk is likely to grow if Saskatoon does not focus on offsetting the factors that lead to poor learning outcomes.

Knowledge translation activities

Knowledge users engaged in:

- *Shaping research questions*
- *Interpreting study findings*
- *Crafting messages and disseminating research results*
- *Moving research results into practice*
- *Widespread dissemination and application*

Other knowledge translation activities:

- *Community forum educational sessions*
- *Publications: fact sheets, journal articles, maps*
- *Presenting to various audiences*
- *Summary/briefings to stakeholders*
- *Adapting knowledge, tailoring messages and interventions to promote uptake*

Putting findings into practice

To maximize knowledge uptake, the research team developed a five-step approach to ensure that decision-makers could “take ownership” of the research:

1. Identify the decision-makers
2. Involve them early
3. Involve them often
4. Conduct research they can use
5. Give them results they understand.

For example, the UEY research team was made up of both academic and community partners who worked regularly together, informed by an advisory group of policy-makers and program planners. At each stage of the process, the team went back to the advisory group of potential users of the research findings in order to make sure that the study was still reflective of their needs. These frequent interactions helped to break down the walls of misunderstanding and miscommunication that often stand between the researcher and decision-maker communities. This engagement not only informed the team's research, but helped to spread its findings further and more effectively than the team could have accomplished alone, thanks to the involvement of well-respected community advocates.

As academics, the research team was accustomed to publishing in peer-reviewed journals and presenting its findings at research conferences. However, the team recognized that these methods were unlikely to reach the decision-makers for whom the UEY research findings would be important. So, the team opted to disseminate its findings through colourful fact sheets, several plain language research reports, and newsletter articles in print and online. The team also summarized its results by neighbourhood on colourful Saskatoon maps, making it easy to identify community trends. Additionally, team members made numerous presentations, organized day-long community forums and participated in the early years coalition organized by the team's community partner.

Undertaking all these knowledge translation activities resulted in the team's research being widely disseminated, as well as being applied to programs and policies. Its community partner benefited from these activities as well. The partnership enhanced the reputation of the *Communities for Children* as advocates who both conduct local research and use research evidence to inform their own advocacy and program development work.

How did it work?

The study's research findings have translated into measurable changes. Both the Saskatoon public and separate school boards have established board-wide literacy programs, and full-day, every-day kindergarten pilot programs. The study team is also advising the public board as it transforms one of its elementary schools into an integrated learning, care and community centre. The provincial government has funded additional speech and language pathologists to work with children, in part based on the team's findings. The Saskatoon Public Library has improved access to services in areas where the study showed that people were underserved, and is currently building a new branch to better serve these communities.

Community stakeholders such as the school boards, the provincial ministry of Education, and *KidsFirst*, a provincial early intervention program for vulnerable children and families, have lent their support to additional research projects. Early results from these initiatives are promising. For example, the Saskatoon Public School Division has reported that its students have made significant gains in literacy as a result of its major literacy initiative, *Literacy for Life*, which was initiated in 2004 largely as a result of UY findings.

In addition, this collaborative project has in turn influenced the research partners.

Communities for Children has committed to conducting and facilitating local research, and making its advocacy and program development evidence-based. In addition, SPHERU's healthy children research program is following the team's five-step approach in other projects, and sharing what it has learned with other potential knowledge users.

Impact

- *Communities for Children advocacy efforts are more reputable based on their use of research evidence*
- *Establishment of board-wide literacy programs in public and separate school boards*
- *Funding of additional speech and language pathologists to work with children*
- *Improved access to public libraries*
- *Stakeholders supporting additional research projects.*
- *Elementary school pilot of integrated learning, care and community centre*

2. RETHINKING HOW WE REPLACE KNEES AND HIPS

Alberta Bone and Joint Health Institute

Bud McLean and his wife, Geri, have travelled the world together. When Bud's hip started slowing him down, he thought he knew what to expect in having it replaced, and was not looking forward to the process. A previous hip replacement in 1999 had left him in terrible shape. This time, though, he was pleasantly surprised. His care – including all aspects of pre-operative preparation, surgery, recovery and rehabilitation – was fully integrated and delivered by a multidisciplinary team. Bud was walking without support less than a month after being referred for surgery.

This Calgary resident's experience was thanks to the Alberta Hip and Knee Replacement Pilot Project – a radical new approach to providing joint replacements that dramatically reduced waiting times while improving patient care. The project proved so successful that the new model will be implemented across Alberta.

A growing need

Hip and knee replacements are a proven method of alleviating pain and restoring function and mobility. However, the care patients receive can vary according to factors such as socio-economic status, age, and geographic location. Wait times, both for a consultation and for surgery, are long. In Alberta, as in virtually every other jurisdiction in Canada, these wait times are currently beyond what is deemed optimal for most patients.¹ Alberta's aging population and growing proportion of seniors,² as well as rising rates of obesity,³ indicate that the need for hip and knee replacements will grow.

The KT challenge

Improving patient care and reducing wait times for hip and knee replacements by implementing evidence-based health system changes

In 2004, the Alberta Orthopaedic Society (AOS), the Alberta Bone and Joint Health Institute (ABJHI), the province's health regions and the Department of Health and Wellness decided to partner together to address the issues associated with hip and knee replacements. They agreed to redesign the continuum of care for these surgeries in Alberta and, in 2005, the partners launched a 12-month pilot project in three health regions to compare their new approach to conventional practice.

Five key groups were involved in the pilot:

- Orthopaedic surgeons, whose practices and procedures would be altered and subject to standardization based on best available evidence
- Family physicians, whose referral processes would be standardized and who would take on a more active role in their patient's pre-operative preparation and post-operative follow-up
- Health regions, which would establish evidence-based practices and procedures, providing the resources required to support them
- Alberta Health and Wellness, which would provide funding for the necessary pilot resources and a policy environment supportive of the changes in the continuum of care for hip and knee replacements
- Patients, who would consent to participate in a randomized controlled study through the pilot, involving intervention and control groups.

Setting a high standard

The partners based the pilot project on a framework of patient-centred principles:

- Deliver all services *according to best benchmarks*
- Advance approaches to prevention, diagnosis and treatment based on informed decision-making using a combination of the *best available evidence* and *sound medical judgment*
- Continually evaluate all services for quality to *ensure value is always being created*
- Give referring physicians and patients access to the *first available surgeon*, or to the *surgeon of their choice*, recognizing that surgeon choice may mean a longer wait.

These principles could not have been applied and the pilot could not have been successful without constant interaction and communication between partners.

ABJHI (Alberta Bone and Joint Health Institute), together with the health regions, AOS (Alberta Orthopaedic Society), surgeons and physicians developed the tools and processes required for a standardized hip and knee replacement care path that extended from primary care through to surgery, recovery and rehabilitation. This included a consultation referral template, patient contracts, customized treatment plans, a patient optimization program, evidence-based clinical practices and procedures, and scheduled patient follow-up.

Referral, diagnosis and treatment were all provided in multidisciplinary, community-based, single-purpose Hip and Knee Replacement Clinics. Health region clinical leaders, supported by ABJHI, trained hospital acute care and operating room staff in the new continuum, and engaged family physicians in the referral process.

ABJHI, which served as the hub for the pilot, met regularly with surgeon groups, health regions, and Health and Wellness department leaders to provide updates on progress, issues, interim results and proposed actions to remedy issues as they arose.

A provincial committee was formed to provide project oversight, while a working group representing all stakeholders managed activities and issues and kept the stakeholder groups informed of progress. One health region seconded an executive-level employee to act as Project Director.

How did it work?

The pilot project, conducted in a protected research environment, improved patient care and outcomes and reduced wait times. Key results included:

- Hospital stays were reduced by almost a day-and-a-half, from 6 days to 4.7
- Eighty-five percent of patients were up and mobile the day of their surgery
- Patients were better able to function physically and had less pain following surgery

Knowledge translation activities

Knowledge users engaged in:

- *Shaping research questions*
- *Data collection and tool development*
- *Interpreting study findings*
- *Disseminating results*
- *Moving evidence into practice*
- *Widespread dissemination and application of knowledge*

- The wait to see a surgeon dropped from an average 145 working days to 21, and the wait from consultation to surgery fell from an average of 290 working days to 37
- Patients and health care providers were more satisfied.

The partners caution that results such as these will be more difficult and take longer to achieve outside of a controlled pilot environment where services are subject to normal day-to-day operational pressures. But the effort has begun.

Alberta Health and Wellness declared the pilot a “success story” and announced the new continuum would be implemented as the standard of care province-wide. Health and Wellness has committed funds to Alberta’s health regions to support the transition from the former practices to the new continuum, and provided ABJHI with funding to help facilitate province-wide implementation.

In the process of carrying out the pilot project, the partners learned a great deal about how to effect change in the health care system. Above all, they learned that problems such as wait times, service quality and system efficiency can be solved, however challenging the process.

The partners found that the key to the successful pilot was collaboration among all stakeholders. Change is often met with resistance, and physician affinity for independent practice makes team-based medicine difficult to implement. Attention must be paid to the different interests of all stakeholders, and everyone involved needs to collaboratively define the required resources, funding, the testing period and a standardized measurement framework.

Impact

- *Pilot results include: reduction in wait to see a surgeon, reduction in length of hospital stay, increased patient/provider satisfaction, earlier mobility, improved physical function and less pain following surgery*
- *Province-wide implementation of the new continuum of care following the success of the pilot*

Collaboration and consensus among partners are essential to gathering the evidence that is needed to underpin change and critical to gaining acceptance by physicians and health care providers. It’s also essential that health care administrators, policy-makers and practitioners agree practices, decisions and technologies used in health care delivery should be informed by the best available evidence and that there is a willingness to change based on new evidence. There needs to be a system in place to gather data to monitor and evaluate system performance, to support continuous improvement and to provide the evidence supporting change.

Using these key tools – collaboration, evidence, and a willingness to change – the new approach to hip and knee replacement could be applied to other areas of musculoskeletal care, and provide a template for change that could be applied to other areas of health care all across Canada.

Notes

- ¹ *Western Canada Wait List Project, Federal-Provincial Wait List Committees, Alberta Bone and Joint Health Institute.*
- ² *The Report on the Health of Albertans, Alberta Health and Wellness, Edmonton, Alberta, 2006.*
- ³ *The Canadian Community Health Survey, Health Statistics Division, Statistics Canada, 2004.*



3. BRIDGING THE ‘KNOW-DO’ GAP – THE CASE OF HOME FORTIFICATION WITH SPRINKLES

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You don't usually find researchers down in the bowels of hospital kitchens. But that is where this knowledge translation story began, in the kitchen of Toronto's Hospital for Sick Children, cooking up a recipe to end micronutrient malnutrition.

The result was Sprinkles – a small sachet with a day's supply of powdered micronutrients like iron, zinc and vitamin A that can be added to any semi-liquid food (such as porridge or yoghurt) without changing its taste, colour or texture.

While determining the right recipe for Sprinkles was a long and involved process, what came next was the true challenge: Getting Sprinkles widely used in countries throughout the developing world where it could help eliminate vitamin and mineral deficiency.

The KT challenge

*Developing a viable product to
fight micronutrient
malnutrition in low- and
middle-income countries*

So what's the problem?

Starving children are easy to recognize – their swollen bellies and hollow eyes give them away. Children who are getting enough to eat but are not getting from their diet the vitamins and minerals that they need to grow healthy and strong are much more difficult to identify, yet their chances for living a healthy life are equally poor.

According to the United Nations (UN), micronutrient malnutrition, or “hidden hunger”, affects some two billion people worldwide, including 750 million children. About half of all child deaths in developing countries are associated with this insidious form of malnutrition. And for its survivors, micronutrient malnutrition is often associated with irreversible cognitive and physical disability affecting health and productivity for their entire lives. In 2008, the Copenhagen Consensus of the world's top economists (including five Nobel laureates) ranked the provision of vitamins and minerals for undernourished children as the world's best health investment.¹ The World Health Assembly has set a goal to reduce vitamin and mineral deficiency (VMD), including iron deficiency anemia, by one-third by 2010.²

Sprinkles are an example of what's known as “home fortification” – adding needed micronutrients to food already prepared in the home from existing locally available staples. Sprinkles are an improvement over existing vitamin and mineral syrups and drops, which are difficult to measure, have an unpleasant metallic taste, and stain teeth and clothing. They also represent the first viable global effort to address iron deficiency in children in low-income countries.

Home fortification was first conceived in 1996 in response to a UNICEF-sponsored request to the international nutrition community to come up with an intervention to eliminate hidden hunger.³ Since home fortification was then a novel, unproven idea, UNICEF issued four specific challenges:

- Prove its efficacy and effectiveness
- Demonstrate acceptability
- Develop models of distribution
- Develop the capacity for inexpensive, high-quality production.

Meeting the challenges: Proving efficacy and acceptability

Proving efficacy and acceptability turned out to be more complex than initially anticipated. The Sprinkles team naively thought one large randomized controlled trial (RCT) – the “gold standard” in testing new medications and products – with an adequate sample size would provide the evidence needed for policy-makers, including governments and the United Nations. Unfortunately, that was not the case.

Most countries, even within the same region, demanded proof that Sprinkles was effective in their particular jurisdiction. As a result, between 1998 and 2007, research studies and product pilots in multiple countries assessed efficacy, bioavailability (the degree to which the micronutrient is absorbed by the body), and safety and acceptability of Sprinkles in diverse settings,⁴ and 25 peer-reviewed scientific papers/abstracts were published to support the use of Sprinkles. Each study demonstrated that Sprinkles successfully treated and prevented anemia, among other micronutrient deficiencies, and was efficacious (safe and well-tolerated by children, easy to administer, acceptable among a wide range of cultures, geographic areas, and to caregivers) and cost-effective.⁵

Meeting the challenges: Developing models of distribution and production

The next challenge in the process was developing distribution models using different sectors to reach their target audiences. Governments, through primary health workers, target the poorest and neediest. The UN is responsible for emergency food relief, while NGOs use social marketing techniques to subsidize private sector distribution to the lower-middle class. In the future, Sprinkles will also be sold by private sector companies directly to consumers.

The final step was to produce Sprinkles in a high enough quantity to meet demand, and at a low enough price to ensure sustainable use in the communities the product was designed to target. It quickly became obvious that using the hospital kitchen at night would not meet these needs, and that a high-quality, large-volume supply was needed. Coincidentally, in 2000, the H.J. Heinz Company – one of the largest single-packet suppliers in the world with an infant food division – was looking for a Corporate Social Responsibility (CSR) project to support, which led to the company joining forces with the research team. Since 2000, the Heinz Company Foundation has both funded research related to Sprinkles (along with CIHR and other peer-

reviewed funding agencies) and assisted with their production and packaging on a not-for-profit basis. In 2006, more than 90 million sachets were produced at a cost of about two cents U.S. per sachet.

The research group is now an organization called the Sprinkles Global Health Initiative. Until recently, it coordinated this complex web of stakeholder activities and agendas, facilitating the supply of ingredients, manufacture of the sachets, navigation and negotiation of the regulatory process, marketing, warehousing and distribution to end-users. The Sprinkles Global Health Initiative and Heinz have now made available the technology for producing powdered minerals and vitamins as a 'public good' so that it can be produced widely, no longer under license. The current role of the Sprinkles Global Health Initiative is to continue to research new ways to prevent malnutrition and to investigate the 'science' of scaling up nutritional interventions from pilot projects to country-wide coverage.

Knowledge translation activities

- *Workshops with stakeholders*
- *Meetings, networking, and relationship-building with relevant policy-makers*
- *Advocacy efforts to “push” evidence*
- *Enlisting global and regional champions to support policy change and implementation*
- *Publications in peer-reviewed journals*
- *Commercialization of product*

The entire process took ten years but, with its challenges met, UNICEF tendered 200 million sachets to be warehoused in its distribution facility and shipped globally for emergency food relief.⁶ Individual UNICEF programs in at least five countries are piloting Sprinkles programs in anticipation of country-wide (or state-wide) scale-up. With UNICEF as the key stakeholder, the process has gone full circle from an idea, to proof of concept, to product, distribution and end-user.

The keys to success

UN agencies, governments, NGOs, manufacturers and end-users – those who are responsible for quantifying the real costs of micronutrient malnutrition and implementing feasible solutions – were all identified as key stakeholders in the advocacy and decision-making processes. Each group was targeted with specific (and sometimes overlapping) knowledge translation strategies to build acceptance and support for Sprinkles. For example, a program called “SOS” (Sprinkles Outreach Sponsorship) targeted NGOs by supplying small volumes of Sprinkles (100,000-500,000 units) free of charge to organizations with the capacity to scale up nation-wide programs in the future. The program is up and running in Kenya, Malawi and Honduras.

The Sprinkles team's suite of knowledge translation activities has been developed over the course of ten years, and its evolution reflects its successes and failures. The team has identified that there are generic KT models that can be applied globally, yet knowledge translation activities often need to be adapted to the context and needs of individual jurisdictions and organizations.

Over the past ten years it has become clear that four main knowledge translation activities are necessary for public sector, country-wide scale-up of the Sprinkles program: convincing local research, global champions in both the public and private sectors, a supportive policy and enabling environment, and local champions. In countries where scale-up has happened or is happening, all four components are present. In contrast, countries where scale-up has not yet been successful lack one or more of these four knowledge translation activities. For example, the existence of persuasive local research and a global champion have proven insufficient – a local champion and a supportive policy environment are also required.

How has it worked?

The Sprinkles team measures the outcome of its knowledge translation process in two ways: policy changes to support home fortification and distribution, both national and international, along with the number of Sprinkles recipients. The team has documented the success of its commitment to knowledge translation activities on both of these measures.

Policy changes have happened at both the national and international levels. For example:

- In March 2006, three UN agencies collectively published policy guidelines for the use of micronutrient fortification as a component of relief aid⁷
- The Micronutrient Initiative, a large Canadian-based donor NGO, published guidelines for the use of home fortificants
- Individual countries, including Pakistan, Bangladesh and Mongolia, have included home fortification with powdered minerals and vitamins as a component of their country-wide nutritional strategies for children.

As a result of the Sprinkles team's work, real progress has been made in the fight against micronutrient malnutrition. In 2006, more than 400,000 children in countries with the highest prevalence of micronutrient deficiencies received Sprinkles. Also, 2007 proved to be a year of transition as many stakeholders – the research team, UNICEF, major governmental agencies and NGOs – started to move from pilot projects to full-scale, sustainable production and distribution. In this period, over 60 million single dose sachets of Sprinkles were produced under various approved brands, bringing the total cumulative production to approximately 200 million sachets. An estimated 800,000 children received Sprinkles in 2007, for a cumulative total of 2.5 million children since the inception of the Sprinkles program in 1997.

The team has concluded that the key to its success has been the early involvement of policy-makers and other key stakeholders in the planning process. As a result of this involvement, stakeholders assumed “ownership” of the initiative, resulting in a deep commitment that would have been more difficult to attain had they been brought into the process at its end stages. UNICEF, for instance, was involved in the germination of the home fortification concept, and, from the beginning, was updated on progress at each step (research, manufacturing and distribution pilot projects). It was hoped that eventually UNICEF would no longer require this “push” and would instead become the global advocate for home fortification. This change occurred in 2006.

Over the course of its work, the team reached three other important conclusions. Firstly, a strong evidence base that is country-specific or situation-specific is critical to the knowledge translation process. Secondly, a champion is essential to the success of the initiative. While the team was the initial champion of Sprinkles, UNICEF has now taken on that role. Still, a global champion is not sufficient – national and regional champions are also necessary. Finally, advocacy efforts must take multiple forms and be appropriate to their varied audiences. All of these activities contributed to the process that translated the Sprinkles concept to the actual delivery of a physical product to children in need.

Impact

- *International policy changes*
- *Stakeholder ownership of Sprinkles*
- *Sprinkles has reached 2.5 million at-risk children in over 20 countries*

Notes

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4. RESEARCH ILLUMINATING PUBLIC POLICY DEBATES

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Lionel Robert
Coordinator, Working Group of the *Réseau sur le rôle du privé dans le système de santé*

In June 2005, the Supreme Court of Canada ruled that the Quebec law preventing private insurers from providing coverage for publicly insured services was illegal in the Chaoulli case. This decision threw open the doors to widespread public debate about the place of private care in Canada's health-care system – a debate characterized as much by polarization as by confusion.

The KT challenge

Disseminating knowledge to inform public debate and policy-making

The Quebec Population Health Research Network, which brings together researchers working in population health, health services and health policy, decided to weigh in on the debate. The Network developed a partnership with leading Quebec newspaper *Le Devoir* as well as the *Institut du Nouveau Monde*, an organization dedicated to citizen participation in public debates in Quebec. The goal was to disseminate knowledge on the various public policy issues raised by the Chaoulli decision. More specifically, the focus was on giving public policy-makers, the media, professionals and the general public a sound interpretation of the ruling, and to help ensure that the ruling was interpreted based on research evidence.

The Network's efforts have been reflected in the responses of both government and politicians to the Supreme Court decision. These results underscore the important role that researchers can play in informing public debates on many different issues.

Disseminating accurate information in a confusing debate

The Chaoulli ruling had a substantial impact across Canada, but nowhere greater than in Quebec, where the Court's ruling included a deadline for the province's compliance, which prompted the Network to get involved in the debate.

The Network began by assembling a multidisciplinary Working Group made up of Quebec experts in health service organization from most of the major universities in Quebec (list of members available, in French only, at www.santepop.qc.ca/Chaoulli).

The first step was to ensure accurate and detailed information was available in a special section on the Network's website (<http://www.santepop.qc.ca>). This included:

- A summary of the Court's decision and its background
- A literature review of Canada's popular and specialized press on the topic

- A summary of issues raised by the ruling
- In-depth analyses written in question/answer format on ten issues raised by the ruling
- Briefs presented before parliamentary committees
- The program and presentations made at Network colloquium
- An exchange forum
- Useful links on the ruling.

The website was publicized through the Network's newsletter (<http://portail.santepop.qc.ca>) which reaches more than 1400 researchers, health system professionals and policy-makers in Quebec.

Recognizing that it needed to further extend its reach, the Network published a supplement in the newspaper *Le Devoir* on February 18, 2006, entitled *L'arrêt Chaoulli: un signal d'alarme – Quelles sont les options du Québec?* (The Chaoulli ruling sounds the alarm: What are Quebec's options?).

A week later, on February 24 and 25, 2006, the Network held a colloquium entitled *Le privé dans la santé? Après le jugement Chaoulli, quelles sont les options du Québec?* (The private sector in the health sphere? After the Chaoulli ruling, what are Quebec's options?). Organized jointly with the *Institut du Nouveau Monde*, the colloquium attracted more than 300 people from the political arena (including the Minister of Health and the representative of the Official Opposition for health), the health community (professionals and administrators), community organizations and concerned citizens.

Knowledge translation activities

- *Crafting messages, interpreting research findings*
- *Synthesizing evidence*
- *Widespread dissemination of knowledge*
- *Publication in newspapers and journals*
- *Website postings*
- *Educational sessions and colloquia*

In addition to these planned activities, the Network and its Working Group also responded to issues related to the ruling as they arose. For instance, on February 16, 2006, the Quebec government issued its response to the Chaoulli ruling, a white paper entitled *Guaranteeing access: Meeting the challenges of equity, efficiency and quality*. The Network responded both in the press, with articles by Working Group members analysing the government's proposal, and in the political arena, with submissions to the Committee on Social Affairs which held hearings on the white paper from April 4 to June 6, 2006.

Following the Committee's hearings, the government tabled a bill on June 15, 2006, reflecting the white paper's recommendations and the results of their consultations. The Network continued its efforts to ensure Quebecers were aware of what this meant for their future health care. Working Group members published an article in *Le Devoir* entitled *L'avenir du système de santé du Québec en cause: un projet de loi qui n'a rien d'anodin* (The future of Quebec's health system at stake: this bill is no trivial matter), as well as other articles in scientific journals and newspapers making clear the potential impacts of the bill. (All articles written by the Network/Working Group members can be found on the Network's website).

Lastly, the Working Group, with its collaborators, began working on a book on the theme *Le privé dans la santé: un débat sans fin?* (The private sector in the health sphere: An unending debate?), thus broadening the Chaoulli discussion. This book is slated to appear in 2008, published by *Les Presses de l'Université de Montréal*.

How did it work?

The impact of the Network's knowledge dissemination activities can be seen in the position taken by Quebec's Ministry of Health, as well as in the addresses made by Members of the National Assembly to the Committee, and briefs presented by other organizations and individuals in varied areas of health care. Public discussion and media coverage have also been influenced by these activities.

The Working Group's main message – calling on the government to avoid an interpretation of the ruling that would throw open the health system to the private sector, and instead to consider other ways to make services more accessible – may have also helped influence government reactions to the Chaoulli decision. The Minister of Health and Social Services has recognized that his views have evolved on the public system's capacity to sustain its costs, following the brief presented by Working Group member François Béland to the Committee, as noted in an article by Guillaume Bourgault-Côté, in *Le Devoir*, September 23-24, 2006: *Financement du réseau de la santé – Couillard revendique le droit de changer d'idée* (Financing the health network – Couillard asserts his right to change his mind).

Impact

- *Quebec Ministry of Health's position influenced by the Network's interpretation of the ruling*
- *Minister of Health and Social Services views have changed regarding the public health system's sustainability*

The initiatives undertaken by the Working Group were the result of a process of collective reflection and were built on partnerships in a variety of milieus. As such, they represented a new, efficient and original avenue for feeding knowledge into political and policy processes. Researchers moved beyond their usual surroundings to assume public positions and help ensure that public debate and discussion were informed by research evidence. This approach can be considered a model for informing broad societal debate on a wide range of issues.



5. BRINGING LIVER DISEASE HOME: NCRTP-HEPC

Cathy Chau, Limin Chen, Wendong Chen, Jason Grebely, Candice Jackel-Cram, Sonya MacParland, Angelique Myles, Ciro Panessa, Rineke Steenbergen, Rosie Thein
National Canadian Research Training Program in Hepatitis C

Candice Jackel-Cram began her doctoral work convinced that her future lay in the laboratory, conducting research into Hepatitis C. On the other hand, her mentors in the National Canadian Research Training Program in Hepatitis C (NCRTP-HepC) encouraged her to get out from behind the lab bench and see the virus from the patient's perspective. The result has inspired her research, sending her back to her research with a renewed sense of the importance of her work.

The KT challenge

*Helping patients to inform research
and researchers to learn from
patients*

NCRTP-HepC, a public-private partnership designed to raise national research training standards, promotes leadership and enhances awareness of Hepatitis C. It has also taken a unique approach to knowledge translation, inspiring both mentors and trainees to better understand the realities of patients living with Hepatitis C. This understanding has resulted in a group of researchers interpreting their data from a whole new perspective.

Trainees in the program fulfill all the usual expectations – they present their work at scientific meetings and publish their research findings – but they also move beyond their labs, spending time in liver clinics, discussing their research with patients, and answering questions at the “Living with Liver Disease” sessions that are arranged by local Canadian Liver Foundation (CLF) chapters across Canada. As a result, these trainees find out what it is like to be chronically unwell, live with the difficult side effects of antiviral therapy, and feel stigmatized – knowledge that many lab-based scientists don't have the opportunity to acquire.

Observing liver clinics

Observing in liver clinics has given trainees the opportunity to interact both with patients and with the family and friends of patients. This exposure has added another dimension to their learning. For instance, Limin Chen, a PhD trainee who uses cDNA microarray technology to study Hepatitis C, says the clinical observation provided him with the opportunity to learn how to communicate with patients more effectively. It also made apparent just how urgent the need is for better therapies for HepC, as the overall response rate is far from optimal, and the side effects of current treatments are often poorly tolerated.

Participating with the Canadian Liver Foundation

Getting out of the lab and into the clinic paid dividends for NCRTP-HepC trainees, but going further – out into the street, in fact – proved even more rewarding. In 2007, the Canadian Liver Foundation held its family-friendly national fundraising event, “Stroll for Liver”, in more than 20 communities across Canada, including

downtown Toronto. The 2nd annual event was held to support the CLF's efforts to raise both public awareness of liver disease and funds for liver research and education.

Wendong Chen and Rosie Thein, two trainees from Toronto, together with Cathy Chau, the NCRTP-HepC program administrator, raised \$500 while learning more about the impact of HepC on families. They met with the "Butterfly Group" – an Ontario group that honours Audrey Harris, who passed away from liver disease in November 2006. Trainees also met Melissa (Audrey's mother) and Anne (Audrey's grandmother), who shared their family tragedy. The stroll enhanced trainees' ability "to stand in the shoes" of patients and enriched their appreciation for the importance of translating research evidence to the knowledge users who both inform the research and benefit from its results.

In St. John's, Newfoundland, trainees Angelique Myles and Sonya MacParland also participated in the local Stroll for Liver event. They, too, raised close to \$500, but the real value for them came at the "meet and greet" that followed the stroll. They met community volunteers and liver transplant survivors and their families, including liver transplant recipient Leonard Stacey, CLF chapter president, and his wife, Myrtle. Angelique and Sonya learned that support groups such as "living with liver disease" are poorly attended in St. John's because of the stigma liver disease carries with it, stemming from the false notion that liver problems are all related to alcohol abuse. Because of this stigma, the St. John's chapter of the CLF delivers its support individually, through phone calls. Both students came away from the event with a renewed appreciation of the importance of community support and education for people with liver disease.

Knowledge translation activities

- *Interpreting research findings for knowledge users*
- *Disseminating research results through conference presentations and peer-reviewed publications*
- *Knowledge exchange between patients and researchers*
- *Interactive educational sessions with patients and practitioners*

Focus on addictions

Jason Grebely, a PhD student whose research interests focus on the treatment of HepC infection in injection drug users, spent a month in Victoria working with Dr. Benedikt Fischer and his research team at the Centre for Addictions Research of British Columbia. While there, he participated in several projects, all focussing on better understanding the barriers associated with access to treatment for Hepatitis C among injection drug users. He also worked with Grey Showler, a HepC nurse, to set up some knowledge exchange activities with patients. As part of this work, he made a presentation on HepC at the Merryman's Women's shelter, where he had the opportunity to speak with patients living with HepC and answer some of their questions regarding the epidemiology and natural history of the disease, as well as available treatment options. He also delivered a presentation to the nurses, counsellors, physicians and other staff, focusing on updated results of research carried out by NCRTP-HepC over the past year. Another trainee, Rineke Steenbergen, who is a basic scientist, now volunteers once a week at the needle exchange program in Edmonton (Streetworks). Streetworks' general goals are harm reduction, health promotion, and providing primary health care for injection drug users and sex trade workers. Streetworks aims to increase knowledge and understanding of Hepatitis B, Hepatitis C, HIV, and other health issues that affect this population, as well as assist in maintaining or improving the health of its clients. Part of Streetworks' harm reduction strategy, based on the best evidence, is giving injection drug users and sex trade workers access to clean equipment, such as needles (one-for-one exchange), alcohol wipes, clean

water, condoms, lubrication, vitamins, and first-aid supplies, to lessen the spread of infection. Through her volunteering, Rineke has talked to several injection drug users who have contracted HepC as a result of sharing used needles who were very interested to hear about the progress being made in HepC research. Several of the injection drug users Rineke has spoken with have undergone antiviral therapy that failed, and as a result were very interested in hearing about the development of new therapies.

Additionally, Rineke has given guest lectures about research, science and her work with HepC at schools in the Edmonton area through the University of Alberta Outreach program. In May 2007, she visited Millwood Christian School to give a lecture about HepC and helped organize a science lab on DNA electrophoresis. In July 2007, she presented her work at a Teachers Workshop for Medical Research – two three-day workshops designed for high school science teachers – to introduce them to some of the information resources available on campus, and to inform them of the latest medical research being conducted at the University of Alberta.

Extending the reach

Graduates of NCRTP-HepC have gone on to continue their involvement in HepC research and practice, taking the lessons they have learned through their involvement in the program to new arenas.

For instance, Ciro Panessa, one of the program's first graduates, completed a Master of Science in Advanced Nursing Practice at the University of British Columbia (UBC) while in the NCRTP-HepC program. He is now employed as a Hepatitis Educator and Project Coordinator at the British Columbia Centre for Disease Control. He has continued collaborative work in the field of infectious disease/infection control nursing, health promotion, and public/community/occupational health nursing. Over the past two years, Ciro has provided care to patients with one or more acute medical needs, worked within an interdisciplinary team to coordinate care for clients, and also offered both formal and informal health teaching to patients with HepC. Ciro recently received a faculty appointment as Adjunct Professor at UBC's School of Nursing that will allow him to continue to carry out his knowledge translation activities.

Impact

- *Mentors and trainees have learned to better tailor and share information with patients and the public*
- *Patients and the public have better access to appropriate information and the opportunity to influence research*

Both individual students and NCRTP-HepC as a whole have benefited from this unique approach to knowledge translation. Mentors and trainees have learned to share research findings with patients living with HepC, and have sought a wide variety of different opportunities to enhance the education of the general public. NCRTP-HepC also understands that to really change attitudes and awareness of Hepatitis C, knowledge exchange and dissemination activities need to have even greater impact. The program's next goal, therefore, is to incorporate the Internet into its knowledge translation activities, making its efforts more accessible.



6. USING KNOWLEDGE TRANSLATION STRATEGIES TO WIPE OUT BABY WALKERS

Laveena Sethia
Manager, Knowledge Translation and Exchange, Safe Kids Canada

Pamela Fuselli
Executive Director, Safe Kids Canada

Allyson Hewitt
Rebecca Nesdale-Tucker

Ashley¹ was eight months old and in her baby walker when she managed to get the basement door open. Before her mother could react, Ashley had tumbled down 12 stairs. Lying at the bottom of the stairwell, her eyes were rolling into the back of her head. Her frightened mother rushed her to the hospital where, fortunately, doctors declared that Ashley had not sustained serious head injury.

The KT challenge

Rallying parents and policy-makers to remove from market a children's product that is proven to be unsafe

A walking danger

The danger of baby walkers stems from the adage “infants are all movement, no judgment”. The walkers allow infants – usually between 5 and 15 months – to move around more, both faster and higher off the ground before they are developmentally ready to handle these expanded boundaries.² The result is predictable – more than 150 children are injured each year by baby walkers.³

In 2003, Safe Kids Canada decided to do something about it. Each spring, with financial support from Johnson and Johnson, Safe Kids Canada holds a Safe Kids Week (SKW), focussing on a specific injury theme. In 2003, Safe Kids Canada decided to focus on raising awareness of the dangers associated with children's products at home in order to stimulate appropriate action. Since the awareness campaign usually includes advocacy on a related topic, Safe Kids Canada decided to advocate for a national ban on baby walkers.

Other goals for the 2003 Safe Kids Week were to increase awareness among parents and caregivers about avoiding product-related injury, and equip families – particularly those with children from newborns to age 8, the age range at greatest risk – with the knowledge and tools to check products in their home and to take appropriate action for safety. Success would require a significant investment in knowledge translation activities.

“Wipe out Walkers”

Safe Kids Canada undertook a multi-faceted campaign called “Wipe out Walkers”, reaching out to media, community groups, parents and the federal government:

- Media outreach included disseminating injury prevention strategies based on best evidence, as well as baby walker injury survival stories. Key messages were supported by campaign brochures, tools and templates, web-based information and a toll-free information service.

- Community groups held product “round-ups” to remove unsafe products from homes. They distributed educational materials and held events with informational displays, activities for children, data for their parents and games for the whole family.
- Safe Kids Canada’s advocacy communications, such as policy papers, a letter-writing campaign and resolutions, supported and encouraged Health Canada in its effort to ban baby walkers.

Knowledge translation activities

- *Development of key messages*
- *Dissemination of policy papers, intervention strategies and information tools for use by community partners*
- *Advocacy activities aimed at government officials*
- *Process evaluation with feedback from community and retail partners*

Did it work?

Wipe out Walkers was a resounding success, accomplishing the goal implicit in the campaign’s name. As a result of advocacy efforts, approximately 300 parents, health professionals and organizations sent letters of support for a ban on walkers to Health Canada. Health Canada proceeded to hold public consultations on a proposed ban on baby walkers, which resulted in a national ban on the products under the *Hazardous Products Act* in 2004. With this move, Canada became the first country in the world to ban baby walkers.

In addition, 150 community agencies conducted “product round-ups”, collecting close to 2,000 out-of-date, sub-standard or damaged children’s products. Of the products collected, 87% were those targeted by the campaign. In total, 375 organizations, including public health units, family resource centres, emergency services, schools and day care centres participated in the campaign.

Further, a telephone survey of some 250 parents of children under age 6 found that up to 42% of parents had been exposed to the campaign, and that they were significantly more likely to discard a children’s product because of safety concerns following SKW. Two-thirds of the parents surveyed supported a government ban on baby walkers.

Effective use of knowledge translation and injury prevention strategies by Safe Kids Canada stimulated action among parents and community organizations and influenced political action.

Extending the reach

Unfortunately, few victories are without reproach. In 2006, Health Canada reviewed its ban on baby walkers in response to an industry request to rescind the ban. Safe Kids Canada, together with Canada’s injury prevention community, worked to sustain the ban, presenting evidence of support to the Board of Review. In June 2007, the federal minister of Health announced his decision to uphold the ban.

Under the *Hazardous Products Act*, Health Canada must address newly identified risks on a case-by-case basis. As a result, there is a potentially dangerous delay in removing unsafe products from the market. Safe Kids Canada strongly supports the renewal of current legislation to include a ‘precautionary principle’ and general safety requirement for all products in order to address gaps in what is covered by current legislation. Strengthened education, enforcement, and injury surveillance are also necessary to minimize injury.

Building on its Canadian success, Safe Kids Canada has communicated the news of the ban through its international networks. Stakeholders in other countries have since expressed interest in a similar walker ban. Domestically, Safe Kids Canada continues to use knowledge translation activities such as consulting with Health Canada and other key stakeholders both on a product-by-product basis and on the need for renewal of federal legislation and strengthening of the consumer product safety system.

As a national champion for child safety, Safe Kids Canada is committed to reducing unintentional injury, which is the leading cause of death for children and youth in Canada. In collaboration with partners and sponsors, Safe Kids Canada translates evidence-based prevention knowledge to a range of stakeholder audiences – including parents, health practitioners and government – to protect children from serious injuries.

Impact

- *Parents, health professionals and organizations mobilized to make Canada the first country in the world to ban baby walkers*
- *Thousands of unsafe children's products removed from the market*
- *International interest in similar bans*

Notes

¹ Not her real name.

² Lang-Runtz H. (1983). "Preventing Accidents in the Home." *Canadian Medical Association Journal* 129:482-485; American Academy of Pediatrics (2001). "Policy Statement: Injuries Associated With Infant Walkers." *Pediatrics* 108(3):790-792.

³ Canadian Hospital Injury Reporting Prevention Program (updated, 2006). *Injuries associated with baby walkers, 1990 – early 2003, ages 5-14 months.*



7. HEARING PATIENTS' VOICES

CIHR Institute of Musculoskeletal Health and Arthritis
Knowledge Exchange Task Force

More than three-quarters of people over the age of 75 in Nova Scotia no longer have their own teeth. Because of poor dental care policies in the province, many seniors find it preferable and less painful to get dentures than to manage their oral health issues.¹ As baby boomers reach their later years and find that they can no longer afford to maintain their dental health, the problem will only get worse. And, apparently, many dentists aren't aware of this situation. Thanks to Phil Hughes, though, they are learning.

The KT challenge

*Integrating the voices of patients
into the research process*

Patients spreading the word

Phil, a former teacher, is chair of the Group of IX, a coalition of nine groups representing 125,000 seniors of Nova Scotia. He is also a Research Ambassador for the CIHR Institute of Musculoskeletal Health and Arthritis Knowledge Exchange Task Force.

Phil wrote an article, published in the June 2006 issue of the *Journal of the Canadian Dental Association*, describing the impact of current policies on seniors' dental care, educating dentists about senior-specific dental issues, and emphasizing the need for knowledge exchange between researchers and seniors' caregivers. He brought up issues that most care providers don't necessarily consider, for instance, how the lack of transportation keeps seniors from receiving good dental care.² In effect, Phil Hughes was helping practitioners hear the voices of their patients.

For Phil, this was just the beginning. Phil persuaded the Group of IX to extend their focus on Pharmacare to include seniors' dental care. He brought oral health to the attention of the provincial ministers for Seniors and Health. He spoke about seniors' dental health and research results at spring and fall consultations held by the Minister for Seniors and, as a board member of the Nova Scotia Centre of Aging, he helped to make knowledge translation of research results the focus of the Centre's 15th Anniversary celebrations where both researchers and seniors gave presentations, establishing a dialogue. In addition, Phil received many calls from nursing home care providers who were interested in his activities and in the research results he was communicating.

Creating success by involving patients

Knowledge translation activities that bring together researchers, health care providers, patients and policy-makers to exchange information so that patients receive the best possible care are an essential component of the research process. Research that omits these end-users from the research process often falls short of its potential.

Flora Dell, a member of CIHR's Institute of Musculoskeletal Health and Arthritis (CIHR-IMHA) Institute Advisory Board, decided this could not continue. Under her leadership, in 2004 CIHR-IMHA created a dedicated Knowledge Exchange Task Force (KETF). The goal of the task force was to transfer research knowledge about a wide variety of musculoskeletal, oral and skin diseases and conditions to relevant knowledge users by empowering patients/consumers as "Research Ambassadors". Patients/consumers were chosen based on the fact that they stand to benefit most from the successful translation of research results and are able to relate to the suffering of their fellow patients. These new Research Ambassadors interact with, among others, health care providers, private sector organizations, CIHR-IMHA researchers, the general public, policy-makers, planners and managers.

Knowledge translation activities

- *Crafting messages and disseminating research results to knowledge users*
- *Moving research results into practice*
- *Patients/consumers shaping future research questions*
- *Educational sessions with knowledge users*

Selecting ambassadors; finding a theme

Finding the right Research Ambassadors was critical to the success of the KETF. Potential ambassadors had to be:

- Interested in CIHR-IMHA's research activities, both inside and outside their disease area
- Committed to full participation in KETF activities
- Committed to communicating regularly with the public about CIHR-IMHA activities, either on a formal or informal basis.

Names of potential ambassadors came from a range of organizations, including Osteoporosis Canada, Lupus Canada, the Canadian Dental Association, Muscular Dystrophy Canada, and The Arthritis Society, to name a few. CIHR-IMHA's Institute Advisory Board appointed 18 task force members who collectively represented a range of disease areas included in CIHR-IMHA's mandate, and a diverse spectrum of cultures, genders, ages, professions and geographic areas.

At their first meeting, the Research Ambassadors found many differences amongst themselves: in their understanding of knowledge translation, their skills, the research landscape, their level of involvement in their organizations, and in their level of engagement with and commitment to the KETF. Despite these differences, the Research Ambassadors found they were unified in their suffering of chronic pain, a common feature of all the diseases. This then became the first area of focus for their efforts.

How has it worked?

Judging by Phil Hughes' experience, the concept of Research Ambassadors is an unqualified success. As a result of his activities, seniors' dental care has become a topic of public interest. Policy-makers and politicians are now aware that policy needs to change in order for seniors to get the care they require. Dentists and senior caregivers are now better aware of the challenges facing this patient group. And, most importantly, seniors themselves are more aware that dental pain is not normal and are thus more likely to have their dental problems rectified rather than simply accepting their poor oral health as a side effect of aging.

This empowerment of seniors was one of the unexpected benefits of the Research Ambassador program. Not only health care providers, but seniors themselves became more aware of issues associated with their oral health. In the process, Phil was able to find out from seniors how they were using the information they received, and what additional information they needed that the researchers could provide. By taking this feedback to researchers, Phil was able to start the cycle again, informing research whose results he could then use to further raise awareness.

Extending the reach

According to Phil Hughes, knowledge translation is about more than simply translating scientific information. Knowledge translation is about researchers being accountable to the end-user, and having some way to determine if and how the end-user uses the information provided by researchers. The KETF has helped to provide that accountability and ensure that end-users are integrated into the research process.

Erna Snelgrove-Clarke, the current KETF Chair, has defined three factors that contributed to the success of this initiative:

1. Involving patient/consumers as Research Ambassadors to share knowledge with their peers and communities, ultimately informing research
2. Creating ongoing opportunities for the Research Ambassadors to check in, share experiences, exchange feedback, and get ideas for different KT interventions
3. Engaging Research Ambassadors who have a strong passion for creating change.

Impact

- *Seniors better informed and more likely to seek help for oral health issues*
- *Patients and other stakeholders integrated into the research process*
- *Empowerment of individuals to act as Research Ambassadors and share information*

CIHR-IMHA intends to continue with the KETF initiative, and hopes to integrate KETF members into other activities to help ensure the voice of the patient is heard.

Notes

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- ² Hughes, Phil. (2006). “Senior Oral Health: A System in Decay.” *Journal of the Canadian Dental Association* 72(5):409-410. Available at <http://www.cda-adc.ca/jcda/vol-72/issue-5/409.pdf>.



8. A NIGHT OUT, NOT “LIGHTS OUT!”: THE CASE OF *SAFER BARS*

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Late one evening, at a bar, a male patron and a doorman are engaged in a heated argument: the patron wants to take his drink to another area of the bar; the doorman says he has to finish it before moving. The agitated doorman squares off with the male: “So what? Did you say ‘So what?’ What is ‘So what’ supposed to mean?” he yells directly in the patron’s face, adding, “This isn’t a joke and I’m not going to tell you again!” At this point, another doorman approaches and gently lays his hand on the arm of the angry doorman, asking, “Hey, what’s going on?” The first doorman shrugs, saying, “This asshole won’t finish his drink,” and walks away. The second doorman talks pleasantly with the patron, who then leaves his drink behind and walks up the stairs.

These doormen, who were observed in a Toronto bar, are applying what they’ve learned through a program called *Safer Bars*. They are using a technique called the “tap out”. When a staff member is incapable of dealing with a situation because of frustration and anger with the customer, another staff member will immediately approach and touch, or “tap” him or her on the arm or shoulder. The angry staff member, now “tapped out”, must leave the situation, even if he or she thinks it isn’t necessary.

Bars are a unique social environment where the focus is on drinking, having fun with friends, meeting potential romantic or sexual partners and, generally, providing an escape from one’s usual responsibilities. Under these circumstances, violence and injury are not uncommon, particularly among young adults. *Safer Bars* focusses on reducing violence in these settings by making social and physical environments less conducive to violence, and by training bar staff to manage problem behaviour and defuse potentially violent situations.

The KT challenge

Integrate best evidence on violence and injury prevention to make bars and clubs safer

The *Safer Bars* program has been endorsed as part of the Toronto Drug Strategy, and interest in it has spread far beyond Ontario, largely due to the knowledge exchange that formed a key element of the program’s development. Underscoring the strength of the program, those involved in its development and evaluation have gone on to become advocates for the program in a broader context.

The story behind Safer Bars

Safer Bars began as an effort to respond to violence and injury among young adults while drinking in a licensed setting. Interestingly, some bars have no violence at all while others are prone to violent altercations. Previous research has shown a strong relationship between violence and the social and physical environment of the bar.¹

Safer Bars built on this research by developing strategies to reduce bar violence. By understanding good and bad management practices, staff behaviour and challenging physical environments, *Safer Bars* was able to devise strategies to successfully alter the amount of violence in the bar.

Developing the program was a multi-step undertaking involving literature reviews, consultations with various stakeholders, a research conference on alcohol and violence, observations in bar settings and interviews with bar patrons and staff.

One of the main challenges in the development of this program was that all of the literature on violence prevention dealt with violence in clinical and similarly controlled settings. No one really knew how this would translate to the unique setting of an actual bar.

Relevance is key

The initial program consisted simply of a preliminary training module. Meaningful knowledge exchange was needed to ensure that it would be relevant and useful to bars and clubs. This exchange involved working with the staff and management of more than 15 bars and clubs, repeatedly testing and revising the training program based on their feedback.

For instance, the original program had only two components:

- A training program focussed on violence prevention and de-escalatory techniques for managing problem behaviour
- A risk assessment workbook for bar owners/managers to identify and address the environmental risk factors associated with violent behaviour.

Knowledge translation activities

Knowledge users engaged in:

- *Interactive program development*
- *Interpretation of findings*
- *Dissemination and application*

Other KT activities:

- *Creation of training materials*
- *Dissemination of research results*

After the testing process revealed that bar staff were particularly concerned with the legal consequences of common violent scenarios, a third component was developed to complement the existing training program. A pamphlet summarizing legal responsibilities related to bar violence is now included as part of *Safer Bars* and is also available separately to the general public.

As a result of *Safer Bars*, bar staff and management now have an in-depth resource that allows them to learn about:

- The escalation of aggression
- Assessing a situation and working as a team to diffuse potentially violent situations
- Strategies for not losing their temper
- Effective body language
- Responding to problem situations (including dealing with intoxicated persons)
- Understanding the legal implications of violent behaviour.

Knowledge exchange continues to play an essential role in *Safer Bars*. While trainers guide the content of the training sessions, much of the learning involves peer-to-peer training where staff share successful methods they have developed from experience for preventing the escalation of violence.

A key component of the program's utility is the risk assessment workbook that bar owners and managers use to rate the bar environment, including risks associated with line-ups and other issues related to entering the bar. This then informs and aids in the development of a layout to minimize provocation and address issues related to patrons exiting a bar at closing time. Based on testing and ongoing participant feedback, the workbook has also been revised to attend to the social and economic constraints under which bars and clubs often operate.

How did it work?

Safer Bars was tested in randomly assigned, large capacity Toronto area bars and clubs (18 participating, 12 controls). The results showed a significant decrease in moderate and severe physical violence in bars and clubs whose staff and management had taken part in the *Safer Bars* program, while violence actually increased in the control bars and clubs. These results were based on analyses of data from systematic observations conducted by trained observers from 2000 to 2002 on Friday and Saturday nights between midnight and 2 a.m. before and after the implementation of the *Safer Bars* program in participating bars and clubs.

Widening the reach

Because *Safer Bars* is a private sector intervention, disseminating the program required marketing and licensing. Originally, a hospitality-training agency was given exclusive control over the delivery of *Safer Bars*, with limited success. It was clear there needed to be better planning, development and funding for the necessary knowledge translation activities. As a further complication, the four years required for the rigorous assessment of *Safer Bars* contributed to a loss of the program's momentum, necessitating reinvigorated knowledge translation activities after the completion of the research and evaluation.

Impact

- *Reduced violence and injury in bars*
- *Program endorsed as part of Toronto Drug Strategy*
- *Increased number of bars conducting assessments and staff training*
- *Licensed for use in Alberta and Western Australia*

In 2004, the Centre for Addiction and Mental Health (CAMH) took over ownership of the program and began a more proactive approach to disseminating the program. This involved actively promoting the program to bars in local communities, as well as developing strategies for licensing the program outside Ontario. As a result, more bars are conducting *Safer Bars* risk assessments and more staff are being trained in violence prevention. In addition, national and international recognition of the program has led to numerous invited presentations, and the program has been influential in the development of violence prevention programs in several other countries.

Although I have submitted this case study as leader of the development of Safer Bars and principal investigator of the evaluation research, there were many people who contributed to this project over the 10 years encompassing its development, evaluation and implementation, including colleagues from CAMH, the hospitality industry, public health, police and the legal system, government and the international research community.

Notes

¹ Graham, K., and R. Homel (1997). "Creating Safer Bars." In *Alcohol: Minimizing the Harm*. M. Plant, E. Single, and T. Stockwell (Eds.), London, UK: Free Association Press, p.171-192.



9. REDUCING SMOKING AMONG MOTHERS: THE FACET PROGRAM

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It is a common refrain – the problem is obvious, but the solution is difficult. In both Canada and the United States it is estimated that between 20-30% of pregnant women smoke¹ and that, while half try to quit during their pregnancy, nearly all of them (70-90%) have resumed smoking by one year after giving birth.² It is then clear that an innovative approach to tobacco reduction could have a significant impact on the health of women and children.

The Families Controlling and Eliminating Tobacco (FACET) project found that one of the reasons standard smoking cessation programs don't work with pregnant women and new mothers is that they commonly fail to account for couple dynamics and routines – interactions embedded in the very nature of the women's relationships with their partners.³ The study also learned that, likely as a result of these issues, effective smoking cessation programs and interventions for pregnant and postpartum women are scarce.⁴

The KT challenge

Creating a program to help pregnant women and new mothers stop or reduce their smoking who, despite the evidence of the health benefits, have difficulty fighting their habit

The researchers thus decided to use their newfound knowledge about smoking-related couple dynamics to develop a new tobacco reduction (TR) resource for pregnant and post-partum women, a booklet called "Couples and Smoking: What You Need to Know".

A new approach to an old problem

Unlike standard smoking cessation resources for pregnant women, this new information booklet is unique in several ways. Firstly, it situates women's smoking and tobacco reduction in the context of realistic everyday interactions and relationships with intimate partners and helps women realize that smoking is both influenced by others and embedded in everyday routines. Secondly, the booklet takes a women-centred approach, addressing smoking in the context of women's lives and their relationships (rather than focusing on fetal health), and avoids stigmatizing women's smoking. Finally, a harm reduction approach guides the presentation of options to address tobacco use, and resources are provided for those who desire specific advice and assistance related to tobacco reduction (e.g., telephone support for smoking cessation).

The researchers determined that it is important for tobacco reduction support to be delivered individually to women and men, rather than in joint sessions, based on the potential for inter-couple conflict related to tobacco use. That said, in these individual sessions it is essential that couple dynamics and routines influencing tobacco be addressed.

A collaborative effort

Moving the booklet from a research product into practice was a collaborative effort. While the researchers provided the research evidence, collaborators knew better about the context in which the knowledge was to be translated into practice. Service providers knew more about how tobacco reduction programs work in practice and women smokers knew their own experiences and preferences.

The new booklet included vignettes based on the research participants' experiences, to present information about tobacco-related interaction patterns (TRIPs).

The researchers also designed a self-assessment tool that prompted women to reflect on their experiences related to smoking and tobacco reduction. Finally, drawing on the advice of clinician collaborators, the researchers developed suggestions about how to manage tensions related to tobacco use and enlist appropriate support from partners.

Many individuals helped to test “Couples and Smoking: What You Need to Know” in real-life situations. The BC Association of Pregnancy Outreach Programs (www.bcapop.ca) collaborated to pilot-test the booklet with 49 women smokers and 50 service providers in 11 communities throughout British Columbia. Their feedback, gathered through individual interviews and focus groups, helped to improve the usability of the booklet and the clarity of its messages. In addition, a sample of regional tobacco control experts, including ActNow BC Healthy Choices in Pregnancy, reviewed the booklet.

The women who participated in the testing said they found the information helpful in understanding their smoking patterns and partner interactions related to tobacco use. They also found the information provided them with new ways to think about the factors that influenced their smoking, and provided them with tools to support their tobacco reduction. They suggested that more specific information about how to respond to pressure to reduce or stop smoking be included. Health care providers agreed that the booklet was a valuable resource that provided new and useful information regarding the influence of relationships on smoking, and they provided suggestions for improving the presentation of the information. This feedback resulted in several changes to the booklet: the layout was improved, images were adapted to be more inclusive of women in different contexts, and in some places the language was made less academic.

How did it work?

Several factors helped to make the booklet successful. Partnerships proved critical in working with ActNow BC which provided a vehicle for future dissemination of the booklet much more quickly and effectively than would have been possible otherwise. The widespread consultation and testing of the booklet was also essential to its success. Not all experts agreed with the women-centred harm reduction approach taken in the booklet, but as they participated in the review of the booklet and realized it was able to address their concerns, the potential for the booklet's use in practice was enhanced.

Knowledge translation activities

- *Moving results into practice*
- *Widespread dissemination and application of knowledge*
- *Engaging end-users in tool development*
- *Using knowledge brokers*
- *Adapting knowledge and interventions to promote uptake*

Extending the reach

The researchers are working with their collaborators to continue to increase use of the “Couples and Smoking” booklet and to develop different approaches for both the booklet’s implementation and evaluation. The team has also worked together to obtain additional funding to continue their knowledge translation efforts. This funding will support a variety of strategies to increase the booklet’s use including workshops for health providers to help them integrate the booklet in their practice with pregnant women and new mothers who smoke, as well the incorporation of the booklet and its approach into other resources, such as “quit lines”.

This work is also being closely monitored by health promotion specialists interested in influencing women’s alcohol use during pregnancy, as women who have been unable to stop drinking while pregnant indicate they often face the same partner-related challenges as women who smoke.

While the booklet has been an important first step in translating research findings into a new approach to support smoking reduction, a full evaluation of this new resource is required. Involving government policy-makers, health system planners, health care workers and target audiences was essential to this process of translating research evidence into practice, and will be critical as the evaluation of this approach moves forward.

Impact

- *New, effective approach to support smoking reduction in pregnant women and new mothers*
- *Booklet integrated into practice by health providers*
- *Further grant funding to continue KT activities and evaluation*

Notes

- ¹ Coleman, G., and T. Joyce (2003). “Trends in Smoking Before, During, and After Pregnancy in Ten States.” *American Journal of Preventive Medicine* 24:29-35.
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10. RESISTING EXCLUSION: USING CULTURE TO SHARE HEALTH INFORMATION AMONG MÉTIS IN OTTAWA

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Métis are recognized as one of Canada's founding people in the *Constitution Act*. They account for one-third of Canada's Aboriginal population and number just under 400,000.¹ Despite this fact, they have for the most part been excluded from Aboriginal health research² and Aboriginal health programming and service initiatives.³ There are no Métis identifiers in vital registration, hospital, primary care, and disease surveillance, making it hard to collect even basic health information such as infant mortality rates and life expectancy.⁴ Only 20% of census forms ask about Métis identity. As a result, national health surveys typically don't provide a large enough response to derive Métis-specific results. We do know, however, from the census-derived Aboriginal Peoples' Survey, that Métis people have elevated rates of chronic diseases including arthritis, high blood pressure, asthma, diabetes and heart disease.⁵

The KT challenge

Getting health information to a dispersed Aboriginal population in a culturally appropriate way

Ottawa-Gatineau is home to Ontario's largest urban Métis population, 7,990 strong according to the 2006 census.⁶ As the home of the Métis Nation of Ontario – Ottawa Council, as well as the head offices of the Métis National Council and the Métis Nation of Ontario, Ottawa-Gatineau was a natural choice in which to test a new method of health knowledge translation in the Métis community.

Knowledge translation in an Indigenous context: Special challenges, special considerations

Bridging the gap between health researchers and real-world communities can be a challenge at the best of times. Unfortunately, this gap appears particularly large when the communities in question are Aboriginal. A number of factors come into play here – fundamental differences in world view, the impact of historical actions such as government appropriation of traditional Aboriginal homelands, the outlawing of Aboriginal ceremonies and the establishment of residential schools. Local Indigenous understandings of health and illness, as well as Indigenous ways of sharing knowledge, tend to be overshadowed by more prevalent Western paradigms. As a result, Aboriginal communities' articulated desire to be involved in their knowledge creation and in the development of their health and social services is often ignored.

Because these historical and cultural factors widen the gap between researchers and research users in Aboriginal communities, special approaches to knowledge translation may be required. In this situation, all knowledge translation approaches must recognize that Aboriginal communities are both the key research users and the best source of information about local health systems, local needs and local priorities.

First steps: Building partnerships and understanding

Taking an Indigenous approach to knowledge translation means, above all, finding out what communities want and need. Initial discussions between community representatives and the researchers showed that both shared an awareness of the elevated risk of chronic diseases. Community representatives indicated that they wanted effective, accessible, and culturally appropriate health promotion, and the researchers felt that, working together, they could meet the community's needs for health information.

The first step in this process was to understand the current situation – what were the existing patterns of health information use, assessment and dissemination among Métis living in Ottawa. With this understanding, the researchers and the community were able to develop, implement and evaluate a community-specific knowledge translation initiative. The initiative actively promoted Indigenous knowledge systems and self-determination. Community representatives were involved as decision-making partners at all stages of the process, from planning and implementation, to data collection and analysis, results dissemination and project governance.

Community members, focus groups and interviews helped the researchers better understand existing patterns of health information use and dissemination. Several themes emerged from these activities, including the dispersed community structure of Métis in Ottawa, the impact of colonization on Métis identity and the position of Métis as outsiders in both mainstream and First Nations health systems. Other important themes included the importance of information dissemination through family and community networks, the preference for “within community” messaging, and the valuing of practical knowledge.

How do you reach a dispersed community?

Reaching Métis in Ottawa was a challenge. Approaches needed to be tailored to reflect the information gathered during the initial consultations: Métis in Ottawa are a dispersed and often excluded or invisible population who have been affected by multiple generations of racial prejudice, family disruption and displacement. Additionally, community members noted that it can be difficult to visually identify Métis, a challenge compounded by the fact that only a small fraction of the total Métis population living in Ottawa participate in Métis-specific events.

Knowledge translation activities

Knowledge user engagement in:

- *Planning and implementing community-based research activities*
- *Data collection and analysis*
- *Research results dissemination*
- *Project governance*
- *Tailoring of health information to audience*

Working in partnership with the Métis Nation of Ontario – Ottawa Council, the researchers designed a strategy that would:

- Build on and expand existing informal networks of friends, family, and community
- Provide a way for the dispersed community members to identify each other and “link up”
- Be sensitive to the diverse ways that Métis people living in Ottawa choose to identify themselves.

The strategy revolved around a series of four Métis cultural gatherings as a vehicle for disseminating health information to this diffuse group. This led to the formation of the Ottawa Métis Network for Health.

Bringing a community together

The Métis cultural gatherings were designed to be enticing and featured Métis public figures, cultural teachers, music, food and traditional dance (jigging). However, they also importantly featured health promotion information booths from local, regional and national Métis and Aboriginal health and social services. For instance, the Métis Nation of Ontario provided information on Métis Diabetes (“Healing Arms Diabetes”), Aboriginal Healthy Babies, the Long-Term Care Program, and provided Métis recipes to participants. The Wabano Centre for Aboriginal Health also provided information on their Diabetes and Early Years programs, as well as an overview of the Centre for Aboriginal Health Services. Similarly, the Odawa Native Friendship Centre provided information on their Early Childhood, Nutritional and Youth Recreational programming.

Gatherings were advertised by word of mouth, e-mail lists, radio, website links, posters and a fax tree. At each gathering, attendees could register more formally with the network, ensuring they would be contacted about future network events. To complement these gatherings, the researchers and their community partners established a website, held a logo design competition and developed promotional stickers for circulation showcasing the website address.

How did it work?

The cultural gatherings proved to be an effective way to close the gap between researchers and the Métis community. The gatherings were among the best-attended Métis events ever held in Ottawa, attracting 75-100 people at each event (compared to the 30-40 people who usually attended community events). The gatherings also successfully enhanced participants’ sense of belonging to the Métis community and increased self-rated access to Métis-specific health information and services.

This project was also a success with respect to building on the community’s strengths. The initiative began as a research project, carried out in partnership with a community organization, but with activities primarily led by the researchers. Over the course of the three years spent developing, delivering and evaluating the project, community stakeholders took on an increasingly important role, to the point where they were initiating and, at times, directing activities.

Extending the reach

The post-event focus group and interviews highlighted community gatherings as a model for future events. In fact, this model has been adapted by a local Métis Nation of Ontario health promotion worker who continues to use cultural gatherings as a health promotion vehicle. In addition, community members involved in this project successfully secured funding for hosting several additional Métis cultural gatherings in Ottawa. The work of this group highlights the benefits to be gained by tailoring knowledge translation initiatives to the needs of specific communities, not only in the dissemination of health information, but also in building community capacity.

The experience of the academic research team in engaging representatives of Ottawa’s Métis community in collaborative planning, implementation and evaluation of an innovative, customized and effective health knowledge translation initiative offers a valuable model for others attempting similar population-specific

initiatives, particularly within Aboriginal and other socio-demographically vulnerable communities. The team's work and successes underscore both the challenges and benefits of tailoring knowledge translation initiatives to community systems and structures.

Moving forward, longer-term research would be useful to explore how improved access to Métis-specific health information could be translated into health-promoting behaviours, and what kind of impact this might have on health indicators among Métis.

Impact

- *Development of Ottawa Métis Network for Health*
- *Cultural gatherings enhanced sense of belonging to Métis community and increased access to Métis-specific health information and services*
- *Community ownership of activities*

Notes

- ¹ Statistics Canada (2006). "The Daily: Aboriginal Peoples in Canada in 2006: Inuit, Métis, and First Nations, 2006 Census." Ottawa: Statistics Canada. Available at <http://www.statscan.ca/Daily/English/080115a.html>. Accessed January 25, 2008.
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