KNOWLEDGE TRANSLATION IN LOW & MIDDLE-INCOME COUNTRIES

A Learning Module
prepared by
The Canadian Coalition for Global Health Research

In Partnership with the Knowledge Translation Branch and Canadian Institutes of Health Research

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Introduction to this module

This module is one of a series of modules commissioned by CIHR's Knowledge Translation and Public Outreach Branch. The modules are designed to help researchers and knowledge users learn more about knowledge translation (KT). The longer term goal, of course, is to ensure that the production and use of knowledge leads to improvements in health and health systems. The modules are a tool to achieve this objective and to advance our understanding of, and engagement in the KT process.

The purpose of this specific module is to introduce primarily Canadian researchers and knowledge users to the remarkable work in KT that is going on in lower and middle-income countries (LMICs) around the world, including the organizations that support this work. The module has been prepared by a team from the Canadian Coalition for Global Health Research (CCGHR or "the Coalition")—a Canada-based global network whose members are committed to the promotion of better and more equitable health worldwide through the production and use of knowledge. For more information about the Coalition, see: www.ccghr.ca

There are five parts in the module, along with an appendix, as follows:

- **Part 1: Why is KT important—particularly in LMICs?**

    This section will introduce you to the what of KT and why it's particularly important in LMICs.

- **Part 2: What is being done globally in KT?**

    In this section, you'll learn about the contribution of international, regional and national organizations to KT in LMICs.

- **Part 3: Case studies and examples**

    Here we present five case studies (examples) representing a range of challenges where research has led to some kind of action: policy development, program management, a change in professional performance, or a collective engagement by diverse stakeholders around a shared challenge.

- **Part 4: Individual leadership profiles**

    In this section, we are pleased to introduce you to individuals who are providing leadership for knowledge translation in LMICs.

- **Part 5: What is Canada doing—and learning?**

    In a variety of ways, Canada is contributing to KT in LMICs. This section will briefly summarize some of these contributions and include some thoughts about how Canadians can be respectful and effective partners with LMIC partners in the KT process.

There also is an Appendix:

- Other related resources: A listing (with web links) to other resources about KT in LMICs (with relevance to Canada as well.

Tips on how to use this module

This module can be used in several ways:

- as an individual self-study exercise;

- as a discussion tool for a "dyad" or small group

- as a tool for a larger workshop that would include small group work.

We recommend the second and third learning arrangements. In addition to being more interesting, you will likely be challenged by other colleagues to think critically, and therefore will likely learn more. Most importantly, going through the module may be a starting point for future learning about KT. .

At several points, there will be specific questions under the heading: "Questions for Consideration". This exercise will be most useful if you take time to reflect on the question and write something down. If you are with some colleagues, you can then discuss your various thoughts on the question. We have prepared footnotes on each of the questions to assist you in your thinking and discussions.

We have a suggestion about future learning: As mentioned earlier, Part 4 introduces you to some colleagues around the world who are leaders in the KT process. These colleagues have kindly agreed to be part of a "response panel". If any of you have specific questions about some aspect of the module, you are welcome to submit the question to either of the co-authors (Sheila and Vic –see below). We will refer your question to one or more of the panelists and do our best to get a response to you within a few days. We'll set up this arrangement as a 6-month experiment (July to December 2011), to see if this opportunity is useful and feasible. We'll then decide whether to continue—to some extent, this will depend on you, the fellow learner.

So, that's it. Enjoy the module. We look forward to hearing from you. And here's who we are:

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I'm a Child and Adolescent Psychiatrist and Assistant Professor at McMaster University who has been a member of the CCGHR for a number of years. I have an interest in knowledge translation as it pertains to global health issues and have worked primarily with African colleagues in the area of global mental health.

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I'm a Professor Emeritus at McMaster University, and have served as the national coordinator for the CCGHR. I have a particular interest in working with the "next generation" of global health researchers, both in Canada and in LMICs.

Acknowledgements

PART 1

**WHY IS KT IMPORTANT—
PARTICULARLY IN LMICS?**

Why is knowledge translation particularly important in LMICs?

In this first section, you will be introduced to the concept of knowledge translation (KT) by learning about the term "know-do" gap as it applies to the current state of affairs in global health. You will also learn about some models and solutions to the "know-do" gap in professional practice, programs and policy.

The Buddha said, "To know and not to do is not yet to know"
(Allen, 2006)

Defining the Problem: The "Know-Do" Gap

IN BRIEF: Empirically validated health interventions currently exist which would allow all low and middle-income countries (LMICs) to meet the Millennium Development Goals (MDGs), if effectively implemented. (Evans et al., 2005).

The establishment of the MDGs in 2000 challenged the international community to scale up development efforts to respond with specific targets to gross global inequities by 2015, including improvements in health, poverty, education, access to food, the right for women to give birth without risking their lives as well as environmental sustainability. A recent United Nations (UN) 2010 update on the MDGs suggests that while there have been some pockets of improvement, progress has been unacceptably sluggish. The following examples highlight significant ongoing global health challenges which were directly and indirectly targets in the MDG's.

Examples:

- While almost all births are attended by skilled health personnel in high income countries (HICs), less than half of women receive such care when giving birth in parts of the developing world (UN, 2010)

- The under 5 mortality rate is 18 times higher in LMIC's compared to HIC's (128.3/1000 as compared to 7.0/1000) (Fay et al., 2005)

- There is a 6-year difference in life expectancy between individuals with HIV/AIDS in Sub-Saharan Africa as compared to their counterparts in high and middle-income settings (Dorling et al., 2006).

- Average life expectancy and child mortality have improved more in the world's richest countries compared to the poorest (UN, 2010).

Overall, development progress has been threatened and in some situations undone due to crises in the global economy, food supplies, climate, and threats to human security due to armed conflict. The report's predictions are ominous, suggesting that MDGs will likely not be met by 2015 in most regions of the world (UN, 2010).

Historically, the initial foray into knowledge translation (KT) came from the field of clinical medicine where the gap between what is known and what is practiced was identified. Evidence-based medicine (EBM) in the mid to late 1970's highlighted the need for practitioners to understand and use research in every-day clinical decision making. This led to the creation of the Cochrane Collaboration--a not-for-profit group that conducts systematic reviews of clinical trials for various diseases and provides syntheses of the research evidence, allowing clinicians to be confident of using best evidence for common clinical questions. Meta-analysis also emerged as an important methodological approach to rigorously combine research results for use in clinical practice. Later, the Cochrane Collection expanded to provide syntheses for program and policy questions (see Part 3 for more about the Cochrane Collaboration).

Although EBM was a much-needed shift in research and practice, it also revealed its own limitation as a panacea in global health. The culture of EBM grew in many tertiary settings across the globe, however a growing recognition that evidence for global health programs and policy was available, but not widely being implemented was cause for concern. Despite the production of large bodies of scientific knowledge, the overall burden of disease in most LMICs was relatively unchanged despite the available information, suggesting a fundamental gap between what was known and what was done with relevant knowledge. In other words, this phenomenon has been referred to as the "know do" gap. This failure to effectively use knowledge to address health disparities in LMICS through policy, program planning and professional practice has, over the past two decades, been high on national and international research agendas of organizations such as the World Health Organization (WHO), the World Bank, the United Nations Development Programme (UNDP), and the Alliance for Health Policy and Systems Research.

"Even in countries where health inequalities have improved (e.g., Sweden), there is no reason for complacency since the differences in health across population groups remains substantial"
(Welch et al., 2009).

Questions for Consideration

What do you think is meant by the term "Know-Do" gap?

How do we understand the disparity between available knowledge and its uptake? In other words, why does the "know-do" gap exist?

For comments on Box 1, see footnotes below [1]

[1]Some possible explanations for the "know-do" gap:

- Health research has often been conceptualized as an "end point" as opposed to being a component of a intentional and strategic process (Pablos-Mendez et al., 2005)

- There is a paucity of research in LMICs, underscoring the need for rigorous systematic reviews on relevant public health questions in these settings

- Current and proposed future research endeavours do not always build upon existing research work in LMICs (Nuyens and Lansang, 2006)

- Challenges exist in understanding the health research, policy and clinical contexts in LMICs which are fundamental for successful KT

- Difficulties with implementing evidence-informed policies

- Failure to identify and include relevant stakeholders in KT process and activities

- The development of KT expertise is linked to human resource capacity which is a significant challenge in LMICs (Nuyens & Lansang, 2006)

- Competing research interests in LMICs (Nuyens & Lansang, 2006)

- Fragmentations between policy makers and ground level solutions (Haines et al., 2004)

Defining KT

WHO has adapted the CIHR definition of KT as "the synthesis, exchange and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people's health" (WHO, 2005).

Welch and colleagues use this definition to make the observation that KT is a very complicated process involving multiple stakeholders in the generation, adaptation and application of knowledge. They also suggest that successful KT encompasses more than clinical and epidemiological expertise and requires the creative and intentional contributions of other sectors such as finance, management, communication and education (Welch et al., 2009).

"The concept of knowledge translation is developing at a time when unprecedented global investments in health research have generated a vast pool of knowledge that is underused and not translated rapidly enough into new or improved health policies, products, services and outcomes. KT comes at a time when the gap between what is known and what gets done is highlighted by shortfalls in equity and quality in health services"
(Landry et al., 2006).

KT Models:

Various models for KT have been proposed. An early example was the "Ottawa Model of Research Use" (Graham and Logan, 2004). A revised version of this model was used as a basis for analyzing knowledge translation in developing countries (Santesso and Tugwell, 2006).

In the special issue on KT in the WHO Bulletin in August 2006 (see Appendix), Tugwell and colleagues list the "6 P's" as knowledge user groups (targets) for knowledge translation—that is: Public (community); Patients; Press; Practitioners; Policy-makers; and Private Sector (Tugwell et al; 2006). [Others have added the "P's" of program managers, and peers.]

In the same special issue, Lavis presents several models for linking research and action (Lavis et al, 2006). To some extent, these models represent the evolving thinking and scholarship about "what works" in knowledge translation. They are: push efforts by producers or purveyors (of knowledge); user pull efforts; exchange efforts; and integrated efforts. These integrated efforts are sometimes referred to as "knowledge translation platforms".

IN BRIEF: KT solutions and models exist for policy, programs and professional practice in LMICs

KT and Professional Practice

The "know do" gap extends to professional practice. There are numerous clinical examples in North America and Europe where "best evidence" has been synthesized into clinical guidelines for public health problems such as cardiovascular disease and is readily available yet practice remains largely varied (Eisenberg & Garzon, 1997). Traditional efforts to change practitioner behaviour to address the "know-do" gap have been attempted through continuing medical education (CME) and continuing professional development (CPD). CME and CPD can be broadly characterized by educational processes that are teacher or learner driven. The educational literature base currently shows that passive learning or educational activities are poor at changing physician behaviour. Davis and colleagues suggest that these educational constructs are inadequate to address issues of population health. In other words, CME and CPD have been relatively ineffective is bridging the "know-do" gap in professional practice (Davis et al, 2003).

Summary

KT is important for LMICs for the following reasons:

o Significant global health disparities exist despite a growing history of knowledge production and global health initiatives. The discrepancy between what we know and what we do is at the heart of the "know-do" gap.

o Knowledge to solve most health problems in LMICs is available.

o KT models and solutions exist for policy, programmes and professional practice.

Box 2

Questions for Consideration

How might CME and CPD differ from KT as an educational tool for evidence-based practice?

For comments on Box 2, see footnotes below ²

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²Davis and colleagues suggest that KT as an educational tool may be seen as a viable alternative to CME and CPD in effecting change in professional practice for the following reasons:

Settings:

KT happens in the real-life practice environment as opposed to learning situations (i.e., lecture halls)

Tools:

The production of material outlining "best evidence pathways" which can be considered a toolkit is a common outcome or product in KT

Targets:

Attention is paid to all possible participants in healthcare practices including patients, policy makers and consumers

Primary Operating Models:

KT is more holistic in that it considers the interface between practitioner, policy maker and system as compared to CME or CPD which tends to be more linear (i.e., learning linked to re-licensing)

Interdisciplinary:

KT addresses multi-dimensional problems and therefore requires input and expertise from various disciplines outside of traditional health models including organizational learning, social and educational psychology, informatics as well as patient and public education.

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PART 2

WHAT IS BEING DONE GLOBALLY IN KT?

What is being done globally in KT

In this section, you will learn about what international organizations and several national and regional initiatives are doing about knowledge translation.

The international organizations include:

- *The World Health Organization*
- *The Cochrane Collaboration*

The national and regional initiatives are:

- *KT Group in Cape Town*
- *Zambian Forum for Health Research (ZAMFOHR)*
- *Mental Health and Poverty Project (MHAPP)*

International Organizations

The World Health Organization (WHO):

The WHO is one of many agencies of the United Nations (UN) "system", and the only agency specifically focused on health. The headquarters of the WHO are situated in Geneva, Switzerland with additional regional offices in six regions around the world. Canada is represented in the regional organization for the Americas; it is called the Pan-American Health Organization (PAHO) with headquarters in Washington, DC (U.S.A.). Officially, the WHO is governed through representatives of its "members states" of which Canada is one. The Canadian government's link to the WHO is handled through the International Affairs office of Health Canada. From time to time, a Canadian sits on (or even chairs) WHO's Executive Board. In fact, the very first Director General of the WHO was a Canadian—Dr. Brock Chisholm.

An important moment in the story of WHO and KT took place in 2004. In November of that year, the WHO and the government of Mexico co-organized and co-sponsored a major event—the Ministerial Summit on Health Research[2]. This meeting was called "ministerial" because it specifically attempted to include high-level government officials (particularly ministers of health) in the discussions. The focus of this "summit" was on the question of how research could help to strengthen national health systems and achieve the Millennium Development Goals (MDGs).

In preparation for the summit, the WHO published an important document: the *World Report on Knowledge for Better Health[3]* . In particular, the last chapter of this useful 146 page publication is entitled: Linking Research to Action, popularizing the expression, the "know-do gap". A direct consequence of this concern for this gap, particular between research and policy making was the creation of the evidence-informed policy network, or EVIPNet.

EVIPNET – a snapshot

EVIPNet was created in 2005, shortly after the Mexico Summit. It describes itself as "a social and collaborative network that promotes the systematic use of health research evidence in policy-making. Focusing on low and middle-income countries, EVIPNet promotes partnerships between policy-makers, researchers and civil society in order to facilitate both policy development and policy implementation through the use of the most reliable scientific evidence available." EVIPNet began in Asia, then moved to Africa, and most recently to Latin America.

EVIPNet has a very active and helpful website:
http://www.evipnet.org
Several journal articles about this dynamic network are available including the following:

- Hamid M et al. EVIPNet: translating the spirit of Mexico. Lancet 2005;366:1758-60
- EVIPNet Americas: informing policies with evidence. Lancet 2008:372:1130-31.

EVIPNet is also linked to the SURE project (Supporting the Use of Research Evidence). This is a collaborative project funded by the European Commission's 7th Framework Programme. It builds upon and supports EVIPNet in Africa and also the REACH initiative (Regional East African Community Health Policy Initiative). The project involves teams of researchers in 11 African countries, supported by research teams in Europe and Canada. More information about SURE can be accessed through the EVIPNet website (above).

[2]For a summary report, see: www.who.int/rpc/summit
[3]This report can be ordered by going to: http://apps.who.int/bookorders

Box 3

Questions for Consideration

What do you think is the WHO role in research, and specifically in knowledge translation?

If you're not sure, what do you think the WHO's role should be?

For comments on Box 3, see footnotes below [1]

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[1] In fact, while aspects of research are integrated into various WHO programs and activities, it was only in May 2010 that the World Health Assembly approved the first organization-wide strategy on research. The strategy – Research for Health – defines a common framework for how research is approached in WHO and the role WHO takes in global health research. [The strategy document can be downloaded from: http://www.who.int/rpc/research_strategy/en/index.html. The strategy has five main goals of which "translation" is one.

In the document, the translation goal is: "...to strengthen links between research, policy and practice.". About two pages in the document (pp. 18-20), are devoted to describing the challenge, listing the actions to achieve the goal, and stating the expected results. One of these expected results is: "researchers who are more responsive to the demand side, including to the health-related research questions of policy-makers (in health and other sectors), practitioners and civil society".

The Cochrane Collaboration

 www.cochrane.org

The Cochrane Collaboration was established in 1993 and named after Archie Cochrane, a British epidemiologist who was an important contributor to the science of epidemiology. The Cochrane Collaboration has become an international, independent organization with the goal of ensuring that up-to-date and accurate information about health care interventions is available and accessible throughout the world. The main activity is the production of Cochrane Reviews, prepared by members who are mostly volunteers. There now are more than 15,000 people from close to 100 countries working in this remarkable collaboration. They are organized into several different entities: Review Groups; Centres; Methods Groups; Networks (or "fields"); and a Consumer Network.

Cochrane Reviews are systematic assessments of evidence of the effects of healthcare interventions, so that people can make informed decisions about health care, their own and someone else's. These reviews are published in *The Cochrane Database of Systematic Reviews* www.cochrane.org/docs/whycc.html, one of several databases in *The Cochrane Library* www.thecochranelibrary.com .

A sister organization, the Campbell Collaboration www.campbellcollaboration.org prepares and disseminates high quality systematic reviews of social science evidence in three inter-linked fields: education, crime and justice, and social welfare. These systematic reviews are available in the Campbell Library.

Cochrane Canada is one of 14 centres around the world http://ccc.cochrane.org. Funded by the CIHR, Cochrane Canada includes the Centre itself (based at the University of Ottawa under the direction of Dr. Jeremy Grimshaw), six Review Groups, two Methods groups and one Field. More than 2,000 volunteers and 30 paid staff are involved in the work of Cochrane Canada to produce systematic reviews. The Canadian Centre has also developed partnerships with 26 national organizations and 18 regional sites (17 universities and one health authority).

National and Regional Initiatives

Here are some examples of national and regional knowledge translation initiatives. As it happens, all these examples are from Africa.

Knowledge Translation Unit, University of Cape Town:

About ten years ago, with initial funding from Canada's International Development Research Centre (IDRC), a group of clinicians and researchers in South Africa conducted a randomized clinical trial and demonstrated that nurses based in primary care settings could be trained to provide care to patients with lung diseases, with significant results in terms of both costs and clinical outcomes. This strategy, called "Practical Approach to Lung Health in South Africa" (PALSA). This work led to the creation of the Knowledge Translation Unit at the University of Cape Town http://www.knowledgetranslation.co.za , led by Dr. Lara Fairall. This PALSA strategy was expanded and applied to the management of HIV/AIDS and Sexually-Transmitted Infections (STIs). Quite soon PALSA PLUS was integrated into the health system of two provinces in South Africa. A bit later, the national Department of Health contracted with the KTU to provide PALSA PLUS services to 18 "crisis districts" throughout South Africa. Recently, the PALSA PLUS approach has been adapted to research (cluster randomized trials) projects in Malawi. The Canada-based non-governmental organization Dignitas, is involved in these activities in Malawi.

ZAMFOHR:

The Zambia Forum for Health Research (ZAMFOHR) was registered as a non-profit, non-governmental organization in late 2005. It describes itself as a "*knowledge translation institution that aims to harmonize the research community in the hope of creating a spirit of evidence-informed decision-making among researches and research-users*". ZAMFOHR's activities include the creation of a searchable data-base that now includes more than 5,000 publications, featuring health research projects of Zambians. In partnership with the Canadian Coalition for Global Health Research (CCGHR), a Fellowship program was launched in 2009. This involves 13 Zambian researchers and knowledge users all of who are involved in various research projects, who come together to learn about various aspects of knowledge translation organized as a "KT curriculum". ZAMFOHR also houses several "research to action groups" (RAGs), on issues such as mental health, human resources for health (HRH) and reproductive health. Each RAG includes both researchers and policy-makers (knowledge users). Several RAGs include Canadian collaborators. An example is the HRH RAG that received a grant from Canada's Global Health Research Initiative (GHRI) to conduct a project entitled: *Evaluating the Availability of Adequately Trained Health*

Care Providers in Rural Zambia Through Competency Assessment and Outcome Mapping. The Canadian partner is Dr. Gail Tomblin Murphy, director of the WHO/PAHO Collaborating Centre in HRH Workforce Planning and Research at Dalhousie University http://whocentre.dal.ca . Much more information about ZAMFOHR is available by going to the organization's website: www.zamfohr.org .

Mental Health and Poverty Project (MHAPP):

Funded by the U.K. Department for International Development (DfID) and managed at the University of Cape Town in South Africa, the Mental Health and Poverty Project (MHaPP) is a 5-year study of mental health policy, legislation and services in four African countries: Ghana, South Africa, Uganda and Zambia. The project website is: www.psychiatry.uct.ac.za/mhapp . While most African countries have a national mental health program or plan, only 52% have a mental health policy, only a third of which are less than 10 years old. Some policies haven't been changed for fifteen or more years. Sound evidence-based policies and plans are critically important tools to ensure the coordination and delivery of essential services. Without them, mental disorders are likely to be treated in an inefficient and fragmented manner. Through country-based teams, the project conducted detailed situation analyses in the four participating countries. Using the evidence from these analyses, consultative meetings and workshops were held in each country. As this project nears completion, a series of helpful policy briefs have now been produced[4] For example, Policy Brief 10: *Developing and adopting mental health policies and plans in Africa*" summarizes the work done in each country, and describes five key lessons learned in the process. They are:

- A high level political mandate, leadership and political will are essential;

- Relevant stakeholders should be identified and actively involved;

- Awareness-raising and lobbying of mental disorders should form an integral part of policy and program development;

- Workers in the mental health sector should be equipped with the necessary skills needed for policy and plan development;

- It is very important to remain flexible, be patient, and obtain strategic posts.

Summary

The above organizations tell an interesting story of the evolution of the global knowledge translation "system" in the health field and beyond. Beginning as part of the "evidence-based health care" movement (represented by the Cochrane Collaboration), the KT idea broadened to include the social sciences (the Campbell Collaboration), and somewhat later still to evidence about health policy and systems (exemplified in the MHAPP story). Now the idea of using "best evidence" permeates global organizations (such as the WHO) and other global initiatives. For example, the recent G8 Summit launched the "Muskoka Initiative" on Maternal, Neonatal and Child Health, as an added thrust to much work internationally that was already on-going—for example, the WHO-based "Partnership on Maternal, Neonatal and Child Health" www.pmnch.org . To support all this action, a series of "knowledge summaries" have been prepared to assist policy-makers and program managers undertake evidence-based actions. These summaries can be downloaded from: http://portal.pmnch.org/ .

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[4]These briefs can be down-loaded from: http://workhorse.pry.uct.ac.za:8080/MHAPP/public/policy_briefs

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PART 3

CASE STUDIES AND EXAMPLES

Case Studies and Examples

This section provides a summary of some illustrative case studies and examples. You will learn about a range of problems in low and middle-income countries, where systematic work is being done to ensure that actions—including policy-making, program management and professional performance – are informed by evidence.

The examples below are selected to illustrate the process of translating research to policy, programs and practice in a range of situations—including large national programs, local and practical clinical situations, and implementation challenges.

Universal health insurance in Mexico:

In 2003, the government of Mexico implemented a package of health reforms called *Seguro Popular,* the main aim of which was to provide health coverage to 50 million uninsured Mexican citizens (Knaul & Frenk, 2005). More specifically, the reforms were designed to reduce the prevalence of catastrophic health expenditures by providing "social protection in health". Of particular interest is the fact that the Mexican Ministry of Health took steps to build an evidence base for these reforms. In a series of technical papers that appeared in the Lancet in 2006, the role of "technical evidence" (as a key component to accompany political and ethical considerations) was elaborated (Frenk J, 2006). More recently, an experimental assessment of the universal insurance program was published (King et al, 2009). Using a "phased rollout" design (which made randomization "politically possible and feasible"), the study by King and others randomly assigned key components of the reform program within pairs of matched clusters. Designated outcomes were compared between a baseline survey and a follow-up survey ten months later. The main finding was that of significantly decreased reductions in catastrophic costs in the "experimental compliers". In the short term of the study (less than a year), there were as yet no differences in spending (particularly on medications), use of services or health outcomes. The relatively short implementation period was the focus of an accompanying commentary (Victora & Peters, 2009), concluding that the study exemplifies the challenges of doing "real-life effectiveness evaluation", and proposes innovative approaches. This Mexico story continues as an important example of how evidence can be translated into policy and programs on a large scale.

Artemisinin-based combination therapies for malaria in Cameroon:

In the west African country of Cameroon, malaria is responsible for 40 percent of all medical consultations—and thus the major cause of illness in this country. As in many African countries, the Cameroon Ministry of Health established artemisinin-based combination therapies (ACT) as the first-line treatment for uncomplicated malaria, as a matter of policy, along with the strategy of home-based management of malaria (HMM) by community health workers (CHWs) in order to improve access and reduce delays in treatment. However, there were significant challenges in implementing these policies. These included inadequate stocks of the appropriate drugs, insufficient HMM kits throughout the country, uneven performance by both the private sector and the "informal sector" with an inadequate regulatory system, and wide-spread use of self-medication. This situation led to the development of a policy brief and a process to engage stakeholders in order to achieve universal access to subsidized ACTs (Ongolo-Zogo P, Bonono R-C., 2010).

The policy brief described three policy options:

- Promote safe, efficient, and effective home-based management of malaria;

- Engage private pharmacists in the distribution of subsidized ACTs;

- Strengthen the stewardship and regulatory role of the Ministry of Health to ensure the proper registration, regulation, and use of antimalarials, while maintaining the availability and affordability of the preferred antimalarials.

The policy brief informed a policy dialogue that included all relevant stakeholders. While there was agreement about the overall goal of the policy, opinion remained divided about the role of the State in the performance on private pharmacies and in the role assigned to CHWs, particularly in the urban setting.

This story illustrates the role of evidence not only in setting policy, but in informing the process of implementing policy.

Clinical case studies of bridging the knowledge-action gap in Thailand:

In the August 2006 special issue on "Knowledge Translation in Global Health" of the *Bulletin of the World Health Organization* (See Appendix for a more detailed summary of this issue), a Thai professor of medicine, Visanu Thamlikitkul, summarized four cases demonstrating how knowledge and action for health can be bridged—through relevant knowledge generation and through knowledge implementation (Thamlikitkul V., 2006).

Summarized below are two of the four examples in this paper:

- **Heparinized saline flush and peripheral venous catheter patency:** In a Bangkok teaching hospital, through a meta-analysis and two randomized trials, it was demonstrated that it was not necessary to use a heparinized saline flush to maintain catheter patency—a procedure that was costly and had some negative clinical effects. Rather, catheter patency could be achieved with a normal saline flush. This evidence-based change in a clinical program resulted in significant savings for both patients and the hospital.

- **Urinary drainage bag change regimen:** Urinary tract infection (UTI) is a complication among patients who need an indwelling urethral catheter. Recommended practice by nurses in the Siriraj Hospital was to change the urine bag every three days, whereas the hospital's infection control committee maintained that the urine bag should not be changed on a routine basis. No relevant evidence was available for either regimen. Therefore a randomized controlled trial was done comparing the two regimens, and found no difference in UTI incidence between the two groups. This result led to policy changes in the hospital, resulting in savings on costs, personnel time and plastic waste.

This Thailand story provides excellent examples of how research can be applied to practical clinical questions, leading to direct care in health care at the local level.

Pesticide use in Ecuador's banana industry:

The challenges of moving from knowledge to action are amply demonstrated by the workings of the global food system, in which many lower and middle-income countries (LMICs) participate through the production of cash crops for export (Patel, 2002). Bananas in particular have transformed the physical and human geographies of Latin America and have inspired multi-disciplinary research on social and environmental impacts with major—and preventable—consequences for population health (Striffler & Moberg, 2003). Ecuador is the home to the world's largest export banana industry, with many banana plantations owned by wealthy landowners and worked by landless labourers. Workers typically face a variety of occupational hazards including exposure to toxic pesticides such as organophosphates (Harare, Forastiere & Axelson, 1997). This is an example of an all-too-frequent situation in LMICs where occupational pesticide exposure is blamed on worker carelessness and ignorance, when in fact it is more accurately attributable to "structural" aspects such as farm procedures, regulatory regimes and international markets (Konradsen et al, 2003). Latin America's banana industry – and especially Ecuador's – operates under a model in which fruit is delivered under contract to exporters by wealthy landowners, who in turn employ contract labourers—essentially a downward shift of financial risk with the secondary consequence of precarious employment and occupational exposures.

This situation was a "case study" explored during a workshop on "research to action" at the CCGHR Summer Institute in Ecuador in July 2010. Banana industry stakeholders joined researchers and policy-makers at this event. It was concluded that while policy entry points could be made at the level of individual workers and their hazardous behaviours, effective knowledge translation would also need to target actors at other levels, including farms, provincial and national regulatory agencies, and even multinational corporations and the trade regimes in which they operate. To accomplish this in evidence-based, equitable and effective ways represents an open challenge, and is currently the focus of further research[1].

Task-shifting in Uganda:

As is the case in many African countries, Uganda faces a severe shortage of human resources for health. One way of addressing the problem involves "task shifting"—a process of delegation where tasks are moved to less specialized health workers. While this process has been taking place at an informal level in Uganda, it was not supported by a clear policy, planning, or monitoring and evaluation. This was the situation that led to the preparation of a policy brief requested by the Ministry of Health, with a particular focus on improving the delivery of maternal and child healthcare . The brief had the title:

"*Task shifting to optimize the roles of health workers to improve the delivery of maternal and child healthcare.*"[2] It was made available in two forms: a 10-page summary, and a 47-page full report, including tables and references.

The brief brought together global research evidence (from systematic reviews) and local evidence to inform the deliberations about health policies and programs. The full report included a list of 100 references from the global and local literature. The brief presented three policy options, outlining the advantages, disadvantages and acceptability considerations for each option. The policy options were:

- Optimise the role of lay health workers;

- Optimise the role of nursing assistants;

- Optimise the role of nurses, midwives and clinical officers.

The brief also presented implementation considerations, including a table that listed several barriers to implementation and strategies for addressing these barriers. Examples included: mothers' knowledge and care seeking behaviour; health workers' knowledge and competency; incentives for health workers; and referral processes and transportation.

The brief has now been presented to the Ministry of Health, and is under active discussion and debate.

This story illustrates the fact that considerable expertise and capacity is available in low income countries (in this case Uganda) to undertake all aspects of the knowledge translation process—including doing systematic reviews, preparing comprehensive policy briefs, and conducting policy dialogues.

Summary

To some extent, the case studies and examples in this section reflect various components of the knowledge translation process, such as:

- the importance of identifying who the key "stakeholders" might be related to a particular issue (or upcoming decision), and convening these stakeholders in order to define the issue or challenge more specifically;

- the role of systematic reviews;

- the increasing understanding about and experience with preparing policy briefs;

- the evolving best practices related to the dialogue process—for example with policy-makers (that is, policy dialogues—sometimes called "deliberative dialogues").

- organizational arrangements for on-going and sustainable interactions between researchers and knowledge-users—particularly policy-makers (or "decision makers"). These organizational structures serve as knowledge brokers, and are sometimes called KT platforms, or knowledge hubs. The on-going interaction between researchers and knowledge users is a key element that leads to action and change.

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[1]This case study was prepared by Ben Brisbois, a PhD candidate at the University of British Columbia, in consultation with his Ecuadorian colleagues. This "case study" is the focus of Ben Brisbois's doctoral thesis. Readers of this module who are interested in discussing this issue in more depth are welcome to contact Ben Brisbois at: ben.brisbois@gmail.com

[2]This policy brief was prepared by the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative, published 26 July 2010.

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Box 4

Questions for Consideration

There obviously are many other examples of "research to action" (knowledge translation)

For comments on Box 4, see footnotes below [3]

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[3]Note on Box 4: The authors of the module would welcome your suggestions about other case studies and examples of KT from LMICs. Please send them along to the e-mail addresses that can be found in the Introduction section.

PART 4

INDIVIDUAL LEADERSHIP PROFILES

Profiles of KT Leaders

Competent and dedicated leadership is a key factor in effective knowledge translation in any context—but particularly in LMICs. In this section, you will be introduced to researchers and knowledge users (in alphabetical order) who are providing outstanding leadership to the knowledge translation process in their own settings.

Luis Gabriel Cuervo

As the Senior Advisor, Research, at the Pan-American Health Organization (PAHO/WHO) in Washington D.C., Luis Gabriel Cuervo is responsible for research promotion and development for this agency. He was educated as a physician in his native Colombia, went on to qualify as a specialist in family medicine, and then joined Pontificia Universidad Javeriana as an assistant professor. During this time, he became interested in research and obtained his M.Sc. in Clinical Epidemiology and Biostatistics in his own university, and conducted research in both rural and urban communities. In 2000, he joined the British Medical Journal (BMJ) as the Clinical Editor of BMJ Knowledge. In this role, he contributed to the development and expansion of clinical evidence. During this time he was instrumental in strengthening links with the Cochrane Collaboration and broadening the global relevance, contribution and reach of the BMJ.

In joining PAHO in 2005, Dr. Cuervo brought first hand expertise as both a producer and user of evidence for health care from his experience as a clinician, academic and researcher. Adding to this was his role as BMJ's Clinical Editor where he provided special leadership regarding knowledge translation that was relevant to low and middle-income countries. A significant contribution of Dr. Cuervo has been the coordination of PAHO's response to the 2004 Mexico Declaration on Health Research, leading to the development of PAHO's Policy on Research for Health, approved by the 49th Directing Council of PAHO in September 2009 [See: http://www.paho.org/ResearchPortal]. He has also been a major promoter of EVIPNet Americas [See *Lancet* 2008;372:1130-31].

Fadi El Jardali

An Assistant Professor in Health Policy in the American University of Beirut, Lebanon, Fadi El Jardali is a leader in knowledge translation in the Middle East region. He obtained a MPH degree at his own university, and then came to Canada for doctoral studies, obtaining a PhD in Public Policy (specializing in health policy) at Carleton University in Ottawa. He is currently an Evidence to Policy Fellow of the WHO-based Alliance for Health Policy and Systems Research.

Dr. El Jardali has maintained his links to Canada, through receiving a Global Health Leadership Award –a program of the Global Health Research Initiative (GHRI). The focus of this award is "*Towards Evidence Informed Policies in the Middle East and North Africa Region: Capacity Development and Baseline Assessment of the Policy Making Process and Research Production and Translation: Next Steps for the Scoping Study*". This is one example of his on-going research in the areas of health policy and management, knowledge translation and human resources for health. He is also an Affiliate of the Program in Policy Decision-Making and the McMaster Health Forum at McMaster University.

Lara Fairall

As a medical graduate of the University of Cape Town in South Africa, Lara Fairall became interested in implementation research during her community service in Cape Town's busy primary care clinics—in particular the use of clinical practice guidelines in primary care. This led her to pursue a doctorate program in health systems research; her thesis topic was: "*The costs and effects of the Practical Approach to Lung Health in South Africa (PALSA)*". The project evaluated the effectiveness, including the cost-effectiveness of guideline-based training programs for primary care nurses on the costs and outcomes of respiratory care.

This interest led Dr. Fairall and her colleagues to create the Knowledge Translation Unit at the University of Cape Town (highlighted in Part 2 of the module). PALSA has since been extended to PALSA PLUS now involving guidelines for HIV & AIDS care and other related conditions, throughout South Africa and more recently in Malawi. Dr. Fairall's passion and work is captured in the vision of the Knowledge Translation Unit: "*Bridging the gap between what we know and what we do*".

Maimunah Hamid

A Malaysian citizen, Maimunah Hamid studied medicine at Cairo University in Egypt, returning to her own country for an MPH degree. She has held various positions in the fields of public health and health systems research, and including the directorship of the Institute of Health Systems Research of the Malaysian Ministry of Health. During this time, she was also the head of the WHO Collaborative Centre for Health Systems Research and Quality Improvement. Since 2008, she has served as the Deputy Director-General of Health (Research and Technical Support) in the Ministry of Health. She is also an Adjunct Professor in the Medical Faculty of the University Malaya.

Dr. Hamid has been involved in EVIPNet from its beginnings, serving in various leadership roles. She is currently a Malaysian Co-Researcher, working with five other international researchers, in a major study to evaluate knowledge translation platforms in low and middle-income countries, in conjunction with the implementation of EVIPNet Malaysia.

Oyunaa Lkhagvasuren

In her native Mongolia, Oyunaa Lkhagvasuren "wears many hats". She is the head of the Health Promotion Division, in the Department of Health (the implementing agency for the government in the health sector). She is also the secretary of the Mongolian Health Promotion Foundation in the Ministry of Health. In addition, Oyunaa is the Officer in charge for foreign relations, at the National Center for Health Development. She studied medicine in both Russia and Mongolia, before completing a Masters in Public Health at the State University of New York in Albany, N.Y., followed by doctoral studies in human sexuality at Widener University, Pennsylvania, U.S.A.

In 2006, Dr. Lkhagvasuren was a participant at the third Summer Institute of the Canadian Coalition for Global Health Research (CCGHR) in Cuernevaca, Mexico. She became an active member of the CCGHR's "Mongolia- Canada team", and has been involved in a series of projects focused on the health impacts of the mining industry in Mongolia. This work includes conducting systematic reviews of available evidence, and engaging in consultations with a range of stakeholders—other researchers, government, representatives of the industry, and international agencies. She has also been a leader

in explorations to strengthen Mongolia's national health research system. In 2008 she was appointed to the CCGHR Board of Directors, as the Asian-based member—a contribution that continues to the present.

Terese Maitland

As the founding Chief of the National Epidemiology and Research Unit (NERU) of the Ministry of Health and Human Services of the Turks and Caicos Islands (TCI), Terese Maitland is the only Caribbean recipient of a Global Health Leadership Award (GHLA) of Canada's Global Health Research Initiative. She is an alumnus and three-time graduate of the University of West Indies (UWI) where she studied human nutrition and health management. This was followed by graduate studies (MPH in Epidemiology and Biostatistics; PhD in Dietetics and Nutrition) in Florida. For a time she was the Research Assistant Professor in public health at Florida International University. Currently she is also the Scientific Secretary of the Caribbean Health Research Council.

To see a brief video interview of Dr. Maitland, click here

Dr. Maitland's current focus is on strengthening the public health infrastructure of the TCI by improving surveillance, especially in the area of seafood illnesses; conducting research for health; capacity building; and developing effective knowledge translation and exchange (KTE) platforms to inform policy makers and facilitate translating health research into practice. This work is supported by her GHLA grant.

Harriet Nabudere

From a base in the College of Health Sciences, Makerere University in Uganda, Harriet Nabudere is involved in several knowledge translation initiatives. She is the project coordinator for the SURE project (Supporting the Use of Research Evidence)—a major collaborative project that involves teams of researchers and policymakers in 11 African countries, with additional support by research teams in four European countries and Canada. SURE is supported by the European Commission's 7th Framework Program. Harriet is also the focal officer for the REACH Uganda Country Office hosted by the Uganda National Health Research Organization. Prior to this, she was a knowledge translation consultant on several other projects.

Following her studies in medicine at Makerere University, she worked in the field of primary health care as a Senior Medical Officer with the International Medical Group. Harriet's interest in public health led her to the James P. Grant School of Public Health, BRAC University in Dhaka, Bangladesh, where she received an MPH. Recently Harriet has begun doctoral studies at Makerere University in the field of knowledge translation, with a special interest in the role of policy briefs.

Pierre Ongolo-Zogo

Trained as a physician in France, Pierre Ongolo-Zogo went on to further graduate education (MSc) in Biomedical Engineering and Radiology and Medical Imaging, becoming certified in this specialty. He returned to his native Cameroon to join the Faculty of Medicine and Biomedical Sciences at the University of Yaoundé, eventually becoming Head of the Radiology and Medical Imaging Unit, at the Yaoundé Central Hospital. Quite soon after returning home, he realized that little attention was paid to the knowledge base for diagnostic and therapeutic interventions—and spoke up about this. Soon the national Minister of Health asked Pierre to establish a Division of Health Operations Research in the Ministry of Public Health, a position that led to his involvement in other initiatives related to knowledge translation.

In June 2008, Pierre became the head of the Centre for Development of Best Practices in Health, based at the Yaoundé General Hospital. He is a member of the Global Steering Group of EVIPNet and chairs the EVIPNet Africa steering group. He is also a member of the Scientific Advisory Committee–Integrated Community Directed Interventions, for the Special Program for Tropical Diseases Research (TDR). In 2008, he also received a GHRI Global Health Research Leadership Award. In 2009 he served as a facilitator at the 6th CCGHR Summer Institute in Burkina Faso, and in October 2010 Pierre was appointed as the Africa-based member of the CCGHR Board of Directors.

To see a brief video interview of Dr. Ongolo-Zogo, click here

Tomás Pantoja

As a medical graduate from Pontifica Universidad Católica de Chile, Tomás Pantoja went on to join the first cohort in Chile to obtain special training as a family physician. He became involved in the process of reform of Chilean general practice to become more family-oriented, working as a Director of a "first wave" health centre leading this innovation. Tomás then engaged in post-graduate studies in the U.K. in the field of Health Management (MSc, Imperial College) and Evidence-based Health Care (certificate and diploma, University of Oxford). Returning to Chile, as an Assistant Professor in his own university, he leads the Ancora project—a model of primary health care services in the context of private management (the university) with public funds.

His main academic interest is in knowledge translation at different levels of the health system, particularly how to bridge the know-do gap in LMICs. He is a coordinator with the Iberoamerican Cochrane Network, and participates in the Cochrane Collaboration Review Group on Effective Practice and Organization of Care (EPOC). With support from the WHO-based Alliance for Health Policy & Systems Research, Tomás and his team are establishing a Methodology Centre for Systematic Reviews in Health Policy and Systems Research in LMICs. He also received a GHRI Global Health Leadership Award, and in July 2010 served as a facilitator at the CCGHR 7th Summer Institute in Ecuador.

To see a brief video interview of Dr. Tomás Pantoja, click here

Visanu Thanlikitkul

Trained as a physician in the Faculty of Medicine Siraraj Hospital, Mahidol University in Bangkok, Thailand, Visanu Thanlikitkul went on to post-graduate training in Internal Medicine in the same university, specializing in infectious diseases. His interest in clinical research led to studies at McMaster University where he received an MSc. Degree in Clinical Epidemiology and Biostatistics, followed by a Clinical Fellowship in the Infectious Diseases program at the University of Cincinnati Medical Centre, U.S.A.

Returning to his own university, Visanu is now a professor in the Department of Medicine and Office for Research and Development. He is also the deputy dean of research in the Faculty of Medicine. From this base, he continues to pursue his interest in the appropriate use of antibiotics, evidence-based medicine, knowledge translation and knowledge management. In his country and regionally, he is seen as a leader in research and knowledge translation about practical problems in clinical medicine. Two examples of his work are included in Part 2 of this module (Case Studies & Examples).

Summary

These brief profiles of ten LMIC leaders in the field of knowledge translation, include both researchers and knowledge users—the latter including policy-makers, leaders of clinical services and public health. Several are "hybrids", where their work includes both the production and use of knowledge—in fact, they serve as "knowledge brokers". For some, their professional careers have taken them from primarily research to primarily policy work. All are committed to ensuring that the best available knowledge is used to address relevant and important challenges in health in their own countries and beyond.

Perhaps it's no surprise that many of them have Canadian connections. Four are current fellows in the GHRI Global Health Leadership Award program. Several have links with the CCGHR. All these links set the stage for future "South-Canada" collaboration and partnerships in this growing and exciting field of knowledge translation.[1]

[1] Note: These ten colleagues have also kindly agreed to serve on the response panel, described in the Introduction to the module.

PART 5

WHAT IS CANADA DOING— AND LEARNING?

What is Canada doing—and learning?

In the international health research community, Canada is seen to have outstanding strengths in the area of knowledge translation. In this final section, we will summarize how some of these Canadian resources contribute to KT in LMICs. The section concludes with some reflections on how Canadians involved in global health research can continue to learn—in particular through "south-north" partnerships.

Canadian contributions to KT in LMICs:

National agencies and organizations:

Below we will introduce several agencies, organizations and academic centres all of which have activities that illustrate contributions to KT in LMICs. These KT-related activities introduced briefly below.

IDRC www.idrc.ca

The International Development Research Centre (IDRC) was created by the Parliament of Canada in 1970—so IDRC is celebrating its 40th anniversary. It is a Crown corporation that reports to the Canadian parliament through the Minister of Foreign Affairs. IDRC is quite distinctive in that it is a publicly funded agency with a primary mandate to support research in LMICs, and is known globally for this special contribution. IDRC's mission: Empowerment through knowledge, is achieved by funding applied research conducted by researchers in LMICs, providing expert advice to these researchers and build capacity in LMICs to conduct research and innovation. IDRC supports research in four broad areas:

- Agriculture and the environment;

- Health and health systems;

- Social and economic policy

- Science, technology and innovation

Within the health and health systems area, there are currently three programs: the Global Health Research Initiative (GHRI-see below), Governance, Equity and Health (GEH), and Research for International Tobacco Control (RITC). Many of the research projects conducted by LMIC researchers (some in partnership with Canadians) include a knowledge translation component.

IDRC also develops and disseminates tools related to knowledge translation. An example is the KT toolkit (described in more detail in the Appendix)—a project within a section of the GEH program called "Research Matters"—a collaborative activity of IDRC and the Swiss Development Corporation (SDC). The KT toolkit has 12 chapters, with titles such as: *Bringing in the Demand: Towards the Harmony of Push and Pull*; and: The Two Pager: Writing a Policy Brief.

CIHR www.cihr.ca

The Canadian Institutes of Health Research (CIHR), Canada's national health research organization, officially came into being with the passing of Bill C-13, April 13, 2000. Significantly, this official mandate includes knowledge translation, with these words in the act of Parliament: The mandate of the CIHR is "to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge, and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian health-care system". CIHR's vision statement implies a global scope: "*CIHR's vision is to position Canada as a world leader in the creation and use of knowledge through health research that benefits Canadians and the global community*". CIHR is an active partner in the 5-agency GHRI (see below). CIHR's new strategic plan (2009-2010 – 2013-2014) includes a section on "international collaboration", reflected in its new international strategy that gives priorities to activities such as:

- Connect trainees and researchers at the international level;

- Focus on targeted collaborations/consortia that support Canada's strengths and priorities;

- Facilitate health research capacity building in low- and middle-income countries;

- Address internationally recognized global health priorities; and

- Proactively respond to emerging health threats.

CIHR's Knowledge Translation and Public Outreach branch promotes and supports specific KT activities throughout the agency. Include are various KT-related awards in the area of global health research. Some of these supported projects are featured in publications from the KT branch.

Examples include the Knowledge Translation Casebook, which includes the story: *Bridging the "Know-Do" Gap— The Case of Home Fortification with Sprinkles*", written by Stanley Zlotkin and colleagues from the University of Toronto. Another casebook: Knowledge to Action: An End-of-Grant Knowledge Translation Casebook, includes the story: "*Prevention of Mother-to-Child Transmission of HIV in Guatemala*" written by Mira Johri, University of Montreal.

GHRI www.ghri.ca

A major milestone in the story of global health research was the report by the Independent International Commission on Health Research for Development, released and published in 1990 (Commission on Health Research for Development, 1990). This was accompanied by comments in some international journals (Evans J., 1990). Ten years later, 800 participants from around the world met in Bangkok, Thailand to determine to what extent the Commission's recommendations had been met. Among the participants were a small number of Canadians who determined that Canada's contributions to this global movement could be much better (Neufeld et al, 2001). In response to this realization, an informal "interim steering committee" met to consider how Canada's contribution could be realized. One result was the creation of the Global Health Research Initiative (GHRI).

To create the GHRI, a Memorandum of Understanding (MOU) was signed in 2001 by the heads of four federal agencies: IDRC, CIHR, Health Canada (HC), and the Canadian International Development Agency (CIDA). More recently, the Public Health Agency of Canada (PHAC) has joined this group. Knowledge translation is an implicit part of GHRI's mission: "Canada's GHRI funds research on global health problems, strengthening the capacity to do research and to use research findings to deal with global challenges". Within a period of less than 10 years, total GHRI investments were approximately $52 million ($9.4 million for the 2009-2010 fiscal year). By 2015, total investments through the GHRI partnership are expected to reach about $60.9 million.

Current GHRI research programs include:

• Teasdale-Corti Research Program

• Africa Health Systems Initiative – African Research Partnership Program

• Canadian HIV-AIDS Prevention Trials Capacity Building Grants

• Avian and Pandemic Influenza and Emerging Infectious Diseases

• Canadian International Immunization Initiative for Haiti

Two research programs were completed in 2009:

• Canadian International Immunization Initiative – Phase 2

• HIV/AIDS Prevention Trials Capacity Building Grants Program – Phase 1

Details of all of these programs can be found on the GHRI website.

Here are some further descriptions of the two of GHRI's current programs.

Teasdale-Corti (T-C) Research Program:

Named after the late Dr. Lucille Teasdale-Corti, an internationally known Canadian physician who worked in Uganda, this 6-year program has several components: the T-C team grants; global health leadership awards (GHLA), and some smaller supplementary grants. The team grants support 14 research teams active in 30 countries around the world. All of these grants include knowledge translation among their activities, along with research capacity building. The global health leadership awards provide support to 13 emerging LMIC leaders; four of these individuals are included in the profiles presented in Part 4 of this module. Several of the teams have received supplementary grants for specific knowledge translation sub-projects.

Africa Health Systems Initiative – African Research Partnership Program (AHSI-RES):

This program supports ten Africa-led research teams all of whom are looking for innovative ways to strengthen health systems in sub-Saharan Africa. The teams are all jointly led by an African researcher and an African decision-maker and including several Canadian researchers. These teams are focusing on two main areas: the recruitment and retention of health workers, including the strategy of "task-shifting"; and the role of health information in ensuring greater equity in access to health care. The teams are based in seven sub-Saharan countries: Burkina Faso, Kenya, Malawi, Mali, Tanzania, Uganda and Zambia.

CHSRF www.chsrf.ca

Established in 1997, the Canadian Health Services Research Foundation in an independent, not-for-profit organization with a mandate to promote the use of evidence to strengthen the delivery of health services in Canada. CHSRF is known in particular for its expertise in knowledge translation and evidence-based change focused on Canada's health care delivery system. Quoting its current strategic plan: "CHSRF works to improve the health of Canadians by:

• Capturing the best evidence about services that improve the health of Canadians;

• Filling critical gaps in evidence about how to improve the health of Canadians, by funding research and evaluation;

• Supporting policymakers and managers to develop the skills necessary to apply the best evidence to improve the health of Canadians."

One of the foundation's flagship programs, the Executive Training for Research Application (EXTRA) program gives health system managers the skills to better use research in their daily work. The two-year program accepts 24 fellows annually. One of the modules "introduction to KT" was conducted in Mexico. Two Africans (both from Cameroon) have been observers in one of the residential EXTRA programs, leading to a current exploration to adapt aspects of the EXTRA program for African participants.

University-based centres:

There are many academic centres across Canada involved in global health research. Here we introduce two such centres that have taken a particular interest in knowledge translation related the LMIC setting.

Centre for Global Health, University of Ottawa

Led by Peter Tugwell, this centre serves as a hub for global health research activities at the University of Ottawa. Graduate students based in this centre include researchers from LMICs. With a special interest in equity-oriented knowledge translation, the centre is responsible for one of the methods groups within the Canadian Cochrane Centre – the Campbell and Cochrane Equity Methods Group [see: www.ccc.cochrane.org] . This group conducts systematic reviews about equity-related publications, and recently conducted a first version of a "webinair" on: *Equity 101 – what equity can do for you.*

Program in Policy Decision-making (PPD), McMaster University
www.researchtopolicy.org

Led by John Lavis, and located within the Centre for Health Policy Analysis (CHEPA) in McMaster's Faculty of Health Sciences, this program conducts research and training related to the process of "research-to-policy". Several researchers from LMICs are graduate students in this program. In 2009, a new project: "*Evaluating Knowledge-Translation Platforms in Low-and Middle-Income Countries*" (KTPE) was launched, supported by a consortium of agencies, including CIHR. Over a 4-year period, the study will describe what KT platforms are doing in 47 KTPE study jurisdictions. The project includes evaluating three most innovative activities – priority-setting processes, policy briefs, and policy dialogues; annual documentation of activities and outputs, and evaluating a set of pre-determined outcomes. The PPD is also linked to a domestically oriented program—the "McMaster Health Forum" (www.mcmasterhealthforum.org). A series of resources are available on this website, including a listing of SUPPORT tools for evidence-informed health policymaking (see Appendix for more details).

Other organizations:

CCGHR www.ccghr.ca

Launched in 2003 as a not-for-profit organization, the Canadian Coalition for Global Health Research has includes a strong emphasis on knowledge translation in LMICs, reflecting its vision: *Promoting better and more equitable health worldwide through the production and use of knowledge*. This is done is several ways:

• The theme of the Coalition's annual summer institute program is "research to action". Here new global health researchers from Canada, along with their "dyad" partners from LMICs come together to learn about how their specific research projects can include a knowledge translation component;

• In its new strategic plan (2010 – 2014), the Policy Influence program (PIP) includes the specific objective: *to strengthen the Coalition's role in knowledge translation.* This group is currently conducting an analysis of Canada's various initiatives in KT (in the health sector) with a view to producing and disseminating a "KT report card" about this. Two of the researchers included in the Part 4 profiles (Harriet Nabudere and Pierre Ongolo-Zogo) are PIP members and contributors.

- A knowledge translation resource group (KTRG) has prepared a set of "best readings" about KT (available by clicking on the "resources" section of the Coalition's website."

Learning more about KT

As you come to the end of this module, we hope that in addition to having learned some interesting and useful things, you will have been stimulated to learn more about KT itself, including how KT is carried out in LMICs. We offer two suggestions for doing this—exploring some additional learning resources; and getting involved in a "south-north" research partnership that includes KT.

Additional Learning Resources:

The Appendix describes some resources about KT that have been prepared by other groups, and that we highly recommend for your further exploration and learning.

"South-North" Research Partnerships:

The CCGHR developed the Partnership Assessment Tool (PAT) in response to observations that the majority of what has been written on best practices for "North- South" research partnerships has been developed in the North. The tool was a product of a 3-year project (supported by IDRC) the focus of which was to elicit the Southern voice (i.e., regional consultations with South Asia, Latin American and Africa) as it relates to health research partnerships and to generate substantive strategies for significantly improving the way in which they are conducted. The PAT is useful for helping research teams generate consensus on key elements such as sustainability, knowledge production, knowledge translation, capacity development and innovation.

The Partnership Assessment Tool (PAT) document is composed of a preamble, frequently asked questions, a literature review and synthesis of project results, and the toolkit itself. The toolkit is made up of a series of questions and exercises that, through subsequent discussions, will equip parties entering into health research partnerships with the means of assessing their partnership through four stages: Inception, Implementation, Dissemination and "Good endings and new beginnings". The questions represent different topics that should be discussed, agreed upon and, where possible, formalized, between partners across the lifespan of the partnership.

The overwhelming message was that much improvement in the conduct of health research partnerships remains to be made. Southern partners indicated that the need to *negotiate* for equity in partnerships is essential and that principles and norms are needed on which to base this negotiation. Furthermore, it was clear that a mechanism was required to guide negotiation and monitoring and evaluation across the lifespan of a partnership. This led to the development of the PAT.

For more resources on partnership North-South partnership building, please see the CCGHR website at http://www.ccghr.ca/default.cfm?content=key_resource_bp&lang=e&subnav=library

References – Part 5

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APPENDIX

Additional Learning Resources

Summarized below are several additional learning resources related to the overall theme of this module: Knowledge Translation in Low and Middle-Income Countries. We recommend them highly for your further learning about this topic.

KT Toolkit

Developed as part of IDRC's program on Governance, Equity and Health (GEH), within the sub-program "Research Matters", this toolkit provides a useful introduction to knowledge translation, of particular relevance to LMICs. This product was co-supported by IDRC and the Swiss Development Corporation. This resource is can be downloaded as a .pdf document (in its entirety, or by chapter), in both English and French. It can also be ordered as a CD or as a booklet.

It can be downloaded from:

http://www.idrc.ca/en/ev-133179-201-1-DO_TOPIC.html

SUPPORT Tools for Evidence-Informed Health Policymaking

As a collaborative initiative was produced by an international collaboration funded by the European Commission's 6th Framework as part of a project: *SUPporting POlicy relevant Review and Trials (SUPPORT)*; the collaboration includes groups in Canada and Norway. The series was written for people responsible for making decisions about health policies and programs, and for those who support these decision makers. The series consists of 18 papers, all of which were published in (and are available from) the journal: Health Research Policy and Systems. The papers are clustered under four headings: supporting evidence-informed policymaking;

identifying needs for research evidence; finding and assessing evidence; and going from research evidence to decisions.

A two-page listing of these articles, with a .pdf link for each, can be downloaded from:

http://www.mcmasterhealthforum.org/docs/mhf-tool_2_support-tools_2010-04-21.pdf

Special issue of the Bulletin of the World Health Organization

Published in August 2006, this special issue is entitled: *Knowledge Translation in Global Health*. Several articles from this special issue are included as references in sections of this module, including the introductory editorial. Although the issue is now several years old, it still represents a valuable resource for further reference.

The English version can be downloaded from:

http://www.who.int/bulletin/volumes/84/8/en/index.html