Scholarly and Research Communication
VOLUME 12 / ISSUE 1 / 2021

Knowledge Translation Advancement at a Childhood Disability Research Centre: Report on a Five-Year Strategic Plan

Samantha K. Micsinszki, Rachel Teplicky, Dayle McCauley,
Jan Willem Gorter, & Michelle Phoenix
CanChild Centre for Childhood Disability Research, McMaster University

Abstract

Background: Knowledge translation (KT) can be challenging to do effectively. Capturing the progress of KT activities and their impact is critical, but few resources exist for research organizations to systematically evaluate these. A status update was completed to understand the progress of KT at a childhood disability research centre five years after a KT strategic plan was developed.

Analysis: A survey was completed by researchers, trainees, and staff to report on their KT activities, rate the importance of six priority areas, and rate their satisfaction.

Conclusion and implications: This article highlights examples of KT activities and provides recommendations for KT advancement in childhood disability research organizations.

Keywords: knowledge translation, knowledge mobilization, strategic planning, childhood disability research

Résumé

Contexte : L’application des connaissances (AC) peut être difficile de faire effectivement. L’évaluation du progrès et de l’impact des activités d’AC est essentielle, mais il existe peu de ressources qui peuvent soutenir les organisations de recherche souhaitant faire une évaluation systématique. Un rapport de situation a été complété pour mieux comprendre comment l’AC a été fait dans un centre de recherche pour les enfants en situation de handicap, cinq ans après qu’une stratégie d’AC ait été développée.

Analyse : Un sondage a été rempli par les chercheurs, les étudiants, et le personnel au centre de recherche pour indiquer les activités d’AC réalisées et pour évaluer l’importance de six domaines prioritaires et leur satisfaction.

Conclusion et implications : Cet article souligne des exemples d’activités d’AC et fourni des recommandations pour l’avancement de l’AC dans les organisations de recherche en réadaptation pédiatrique.

Samantha K. Micsinszki is a Postdoctoral Fellow at the School of Rehabilitation Science and CanChild Centre for Childhood Disability Research at McMaster University. Email: micsinss@mcmaster.ca

Rachel Teplicky is the Business and Engagement Officer at CanChild Centre for Childhood Disability Research at McMaster University. Email: teplicr@mcmaster.ca

Dayle McCauley is the Research Development Officer at CanChild Centre for Childhood Disability Research at McMaster University. Email: dmccaul@mcmaster.ca

Jan Willem Gorter is a Professor of Pediatrics and the Director of CanChild Centre for Childhood Disability Research at McMaster University. Email: gorter@mcmaster.ca

Micsinszki, Samantha K., Teplicky, Rachel, McCauley, Dayle, Gorter, Jan Willem, & Phoenix, Michelle. (2021). Knowledge Translation Advancement at a Childhood Disability Research Centre: Report on a Five-Year Strategic Plan. *Scholarly and Research Communication, 12*(1), 19 pp. doi:10.22230/src.2021v12n1a387

Mots clés : application des connaissances, mobilisation des connaissances, planification stratégique, recherche en handicaps infantiles

Michelle Phoenix is an Assistant Professor, School of Rehabilitation Science at McMaster University, a Scientist at CanChild Centre for Childhood Disability Research, and an Adjunct Scientist at Holland Bloorview Kids Rehabilitation Hospital. Email: phoenimp@mcmaster.ca

Background and context

Knowledge translation (KT) is a term used to describe the variety of outputs and activities to move high-quality evidence into practice (Barwick, Dubrowski, & Petricca, 2020) and is defined by the Canadian Institutes of Health Research (2012) as an "iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge" (p. 1). Many related terms are used to describe KT practices reflecting the complex and dynamic nature of the exchange of knowledge between knowledge generators and knowledge users (McKibbon, Lokker, Wilczynski, Ciliska, Dobbins, Davis, Haynes, & Straus, 2010). Knowledge users may also be included in knowledge generation through integrated KT and patient-engaged research (Kothari, McCutcheon, & Graham, 2017). Overall, KT is defined here as the activities and outputs that are developed to exchange knowledge with various stakeholders, often informed by KT theory and in partnership with stakeholders.

The goal of KT is often to change behaviour and/or practice (Davis, Evans, Jadad, Perrier, Rath, Ryan, Sibbald, Straus, Rappolt, Wowk, & Zwarenstein, 2003) and improve health and well-being (Canadian Institutes of Health Research, 2012), because without conscious effort to integrate evidence into practice (Graham, Logan, Harrison, Straus, Tetroe, Caswell, & Robinson, 2006), patients and their families are unlikely to receive the benefits of research and healthcare advances (Grimshaw, Eccles, Lavis, Hill, & Squires, 2012; Grimshaw, Shirran, Thomas, Mowatt, Fraser, Bero, Grilli, Harvey, Oxman, & O'Brien, 2001). Understanding KT efforts longitudinally is important at varying levels of health research, including individual researchers, research teams, health research organizations, and policymakers (Kislov, Waterman, Harvey, & Boaden, 2014); KT can, however, be challenging to do effectively within complex systems (e.g., individuals, groups, organizations) that interact at various levels (Holmes, Best, Davies, Hunter, Kelly, Marshall, & Rycroft-Malone, 2017). Complex systems in health, education, policy, and beyond can take a long time to produce change (Green, Ottoson, García, & Hiatt, 2009). Researchers are expected to achieve impact through their research, which necessitates the dissemination of findings. However, researchers face individual and organizational challenges to engaging in KT and promoting uptake in practice by the intended service users (Jacobson, Butterill, & Goering, 2004). Organizational barriers may include resources and funding; knowledge transfer orientation (e.g., how researchers prioritize KT); structures and mandates for KT activities; promotion and tenure guidelines (e.g., a lack of recognition for dissemination and implementation practices); and documentation (e.g., organizational focus on planning and evaluating KT) (Jacobson et al., 2004). Individual, organizational, and systemic barriers are highly interlocked, and attending to only individual barriers is unlikely to effectively translate knowledge (Grimshaw et al., 2012; Holmes et al., 2017). Capturing the progress of research activities at both the individual and organizational level is important but can be extremely challenging and time-consuming, as few resources exist for organizations to systematically evaluate this progress (Holmes et al., 2017).

Micsinszki, Samantha K., Teplicky, Rachel, McCauley, Dayle, Gorter, Jan Willem, & Phoenix, Michelle. (2021). Knowledge Translation Advancement at a Childhood Disability Research Centre: Report on a Five-Year Strategic Plan. *Scholarly and Research Communication, 12*(1). doi:10.22230/src.2021v12n1a387

Effectively transferring knowledge into practice has been part of CanChild's mission since its inception in 1989. While physically located at McMaster University in Hamilton, Ontario, Canada, CanChild (n.d.-c) is made up of a large multidisciplinary team of researchers, staff, and trainees that include local, national, and international members. As of 2019, CanChild (2020) members included 19 scientists (e.g., researchers who are selected by a scientific advisory board); 36 research associate members (e.g., researchers who collaborate with CanChild); trainees (e.g., seven postdoctoral fellows, 30 PhD students); 41 research staff (e.g., research assistants, project coordinators, CanChild coordinators); and 10 emeritus scientists. CanChild (n.d.-b) is dedicated to improving the health and well-being of children with various disabilities and chronic health conditions and their families through knowledge generation and knowledge translation with researchers, clinicians, children and youth with disabilities and their families, as well as other stakeholders, such as educators and policymakers. CanChild's strategic focus on translating knowledge into practice is particularly evident in the organization's wide range of knowledge translation outputs from a variety of research and clinical activities that are publicly available, for example through CanChild's website. In addition to these KT outputs, CanChild (2021b) has 24 evidence-based health research and clinical tools/products available for purchase in its shop, as well as a wide range of resources to support the use of KT in practice. In 2020, CanChild (2020) scientists published over 100 articles and were awarded over CND$7 million in grants.

Over the last decade, CanChild has placed the planning and evaluation of KT as a key strategic driver for its members. Specifically, between June 2012 and February 2013, CanChild engaged in a KT strategic planning process to integrate KT activities, goals, and objectives across all levels of the organization. The development and outcomes of this strategic planning process led to the development of CanChild's (n.d.-f) KT strategic plan for 2013–2018 (Russell, McCauley, Novak, Kolehmainen, Shikako-Thomas, D'Costa, & Gorter, 2015). To summarize briefly, the KT strategic planning process included three phases: 1) an environmental scan via an online survey of CanChild members; 2) a one-day strategic planning meeting; and 3) small working groups to identify priority areas and develop action plans, five-year milestones, and deliverables. The strategic planning process was informed by the model developed by Bev Holmes, Gayle Scarrow, and Megan Schellenberg (2012) that identified functional areas for agencies to assess KT needs and advance KT communication and evaluation. The six resulting priority areas that were identified through CanChild's strategic planning processes included "engaging families, nurturing partnerships, optimizing access to knowledge, KT capacity building, advancing KT science, and funding for future KT activities" (Russell et al., 2015, p. 9), which were then mapped onto a program logic model. See Russell et al. (2015) for further description of CanChild's KT strategic planning process, the process of developing the logic model, and the KT activities and priorities that were identified.

Since the development and publication of the KT strategic plan, CanChild has been actively and collaboratively engaging (Banner, Bains, Carroll, Kandola, Rolfe, Wong, & Graham, 2019) in activities to support the dissemination of knowledge into practice. In moving the 2013–2018 KT strategic plan into action, many of the priority areas and corresponding activities and outcomes in the logic model have been tracked. However, due to changes in CanChild's funding model, activities related to the long-term financial sustainability of the centre were prioritized, including the development of a revenue generation scheme. To accommodate, some priorities had to be postponed (e.g., KT science). It was also found that some KT activity metrics were not feasible to track (e.g., the number of times website documents were downloaded). In summary, given the needs and priorities of the organization between 2013 and 2018, not all six priority areas identified in the program logic model were systematically addressed or evaluated.

Therefore, the focus of this KT status update is not to evaluate the progress of CanChild against the logic model but rather to describe KT activities at a research centre that aims to improve the lives of children with developmental conditions and their families through research and KT. Although KT is embedded throughout the organization and KT is facilitated and supported by the core staff, individual researchers and their research teams are responsible for their own KT work.

The purpose of the current article, therefore, is to illustrate the ways in which CanChild members have been involved in KT activities (e.g., leading, managing, supporting, etc.) across the organization over time since the development of the 2013–2018 KT strategic plan. This article focuses on what CanChild members view as continued KT needs and priorities and offers recommendations for moving forward while reflecting on CanChild's KT history. The goal of the article is to illustrate the status of CanChild's KT activities and use this information to inform organizational KT planning at CanChild and other children's rehabilitation research organizations.

The objectives of this KT status update are:

> To determine the type of KT activities in which CanChild members are engaged, the frequency of and satisfaction with this engagement, and the perceived importance of these KT activities.
> To determine the outputs of CanChild's KT activities.
> To determine the frameworks and tools that guide and/or support KT activities at CanChild.
> To identify future directions for KT within and beyond CanChild.

Methods

In 2019, a working group comprised of CanChild students, staff, associate members, scientists, and the director of CanChild undertook a KT status update of CanChild's KT activities and needs following the end of CanChild's five-year KT strategic plan (2013–2018). This team developed a 10-item electronic survey that was hosted on the survey platform REDCap (Research Electronic Data Capture) (Harris, Taylor, Thielke, Payne, Gonzalez, & Conde, 2009) and emailed to all CanChild members (approximately 90) between August and October 2019. The survey aimed to capture how CanChild members (e.g., students, staff, scientists, etc.) were involved in KT in their role and research. The survey questions focused on individual capacity for KT and were not designed to capture organizational efforts or outcomes. The survey instructions directed respondents to reflect on the KT activities that they had been involved in between 2013 and 2018, and survey questions included items related to the frequency, satisfaction, and perceived importance of their KT activities. Moreover, there were seven open-ended questions that asked respondents to provide examples of outputs of KT activities that CanChild members were involved in and describe the frameworks, resources, and tools that CanChild members used to engage in KT activities. The survey was used for CanChild's KT self-evaluation and planning, therefore an ethics review was not necessary; consent was implied through voluntary participation in the survey.

Data analysis was conducted by Samantha Micsinszki and reviewed by Michelle Phoenix. Excel was used to analyze descriptive statistics to summarize variables. Frequencies and percentages were used to summarize categorical data to shed light on the frequency with which KT activities and strategies were being conducted. Open-ended data was inductively coded by one member of the team who has qualitative research experience and reviewed with the full authorship team. The coded data was summarized according to major topics and key quotes were identified. Lastly, KT examples were updated in 2021 in two ways: 1) by emailing the original survey respondents to determine if they had updated examples to share; and 2) by identifying KT examples highlighted on the CanChild website and contacting those authors for updates and permission to share.

Results

A total of 29 CanChild members completed the survey, for a response rate of approximately 32 percent (29/90). CanChild researchers comprised the largest group of respondents, which included scientists ($n = 11$, 38%), associate members ($n = 5$, 17%), and emeritus scientists ($n = 2$, 7%). CanChild students and trainees, such as master's and PhD students and postdoctoral fellows ($n = 5$, 17%), as well as CanChild staff also completed the survey ($n = 6$, 21%). CanChild members who completed the survey were most often affiliated with Canadian universities ($n = 19$, 66%), and some respondents were from international universities or medical research centres ($n = 5$, 17%) and children's healthcare organizations ($n = 3$, 10%). Table 1 presents the characteristics of CanChild members who completed the survey.

Table 1: Characteristics of participants in this survey

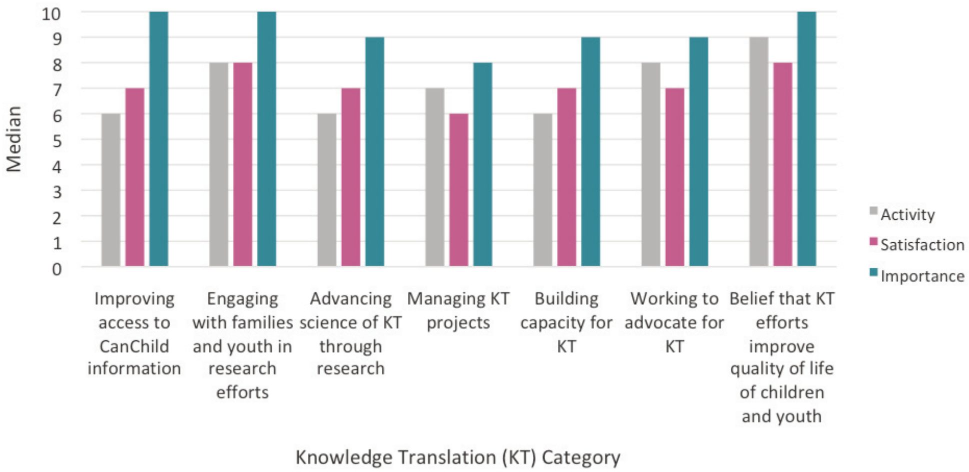
Characteristic	*N* (%)
Role at CanChild ($n = 29$)	
CanChild scientist	11 (38%)
CanChild associate member	5 (17%)
CanChild student (e.g., master's or PhD students; postdoctoral fellows)	5 (17%)
CanChild staff (e.g., CanChild coordinator; research or project coordinator; student research assistant)	6 (21%)
CanChild emeritus scientist	2 (7%)
Organizations CanChild members work at or are affiliated with* ($n = 29$)	
Canadian university	19 (66%)
International university or medical/research centre	5 (17%)
Children's healthcare organization (other than CanChild)	3 (10%)
No additional affiliations	3 (10%)
Other	1 (3%)

Note: *Two participants had more than one affiliation

OBJECTIVE 1: TO DETERMINE THE TYPE OF KT ACTIVITIES IN WHICH CANCHILD MEMBERS ARE ENGAGED, THE FREQUENCY OF AND SATISFACTION WITH THIS ENGAGEMENT, AND THE PERCEIVED IMPORTANCE OF THESE ACTIVITIES

To understand the types of KT activities in which CanChild members are engaged, the frequency of and satisfaction with this engagement, and the perceived importance of these activities, questions asked respondents to rate CanChild's KT strategic directions on a scale of 1 (not at all) to 10 (very much). These strategic directions were based on the KT framework by Holmes et al. (2012) and the KT priority areas described by Russell et al. (2015). They included improving access to CanChild information; engaging with families and youth in research efforts; advancing the science of KT through research; managing KT projects; building capacity for KT; working to advocate for KT; and KT efforts that improve the quality of life of children and youth. Figure 1 illustrates the median frequency of KT activities by CanChild members, their satisfaction with their KT activities, and the perceived importance of these KT activities.

Figure 1: Median frequency of KT activities by CanChild members, their satisfaction with KT activities, and the perceived importance of these activities



While CanChild members felt that all of the suggested KT categories were highly important (range 8–10), there was variation in the extent that CanChild members engaged in these activities (range 6–9) and their satisfaction (range 6–8) (see Figure 1). Respondents rated their KT activities at or above a median of six in all of the KT activities that were surveyed, with the lowest reported scores in the areas of improving access to CanChild information, advancing the science of KT through research, and building capacity for KT (median of 6 in all categories). Despite the room to improve on these KT activities, respondents reported that their satisfaction with KT activities in these areas was generally good (median 7). The reported activity and satisfaction scores were close in all KT categories (medians within one point); however, the reported activity level was higher than respondents' satisfaction with their management of KT projects, their advocacy for KT, and their belief that KT efforts improved the quality of life for children and youth. These results may indicate a desire to achieve more satisfying KT outcomes, perhaps due to the high level of importance that respondents placed on all categories of KT activities.

Micsinszki, Samantha K., Teplicky, Rachel, McCauley, Dayle, Gorter, Jan Willem, & Phoenix, Michelle. (2021). Knowledge Translation Advancement at a Childhood Disability Research Centre: Report on a Five-Year Strategic Plan. *Scholarly and Research Communication, 12*(1). doi:10.22230/src.2021v12n1a387

Objective 2: To determine the outputs of CanChild KT activities

CanChild members were asked to reflect on the last five years and provide examples of the KT activities or specific KT or integrated KT projects that they have been involved with at CanChild. Table 2 collates many of the diverse KT examples completed by CanChild members but is not an exhaustive list.

Table 2: Types of activities CanChild members engage in and examples

KT Output Category	
Example outputs	**Reference**
Print materials	
• Flyers/brochures • Co-produced project summaries • Infographics • Implementation toolkit with practical resources • CanChild newsletter • Lay-language newsletters • Parent- and therapist-focused documents	• *CanChild Today* newsletter (CanChild, 2021a) • *FIRST KIT: Resources to Support a Tiered Model of Service Delivery* (Campbell, Sahagian Whalen, Dix, Pollock, Jiang, Kim, & Missiuna, 2019) • "The F-Words Citation Analysis Infographic" (Soper, Cross, Rosenbaum, & Gorter, 2019)
Videos or other online media	
• Videos (e.g., testimonial & promotional, demonstration & training, presentations), such as on YouTube or Vimeo • Podcasts • e-magazine articles	• *I Can Talk! Technology Gives a Voice to Children & Youth Who Cannot Speak* (IHDCYH Talks Entretiens de l'IDSEA, 2019) • *READYorNot CHILD-BRIGHT Project: Meaningful Involvement of Patient, Family and Healthcare Stakeholders in the READYorNot Project* (CHILD-BRIGHT Network, 2018) • *DCD in Secondary School: Let's MATCH for Success* (CanChild McMaster, 2017)
KT online collection of topic-based resources	
• Project- or diagnosis-specific collections of resources • Website hubs	• F-Words Knowledge Hub (CanChild, 2021c) • CP-NET (McMaster University, 2021a) • IAACD (CanChild, 2018) Transition Hub (Health Hub in Transition, 2021)
Presentations, interviews, and talks	
• Conferences and other stakeholder presentations • Interviews • Talks (e.g., TedTalks)	• Classifying Autism Based on Everyday Social Communication Abilities (ASDMentalHealth, 2017) • CanChild's Concussion Guidelines – Carol DeMatteo and Laura Turner on the AM900 CHML Bill Kelly Show (CanChild, 2013) • "CanChild: Research in Practice. Publications and Presentations" (CanChild, n.d.-i)
Publications	
• Academic papers (e.g., peer-reviewed articles)	• "Knowledge Mobilization to Spread Awareness of the 'F-words' in Childhood Disability: Lessons from a Family-Researcher Partnership" (Cross, Rosenbaum, Grahovac, Kay, & Gorter, 2015)

Table 2 (continued)

KT Output Category	
Example outputs	**Reference**
Publications	
• Formal reports (e.g., government funding report)	• “Engaging Stakeholders to Improve Outcome Measurement in a Preschool Speech-Language Service Using Implementation Science” (Cunningham & Oram Cardy, 2020) • “Partnering for Change: Implementation and Evaluation Final Report, 2013 – 2015: Final Report for the Ontario Ministry of Health and Long Term Care and the Ontario Ministry of Education” (Missiuna, Hecimovich, Dix, Campbell, Pollock, Bennett, Camden, DeCola, McCauley, Gaines, Cairney, & Stewart, 2015) • “Using Qualitative Research Perspectives to Inform Patient Engagement in Research” (Phoenix, Nguyen, Gentles, VanderKaay, Cross, & Nguyen, 2018)
Social media	
• Twitter (@canchild_ca) • LinkedIn • Facebook • Closed Facebook group • Vimeo	• “Knowledge Exchange and Discovery in the Age of Social Media: The Journey From Inception to Establishment of a Parent-Led Web-Based Research Advisory Community for Childhood Disability” (Russell, Sprung, McCauley, Kraus de Camargo, Buchanan, Gulko, Martens, & Gorter, 2016) • Parents Partnering in Research Facebook Group (searchable closed Facebook group) (Parents Partnering in Research, n.d.)
Online training modules and opportunities	
• Online training and education modules • Training programs	• Kids Brain Health Network, CanChild, and McMaster Centre for Continuing Education Family Engagement in Research Course (CanChild, n.d.-d) • Developmental Coordination Disorder (MacHealth, n.d.)FIRST: Course, KIT and FAQs (MacHealth, 2021)
Stakeholder discussions	
• Stakeholders include youth with disabilities and their families, clinicians, policymakers Examples include • Focus groups • Research rounds • Webinars • Workshops • Townhalls	• FOCUS webinars (CanChild, n.d.-e) • Luke’s Legacy Research Rounds (CanChild, n.d.-g) • Partnering for Change (CanChild, n.d.-h)

Objective 3: To determine the frameworks and tools that guide and/or support KT activities at CanChild

The majority of CanChild members who completed the survey (24/29, 83%) reported using a KT framework when engaging in KT activities and projects. Survey respondents described the use of twelve different KT models or frameworks, the most common being the Knowledge-to-Action framework ($n = 15$). Other frameworks or models, such as the Rogers Diffusion of Innovations Theory ($n = 4$) or the PARiHS framework ($n = 2$), were used much less frequently. Table 3 presents a comprehensive list of the frequency of KT frameworks reported by survey respondents.

Table 3: The use of KT frameworks by CanChild members

Characteristic	*N* (%)
• KT framework use	
Yes	24/29 (83%)
No	5/29 (17%)
• KT frameworks/models used	
Knowledge-to-Action framework	15
Rogers' Diffusion of Innovations Theory	4
CIHR Model/Framework/CIHR iKT Framework	3
KT planning tool*	2
Integrated KT	2
The Public and Patient Engagement Evaluation Tool	2
PARiHS (Promoting Action on Research Implementation in Health Services) framework	2
CFIR (Consolidated Framework for Implementation)	2
ADDIE (Analysis, Design, Development, Implementation, Evaluation)	1
Ottawa Model of Research Tool	1
Victoria Health Checklist	1
Wheel of Involvement	1

Notes: CIHR = Canadian Institutes of Health Research; iKT = Integrated Knowledge Translation
*(The Hospital for Sick Children, 2019)

OBJECTIVE 4: FUTURE DIRECTIONS FOR KT WITHIN AND BEYOND CANCHILD

Five future directions were described by CanChild members who completed the survey. Respondents were asked to reflect on where they envision CanChild to be in five years with regards to KT. Rich comments were provided, and five future directions for KT at CanChild were identified: 1) further developing collaboration and partnerships to enhance reach; 2) strengthening international presence; 3) being a hub for evidence-based information; 4) continuing leadership in the field of KT and childhood disability; and 5) increasing KT funding and resources (see Figure 2). These directions were described as a way for CanChild to move beyond KT practices within the organization and utilize partnerships to facilitate the uptake of research in the community. Overall, participants were very receptive to CanChild's commitment to KT. One participant stated, for example, "I appreciate CanChild's constant effort and commitment to bridging the gap between evidence generated and applied."

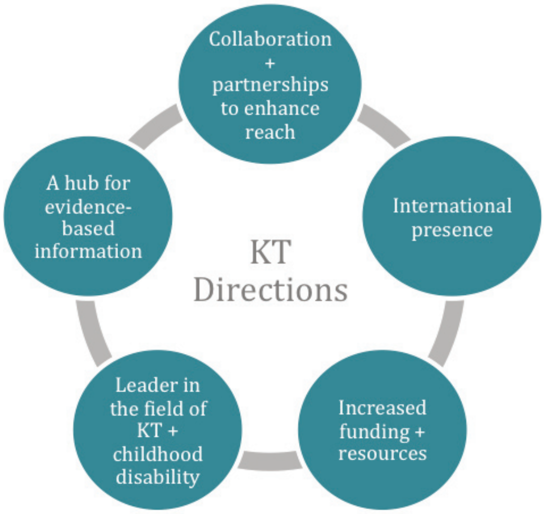


Figure 2: Future directions for KT at CanChild

Members identified that providing access to evidence-based information was an important direction for CanChild. In this way, using the website as a hub to reflect diverse information needs and a non-categorical approach to disability (i.e., across diverse disabilities), knowledge would be disseminated directly to families, clinicians, policymakers, and other stakeholders. Increased awareness and tailoring the website were recommended to increase access to the information. For example, one respondent envisioned:

> CanChild would provide accessible evidence-based information to meet a variety of stakeholder needs, e.g., children's needs, parents of children with disabilities, service providers and educators, researchers, policymakers. Information would be provided in means that were appropriate for the target audience and their needs (e.g., tool kits, videos, publications).

Lastly, funding and resources were identified as an important area for CanChild moving forward. Specifically, respondents identified that having dedicated resources and funding to support KT for multiple projects was important. One respondent stated, "My main need at this time is additional people to support KT. I envision a full-time person who has a health background, understands the clinical context, is an excellent communicator and is willing to take initiative to move our KT efforts forward." Although survey respondents ideally wanted to engage in KT activities, a lack of funding and access to resources made conducting these activities more challenging. One respondent noted, "We want to make KT happen, but are 'young' in our knowledge and expertise in the area so obtaining funding has been difficult. Any training opportunities and or consultation on grant applications would be helpful." Greater time to conduct KT was also identified as an important way to support members' KT efforts, with one respondent saying: "I find it really hard to fit this component or research into my general work – I feel like I need access to experts in order to do this well so I end up barely doing it at all." There was also a need for a consistent, succinct, and accessible way to be able to report KT activities. One respondent gave the example of "a fillable form for reporting new publications, presentations, conference proceedings, etc."

Overall, these directions support the desire of CanChild members to move, as one participant succinctly mentioned, "the KT science agenda forward," including developing and strengthening new partnerships, establishing a KT science research program that includes funding and resources for scientists and trainees, and expanding KT products that are tailored and accessible for diverse audiences.

Discussion

Following the KT strategic planning development process outlined by Russell et al. (2015), this article presents the results of CanChild's KT strategic plan between 2013 and 2018, including activities, outputs, and future directions for KT. While CanChild members perceived KT as an important activity, the frequency with which they engaged in these activities and their reported satisfaction with them was rated somewhat lower. While KT activities were deemed highly important by respondents in this KT status update, additional work is needed to increase the engagement and satisfaction of engagement with regards to these KT activities. Due to the relatively small sample size, it was not possible to explore variances in the importance, frequency, and satisfaction of KT activities across diverse roles within the organization. Future research should explore how individuals within differing roles are involved in KT activities, which would likely differ for students, staff, and scientists.

Although survey respondents were individuals, many identified future directions for KT that are deeply embedded within the organizational context, with barriers to KT noted on both individual and organizational levels. Additional resources for individuals to enact KT in their practice was clearly identified as a need, and there was also a

Micsinszki, Samantha K., Teplicky, Rachel, McCauley, Dayle, Gorter, Jan Willem, & Phoenix, Michelle. (2021). Knowledge Translation Advancement at a Childhood Disability Research Centre: Report on a Five-Year Strategic Plan. *Scholarly and Research Communication, 12*(1). doi:10.22230/src.2021v12n1a387

need for organizational cohesion with KT activities. It is quite possible that organizational factors, such as those outlined by Nora Jacobson, Dale Butterill, and Paula Goering (2004), had a role in the engagement in these activities. Formal processes of recognition in academia, such as promotion and tenure, and the perception of these modes of promotion may affect the likeliness and capacity of individual researchers with university-based academic appointments to engage in KT activities. For example, Carole Estabrooks, Peter Norton, Judy Birdsell, Mandi Newton, Adeniyi Adewale, and Richard Thornley (2008) found that applied researchers are more likely to produce KT outputs with a context-driven application and fewer traditional scholarly outputs, such as peer-reviewed publications, than basic science researchers. The problem is that tenure and promotion traditionally privilege the number and impact of peer-reviewed publications over more accessible ways of translating research findings. Jacobson et al. (2004) found that this was, in part, the reason for researchers' decision to engage in KT activities. There is a movement in the academic world for recognition and promotion to be based on metrics other than quantity of publications, number of citations, a journal's impact factor, etc. (Büttner, Ardern, Blazey, Dastouri, McKay, Moher, & Khan, 2020; Declaration on Research Assessment, n.d.). There is a need, however, for organizations and institutions that promote and fund research to provide leadership in reconceptualizing the ways in which scholarly outputs are evaluated.

In this KT status update, survey respondents were not asked directly about facilitators and barriers in their KT activities. Organizational factors, such as those described by Jacobson et al. (2004) likely impact KT activities, but it is possible that other individual researcher or external barriers exist, such as cuts to grant funds, that impact the ability or capacity of researchers and research teams to effectively engage in KT activities. Survey respondents clearly consider KT to be highly important, therefore, it is important for future research to determine why their engagement in KT activities and their satisfaction with their KT efforts were rated lower. For example, respondents cited a lack of training and appropriate resources as significant barriers to engagement in meaningful KT, and it is likely that these barriers stem from larger organizational systems (e.g., institutional funding) that have a downstream effect on individual researchers. Although there is an appetite to move knowledge into practice, researchers do not always have the necessary tools to do so, and some found it challenging to fit KT into their general work. Literature on barriers to KT suggests that improving knowledge management skills and sufficient institutional infrastructure (e.g., the ability to utilize research and the supports to do so) are not always enough to effectively translate knowledge because many of these challenges occur at the same time (Grimshaw et al., 2012; Straus, Tetroe, & Graham, 2011). In this survey, some respondents felt immobilized in their KT efforts without expert support, and it is likely that this is just one piece of a larger puzzle.

Bev Holmes, Allan Best, Huw Davies, David Hunter, Michael Kelly, Martin Marshall, and Joanne Rycroft-Malone (2017) described organizational structures as a key facilitator to translating research to practice. Having an organizational culture of shared values and goals is likely to affect system change (Best, Greenhalgh, Lewis, Saul, Carroll, & Bitz, 2012), and it is likely that the KT strategic planning process helped to create mutual goals and values related to KT between CanChild members. Despite the shared importance of KT activities reported by the respondents in this survey, however, it is possible that a greater strategic evaluation of the organizational factors that influence KT is needed, such as an intentional evaluation of how institutional systems are working for or against researchers' capacity, time, and resources to move knowledge into practice. Moreover, ensuring a link between the values and goals of the organization is an important part of creating trust and shared learning, which according to Holmes et al. (2017), are essential to mobilizing knowledge. Moreover, intentionally embedding KT into organizational culture as a fundamental research activity (Harvey, Marshall, Jordan, & Kitson, 2015) through processes such as a KT-focused strategic plan is a way to address organizational barriers and facilitate the integration of KT activities as a standard way of doing research. There is a need for future research, both at CanChild and within the broader childhood disability research context, to comprehensively assess barriers that impact the ability of individuals, groups, and organizations to do KT within the complex systems that this work is situated.

CanChild places high importance on KT. An organizational 2020–2025 strategic plan identifies three strategic drivers: impactful research and KT, intentional collaboration, and an engaged culture for CanChild (n.d.-a). Of note, KT science was identified as an area of interest in both the 2013–2018 and 2020–2025 strategic plans. While CanChild did not have the resources to engage in a fulsome evaluation of KT efforts between 2013–2018, the new strategic plan highlights a need to draw from KT science when embedding KT strategies into research. This presents an opportunity to draw from best practice evidence to adopt individual and organizational approaches to KT implementation and evaluation, which will allow CanChild to emphasize the impact of its research and reimagine how it can advance the science of KT.

Intentional collaboration is an ongoing KT priority of significant importance to CanChild members, as identified in the 2020–2025 strategic plan. This priority recognizes that systems-level factors focusing on collaborative efforts are needed to create change (Cherney & Head, 2011). Family and patient collaboration or engagement in research has been shown to improve the quality of health research and services (Domecq, Prutsky, Elraiyah, Wang, Nabhan, Shippee, Brito, Boehmer, Hasan, Firwana, Erwin, Eton, Sloan, Montori, Asi, Abu Dabrh, & Murad, 2014; Morris, Shilling, McHugh, & Wyatt, 2011). For example, the engagement of stakeholders in research can improve dissemination and ensure that the research is relevant and important to the community that it serves (Camden, Shikako-Thomas, Nguyen, Graham, Thomas, Spring, Morris, & Russel, 2015; Domecq et al., 2014; Kirwan, de Wit, Frank, Haywood, Salek, Brace-McDonnell, Lyddiatt, Barbic, Alonso, Guillemin, & Bartlett., 2017). CanChild's international membership and collaborations with local and global partners provides opportunities for generating research that is important to local and global communities and promoting widespread uptake and impact.

In line with Holmes et al.'s (2017) call to action, which outlined a need for the increased co-production of knowledge, survey respondents recognized the importance of partnerships and connecting with children and families. Engaging families was an identified priority area for CanChild members in the development of the 2013–2018 KT strategic plan (Russell et al., 2015) and the 2020–2025 strategic plan. The formation of research partnerships, however, is complex and may not always be systematically tracked by individual researchers. It is important to consider how these relationships are developed and supported to be able to evaluate their impact and outcomes. There may be value, for example, in tracking and evaluating these activities at an organizational level. Early in the KT strategic plan development process, members identified key objectives for the implementation of this priority activity, such as recruiting family consultants and advisory board members, and developing informational products with community groups (Russell et al., 2015, 2016). In 2014, for example, CanChild partnered with two parent moderators to develop a closed Facebook group called Parents Participating in Research with the aim of exchanging knowledge and involving families in the dissemination and translation of knowledge (Russell et al., 2016). Moreover, CanChild (n.d.-d) has been successful in developing family, researcher, and trainee capacity to engage with patients and families, for example, through the development of the Family Engagement in Research course in partnership with Kids Brain Health Network. Future work in this area will rely on intentionally evaluating these partnerships and training opportunities to understand how CanChild is engaging in formal and informal partnerships and to ensure diverse stakeholder groups are included (e.g., clinicians, policymakers) (Shikako-Thomas & Majnemer, 2013).

Given the complex nature of KT to create behaviour change, it is important that implementation activities are grounded in theory or guided by a theoretical model or framework (Graham, Tetroe, & KT Theories Research Group, 2007). The majority of participants (24/29, 82.8%) in this survey reported using a framework to guide their KT efforts, and although a variety of frameworks, theories, and models used for implementation exist (Graham & Logan, 2004), just over half reported using the Knowledge-to-Action (KTA) framework (Graham et al., 2006). Similar to the KTA framework, other behaviour change frameworks/models share similar characteristics to create behaviour change, including evidence or knowledge, attributes of change, audience, organizational context and culture, organizational resources and support, and implementation-related factors (Graham et al., 2007). The variety of frameworks used by CanChild members represents the diversity of research projects and KT needs, and no single framework is recommended for the organization. It is recommended that researchers carefully select a KT theory to guide the planning, implementation, and evaluation of KT activities that can serve as a strong foundation on which to build KT science research (Barwick et al., 2020).

Recommendations and considerations

Conducting meaningful KT and evaluating its impact are not easy tasks for researchers or health research organizations. After engaging in this process as a university-based childhood disability research centre, the following recommendations are suggested both for CanChild and for other childhood disability-focused research centres considering developing their own KT strategic plan:

- There is a need for dedicated and focused individual and organizational KT planning. Organizational planning should involve a variety of stakeholders at all levels, including senior leadership, scientists, research staff, and trainees. Partnerships and intentional collaborations need to be embedded within the design and development of KT projects.

- Outputs of KT work, such as completed presentations, print materials, publications, and lay summaries, should be available to a variety of different audiences and be easily accessible for different stakeholders. Websites that "house" these materials should be accessible and easily searched and tracked.
- A KT framework should be utilized to guide the planning, implementation, and evaluation of KT activities on a project-by-project basis.
- Organizational barriers to KT implementation and evaluation, such as a lack of funding and dedicated resources, may impede researchers' ability to engage in KT and integrate KT practices into their projects. The assessment and evaluation of individual, organizational, and systemic barriers is needed to understand what can be done to address these challenges.
- Sustained evaluation is needed across various KT outputs that may not always be easy to track or assess (e.g., the quantity of partnerships and collaborations). Applied KT science that further informs KT practices in children's disability research organizations is needed (Barwick et al., 2020).

Strengths and limitations

This article presents a status update on KT progress at a childhood disability research centre; it demonstrates the successes and challenges in evaluating KT at an individual level when it is deeply embedded within the culture of the organization. This work was also integral to the development of the CanChild 2020–2025 strategic plan. Despite the strengths of this work, there were limitations. First, most respondents were CanChild members located at McMaster University and represent a small number of CanChild's membership. Responses may not, therefore, be representative of CanChild as an organization and may be more reflective of those who are more interested in KT work. Second, not all priority areas from the program logic model were addressed or systematically evaluated, which poses a significant challenge to comprehensively reporting on the outcomes of the KT planning process. Third, survey questions did not specifically ask respondents about barriers or facilitators to KT. Although some respondents identified barriers, additional targeted questions about barriers would further strengthen this work moving forward. Lastly, survey questions focused on individual KT involvement and capacity rather than organizational KT. Although KT assessment at the individual (i.e., student, staff, scientist) level is important to understand, these are highly enmeshed within the organization and a variety of complex systems (e.g., health, education etc.). Strategic evaluation at individual and organizational levels is needed to provide a more comprehensive picture of KT at CanChild.

Conclusion

Since the beginning of the KT strategic planning process in 2013, CanChild has made considerable progress in six KT priority areas. There is room to build, however, on initial successes and there are gaps to address. More work is needed to collect information on the identified outputs across the organization and to evaluate the barriers and facilitators to KT at the individual researcher, research team, and organizational level. In order to align KT activities and satisfaction with the importance that CanChild members place on it, it is necessary to improve funding and resources, systematically evaluate KT efforts, and expand the breadth and depth of partnerships. This KT status update demonstrates a strong commitment to ensuring that the childhood disability research generated at CanChild is made accessible to all children, youth, families, and community partners, such as service providers and policymakers, that utilize this work to promote life improvements and well-being. Other children's disability research organizations are encouraged to consider how they plan for, execute, and evaluate their KT efforts.

Acknowledgements

The authors would like to thank the CanChild team for their commitment to KT and their responses and input on the program evaluation survey. They would also like to acknowledge Vanessa Tomas and Kajaani Shanmugarajah for their support in collecting and analyzing data for this project. Jan Willem Gorter holds the Scotiabank Chair in Child Health Research. Samantha K. Micsinszki developed this article as part of a postdoctoral fellowship, supervised by Michelle Phoenix, at CanChild Centre for Childhood Disability Research.

Website

CanChild, https://canchild.ca

References

ASDMentalHealth. (2017, August 4). *Classifying autism based on everyday social communication abilities | Briano Di Rezze* [Video]. YouTube. URL: https://youtu.be/NyWKoRgAB4w [March 9, 2021].

Banner, Davina, Bains, Marc, Carroll, Sandra, Kandola, Damanpreet K., Rolfe, Danielle E., Wong, Caroline, & Graham, Ian D. (2019). Patient and public engagement in integrated knowledge translation research: Are we there yet? *Research Involvement and Engagement*, *5*(8), 1–4. doi:10.1186/s40900-019-0139-1

Barwick, Melanie, Dubrowski, Raluca, & Petricca, Kadia. (2020). *Knowledge translation: The rise of implementation.* Washington, DC: American Institutes for Research. URL: https://ktdrr.org/products/kt-implementation/KT-Implementation-508.pdf [March 6, 2021].

Best, Allan, Greenhalgh, Trisha, Lewis, Steven, Saul, Jessie E., Carroll, Simon, & Bitz, Jennifer. (2012). Large-system transformation in health care: A realist review. *The Milbank Quarterly*, *90*(3), 421–456. doi:10.1111/j.1468-0009.2012.00670.x

Büttner, Fionn, Ardern, Clare L., Blazey, Paul, Dastouri, Serenna, McKay, Heather A., Moher, David, & Khan, Karim M. (2021). Counting publications and citations is not just irrelevant: It is an incentive that subverts the impact of clinical research. *British Journal of Sports Medicine*, *55*, 647–648. doi:10.1136/bjsports-2020-103146

Camden, Chantal, Shikako-Thomas, Keiko, Nguyen, Tram, Graham, Emma, Thomas Aliki, Sprung, Jennifer, Morris, Christopher, & Russell, Dianne, J. (2015). Engaging stakeholders in rehabilitation research: a scoping review of strategies used in partnerships and evaluation of impacts. *Disability and Rehabilitation*, *37*(15), 1390–1400. doi:10.3109/09638288.2014.963705

Campbell, Wenonah, Sahagian Whalen, S., Dix, Leah, Pollock, Nancy, Jiang, A., Kim, E., & Missiuna, Cheryl. (2019). *FIRST KIT: Resources to support a tiered model of service delivery*. Hamilton, ON: CanChild, McMaster University.

Canadian Institutes of Health Research. (2012). *Guide to knowledge translation planning at CIHR: Integrated and end-of-grant approaches*. URL: https://cihr-irsc.gc.ca/e/documents/kt_lm_ktplan-en.pdf [March 9, 2021].

CanChild. (n.d.-a). *Strategic plan 2020–2025*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/resources/337-strategic-plan-2020-2025 [March 5, 2021].

CanChild. (n.d.-b). *CanChild partners*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/discover-canchild/partners [March 5, 2021].

CanChild. (n.d.-c). *CanChild teams*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/teams [March 5, 2021].

CanChild. (n.d.-d). *Family engagement in research course*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/fercourse [March 5, 2021].

CanChild (n.d.-e). *FOCUS webinars.* Hamilton, ON: McMaster University. URL: https://canchild.ca/en/resources/307-focus-webinars [March 5, 2021].

CanChild. (n.d.-f). *Knowledge Translation strategic planning for CanChild 2013–2018*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/research-in-practice/knowledge-translation-exchange/knowledge-translation-strategic-planning-for-canchild-2013-2018 [February 19, 2021].

CanChild. (n.d.-g). *Luke's legacy research rounds*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/research-in-practice/family-engagement-in-research-course/luke-s-legacy-family-research-rounds [March 5, 2021].

CanChild. (n.d.-h). *Partnering for change: Stakeholder alliance symposium #3: Summary report.* Hamilton, ON: McMaster University. URL: https://canchild.ca/en/resources/125-partnering-for-change-stakeholder-alliance-symposium [March 5, 2021].

CanChild. (n.d.-i). *CanChild: Research in practice. Publications and presentations.* Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/research-in-practice/current-studies/on-track/publications-and-presentations [March 2, 2021].

CanChild. (2013, May 30). *CanChild's Concussion Guidelines - Carol DeMatteo and Laura Turner on the AM900 CHML Bill Kelly show* [Video]. Vimeo. URL: https://vimeo.com/67308324 [March 9, 2021].

CanChild. (2018*). International alliance of academies of childhood disability*. Hamilton, ON: McMaster University. URL: https://iaacd.net/ [March 9, 2021].

CanChild. (2020, May 12). *CanChild annual report 2019*. Hamilton, ON: McMaster University. URL: http://canchildreport.ca/2019report/ [February 10, 2021].

CanChild. (2021a). *Resources*. Hamilton, ON: McMaster University. URL: https://www.canchild.ca/en/resources/newsletters [March 9, 2021].

CanChild. (2021b). *Shop*. Hamilton, ON: McMaster University. URL: https://canchild.ca/en/shop [March 9, 2021].

CanChild. (2021c). F-words in childhood disability. Hamilton, ON: McMaster University. URL: www.canchild.ca/f-words [March 9, 2021].

CanChild McMaster. (2017, January 5). *DCD in secondary school: Let's MATCH for success* [Video]. YouTube. URL: https://youtu.be/_qRP0CJgyMg [February 19, 2021].

Cherney, Adrian, & Head, Brian. (2011). Supporting the knowledge-to-action process: A systems-thinking approach. *Evidence & Policy: A Journal of Research, Debate and Practice*, *7*(4), 471–488. doi:10.1332/174426411X603461

CHILD-BRIGHT Network. (2018, September 19). *READYorNot CHILD-BRIGHT project: Meaningful involvement of patient, family and healthcare stakeholders in the READYorNot project* [Video]. YouTube. URL: https://youtu.be/ADzP0iQHi6s [February 19, 2021].

Cross, Andrea, Rosenbaum, Peter, Grahovac, Danijela, Kay, Diane, & Gorter, Jan Willem. (2015). Knowledge mobilization to spread awareness of the 'F-words' in Childhood Disability: Lessons from a family-researcher partnership. *Child: Care, Health and Development*, *41*(6), 947–953. doi:10.1111/cch.12249

Cunningham, Barbara Jane, & Oram Cardy, Janis. (2020). Engaging stakeholders to improve outcome measurement in a preschool speech-language service using implementation science. *Speech Language and Hearing*, *23*(1), 17–24.

Davis, Dave, Evans, Mike, Jadad, Alex, Perrier, Laure, Rath, Darlyne, Ryan, David, Sibbald, Gary, Straus, Sharon, Rappolt, Susan, Wowk, Maria, & Zwarenstein, Merrick. (2003). The case for knowledge translation: Shortening the journey from evidence to effect. *BMJ (Clinical Research Ed.)*, *327*(7405), 33–35. doi:10.1136/bmj.327.7405.33

Declaration on Research Assessment. (n.d.). *Read the declaration*. DORA. URL: https://sfdora.org/read/ [March 6, 2021].

Domecq, Juan Pablo, Prutsky, Gabriela, Elraiyah, Tarig, Wang, Zhen, Nabhan, Mohammed, Shippee, Nathan, Brito, Juan Pablo, Boehmer, Kasey, Hasan, Rim, Firwana, Belal, Erwin, Patricia, Eton, David, Sloan, Jeff, Montori, Victor, Asi, Noor, Abu Dabrh, Abd Moain, & Murad, Mohammad Hassan. (2014). Patient engagement in research: A systematic review. *BMC Health Services Research*, *14*(89), 1–9. doi:10.1186/1472-6963-14-89

Estabrooks, Carole A., Norton, Peter, Birdsell, Judy M., Newton, Mandi S., Adewale, Adeniyi J., & Thornley, Richard. (2008). Knowledge translation and research careers: Mode I and Mode II activity among health researchers. *Research Policy*, *37*(6-7), 1066–1078. doi:10.1016/j.respol.2008.04.006

Graham, Ian D., & Logan, Jo. (2004). Innovations in knowledge transfer and continuity of care. *The Canadian Journal of Nursing Research = Revue Canadienne De Recherche En Sciences Infirmieres*, *36*(2), 89–103.

Graham, Ian D., Logan, Jo, Harrison, Margaret B., Straus, Sharon E., Tetroe, Jacqueline, Caswell, Wenda, & Robinson, Nicole. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions*, *26*(1), 13–24. doi:10.1002/chp.47

Graham, Ian D., Tetroe, Jacqueline, & KT Theories Research Group. (2007). Some theoretical underpinnings of knowledge translation. *Academic Emergency Medicine: Official Journal of the Society for Academic Emergency Medicine*, *14*(11), 936–941.

Green, Lawrence W., Ottoson, Judith M., García, César, & Hiatt, Robert, A. (2009). Diffusion theory and knowledge dissemination, utilization, and integration in public health. *Annual Review of Public Health*, *30*(1), 151–174. doi:10.1146/annurev.publhealth.031308.100049

Grimshaw, Jeremy M., Eccles, Martin P., Lavis, John, N., Hill, Sophie, J., & Squires, Janet, E. (2012). Knowledge translation of research findings. *Implementation Science*, *7*(50), 1–17. doi:10.1186/1748-5908-7-50

Grimshaw, Jeremy, M., Shirran, Liz, Thomas, Ruth, Mowatt, Graham, Fraser, Cynthia, Bero, Lisa, Grilli, Roberto, Harvey, Emma, Oxman, Andy, & O'Brien, Mary Ann. (2001). Changing provider behavior: An overview of systematic reviews of interventions. *Medical Care*, *39*(8 Suppl 2), 112–145.

Harris, Paul, A., Taylor, Robert, Thielke, Robert, Payne, Jonathon, Gonzalez, Nathaniel, & Conde, Jose, G. (2009). Research Electronic Data Capture (REDCap)—A metadata-driven methodology and workflow process for providing translational research informatics support. *Journal of Biomedical Informatics*, *42*(2), 377–381. doi:10.1016/j.jbi.2008.08.010

Harvey, Gill, Marshall, Rhianon, J., Jordan, Zoe, & Kitson, Alison, L. (2015). Exploring the hidden barriers in knowledge translation: A case study within an academic community. *Qualitative Health Research*, *25*(11), 1506–1517. doi:10.1177/1049732315580300

Health Hub in Transition. (2021). The transition hub aims to bridge the gap for youth and young adults transitioning from pediatric to adult health care. URL: https://www.transitionhub.ca/ [March 2, 2021].

Holmes, Bev, J., Best, Allan, Davies, Huw, Hunter, David, Kelly, Michael, P., Marshall, Martin, & Rycroft-Malone, Joanne. (2017). Mobilising knowledge in complex health systems: A call to action. *Evidence & Policy: A Journal of Research, Debate and Practice*, *13*(3), 539–560. doi:10.1332/174426416X14712553750311

Holmes, Bev, Scarrow, Gayle, & Schellenberg, Megan. (2012). Translating evidence into practice: The role of health research funders. *Implementation Science*, *7*(39), 1–10. doi:10.1186/1748-5908-7-39

IHDCYH Talks Entretiens de l'IDSEA. (2019, November 1). *I can talk! Technology gives a voice to children & youth who cannot speak* [Video]. YouTube. URL: https://youtu.be/Cim6AXQoPeg [February 19, 2021].

Jacobson, Nora, Butterill, Dale, & Goering, Paula. (2004). Organizational factors that influence university-based researchers' engagement in knowledge transfer activities. *Science Communication*, *25*(3), 246–259. doi:10.1177/1075547003262038

Kirwan, John, R., de Wit, Maarten, Frank, Lori, Haywood, Kirstie, L., Salek, Sam, Brace-McDonnell, Samantha, Lyddiatt, Anne, Barbic, Skye, P., Alonso, Jordi, Guillemin, Francis, & Bartlett, Susan, J. (2017). Emerging guidelines for patient engagement in research. *Value in Health*, *20*(3), 481–486. doi:10.1016/j.jval.2016.10.003

Kislov, Roman, Waterman, Heather, Harvey, Gill, & Boaden, Ruth. (2014). Rethinking capacity building for knowledge mobilisation: Developing multilevel capabilities in healthcare organisations. *Implementation Science*, *9*(166), 2–12. doi:10.1186/s13012-014-0166-0

Kothari, Anita, McCutcheon, Chris, & Graham, Ian, D. (2017). Defining integrated knowledge translation and moving forward: A response to recent commentaries. *International Journal of Health Policy and Management*, *6*(5), 299–300. doi:10.15171/ijhpm.2017.15

MacHealth (n.d.). *Developmental coordination disorder* [Online training module]. Hamilton, ON: CanChild Centre for Childhood Disability Research & Division of e-Learning Innovation, McMaster University. URL: https://machealth.ca/programs/developmental_coordination_disorder/ [March 2, 2021].

MacHealth. (2021). *FIRST: Course, KIT and FAQs* [Online training module]. Hamilton, ON: CanChild Centre for Childhood Disability Research & Division of e-Learning Innovation, McMaster University. URL: https://machealth.ca/programs/integrated-rehabilitation-services/ [March 2, 2021].

McKibbon, K. Ann, Lokker, Cynthia, Wilczynski, Nancy, L., Ciliska, Donna, Dobbins, Maureen, Davis, David, A., Haynes, R. Brian, & Straus, Sharon, E. (2010). A cross-sectional study of the number and frequency of terms used to refer to knowledge translation in a body of health literature in 2006: A Tower of Babel? *Implementation Science*, *5*(16), 1–11. doi:10.1186/1748-5908-5-16

McMaster University. (2021a). CP-NET: A research-based initiative designed to improve the care of cerebral palsy from prevention to treatment. Hamilton, ON: McMaster University. URL: http://cpnet.canchild.ca/ [March 2, 2021].

Missiuna, Cheryl, Hecimovich, Cathy, Dix, Leah, Campbell, Wenonah, Pollock, Nancy, Bennett, Sheila, Camden, Chantal, DeCola, Cindy, McCauley, Dayle, Gaines, Robin, Cairney, John, & Stewart Debra. (2015). *Partnering for change: implementation and evaluation final report, 2013 – 2015: Final report for the Ontario Ministry of Health and Long Term Care and the Ontario Ministry of Education*. Hamilton, ON: CanChild, McMaster University. URL: www.partneringforchange.ca [March 9, 2021].

Morris, Christopher, Shilling, Val, McHugh, Camilla, & Wyatt, Katrina. (2011). Why it is crucial to involve families in all stages of childhood disability research: Letter to the Editor. *Developmental Medicine & Child Neurology*, *53*(8), 769–771. doi:10.1111/j.1469-8749.2011.03984.x

Parents Partnering in Research. (n.d.). *Facebook* [Private group]. URL: https://www.facebook.com/groups/716669688375558/ [March 6, 2021].

Phoenix, Michelle, Nguyen, Tram, Gentles, Stephen, J., VanderKaay, Sandra, Cross, Andrea, & Nguyen, Linda. (2018). Using qualitative research perspectives to inform patient engagement in research. *Research Involvement & Engagement, 4*, 20. doi:10.1186/s40900-018-0107-1

Russell, Dianne, J., McCauley, Dayle, Novak, Iona, Kolehmainen, Niina, Shikako-Thomas, Keiko, D'Costa, Rhea, & Gorter, Jan Willem. (2015). Developing a knowledge translation (KT) strategy for a Centre of Childhood Disability Research: Description of the process. *Scholarly and Research Communication*, *7*(1), 1–11. doi:10.22230/src.2016v7n1a237

Russell, Dianne, J., Sprung, Jennifer, McCauley, Dayle, Kraus de Camargo, Olaf, Buchanan, Francine, Gulko, Roman, Martens, Rachel, & Gorter, Jan Willem. (2016). Knowledge exchange and discovery in the age of social media: The journey from inception to establishment of a parent-led web-based research advisory community for childhood disability. *Journal of Medical Internet Research*, *18*(11), e293, 1–11. doi:10.2196/jmir.5994

Shikako-Thomas, Keiko, & Majnemer, Annette. (2013). Are you knowledgeable about knowledge translation? *Physical & Occupational Therapy In Pediatrics*, *33*(4), 369–371. doi: 10.3109/01942638.2013.840463

Soper, Alice, Kelen, Cross, Andrea, Rosenbaum, Peter, & Gorter, Jan Willem. (2019). The F-words citation analysis infographic. *Child: Care, Health and Development, 45*(4), 473–490. doi:10.1111/cch.12680

Straus, Sharon, E., Tetroe, Jacqueline, M., & Graham, Ian, D. (2011). Knowledge translation is the use of knowledge in health care decision making. *Journal of Clinical Epidemiology*, *64*(1), 6–10. doi:10.1016/j.jclinepi.2009.08.016

The Hospital for Sick Children. (2019). *Knowledge Translation Planning Template© companion tool*. URL: https://melaniebarwick.com/wp-content/uploads/2019/02/KTPT-Companion-Tool-Feb-15-2019.pdf [March 2, 2021].