

The Canadian Cardiovascular Society and knowledge translation: Turning best evidence into best practice

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Care gaps, the discrepancy between processes of care recognized as best practice and care provided in usual clinical practice, exist in cardiovascular disease. Knowledge translation, the process of turning best evidence into best practices, has the potential to reduce care gaps. As the national voice for cardiovascular physicians and scientists, the Canadian Cardiovascular Society is committed to knowledge translation. The present article describes how knowledge translation builds on the constructs of continuing medical education and continuing professional development; what can be done to improve knowledge translation; and what the Canadian Cardiovascular Society is currently doing about this.

Key Words: *Care gaps; Education; Knowledge translation*

Information overload is a serious problem for health care professionals. Each year, more than 400,000 articles are added to the biomedical literature (1). Dissemination of new research knowledge into health care practice has depended on publication in peer- and nonpeer-reviewed journals and educational activities (2), including continuing medical education (CME) and continuing professional development (CPD). These activities are underpinned by a belief that gains in knowledge lead physicians to improve how they practice and, thus, improve patient outcomes (3).

To help practitioners apply the scientific knowledge base to patient care, clinical practice guidelines (CPGs) have been developed. CPGs are systematically developed statements that assist in decision making about appropriate care for specific clinical conditions. They are based on systematic reviews of the evidence that are translated into guidelines by an assembled group of experts (4).

Care gaps exist in cardiovascular disease. The care gap represents the discrepancy between processes of care that are recognized as best practice (usually in CPGs) and the care provided in usual clinical practice (5). Estimates of the size of the care gap indicate that 30% to 40% of patients fail to receive treatments

La Société canadienne de cardiologie et la transmission du savoir : Transformer les meilleures données probantes en meilleures pratiques

Des lacunes dans les soins, c'est-à-dire l'écart entre les processus de soins reconnus comme les meilleures pratiques et les soins prodigués dans une pratique de soins cliniques normale, existent en maladie cardiovasculaire. La transmission du savoir, ou le processus de transformation de meilleures données probantes en meilleures pratiques, peut réduire ces lacunes. En qualité de porte-parole national des médecins et chercheurs en santé cardiovasculaire, la Société canadienne de cardiologie est engagée dans la transmission du savoir. Le présent article décrit comment la transmission du savoir dépend des structures de formation médicale continue et de perfectionnement professionnel continu, de ce qu'on peut faire pour améliorer la transmission du savoir et des mesures de la Société canadienne de cardiologie à cet égard.

of proven effectiveness, and 20% to 25% of patients may receive care that is not needed or is potentially harmful (6).

Knowledge translation has been proposed as a way to reduce this gap. According to the Canadian Institutes for Health Research, knowledge translation is "the exchange, synthesis and ethically sound application of knowledge within a complex system of relationships among researchers and users" (7). In addition, knowledge translation includes patients and the health care environment.

According to Davis et al, the goal of knowledge translation can ensure "the rapid uptake of evidence-based knowledge by the public, patients, policy makers, and clinicians". Given this, successful knowledge translation requires purposeful collaboration among all stakeholders.

The Canadian Cardiovascular Society (CCS) is the national voice for cardiovascular physicians and scientists. The mission of the CCS is to promote cardiovascular health and care through knowledge translation, professional development and leadership in health policy. Today, the CCS represents more than 1200 medical professionals, including cardiologists, cardiovascular surgeons, internists, scientists, trainees in those fields and other health professionals.

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TABLE 1
Comparison of continuing medical education (CME), continuing professional development (CPD) and knowledge translation

	CME	CPD	Knowledge translation
Setting	Teaching settings	Any learning situation	Primarily practice settings
Tools	Lectures, print materials	Wide variety of learning methods	Methods for overcoming barriers to change
Targets	Individual physicians, CME credits	Physicians, health care professionals, CPD credits, learning portfolio, self-directed learning	Physicians, health care professionals, patients, populations, policy makers
Content	Primarily clinical	Clinical and practice-related topics	Emphasis on evidence-based knowledge
Guiding models	Primarily educational: CME credits and accreditation important	Self-directed learning: CPD credits and accreditation important	Holistic: Incorporates clinician-learner and education delivery system: Evidence-based – From content of activity to testing of intervention
Relevant disciplines	Medicine, education, educational psychology	As with CME plus organizational learning theory, social psychology	As with CME and CPD plus systems management, health services research, patient education, bioinformatics

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In the present article, we attempt to answer three key questions:

1. How does knowledge translation build on the constructs of CME and CPD?
2. What can be done to improve knowledge translation?
3. What is the CCS currently doing to improve knowledge translation?

HOW DOES KNOWLEDGE TRANSLATION BUILD ON THE CONSTRUCTS OF CME AND CPD?

Different strategies have been used in an effort to incorporate evidence into practice. In this section, we discuss how knowledge translation builds on and extends the constructs of CME and CPD.

CME can refer to any medical education received after certification and licensure (8). In CPD, the importance of physicians reflecting on their clinical experience to direct their lifelong learning is emphasized, and learning is often self-directed (eg, accreditation and needs-based learning). CPD includes development for both clinical and nonclinical physician roles. It includes, for example, the development of the physician leader, the physician communicator and the physician administrator.

In a recent comparison of these two educational styles (8), the authors concluded that CME is primarily teacher-driven (eg, lecturers invited to large medical conferences), while CPD is primarily learner-driven (topics chosen by the learner on the basis of need or interest). CCS is an accredited provider of the CPD activities for the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada.

Knowledge translation extends beyond these education-based approaches to focus on the performance of evidence-based clinical practice to achieve optimal health outcomes for patients. In doing so, it moves beyond the educational milieu to consider the factors that influence clinical performance, including knowledge production, competence and performance within the clinical setting.

A comparison of CME, CPD and knowledge translation on the basis of their setting, tools, targets, content, guiding models and relevant disciplines is provided in Table 1.

The knowledge translation process has several key features that distinguish it from CME and CPD. It is set primarily in the practice setting, an environment with a variety of social, organizational and policy influences. Through interventions, it targets a broad array of activities and learners in health care, including patients, practitioners, policy makers and, in some cases, the public. It emphasizes the identification of best clinical practices and the best implementation strategies through a systematic review of evidence. It uses a design that could support learning in practice and tools such as prompts, reminders and patient information to make recommendations for clinical care easy to follow. In addition to health care, the knowledge translation process incorporates expertise from many other disciplines, such as education, behavioural science, informatics, marketing and organizational design (8).

WHAT CAN BE DONE TO IMPROVE KNOWLEDGE TRANSLATION?

The evidence base concerning the effectiveness of strategies to enhance knowledge translation continues to emerge and there is much yet to be learned. A recent review by Grol and Grimshaw (9) concluded that evidence shows that none of the approaches for transferring evidence to practice is superior for all changes in all situations. While we lack knowledge of fail-safe approaches for ensuring the uptake of evidence in all clinical situations, key influences on the process have been identified. They include attributes of the innovation and the evidence of its effectiveness, barriers and facilitators to changing practices, and the effectiveness of dissemination and implementation strategies (9). Each of the influences is discussed briefly below.

Attributes of the innovation (change in clinical practice) suggested by research and of the evidence itself have an important influence on knowledge translation. Innovations that require simple changes in clinical practice are more easily achieved than innovations that require complex changes, better collaboration between disciplines or changes in the organization of care (9). The evidence itself must be convincing and must be of sufficient quantity and quality that “best practices” can be defined (5). Even the attributes of guidelines themselves can affect the degree to which they are followed in practice. Greater adherence is noted when guidelines address acute rather than chronic conditions; are supported by high-quality

evidence; do not require complex decision making; clearly describe the desired performance; and require minimal new skills or organizational change to follow the recommendations (9).

Failure to implement evidence involves factors at different levels of the health care system (10), and health care practitioners work in social, organizational and structural settings that might support or impede change. When planning complicated changes in practice, potential barriers and incentives at a variety of levels need to be addressed. For example, Grol and Wensing (10) propose that barriers and incentives should be examined in relation to the nature of the innovation (ie, simple or complex change in practice), the individual professional (eg, their attitudes, motivation to change, mechanisms of thinking and deciding), the patient (eg, their expectations and behaviour), the social context (eg, culture of the practice setting, and availability of feedback and role models), the economic context (eg, reimbursement, rewards and incentives) and the organizational context (eg, culture, leadership and continuous learning processes). Insight into the barriers and incentives can be gained by applying different theoretical perspectives drawn from a variety of disciplines (eg, cognition and learning, health psychology, behaviour change, social influence, marketing and organizational behaviour) (9). These theories can also suggest strategies for change.

The effectiveness of different dissemination and implementation strategies for changing clinical practice has been the topic of numerous systematic reviews. Recently, Grimshaw and Eccles (2) reported the results of a systematic review of 235 studies of guideline dissemination and implementation strategies. Overall, they found that there was a median 10% improvement across studies suggesting that change in clinical practice with active dissemination was possible. While many practitioners rely on educational materials or CME sessions to keep up to date, these strategies may not be very effective in changing practice unless education is conducted in small groups; is interactive and continuous; and includes a discussion of evidence, local consensus and feedback on performance by peers (9). Real-time reminders and clinical decision support tools can help doctors to make the best decisions in the practice setting. Because barriers to change can also include factors at the patient and organization level, additional measures and actions at these levels are needed to maximize changes in clinical practice. Evidence as to the best patient and organization level approaches remains scarce. In addition, mass media strategies to influence health system use can be helpful in encouraging the use of effective services and discouraging those of unproven effectiveness (11).

An emerging concept in dissemination and implementation strategies for changing clinical practice is the idea of communities of practice (12). This concept refers to a network of people who engage in collective learning in a shared domain. It is a way to address knowledge challenges where learning and practice are inseparable.

WHAT IS THE CCS CURRENTLY DOING TO IMPROVE KNOWLEDGE TRANSLATION?

Currently, the CCS is taking a number of steps to bolster its position in knowledge translation.

At an organizational policy level, the CCS mission statement has been revised to include knowledge translation. This is part of an intensive and ongoing effort to focus on members' needs and to align these needs with the CCS's core business

strategies. In the CCS's new three-year strategic plan, knowledge translation figures prominently in all five priority areas — the Society's annual Congress; guidelines for cardiovascular health and care; health policy; membership; and professional development.

The CCS initiates and supports a consensus conference (CC) each year and this will continue to be an important step toward knowledge translation. The first such conference was convened in 1990, and the resulting document, "Report of the Canadian Cardiovascular Society's consensus conference on the Management of the Postmyocardial Infarction Patient", was published in the *Canadian Medical Association Journal* in 1991 (13). Since then, there have been CCs annually, covering topics such as the diagnosis and management of heart failure, assessment of the cardiac patient for fitness to fly and drive, management of heart disease in the elderly patient, management of adults with congenital heart disease, coronary thrombolysis, and women and ischemic heart disease. Through its CC process, the CCS will continue to take a leadership role in developing up-to-date evidence-based recommendations for practitioners in topic areas critical to cardiovascular health and health care.

The CC process is being revamped to ensure that the high quality of CCS guidelines is maintained by applying the internationally validated criteria for optimum guidelines of the Appraisal of Guidelines Research and Evaluation (AGREE) instrument (14). In addition, the CCS is evaluating a closed-loop system that considers the development, dissemination, implementation and ongoing evaluation of recommendations as a single process and that allows for ongoing collection and integration of end-user feedback throughout the process. Strategic partnerships are being sought with other national and international societies that share an interest in cardiovascular health and are involved in parallel processes to evaluate evidence and create guidelines in related topic areas. Collaboration provides opportunities to defray the significant human and financial resources involved in guideline development. Many recommendations are developed with the generalist family practitioner in mind. To improve the implementation of evidence-based recommendations, the CCS wants to engage a more multidisciplinary representation of experts and end-users in the process of recommendation development. In particular, expanded involvement of family physicians and behavioural scientists is required to ensure that proposals for changes in practice are evidence-based, attractive and feasible (9). Therefore, the likelihood of adoption of the proposals can be enhanced. CC reports will consider the main difficulties in achieving the change, and suggest a set of implementation strategies and measures at different levels (eg, patient, provider, health system and public) linked to that problem.

The active dissemination and implementation of CC recommendations is supported by the CCS Winter Symposium and the Canadian Consensus Conferences Applied to Practice program. At the CCS Winter Symposium, Canadian key opinion leaders receive training about CC recommendations and the use of supportive tools for their implementation. Once trained, local education sessions are organized by the key opinion leaders so that CC recommendations and implementation tools are shared with community colleagues. Tool kits designed to enhance the implementation of recommendations are being improved. For example, for both the diagnosis and management of heart failure (15) and "Heart Disease in the Elderly" (16),

PowerPoint (Microsoft Corporation, USA) slide sets, pocket guides and applications for hand-held devices have been used.

The CCS is also launching HeartScore Canada, an adaptation of the HeartScore program currently used by the European Society of Cardiology (17). HeartScore is a computerized interactive tool for cardiovascular risk reduction and management. The expected effect of intervention is calculated from large, randomized controlled trials in hypertension and hyperlipidemia; the data set consists of more than 200,000 people. At the end of a clinical consultation, the clinician can print an individual's health advice based on their risk profile. Advice for the patient is compiled from endorsed Canadian professional sources. The program is flexible and can be updated as new evidence emerges. New risk factors and end points can be added as knowledge evolves.

The CCS continues to look for innovative ways to add value to the knowledge translation process for its membership. For example, round table discussions (with participants from the CCS, the Royal College of Physician and Surgeons of Canada,

and the technology and pharmaceutical industries) were recently convened to explore new ways to provide high-quality accredited professional development activities using information technology (ie, e-based learning).

CONCLUSION

Knowledge translation is the process of turning best evidence into best practices. CCS members are at the forefront of cardiovascular care in Canada and are key players in both the generation of evidence and its application in practice. The CCS will continue to assume leadership as a highly visible player in the process of developing and implementing best practice recommendations through its commitment to knowledge translation. New processes to maximize knowledge translation are and will need to be explored. Improved processes for knowledge translation can help to optimize care for cardiovascular patients, create efficiencies in education and learning for cardiovascular and other physicians, and catalyze transformations within the Canadian health care system.

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