Evidence implementation: Development of an online methodology from the knowledge-to-action model of knowledge translation

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This paper describes an online facilitation for operationalizing the knowledge-to-action (KTA) model. The KTA model incorporates implementation planning that is optimally suited to the information needs of clinicians. The CAN-IMPLEMENT© is an evidence implementation process informed by the KTA model. An online counterpart, the CAN-IMPLEMENT.PRO©, was developed to enable greater dissemination and utilization of the CAN-IMPLEMENT© process. The driver for this work was health professionals’ need for facilitation that is iterative, informed by context and localized to the specific needs of users.

The literature supporting this paper includes evaluation studies and theoretical concepts relevant to KTA model, evidence implementation and facilitation. Nursing and other health disciplines require a skill set and resources to successfully navigate the complexity of organizational requirements, inter-professional leadership and day-to-day practical management to implement evidence into clinical practice. The CAN-IMPLEMENT.PRO© provides an accessible, inclusive system for evidence implementation projects. There is empirical support for evidence implementation informed by the KTA model, which in this phase of work has been developed for online uptake. Nurses and other clinicians seeking to implement evidence could benefit from the directed actions, planning advice and information embedded in the phases and steps of CAN-IMPLEMENT.PRO©.

Key words: evidence-Based Practice, nursing, nursing research, practice guidelines, quality improvement, software.

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SUMMARY STATEMENT

What Is Already Known About This Topic?

- Rigorous evidence implementation activity (e.g. clinical practice guideline adaptation) includes process-driven activities which lend themselves to corporate learning about change processes.
- The knowledge-to-action model provides a robust framework for conceptualizing evidence implementation.
- Program evaluation studies show that CAN-IMPLEMENT© facilitates evidence implementation across diverse geographic and sociocultural contexts.

What Does This Paper Add?

- Implementation planning that starts from project conceptualization ensures that there is continuity of activity directed towards outcomes.
- Facilitation knowledge and strategies can be transferred between evidence implementation projects through the CAN-IMPLEMENT© process.
- Implementation planning that precedes changes to practice can lead to better outcomes and sustainability of change processes.
- This paper argues that facilitation of evidence implementation must be localized and context driven, nuanced to the immediate environment and those who work in it.
- Facilitation in evidence implementation (e.g. clinical practice guideline adaptation) requires the diverse knowledge that has been crafted in the tools, resources, information and systems within CAN-IMPLEMENT.PRO© to enable users to set their projects up in a way that aligns organizational needs and priorities.

INTRODUCTION

This paper describes an online facilitation for assisting nurses and other health practitioners in the implementation and adaptation of best practice recommendations.

Frameworks for evidence-based health care have varied capability to explain, promote understanding and guide implementation. The concepts and constructs that inform most frameworks include standard elements and conventional steps ranging from topic identification to finding and synthesizing evidence and implementing the agreed-upon evidence-informed practices or policies. Although they acknowledge the complexity of the science and activity of implementation and evaluation, they often do not describe how these can be operationalized in a practical way. Integrating domains such as leadership, culture and setting or context specific attributes helps establish a better understanding of the process of implementing best practices.1

The knowledge-to-action (KTA) model recognizes the essential nature of context, stakeholder engagement and leadership and highlights the role of facilitation.2 The KTA model integrates two major concepts: (i) knowledge creation, which is the identification of knowledge relevant to the practice problem that is the focus of change; and (ii) an action cycle including preparatory steps that facilitate a guided approach to practice change. Knowledge creation represents a process in which knowledge is refined, distilled and tailored to the needs of practitioners, and the action cycle articulates how to prepare for change, implement best practice and move to evaluation and sustainability of change. A key element of the knowledge creation component is the development of knowledge tools which are aimed to provide clear and explicit best practice recommendations for practitioners—an example of which is the clinical practice guideline. The adaptation of guidelines will be the focus of this discussion.

The KTA model (Fig. 1) formed the basis of a clinical practice guideline adaptation and implementation planning process, CAN-IMPLEMENT©. CAN-IMPLEMENT© evolved from a series of evaluations of the ADAPTE methodology through five in-depth naturalistic case study groups as they carried out guideline adaptation (funded by The Canadian Partnership Against Cancer). The Canadian studies found a longer lead-in time focused on setting up and establishing the necessary groups, support and infrastructure in order to build a focused and constructive collaboration which would ‘set the ground’ for implementation. What this highlights is the critical role that implementation planning and capacity building can play in strengthening the readiness to practice change.3

What emerged was an implementation-centric framework for guideline adaptation. Implementation-centric describes a modality in which early planning for implementation is central to how a guideline adaptation project team conceptualizes best practice adaptation and how they manage forward planning from the commencement of the project through to completion. Importantly, forward planning has been found to be most useful when aligned with processes to guide engagement and facilitation within three core phases:

- Phase 1. Identification and clarification of the issue/problem;
- Phase 2. Solution building; and
- Phase 3. Implementation, evaluation and sustainability.
Phase 1 outlines five steps that guide users through defining the practice issue, recruiting key stakeholders, ensuring the support of organizational leaders, arranging the necessary infrastructure, confirming availability of sufficient evidence to proceed with adaptation, conducting a rigorous search and appraisal of evidence and drafting the guideline recommendations. This phase encourages strategic thinking and the creation of a strong plan of action for guideline adaptation.

In Step 1, the initial ‘call to action’ in Phase 1, asks participants to identify guideline priorities, clarify local, regional or national jurisdiction for implementation and determine organizational expectations and supports including financial resources and participant terms of reference. Step 2 addresses guideline development planning, including articulating the question(s) and refining the scope of the issue, evaluating the feasibility of guideline adaptation and forming working groups and steering committees, which can effectively deliver a high standard of rigour, representation and credibility. This step includes developing a detailed work plan that defines key activities, roles and responsibilities. Decision-making is an integral element of any guideline project; CAN-IMPLEMENT© includes supporting materials to help groups identify a consensus-based approach to decision-making. Step 3 focuses on the conduct and completion of searching and screening for relevant guidelines and other forms of evidence. The comprehensive identification of guidelines for adaptation requires a systematic search, rigorous screening of search results and creating a short list of guidelines for full appraisal based on relevance and fit with the stated issue and local context. This is followed by Step 4, where each shortlisted guideline (and other evidence) is subject to detailed evaluation and assessment for methodological quality, leading to a consolidated report of guidelines and guideline recommendations best suited to local needs. By working through the Appraisal of Guidelines for Research and Evaluation II instrument and tools for critical appraisal of the selected source guidelines, groups are enabled to make better informed decisions regarding which guidelines or guideline recommendations to include, discard or modify to fit their needs. The fifth and final step (Step 5) in Phase 1 is the drafting of a local guideline and the recommendations for policy and practice. As with other elements in guideline adaptation, CAN-IMPLEMENT© is built around a consensus model, whereby the draft (following an embedded template) is subject to internal then external peer review before being finalized. Peer review is not just a process necessary for scientific credibility; it also creates a point of engagement with stakeholders and ultimately increases buy-in through consultation.

Although CAN-IMPLEMENT© incorporates ‘implementation thinking’ in each phase, the focus of most activities in Phase 1 is centred on finding and evaluating existing evidence.
knowledge/evidence which would best address the identified local care issue.

In Phase 2, the focus shifts to a more detailed examination of the local context for implementation and an assessment of the gap between existing practice and the newly defined recommended practice. Implementation planning in Phase 2 of CAN-IMPLEMENT© is directed at solution building, a highly engaging and iterative process. This is a period of active collaboration between the guideline group, stakeholders, point of care partners and patients using planned approaches that build upon the implementation thinking and groundwork established in Phase 1.¹

Step 1 of Phase 2 is a systematic approach to gap analysis to compare current practice against how recommended practices will need to be organized and delivered. This will provide specific information about the local practice setting that will set the foundation for planning the necessary changes in practice. Step 2 is an evaluation or analysis of barriers to practice change and facilitators to assist in implementation. Step 3 is problem solving, where targeted strategies are implemented to address the barriers and activate the use of best practice recommendations. Phase 2 is grounded on the understanding that environments where people feel involved in decision-making offer the best facilitation models. Frontline participation from relevant stakeholders and their engagement with project members involved in Phase 1 foster a sense of ownership and are key to the task of adapting recommended practices. As the researchers established during the field studies for CAN-IMPLEMENT©, “…best practice implementation strategies should address barriers related to the individual practitioner, social context and organizational and environmental context, and should be tailored to different groups of stakeholders (i.e. nursing staff, project leaders and administrators).”¹ The processes summed up in this quote indicate the depth of resourcing required, as well as the level of consultation and engagement in order to select and tailor implementation strategies that are needed in the lead up to Phase 3.

In Phase 3, implementation, evaluation and sustainability, the project group develops strategies that enable measurement of guideline uptake and the impact of the new recommendations on policy or practice. This is a formalized process which, in CAN-IMPLEMENT©, requires monitoring of knowledge use and evaluation of the implementation process; evaluation of outcomes, including the identification of indicators that demonstrate success or low compliance; and the nurturing of change to sustain knowledge use. The Canadian case studies found that the structure and facilitating elements of the CAN-IMPLEMENT© process were valuable in achieving a level of individual and organizational capacity building that exceeded expectations.³

The outcomes of the case studies showed that guideline adaptation to local contexts required far greater support and facilitation than was anticipated in previous guideline adaptation resources (ADAPTE).⁶ The Canadian Partnership explored how guideline adaptation occurs in real-world settings and resulted in a new and improved approach for guideline adaptation that emphasized two particular findings: (i) How stakeholders engaged has a dramatic impact on moving beyond adaptation towards implementation and evaluation and (ii) the need for guideline groups to focus on implementation planning from the beginning of an adaptation project. The remainder of this paper is focused on the nature, processes and scope of facilitation within each of the three phases described in the preceding texts as they have been implemented using a software application.

DATA SOURCES

The literature underpinning the following discussion is derived from program evaluation studies, conceptual and theoretical papers on the KTA model, evidence implementation, facilitation and knowledge translation.

DISCUSSION

The CAN-IMPLEMENT.PRO©—A software application for facilitation in guideline implementation

CAN-IMPLEMENT.PRO© is a software application that was developed to enable greater dissemination and utilization of the CAN-IMPLEMENT© process. As the software is based on the three-phase process, it clearly establishes the role of implementation planning at the commencement of a guideline project. Groups new to guideline development or new to implementation planning require more than a manual and a user guide. The Canadian case studies underscore the critical role of facilitation, whereby groups undertaking guideline adaptation at either a local, regional or national level had to be supported by funded ‘outsiders’ who studied each group’s experience and progress. The study was approved by an Institutional Review Board and included data collection in the form of case logs, case liaison records, interviews and audits of methodology and processes. The methodology has been published in detail elsewhere.⁷ Following the case studies, it became apparent that a major limitation in many existing practice guideline

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methodologies is the lack of access to facilitation that is iterative, driven by context and localized to the specific needs of users; this became one of the primary drivers for CAN-IMPLEMENT.PRO©. Facilitated, directed action is embedded in the phases and steps of CAN-IMPLEMENT.PRO©, making it an ideal resource for guideline adaptation.

**Phase 1 facilitation: Identification and clarification of the issue/problem**

Phase 1 is an intensive, engaged process with a high level of activity. Activity without facilitation can result in poor outcomes, and therefore, facilitation elements are built into Phase 1 in order to address this risk. The CAN-IMPLEMENT© emphasized the need to identify stakeholder ideas and concerns about practice issues and organizational context before projects risked failure. Facilitation of stakeholder engagement includes a focus on:

- **Planning for change** (specifically, this involves strategies for increasing awareness and developing the plan);
- **leading and managing change** (which includes knowledge and data management, project management, recognizing importance of context and fostering team-building/group dynamics); and
- **administrative and project specific support.**

The CAN-IMPLEMENT.PRO© provides the ‘facilitation’ by guiding the decisions and actions that should be considered and implemented. In addition, many of the embedded tools and processes are related to stakeholder engagement, which therefore guides the adaptation planner to seek out and consider stakeholders right from the beginning of the process.

Planning for change draws upon theories for planned action. In the absence of a structured approach, acting to change a structural or process-based aspect of clinical care could result in haphazard engagement and inadequate implementation planning. The difficulties in planning for guideline adaptation were identified in the case studies, which showed that new groups could require up to 6 months to develop objectives, establish terms of reference and establish a strategy to engage with key stakeholders. Planning for change was a priority focus in the development of CAN-IMPLEMENT.PRO©. Effective facilitation guides the planning and methods for baseline data collection and establishes the organizational and interpersonal communication channels that are the basis of getting started. The software includes resources that help users plan awareness-raising activities, strategies for engaging with stakeholders, including use of templates to guide invitations to participate and to clarify the group’s mandate, and how the mandate informs the scoping prior to a guideline adaptation.

Having established the basis of a project, the next steps in guideline adaptation require skills and knowledge in how to lead and manage change (including knowledge and data management, project management, recognizing importance of context and fostering team-building/group dynamics). To our knowledge, no software other than CAN-IMPLEMENT.PRO© includes empirically derived guidance on what to consider when planning a change strategy or how to best manage complex project requirements or resources that offer direction and strategies to facilitate optimal group dynamics. An experienced guideline adaptation group will already have a suite of templates and resources to manage and enable reporting to a steering committee on progress. However, a group new to guideline adaptation can draw upon the addition of spreadsheets to manage citations, expanded information on how to lead small groups and how to communicate effectively within face to face meetings or via email and operational definitions that can be tabled and voted upon by working parties involved in the project.

Facilitation in guideline adaptation requires diverse skill sets across administration, management, scholarship, technical skill in guideline adaptation, as well as implementation planning and its role in the early stages of a guideline project. These have been crafted into tools, resources, information and systems within CAN-IMPLEMENT.PRO© and enable users to set their projects up in a way that aligns organizational needs and priorities with the guideline adaptation project.

**Phase two facilitation: Solution building**

The facilitation elements from Phase 1 continue throughout Phase 2. The focus of activity changes from guideline drafting to three steps for solution building:

- **Aligning knowledge to local context** (practice and system);
- **assessing innovation, adopters and practice environment** for barriers and supports; and
- **selecting, tailoring and testing implementation interventions.**

In aligning knowledge to local practice, facilitation is aimed at managing the change. Leading and managing change requires a skill set to enable project leaders to
successfully navigate the complexity of organizational requirements, inter-professional leadership and day-to-day practical management needs of guideline adaptation. Aligning knowledge to local conditions requires consideration of current practice and the cultural context where implementation is to occur. Guidance is directed at the kinds of data to collect, how to collect and report on it and, critically, how to maintain momentum, following the labour intensive earlier phase. CAN-IMPLEMENT.PRO© includes prompts, resources and templates that not only act to facilitate data collection and analysis but also bring in processes learned from previous studies or activities that assist with engaging with groups in complex settings, particularly those with a requirement to include both clinical and managerial/organizational priorities in the guideline development. The software guides users to plan for and allocate time and resources to engage with organizational and clinical leaders as an important strategy.

Identification of barriers and facilitators to implementation has become a familiar construct in practice change. Identifying barriers is a component of implementation, not the whole process. The implementation planning from Phase 1 enables users of CAN-IMPLEMENT.PRO© to address both practice and system-level perspectives and concerns early in Phase 2. The core elements of facilitation in Phase 2 build on Phase 1 and can be implemented concurrently or iteratively with Phase 1. For this reason, CAN-IMPLEMENT.PRO© includes both templates and completed exemplars to guide users beyond barrier identification through to facilitation of strategies to address these barriers. Evidence-informed ‘field notes’ from research, which are specific to each step in the adaptation project, are also embedded. Field notes include case study-based strategies to assist guideline adaptation groups to identify potential barriers, as well as locally relevant facilitators to address the identified barriers.

Phase 3 facilitation: Implementation, evaluation and sustainability
Guideline implementation projects that are primarily based upon dissemination in the absence of planning and action for implementation have been shown to lack uptake and impact. Grol, in particular, found widespread variability in the uptake of guideline recommendations, whereas van der Helm et al. noted that many barriers to effective implementation are only identified when implementation fails. The adaptation of a guideline involves implementation. Having a guideline adaptation methodology that embeds implementation planning from the beginning could contribute to better integration of strategies and higher stakeholder engagement that can lead to effective and sustainable practice change.

CAN-IMPLEMENT© highlights implementation planning from the initial call-to-action throughout all stages of guideline implementation. It is not a step that ‘follows’ the development a guideline. Where CAN-IMPLEMENT© and CAN-IMPLEMENT.PRO© differ from other methodologies is the focus on implementation as the raison d’être. The facilitation elements from Phases 1 and 2 further inform planning for implementation, evaluation and sustainability. In Phase 3, therefore, these three activities are addressed:

- Monitoring knowledge use and evaluating the implementation process;
- Evaluating outcomes; and
- Nurturing change and sustaining knowledge use.

Groups with an interest in implementation could benefit from the embedded case exemplars and evaluation strategies in the CAN-IMPLEMENT.PRO©. These assist to determine both the level of evidence uptake and the impact or outcomes from the new recommendations. Although this phase is conducted outside the software environment, the resources, field notes and guidance are key reminders and prompts for users on the types of practice indicators and measurement strategies that can be used.

Implications for nursing
Nursing and other health disciplines require a skill set and resources to successfully navigate the complexity of organizational requirements, inter-professional leadership and day-to-day practical management to implement evidence into clinical practice. Implementation of best practice (regardless of the source of evidence informing the implementation) has been described as challenging and requiring innovative approaches that address the complexity of systems of care, individual practitioners and senior leadership in order to ultimately shift health-care cultures to be evidence-based practice environments. Evidence-based practice research attempted to address these issues and identified various strategies to facilitate evidence implementation, which can be grouped into the following domains: professional, financial, organizational and regulatory. This discussion paper argues that, irrespective of the strategy, what evidence implementation requires is a high level of facilitation that needs to be more localized, more context.
specific and more nuanced to the immediate environment where implementation is occurring. These characteristics indicate why implementation planning in the early stages of a guideline adaptation project is challenging and proves to be a time-intensive activity that requires ongoing stakeholder engagement. Nevertheless, it is a step that should not be overlooked because it is a critical element of successful implementation that is worth every effort. Facilitation should occur throughout the phases of evidence implementation, including planning for change, leading and managing change, monitoring progress and ongoing implementation and evaluation of change. The CAN-IMPLEMENT.PRO© aims to provide this facilitation in an ‘online’ environment so that nurses and health practitioners who plan to implement and adapt best practice recommendations are guided throughout the process.

Planned approaches to implementation have been reported widely in the literature. Generally, these rely upon educational strategies, clinical audits, reminder systems or point of care resources as the mode or method of implementation. As this paper has highlighted, there are distinctions between the actual interventions to promote evidence implementation and the facilitation required to enhance, improve or even plan for implementation. Facilitation has been defined as a deliberate and valued process of ‘interactive problem solving’ and ‘support’ that occurs in the context of a recognized need for improvement and a supportive interpersonal relationship. As Stetler, Lockwood and Campbell indicated, interventions such as education or reminder systems are not implementation; they are the facilitation and planning processes and engagement around the intervention that create the opportunity, environment and framework within which implementation takes place.

CONCLUSION

The CAN-IMPLEMENT© provides detailed guidance on how to adapt and implement best practice recommendations to local context, with a particular focus on implementation planning. Its evaluation showed that guideline adaptation requires a level of facilitation that is not readily available to groups that do not have centralized funding or extensive networks of experts to draw upon. The CAN-IMPLEMENT.PRO© was developed to enable greater dissemination and utilization of the CAN-IMPLEMENT© process. The software provides facilitation that is iterative, driven by context and localized to the specific needs of users. The user interface consists of three phases, corresponding to the steps from CAN-IMPLEMENT© embedded as points of guided interaction that clearly establishes the role of implementation planning at the commencement of a guideline project. The facilitation components have been integrated to enhance accessibility within each phase and step and include access to a high-level public web forum to enable users across the world to communicate on regional issues or collaborate in a shared learning context. The CAN-IMPLEMENT© and CAN-IMPLEMENT.PRO© offer a promising approach for assisting in the local implementation of best practice evidence, and plans for their implementation and evaluation are underway.

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