

# Moving into action: We know what practices we want to change, now what? An implementation guide for health care practitioners

## Contents

Moving into action: We know what practices we want to change, now what? An implementation guide for health care practitioners .....	1
Acknowledgements .....	3
Introduction .....	3
How to use this guide.....	6
Important considerations .....	7
Reflection .....	7
Resources .....	8
Making the change: Implementation phases.....	8
Target 1: Adapt the knowledge to your local setting.....	8
Why is this important?.....	8
Background knowledge.....	9
Reflection .....	9
Reflection .....	11
Example 1: Adapting a skin care guideline to prevent diaper dermatitis in a paediatric oncology population. ....	11
Example 2: Adapting a clinical practice guideline based on the feasibility of implementing a specific recommendation. ....	11
Example 3: Adapting a clinical practice guideline to improve success in achieving the overall goals. ....	11
Making the change: Implementation phases.....	12
Target 2: Identify barriers and facilitators of implementation in your local setting.....	12
1. Characteristics of the innovation or practice change.....	13
2. Individual care providers .....	15
Reflection .....	15
Reflection .....	16
3. Practice Setting.....	16
Reflection .....	18
4. Organization.....	19

Reflection .....	20
Reflection .....	22
Making the change: Implementation phases.....	24
Target 3: Select & tailor implementation strategies to target goals, barriers and to enable facilitators of change .....	24
Reflection .....	30
Reflection .....	30
Moving into action .....	31
Reflection .....	31
Appendix A: Reference List.....	35
Appendix B: Glossary .....	40
Adapting the evidence .....	40
ADAPTE process .....	40
Barrier .....	40
Business case .....	40
Champion.....	41
Clinical practice guideline .....	41
Delphi Method.....	41
Evidence .....	41
Facilitator .....	41
Focus Groups .....	41
Goal.....	41
Implementation .....	42
Innovation .....	42
Knowledge to Action Framework .....	42
Opinion Leaders.....	42
Outcomes.....	42
PARIHS framework.....	42
Plan, Do, Study, Act (PDSA) Cycle .....	42
Stakeholders (taskforce or other organized group) .....	42
Sustainability.....	43
Systematic Review.....	43
Appendix C: EIDM Process Algorithm (adapted from a draft algorithm developed in the Transition Office at McGill University Health Centre).....	43
Appendix D: Factors influencing health care behaviours and intentions: A theoretical Model .....	44
Appendix E: Barriers, facilitators and implementation strategies spreadsheet tool .....	44



Appendix F: Examples of barriers and facilitators ..... 45

    Knowledge ..... 45

    Attitudes ..... 45

    External Barriers ..... 45

Appendix G: Questions to assess barriers and facilitators..... 46

Appendix H: Implementation checklist tool..... 46

Developed by S.A. Castiglione, RN, MSc(A) &

J.A. Ritchie RN, PhD

Nursing Research<sup>3</sup> – Centre for Knowledge, Innovation and Action

The McGill University Health Centre

March 28, 2012

### Acknowledgements

This module was developed for a clinician audience with financial support from the Canadian Institutes of Health Research.

We would like to thank the professionals who supported the production of this document by offering ideas, taking the time review the document and sharing their experiences with evidence-informed practice and implementation.

Specifically the authors thank reviewers from:

- Canadian Institutes of Health Research: Ian D. Graham, Adrian Mota, Jacqueline Tetroe, and Ryan McCarthy;
- McGill University Health Centre: Jane C. Evans, Catherine Oliver, Jacynthe Sourdif, France Paquet, Caroline Laberge, Anelise Espirito-Santo, Anne Choquette, Luisa Ciofani, Sabrina Haas, Anna Balenzano, Angie Fiorda, Suzanne Watt, Claire Nehme, Nancy Turner, Susan Jones and the MUHC nursing staff across various sites.

### Introduction

You may have already encountered this scenario or one similar:

You are concerned about a specific practice that exists in your clinical setting involving a unique patient population. Your concern leads you to search the literature, a typical approach to your inquiry that you’ve done numerous times before. Your search yields a clinical practice guideline and other types of evidence dealing with the issue at hand, and you think “Eureka! Now I know exactly what we should be doing!”



This excitement slowly turns to concern again.

You think: “I know what I want to change, but now what?”

How do I get all the staff to adopt this change?”

Many health care practitioners encounter these questions as they consider the intricacies involved in changing health care practitioner behaviour. It was thought at one time that simply presenting the recommendations for change or circulating a memo would change behaviour. If only it was that easy! Rather, translating evidence into practice can be a complex and daunting process. It requires careful thought from the innovation itself to the organizational policies and politics.

This guide is intended for all health care professionals as a resource tool for implementation of a practice change based on evidence.

**A practice change can include:**

- A recommendation or recommendations from clinical practice guidelines or a systematic review of research,
- A change in a practice routine, and/or
- A new technology.

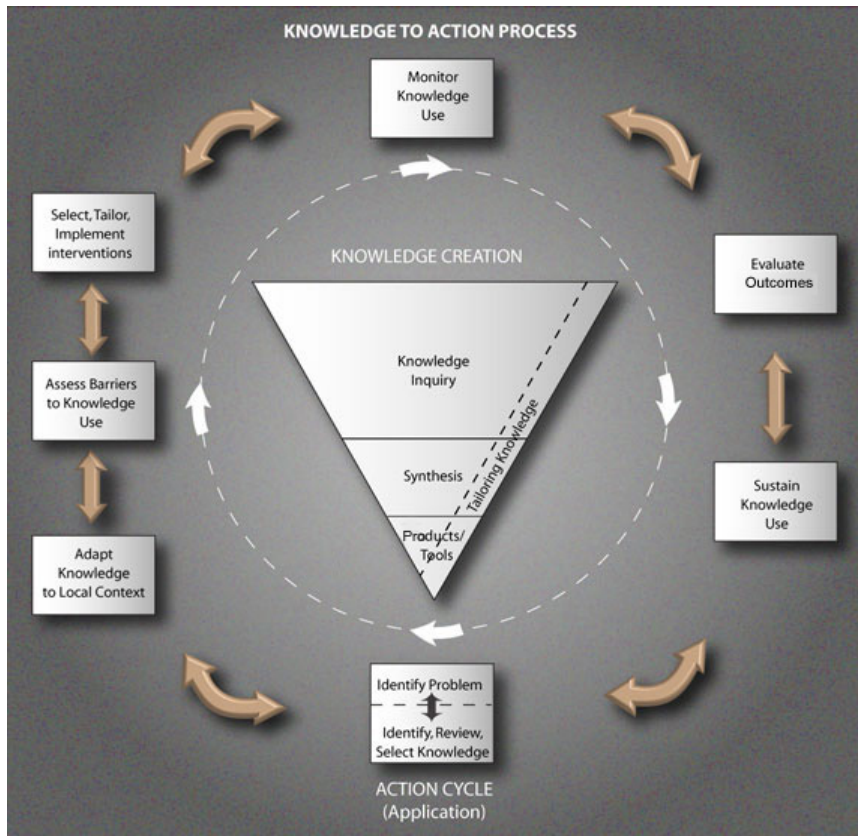
There are a number of models to guide us as we try to move evidence into practice. One useful framework is the Knowledge to Action Framework (KTA Framework) ([Graham et al., 2006](#)) that outlines the relationship between knowledge creation and the seven action phases in implementation. The entire process is complex and dynamic, where each phase influences the other. The process can take place within different contexts or work environments. These contexts influence the process as well. See the CIHR website for knowledge translation for more information (<http://www.cihr-irsc.gc.ca/e/29418.html>)

This guide addresses three phases of implementation that parallel three phases of the KTA Framework (see below):

1. Adapting the evidence to the local context,
2. Assess barriers to knowledge use, and
3. Tailor, select, implement interventions



## The Knowledge to Action Cycle (Graham, et al, 2006)



Reproduced with permission by JCEHP.

### Knowledge-To-Action Cycle

Certain milestones have been identified as necessary in bridging the knowledge-to-action gap. For practical purposes, these milestones are described as a series of steps in a cycle, and stakeholders are different from one another in terms of the steps they have taken across the Knowledge-To-Action Cycle.

At the center of the Knowledge-To-Action Cycle is the "Knowledge Funnel"

This represents the process through which knowledge is refined, distilled, and tailored to the needs of knowledge end-users such as health care professionals and policy makers.

The "Knowledge Funnel" includes 3 separate levels:

1. Knowledge Inquiry
2. Knowledge Synthesis
3. Knowledge Tools/Products

The "Action Cycle" represents phases of activities that, according to planned-action theories, are needed for knowledge applications to achieve a deliberately engineered change in groups that vary in size and setting.

The 7 phases of the Action Cycle include:



1. Identify the Knowledge-To-Action Gaps
2. Adapt Knowledge to Local Context
3. Assess Barriers to Knowledge Use
4. Select, Tailor, Implement Interventions
5. Monitor Knowledge Use
6. Evaluate Outcomes
7. Sustained Knowledge Use

Other resources, that can be found in the literature and online, are listed for the other phases in the implementation process (such as developing goals and evaluating the implementation process) and will not be discussed in great detail in this guide.

### **How to use this guide**

Each of the sections in the guide deals with a specific phase of implementation and will contain the following headings:

**Target** - What you will accomplish in this step

**Why is this important** - Purpose of doing this step

**Background knowledge** - Summarized information about this step

Questions and reflection points when considering the step

**Moving into action** Breaking it down into small actions to complete the step

**Real life example** - Description of a scenario exemplifying this step

**Resources** - Resources available in the literature and online for further information or support. Click on the underlined link and it will direct you to the online resource (only if you are connected to the internet.)

**Notes** - Blank space to write thoughts and ideas

Further resources are available in the appendices section at the end of this document. They include:

- Reference list (Appendix A)
- Glossary (Appendix B)
- Evidence-Informed Decision-Making (EIDM) process algorithm (Appendix C)
- Factors influencing health care behaviours and intentions: A theoretical model (Appendix D)
- Barriers, facilitators, and implementation strategies spreadsheet tool (Appendix E)
- Examples of barriers and facilitators (Appendix F)
- Questions to assess barriers and facilitators (Appendix G)
- Implementation checklist tool (Appendix H)

Implementation is not a linear process; read through the entire guide first before embarking on a practice change project.



## Important considerations

Sometimes, we want to jump right into making a change when we've discovered an innovation that may improve practice and patient outcomes in our setting. Though this enthusiasm is critically important, it is crucial that we go through the initial stages of implementation by carefully organizing and clarifying:

- Our purpose in making the change (exactly what is the goal?),
- The stakeholders who may be affected by the change, and
- The evidence that supports that a change should happen.

Each phase in the implementation process is important and requires an investment of time and resources. For some practices, change may be accomplished in a very short time while others need longer.

Here are the steps that need to happen before continuing with the implementation process:

- A question or concern came up in my practice or practice setting.
  - Stakeholders were assembled to address the question and to review the evidence.
- Evidence for an innovation or practice change was found or created and reviewed.
  - The strength of the evidence was appraised, and
  - The best evidence (one or more sources) has been found.
- The gaps between the evidence (about what should be happening) and the current practice in my setting have been identified through measurement.
  - Baseline data was collected in my practice setting about the actual state of practice at present.
  - A decision was made whether this concern is relevant enough to warrant moving to implement a change, based on the findings.
  - Goals for the practice change were written and are measurable.
  - The target for the behaviour change has been determined. (Who? Where? When? What? How long?) *E.g.: Within 24hrs of admission, all patients admitted to the unit will be assessed for their risk of pressure ulcers using the Braden scale.*

Implementation is not an individual endeavour. A team of individuals should be assembled to prepare and work through the implementation process. The team can be composed of stakeholders and others who have a vested interest in improving outcomes for patient care. You may refer to this team as a taskforce or a steering committee. The members of your group can vary over time depending on the issues you are working through. It is important to identify a leader within this group who will act as the spokesperson and project manager.

### <image> Reflection

The initial phases of implementation require ongoing reflection about the decisions made and those that will need to be made. Consider the following questions at this point in the implementation process:

- Is my question or goal clearly stated? How will I know I have achieved it?
- Have I included the relevant stakeholders in this process? Have I involved stakeholders in all levels of the organization? What can I do to ensure that I have not missed a crucial stakeholder?



- Where do my stakeholders stand on the proposed practice change?
- Are the goals for practice change specific and measurable? How can they be measured or observed?
- Is the target for practice change achievable and feasible?

See the list of resources below for more information and guides on how to proceed through these phases.

## Resources

[Canadian Institutes of Health Research: More about Knowledge Translation at CIHR](#)

[Canadian Institutes of Health Research: Introduction to Evidence-Informed Decision Making](#)

[Registered Nurses Association of Ontario: Toolkit: Implementation of Clinical Practice Guidelines](#)

[Research, Quality and Outcomes Management: Toolkit for Promoting Evidence-Based Practice.](#)

[Canadian Institutes of Health Research: Knowledge to Action: A Knowledge Translation Casebook](#)

[The AGREE Collaboration: Appraisal of guidelines for research and evaluation \(AGREE II\) instrument.](#)

[Canadian Institutes of Health Research: Critical Appraisal of Intervention Studies](#)

[University of Kent: Critical Appraisal of the Journal Literature](#)

[KT Clearinghouse: Identifying Gaps between Evidence and Practice](#)

[Canadian Medical Association Journal: The knowledge-to-action cycle: Identifying the gaps](#)

[National collaborating centre for methods and tools: Introduction to evidence informed decision making](#)

## Making the change: Implementation phases

### Target 1: Adapt the knowledge to your local setting

#### Why is this important?

Whether you are aiming to change practice based on evidence from a clinical practice guideline or recommendations of a systematic review, you need to consider the “fit” of the recommended practices within your setting. Many issues may influence your decision about “fit”.

Findings from research evidence are based on samples of populations that may or may not resemble your local practice setting. Similarly, recommendations from clinical practice guidelines may not match with the values and beliefs of your population of patients or staff or may require the use of equipment or other resources that are not readily available,. Some recommendations may be vague or unclear about the desired approaches. Therefore, it may be necessary to adapt the recommendations in order to ensure a good fit with your setting, and at the same time, to be consistent with the evidence. Adapting the recommendations to your local practice setting is a necessary step to successful implementation.





In this section you will learn about the various processes to adapt recommendations from research evidence to fit your local practice setting.

## Background knowledge

Adapting recommendations from evidence to fit the local setting is a crucial exercise to improve your chances for success when trying to make a change. At this point, you have developed goals for changing behaviour based on evidence, such as:

- Clinical practice guidelines,
- Synthesis of research literature (systematic reviews, series of individual studies, etc...),
- Research projects developed in your setting, \*requires appropriate attention to quality and generalizability
- Local consensus in your setting with validation (by health care professionals or patients and families), or
- Through a combination of sources.

At this stage, you have already evaluated the strength (quality) of the evidence and have narrowed the selection down to the best evidence and its related recommendations. The next step would be to adapt recommendations from the evidence to make it “user friendly” in your setting. The process of adaptation needs to be a systematic and participatory process that involves many considerations.

This step involves looking at the realities of your setting. This will be helpful in the next phase of implementation as you formally assess the barriers and facilitators to implementing a practice change.

## Reflection

Consider local evidence from your setting when adapting guideline recommendations for implementation ([Harrison et al., 2010](#)).

- Are there specific practice problems relevant to my setting? What evidence do I have that there is/could be a problem?
- What are the needs of my setting?
- What are the priorities set out by my setting?
- What legislation, policies or resources could hinder or facilitate aspects of the evidence in my setting?
- What is the scope of practice of the target group in my setting? (E.g.: nurses, physiotherapists etc...)
- Does the evidence fit with delivery care models in my setting?
- Could this practice be sustained over time based on the priorities of my setting and target population?

To make implementation easier and expectations more concrete and clear, create a tool to support the practice change such as a protocol or procedure, an algorithm that outlines the steps and clinical decision points for patient care, or new or adapted documentation tools. The final product in the adaptation process requires creativity and an understanding of what will be useful in your setting.

A recently developed manual and toolkit, called the ADAPTE process, has been created to guide the adaptation of clinical practice guidelines. This process takes the user through three phases of adaptation: planning and set-up, adaptation and development. Depending on the document you plan on adapting, the awareness of the facilitators and barriers already known about your setting and the resources



available in your setting, you can tailor the ADAPTE process to the steps that are more useful in your situation. When following the ADAPTE process, the end result can include:

- Adoption of a guideline unchanged,
- Translation of language and adaptation of the format,
- Modification and update of single recommendations,
- Production of a customized guideline (this can include adoption of a portion or sections of a guideline.)

In general, the process for adapting a clinical practice guideline to fit the local setting is as follows:

- Evaluate the guidelines for quality, currency (evidence is up-to-date) and consistency of the recommendations with the underlying evidence (i.e.: appraise the source and/or the primary research behind each recommendation.)
- Adapt the document to meet the needs and priorities of the local setting, if necessary, while still being consistent with the evidence. This could include selecting some recommendations with strong evidence and that can be implemented locally, modifying the recommendations (based on new evidence), or taking the best recommendations from several guidelines and creating a local guideline.
- Format the recommendations so that they include a statement about targets for quality improvement. (i.e.: goals for evaluation of the practice change.)
- Consider implementation activities (like designing prompts, modifying documentation forms and securing resources) when adapting guidelines. These considerations will help you in the next phases of the implementation process.
- Finalize the adapted document based on feedback from stakeholders and in some cases, developers of the original guidelines.
- Write the final guideline and establish a process for updating.

Other groups have also developed processes for adapting evidence based knowledge in specific population groups that can be useful in attaining a good fit between the evidence and the setting for successful implementation. For example, The CDC Division of HIV/AIDS Prevention (2006) developed guidelines on adapting recommendation into unique areas of practice. As well, CAN-IMPLEMENT© ([Harrison & van den Hoek, 2011](#)) is a useful resource for guideline adaptation and implementation planning. It streamlines the ADAPTE process to support adaptation of cancer care documents and includes a dissemination and implementation planning component. It may be helpful to look at literature within your specialty for examples of adaptation.

### **Moving into action**

- 1) Identify the source(s) of evidence you are planning on implementing. I.e.: Clinical practice guideline, systematic review etc...
  - a) Consider this in conjunction with your goal for practice change.
- 2) Communicate and involve stakeholders in the entire process. A subcommittee can be formed to tackle adaptation.
- 3) Adapt the recommendations from the evidence by following a standardized process, for example the ADAPTE process\*. Note: depending on your needs, it may not be necessary to follow the entire ADAPTE process.
- 4) Create a written document of the adapted guideline that will include the final format and language of the guideline recommendations for practice change such as an algorithm, spreadsheet, etc. \*Note: using the ADAPTE process will lead you to this step.



- 5) You may need to revisit the adaptation issues in later phases of the implementation process. For example, if unanticipated challenges arise or clinicians find the recommendations unclear, you may need to refine or revise your recommendation.

### Reflection

Think about the decisions made so far. Consider:

- Are we still on track to achieve the set goal? Does this goal need to be modified?
- Do we need to go back and rethink any decisions made?
- What assumptions have we made? Do they still hold true?
- Are the members of the team still the right ones?
- Is there an individual or a group in the organization that can assist in following through this step?
- As a project leader, what is my role at this stage?
- As a leader within the organization, what can I do to support the practice change at this step?

### Real life example

#### **Example 1: Adapting a skin care guideline to prevent diaper dermatitis in a paediatric oncology population.**

Nurses in a paediatric oncology unit were concerned about the high incidence of diaper dermatitis in infants and toddlers receiving chemotherapy. The advanced practice nurses, in consultation with the staff nurses, were interested in implementing a change in practice to prevent diaper dermatitis. In reviewing the literature they found a clinical practice guideline pertaining to diaper dermatitis that had been prepared in another children's hospital.

Using the recommendations from CPAC, the ADAPTE process, and while consulting the stakeholders (nurses and families), the local children's hospital adapted the Pittsburgh guideline. This new guideline outlined the recommendations dealing with prevention of diaper dermatitis, as well as an algorithm that was posted at the bedside as a guide and reminder for nurses as well as parents.

#### **Example 2: Adapting a clinical practice guideline based on the feasibility of implementing a specific recommendation.**

A working group that was focused on reducing the hospital's rate of pressure ulcers decided to implement a specific Best Practice Guideline. However, one of the guideline recommendations was, in an acute care hospital, to repeat patients' risk assessments every 48hrs. The level of evidence was Level C (the personal opinion of a leading researcher in the field, but not based on any research study). The stakeholders in the situation (clinical nurses on busy in-patient units) raised many serious questions about the feasibility of repeating the assessment every 48 hours. The working group decided not to require that step in its local policy and protocol given the lack of supporting research evidence .

#### **Example 3: Adapting a clinical practice guideline to improve success in achieving the overall goals.**

A working group that was focused on reducing the hospital's rate of pressure ulcers selected a specific published clinical practice guideline for implementation. Their review of the guideline revealed that there were 34 recommendations. Several of those were vague or general and were not based on strong research evidence. Some of the recommendations pertained to practices that would be more complex to change or for which the outcomes would not be immediately visible. The working group decided to begin



their implementation work with a focus on the specific recommendations pertaining to assessment and to translate the intervention recommendations into an algorithm that summarized the steps to take in the situation of a particular assessment. These were then made into pocket guides and posters for practitioners and patients to use for reference or reminders.

## Resources

[Canadian Medical Association Journal: Adapting Clinical practice guidelines to local context and assessing barriers to their use.](#)

[ADAPTE: Guideline adaptation: A resource toolkit.](#)

[AIDS Education Prevention: Adapting evidence based behavioural interventions for new settings and target populations](#)

[CAN-IMPLEMENT: Canadian Partnership Against Cancer](#)

## Notes

### Making the change: Implementation phases

#### Target 2: Identify barriers and facilitators of implementation in your local setting

##### Why is this important?

Whether you are planning to implement a small scale practice change within your clinic, or you are implementing clinical practice guidelines across multiple practice areas, having a clear picture of the important issues or complexities of the setting will shape your approach to selecting strategies for implementation. Strategies for implementation can be more effective when they are tailored to address specifically the barriers or when they make use of the facilitators identified in the setting.

In this section, you will gain an understanding of the possible factors that might help or create challenges for implementation in your setting, and to systematically identify these in order to build a plan of action.

##### Background knowledge

A barrier in the context of implementation can be defined as any factor that may inhibit or pose challenges to the implementation process. Conversely, a facilitator to implementation is seen as any factor that may enable the process.

Barriers and facilitators for implementation can be identified by examining characteristics of the:

- innovation or practice change,
- individual care providers,
- local practice setting, and
- organization.

Each has unique factors to consider. Here are some examples of factors that can be classified as a barrier or facilitator to the implementation process:



## 1. Characteristics of the innovation or practice change

Characteristics of the innovation or practice change could be perceived as barriers and/or facilitators to implementing a practice change. This perception can shape the attitudes and opinions of the individual care providers that are involved in implementation. For example, when practitioners perceive the recommended change to have no added benefit, it will require different or perhaps more intense implementation strategies to influence practice change.

Rogers argues that the ease with which an innovation is adopted is related to people's perceptions about 5 main attributes of the innovation. Different people may have different opinions about any of the attributes. [Greenhalgh and colleagues \(2004\)](#) reported that there is moderate to strong direct evidence that perceptions about attributes influence use of evidence in healthcare situations.

Attribute	Definition	Example
Relative advantage or benefit	The perception of whether the innovation is better than the practice it will replace. "Will it be better than what I'm already doing?"	As part of a hospital wide initiative, a clinical practice guideline for the prevention of pressure ulcers was implemented on a nursing unit with 0% prevalence of pressure ulcers at baseline. The practice was not sustained over time as the nurses stated it was "not relevant" for their population.
Compatibility	The perception of whether the innovation is consistent with the values and beliefs of the setting (culture). "Will this fit with my beliefs about dealing with this issue?"	In implementing a practice change to promote family centered care, nurses who valued the input of families might be more invested in making the changes than the nurses who did not value families' involvement in care.
Complexity	The perception of the degree of difficulty and ease of the innovation. "Will it feel just like more work?"	The reduction of the use of a "sitter" and/or restraints for the elderly following surgery may be complex because it may require multiple types of changes by many and different types of providers. For example, the physicians may need to change and harmonize their medication orders. Nurses may need to develop new skills in assessing and intervening for delirium.
Trialability	The degree to which an innovation can be experimented with and tested. "Will it be too difficult to just try out?"	Nurses were sceptical about a change of practice that would require independent double checks in administering high-risk medication to improve patient safety. Two volunteers were asked to try the practice for a month. The results were clear that patient safety had improved significantly and other nurses



		were more on board in adopting the new practice.
Observability	The degree to which the outcome of the innovation is visible. “Will it be easy to see the results?”	An innovation to improve pain management is more visible than an innovation to promote family-centred care.

See Diffusion of Innovation (Rogers, 2003) for elaboration.

Other researchers describe attributes that are specifically related to the adherence to recommendations from clinical practice guidelines. In addition to the ones mentioned above, other attributes most commonly discussed are:

Attribute	Definition	Example
Evidence-based	Recommendations based on research evidence are more likely to be followed.	A study evaluated the factors that influenced surgeons’ consideration of applying a novel needle suspension technique with mesh in patients suffering from urogenital prolapse. Their decision was most strongly influenced by the level of scientific evidence underlying the technique. (Hinoul et al., 2010).
Controversy	Recommendations that are non-controversial are more likely to be followed.	It is a common practice to continuously and electronically monitor the fetal heartbeat during normal labour and delivery despite published clinical practice guidelines to the contrary. Many practitioners oppose this recommendation due to medical-legal concerns.
Clarity	Recommendations that are specific and not vague are more likely to be followed.	The following is a recommendation in a clinical practice guideline dealing with crisis intervention: “The delivery of crisis intervention is based on an integrative framework.” (RNAO, 2002). It does not provide any clear action steps for users and may be less likely followed.
Change in routine	Recommendations that do not call for a change in routines are more likely to be followed.	Strong evidence exists for the administration of antibiotics prophylaxis preoperatively and at specific intervals thereafter in patients undergoing gastrointestinal surgery. In one hospital, although adherence to the hospitals’ prophylactic antibiotic protocol was below optimal, surgeons requested the purchase of antibiotic soaked sponges use during surgery. It



		<p>appeared that this type of practice would involve less change in routine. However, the request was denied and it was urged that the surgeons follow the existing protocol. (Pan &amp; Dendukuri, 2010).</p>
--	--	--

See Grol et al. (1998) for elaboration.

Individuals across health care disciplines and settings may be influenced differently by their perceptions about specific attributes of the innovation or practice change.

For example, physicians may place a higher importance on whether recommendations are evidence based compared to other disciplines. See [Langley & Denis \(2011\)](#) and [Goosens et al. \(2008\)](#) for elaboration.

## 2. Individual care providers

Individual care providers include any provider within your setting who will be targeted in the practice change. The providers' attitudes, knowledge and skills can influence the culture of a practice setting and will influence their adoption of the desired change. For example, if the practice change involved the process of patient transfers, nurses could be directly implicated in changing their behaviour. As well, unit coordinators and orderlies would be affected by the change and may have differing perspectives.

### Reflection

Perceived characteristics of the innovation also factor into the attitudes and opinions of individuals. Consider (from Rogers, 2003):

- Is the innovation perceived as better than what is already in place?
- Is the innovation consistent with existing values, past experiences of change and the needs of the individuals?
- Is the innovation complex? How difficult will it be to understand?
- Can the innovation be tested on a small scale?
- Will the outcomes of the innovation be clearly observable?

Here are examples of factors to consider with individual care providers when assessing barriers and facilitators for implementation:

Factor	Definition	Example
Competence	The knowledge or skills that are needed to implement the innovation.	The innovation may require learning how to use a piece of technology or may require understanding a disease process.
Attitudes and opinions	Individuals may have varying attitudes and opinions about the innovation itself, or about changing existing practices.	A culture can exist where change is seen as disruptive. The attitude of maintaining the status quo can impede the implementation of practice change.
Motivation for change	The motivation to change behaviour can depend on the	A negative incident where a patient's health was

	individuals' level of satisfaction with their own performance. This can be a gradual recognition, or may depend on a specific event.	compromised because of a lack of knowledge with a disease process can signal to the practitioner areas of improvement.
Individual characteristics	Individual characteristics of the healthcare professional have been shown to affect the utilization of evidence in their practice.	An updated systematic review by <a href="#">Squires et al. (2011)</a> identified individual characteristics that positively influence nurses' use of evidence in their practice: Positive attitude to research, attending conferences, having a post-graduate degree, having a leadership or advanced role, clinical specialization and job satisfaction.

### Reflection

Social cognitive theories can help to better understand health professionals' behaviour and offer insights to help you decide on the type of implementation strategy to use. They can be used to better inform the implementation process. [Godin et al. \(2008\)](#) found that the Theory of Planned Behavior (Ajzen, 1991) was appropriate in examining the attitudes and beliefs in health professional behaviour. Some examples of theories you may be interested in looking at include:

- Theory of Reasoned Action ([Fishbein et al., 1975](#))
- Theory of Interpersonal Behavior ([Triandis, 1980](#))
- Social Cognitive Theory ([Bandura, 1986](#))
- Transtheoretical Model of Change ([Prochaska & Velicer, 1997](#))

See [Appendix D](#) for a model identifying factors that can influence health care practitioners' behaviours and intentions.

### 3. Practice Setting

The practice setting includes individuals and characteristics of the patients that make up the local practice area or areas where the innovation will be implemented. This also includes the size of the setting (which usually cannot be changed), local resources, and the presence of transformational leaders.

Here are examples of factors to consider in the practice setting that could be barriers and/or facilitators to implementation:

Factor	Definition	Example
Patient characteristics	Patient and family preferences can be a barrier to or facilitate the change process. Preferences to be involved in certain care activities, treatment outcomes or health care outcomes can be influenced by the patients' culture, beliefs and previous experiences. As well,	Beliefs that a specific patient demographic has overall better literacy skills can influence the practitioners approach to teaching this group.  Young adults with significant cognitive delays may be unable to participate in self-management





	care providers' beliefs about patient characteristics such as age, gender, illness type and acuity can influence their care routines.	even if the recommended practice is to foster these skills.
Champions	Champions are appointed individuals who promote the implementation process by encouraging, coaching and/or convincing others to accept the innovation. Champions can be facilitators that can come from different levels of the organization, including executive, managerial and, most commonly, clinical levels. Clinical champions are often informal leaders that have a realistic understanding of their setting. Champions can be resource persons and mentors, and participate in tailoring implementation strategies to the setting.	Key activities of champions include: Educating peers about the innovation, advocating for the innovation, building positive relationships with users of the innovation and communicating with and reaching out to other professionals and practice settings. They can also be involved in coaching, reminding and doing audits and feedbacks.  In implementing a falls prevention guideline, the nurse manager on a surgical unit appointed two champions to support the implementation: A junior and senior nurse because they were trusted by different groups within the nursing staff.
Other care providers	The opinions of colleagues across or within disciplines about the innovation can greatly influence whether a new practice is implemented. Sometimes different disciplines use language differently. This can lead to miscommunication of the goal.	Reusable dialysis filters were implemented with prudence as there were differing opinions about the benefits of adopting this new technology. Nephrologists had varied opinions: some saw little clinical benefit; some felt it could be unsafe for patients and they would be held liable; some felt that it could benefit the department by saving money. Technicians, who would be responsible for sterilizing the filters, were concerned about the added use of formaldehyde on their own health. (Denis et al., 2002)
Opinion leaders	These include individuals within a setting who are seen as important, trustworthy and influential among their peer group. They often have high levels of expertise. An opinion leader is an informal leader that can be a facilitator or barrier to change.	A change in the model of care required physicians to communicate with each patient's primary nurse, rather than the assistant head nurse for all patients on the unit. Most of the attending physicians disagreed with the change. The chief of service, who was an active member of the team, was in favour of the change. He supported his medical colleagues but promoted the change in



## Reflection

Think about possible opinion leaders who can be influential in the change process.

- Who can be included? (Educators, clinical leaders, local managers?)
- Why they are leaders? (Expertise/experience, trusted, often involved in evaluation of services, strong presence, etc...)
- Is their opinion of the innovation positive or negative?
- Can they be considered barriers or facilitators to implementation?
- What could be done to change their position if they are perceived as a barrier?

See [Titler \(2002\)](#) for worksheets, RNAO Stakeholder Analysis in [RNAO implementation toolkit](#)

Most practice changes are unlikely to be adopted universally at the same time. Some people will be more willing and ready to engage in a particular change than others; some may give reasons for resisting a particular change. For instance, they may fear how the change will affect them personally or worry that the change is not feasible. This pattern is so common that researchers have described 5 different adopter categories (see [Rogers, 2003](#)). 40% of individuals within a setting usually fall into the first three groups described below. In health care, for example, medical faculty who are 'early adopters' had different characteristics, adoption patterns and perceptions about instructional technology than others ([Zayim, et al. 2006](#)). Because of this pattern, it is useful to consider which members of the group fall within the various categories for a particular change and to begin initial work for change with them.

- Innovators are risk takers being the first to adopt a new idea from outside of the setting. They are the ones always full of ideas.
- Early adopters are next to adopt an idea, but have a careful approach. They are respected members of the setting who provide advice to others about the innovation. They often hold positions of opinion leadership.
- The early majority adopt new ideas just before the average individual in the setting. They may consider the innovation for a significant period of time and raise questions before adopting it.
- The late majority adopt an innovation or practice change because of necessity or peer pressure. They are usually sceptical and cautious about new ideas.
- Laggards are last to adopt an innovation or practice change. They hold traditional values and tend to be suspicious of change and must be certain that a new idea may not fail if they are to adopt it.

Note: Individuals can move between categories depending on the innovation.

The different adopter categories are usually well known in a work setting! It is important to respect and listen to all groups. Begin working with the innovators and early adopters but always pay close attention to the issues raised by the late majority and laggards. Even the "nay-sayers" have very relevant concerns about the innovation or practice change. Being attentive to each group's concerns can help you to identify barriers to implementation and to select implementation strategies to deal with these barriers. You can consider implementation strategies for each adopter category. Try not to be slowed down or stopped because of negativity!

#### 4. Organization

The organization reflects the larger setting structure or health care system (i.e.: higher order than the individual). This includes characteristics and procedures by leadership and management groups of the hospital system, community, and government bodies to support change.

Here are examples of factors in the organization when considering barriers and facilitators in implementation:

Factor	Definition	Example
Philosophy and mission	The philosophy of an organization, where priorities for improved care have already been established can be a barrier or facilitator to the implementation of a specific innovation.	The Thedacare Center has articulated a vision to develop new models of care in order to improve quality. They have clearly outlined targets for improvement to reduce waste and to improve value to users. They are recognized as being leaders in innovation and excellence. ( <a href="#">Thedacare centre for healthcare values, 2011</a> ).
Formal Leadership	Formal leaders (such as program directors, managers and advanced practice leaders) are responsible for creating a culture that is receptive to innovative change. However, this influence may differ between health care disciplines, where the social structure varies (e.g.: medicine compared to nursing.) Individual leaders and leadership styles can be a barrier or facilitator to change.	Key behaviours to enable a culture of innovation include creating and sustaining a clear vision, role modelling the change, commitment to the vision, developing supportive relationships, mentoring and aligning actions and priorities with the stated vision.
Resources and structure	Facilities, space, materials, technology, staffing, and work design adequacy in the organization can influence implementation. This can also include accessibility to new technology and developing new service programs. As well, existing formal procedures can be conducive or not to the implementation process.	The availability of specific imaging services on site, referral procedures to the clinic, staffing mix and levels on care units, the rate at which patients are seen, documentation procedures and forms, etc, are examples of specific resource and structure issues that affect implementation.  Nurses' self-report of use of research in practice was higher when they also perceived that they had a positive work context ( <a href="#">Cummings et al., 2010</a> ).
Financial resources	Financial resources to support implementation can include available existing funds, opportunities to apply for special funding through grants or a re-	Monetary support can be used for the purchase of new equipment, salary support for education days if necessary, hiring of experts in the field for



	allocation of funds.	coaching or demonstration, adding extra staff during a brief transition period, a printer for documentation sheets or patient education pamphlets, etc...
Beyond the organization	Services or requirements beyond the organization or institution such as a health administration or insurance body or the ministry of health may have regulations or resources that serve as barriers or facilitators	Documentation regulations, role definitions, medical-legal issues and allowed practices, standards of care, etc...

### Reflection

Think about the innovation you would like to implement:

- What materials, people, services, or facilities are needed?
- Are these resources available in your setting? Are there too many implementations at once? Is there a way to combine or bundle these?
- How can resources be mobilized? With whom do you need to speak to get these resources? Consider creating a business case (see implementation strategies)
- Are there financial implications to acquire resources? What sources of funding are available?
- Are there resources available to sustain the practice change over time?
- How can formal leaders in your organization be involved to facilitate implementation?
- What ethical issues to consider when implementing the innovation? Does the change project require ethical approval?

### Moving into action

- 1) Organize yourself! Create a spreadsheet to visualize barriers and facilitators OR use and adjust the one provided in Appendix E.
- 2) There are several ways of teasing out barriers and facilitators. Before embarking on this process, consider the following (in deciding your approach):
  - a) This process can be time consuming. Think of your time commitment to this phase. Dedicate time and resources. Keep in mind that taking time up front will save you time later!
  - b) Decide who will be involved (and available) in this process. Consider members of your taskforce to aid in choosing and conducting assessments for barriers and facilitators.
  - c) Keep in mind the goals and outcomes of the practice change. Consider your target group. Are your goals realistic?
- 3) Consider one or more of the various strategies to identify barriers and facilitators. There are several methods:
  - a) Use a prepared list of barriers and facilitators. Taxonomies of generic barriers and facilitators already exist. For example, see Appendix F. Others can be found in the resource list at the end of this section.
  - b) Survey individual care providers, patients and/or others (this can include the stakeholder group) using a:
    - i) Survey questionnaire on barriers and facilitators about practice change in general,



- ii) Questionnaire on barriers and facilitators about the actual innovation or practice change to be implemented,
- iii) Case specific questionnaire that assesses barriers and facilitators after a specific event. For example, surveying physicians after ordering a specific diagnostic test to indicate their reasons for ordering it. (Grol, 2005).
- iv) Standard questionnaire on determinants of change to evaluate motivations for change.
- v) You can create or adapt standardized questionnaires (see Squires, Hutchinson et al. (2011). See Brett (1989) and Coyle & Sokop (1990) for a useful tool, the Nursing Practice Questionnaire (NPQ). See Appendix G for sample questions.
- c) Interview individual care providers, patients and/or others through:
  - i) Individual interviews using a semi-structured format or informal conversations. (See Appendix G for sample questions).
  - ii) Group interviews using a semi structured format. These can be informal. This could include brainstorming activities, the Delphi method or focus groups.
- d) Collecting and analyzing observations of current practice through:
  - i) Self-registration of behaviours whereby individual practitioners complete a form, or a diary of their behaviours.
  - ii) A review of medical records that identifies the frequency and context of selected behaviours or tasks.
  - iii) Participant and non-participant observation involving a trained observer that records specific events or activities.
  - iv) Reviewing routinely collected data from pre-existing databases.
- 4) Select strategies to identify barriers and facilitators in your setting. Consult the table below for advantages and disadvantages of the various methods

Strategy	Advantage	Disadvantage
Consulting a prepared list of barriers and facilitators	Less time commitment. Factors most commonly observed are listed. Discussion starting point.	Unique factors overlooked if it is the only approach used. Factors still need to be validated in your setting.
Surveying individual care providers, patients and/or others using questionnaires	Most efficient if assessing a large sample. Standardized questionnaires are psychometrically tested.	Self-assessment is usually not very accurate. Piloting may be necessary. Developing a questionnaire is complex and time-consuming. More useful in a research project or large scale implementation.
Interviewing and/or discussions with individual care providers, patients and/or others	Efficient in a small sample. Can go into more depth than a questionnaire. Elicits issues that may not have been brought up using a questionnaire. Follow up and feedback are more feasible. Increased accessibility to forums where groups may already be assembled (e.g.: rounds, departmental meetings, etc...)	Can be a challenge to organize (especially group interviews). Time consuming.
Observation	Can be relatively easy to collect, especially in a small sample. May be more reliable than other	Some types of behaviour often go unreported (e.g.: education interventions) whereas others are



	methods as it captures what is actually happening.	reliably reported (e.g.: medication administration.) Having an observer present can influence behaviour.
--	--	---

### Reflection

How much is enough? Who and how many people do I need to survey?

Unfortunately, there is no exact number. Think about these points when planning to survey individuals to assess for barriers and facilitators:

- The number of individuals to survey depends on the type of innovation and the reach of implementation. For example, implementing a pain management clinical practice guideline in several clinical areas of a hospital, may require you to interview more individuals of varying disciplines, than if you were implementing a new practice technique for physical therapists working with pediatric orthopaedic patients.
- Remember, this is not a research study. You just want to identify specific factors in the setting.
- Ask yourself: How many individuals do I need to survey in order to feel confident?
- When considering with whom to implement, be sure to survey people from all adopter categorization groups, and stakeholder groups. This can include patients and families as well.

5. Begin assessing your barriers and facilitators using the strategies you selected.

- a) Keep a timetable.
- b) Keep your stakeholders informed of the process and results.
- c) Organize your results in a spreadsheet.

6. You may uncover several barriers and facilitators in your setting! As you analyze the barriers and facilitators, consider the implications of your conclusions:

- a) Is it wise to modify your goal?
- b) Which barriers or facilitators are the most important to carry forward and plan implementation strategies around? Think about the overall goals of your local practice area and organization, the needs of the patients and families and the values of the practitioners.

### Reflection

Think about what has been achieved so far. Consider:

- Are we still on track to achieve the set out goal?
- Do we need to go back and rethink any decisions made?
- What assumptions have we made? Do they still hold true?
- Is there someone or a group in the organization that can assist in following through on the plan so far?
- As a project leader, what is my role at this stage?
- As a leader within the organization, what can I do to support the practice change at this stage?

### Real life example



### **Example 1: Strategies to assess the barriers and facilitators of implementation of a Best Practice Guideline related to falls prevention.**

In developing a plan to implement a falls prevention clinical practice guideline, the working group used a number of different strategies to assess the barriers and facilitators. For example, they:

- Assessed the status of unit equipment that would be required for nursing staff to implement the injury prevention recommendations. Two members of the group surveyed the unit managers to determine their inventory (if any) of the specified equipment.
- When it became apparent that there were major gaps between what existed on the units and what would be required (a major barrier!), the Senior Administration member of the working group prepared a business case (discussed in detail in the next section) that noted the estimated annual cost of a patient incurring a falls injury while hospitalized and compared that cost to the costs of the required equipment. The business case showed that the expenditure for equipment would result in an overall budget saving by year two. The Senior Administrator then worked with the Department of Finance and other hospital decision-makers to obtain a budget allocation for equipment purchase. The barrier was converted to a facilitator as the clinicians were impressed that ‘the administration’ had paid attention and that if ‘they’ had put actual financial resources into equipment purchase, then this must be a ‘really important issue.’
- The working group translated the guideline recommendations into an easy-to-use tool to help clinicians be more specific about a particular patient’s falls risk and choose the related prevention interventions. When they pilot tested this tool with clinicians on 3 units, the clinicians pointed out many ‘glitches’ and features of the tool that they felt were ‘unfriendly.’ The working group interpreted the clinician’s reactions as a major barrier to successful implementation and revised the tool based on their feedback.

### **Example 2: The importance of assessing and not assuming what the barriers are prior to investing resources in further implementation strategies.**

We often assume that the barrier to changing practice is the lack of the clinician’s knowledge. However, several research studies in the field of pain care have shown that often, even when the clinicians score very well on tests of knowledge about pain and pain management, the related clinical practices are not implemented. A study in neonatal intensive care nurseries found that the barriers and facilitators of nurses implementing evidence-based pain care was related more to their relationships with physician members of the care team and some features of the infant ([Latimer et al., 2009](#)) than with a lack of knowledge.

#### **Resources**

[Journal of Clinical Nursing: An exploration of the factors that influence the implementation of evidence into practice.](#)

[Implementation Science: Individual determinants of research utilization by nurses: A systematic review update.](#)

[Implementation Science: Healthcare professionals’ intentions and behaviours: A systematic review of studies based on social cognitive theories.](#)

[KT Clearinghouse: Examples of barriers to knowledge use](#)

[The Delphi method: Techniques and applications.](#)



[Focus Groups: Appendix T: Titler, M.G. Research Quality and outcomes management. Toolkit for promoting evidence based practice.](#)

## Notes

### **Making the change: Implementation phases**

#### **Target 3: Select & tailor implementation strategies to target goals, barriers and to enable facilitators of change**

##### **Why is this important?**

Selecting and tailoring strategies that will enhance the success of implementing a practice change can be a creative and challenging process. It requires careful thought, collaboration with stakeholders, a deepened understanding of the setting and project management skills. We need to choose strategies that “fit” the specific situation: E.g.: Strategies that address knowledge are useful only if lack of knowledge is the barrier!

In this section, you will gain an understanding of the different approaches to take when choosing implementation strategies, creating a plan and putting the plan into action.

##### **Background knowledge**

Research has shown that traditional ways of promoting change in practice, such as written memos and conferences are insufficient. These can be helpful to increase knowledge, but are less successful in actually changing behaviour.

Approaches that have been shown to promote a change in behaviour (mainly in medicine) include:

- A multi-strategy approach that is tailored to the specific barriers and facilitators found in the setting,
- Strategies that target multiple factors (facilitators and barriers related to the innovation, individual care providers, practices setting and organization), and
- Strategies that actively involve professionals, patients and leadership.

Strategies for implementation have been categorized and conceptualized in a number of different ways. For example, the PARIHS framework can be used when considering implementation strategies to help organize your thinking about the areas where implementation strategies should be targeted. Regardless of the way they are organized, it is important to choose strategies for implementation that:

- are effective,
- are targeted toward addressing the barriers and engage the facilitators of implementation in your setting, and
- do not exceed the resources available in your setting (for the implementation process and for sustainability).

The tables below will give you some examples of implementation strategies that target practitioners and patients. These have been shown to be effective in a health care setting (mainly in medicine) to promote behavioural change among health care professionals (adapted from Bero et al. (1998)). For a more complete list of strategies, see KT Clearinghouse (or see the resources at the end of this section).

##### **Reliably effective strategies:**





Type	Details	What does the research say?	Details Examples of Targeted Barriers
Educational outreach visits (a.k.a. academic detailing)	<p>Trained individuals visit the practice setting to provide face-to-face information on practice change. Information provided could be:</p> <ul style="list-style-type: none"> <li>• Educational,</li> <li>• Feedback on individual performances, and/or</li> <li>• Problem solving about obstacles to change.</li> </ul>	<p>According to a review by The Cochrane Collaboration (2008), educational outreach appeared to improve the care delivered to patients for a number of different practitioner behaviours with small to moderate changes in practice.</p>	<ul style="list-style-type: none"> <li>• Lack of knowledge</li> <li>• Culture/Beliefs</li> <li>• Poor communication channels</li> <li>• Complex innovation</li> </ul>
Reminders (paper or electronic)	<p>Prompts set up to alert to the health care practitioner to perform a clinical action. These can be delivered electronically or manually. For example:</p> <ul style="list-style-type: none"> <li>• Computerized decision support systems that provides prompts and reminders from patient specific data.</li> <li>• Enhanced reports (i.e.: lab reports) that provide suggestions for follow up actions when an abnormal result is found.</li> <li>• Stickers, posters or paper reminders in charts or on communication boards for practitioners.</li> </ul>	<p>Grimshaw et al. (2004) emphasized the importance of using paper based or computerized reminders whenever possible in guideline implementation. Also, computer reminders specifically showed variable improvement in physician behaviour in a recent systematic review (<a href="#">Shojania et al., 2010</a>).</p>	<ul style="list-style-type: none"> <li>• Information overload</li> <li>• Multiple demands</li> <li>• “Forgetting”</li> </ul>
Interactive educational meetings & workshops	<p>A workshop where professionals are actively engaged in learning through didactic lectures, discussions, and role playing for problem solving in small group sessions. This has the purpose of increasing knowledge, changing</p>	<p>According to a review by The Cochrane Collaboration (2009), educational meetings were most effective when they combined interactive and didactic education methods. These were shown to change practitioner</p>	<ul style="list-style-type: none"> <li>• Lack of knowledge</li> <li>• Lack of skills</li> <li>• Challenges to modify current work organization</li> <li>• Poor communication skills and channels</li> </ul>



	practitioner behaviour and subsequently, patient outcomes.	behaviour as well as patient outcomes.	
--	--	--	--

**Variably effective strategies:**

Type	Details	What does the research say?	Examples of Targeted Barriers
Patient mediated Interventions	<p>Provides patients with information or guides to help change practitioner behaviour. This can include:</p> <ul style="list-style-type: none"> <li>• Educational material such as pamphlets, posters or audiovisual information in waiting rooms, hospital rooms or delivered to patients homes.</li> <li>• Counselling or education initiatives given by health care professionals to patients.</li> </ul>	<p>Coulter and Ellins (2007) advocate for enhancing the involvement of patients in their care through strategies that improve health literacy. In their review of patient engagement strategies, they place an emphasis on providing patients as well as health care professionals with the resources needed to work collaboratively. Patient decision aids can improve decision quality, communication with providers, and service use (O'Connor, 2009).</p>	<ul style="list-style-type: none"> <li>• Providers' information overload</li> <li>• Providers' sense of "what matters"</li> <li>• Lack of respect for or lack of partnership with patients and/or families.</li> </ul>
Audit and feedback	<p>A means of changing individual practitioner or team behaviour by:</p> <ul style="list-style-type: none"> <li>• Demonstrating the gap between desired and actual clinical performance.</li> <li>• Encouraging ongoing success in implementation.</li> </ul> <p>This is achieved by summarizing the performance over a specific time period.</p>	<p>A Cochrane Collaboration review (2006) indicated that providing professionals with data about their performance showed variable success. This may be due to questions about how and when to use this strategy to influence behaviour (Foy et al., 2005).</p>	<ul style="list-style-type: none"> <li>• Lack of awareness or attention to indicators of quality</li> <li>• Lack of awareness of reality of current practice</li> </ul>
Engage local opinion leaders	<p>Practitioners perceived as important, trustworthy and influential could be called upon to encourage a change in practice. This can be done:</p> <ul style="list-style-type: none"> <li>• Informally through modeling, information</li> </ul>	<p>The evidence suggests that engaging local opinion leaders can promote evidence-based practice (The Cochrane Collaboration, 2007). The literature is variable in describing</p>	<ul style="list-style-type: none"> <li>• Disbelief, or negative attitudes</li> <li>• Misperceptions about social norms</li> <li>• Lack of knowledge or skills</li> </ul>



	<p>discussions.</p> <ul style="list-style-type: none"> <li>Formally through active learning sessions or mentoring.</li> </ul>	<p>how opinion leaders were used, with what frequency, as well as how they were identified.</p>	
Local consensus	<p>Discussions about the relevance of the issue, as well as the proposed innovation with practitioners who will be directly involved in the implementation process. This requires involving practitioners at the beginning. These practitioners could also be included in the taskforce of stakeholders.</p>	<p>Currently, a Cochrane review is underway to determine whether the local consensus processes improve health care outcomes or professionals' practice (Nasser et al., 2007). This strategy has been advocated in a number of guidelines for implementation (Bero et al., 1998, RNAO, 2002). There have been conflicting reports about its effectiveness in clinical guideline implementation.</p>	<ul style="list-style-type: none"> <li>Disbelief around the issue</li> <li>Lack of knowledge or awareness</li> <li>Disparity of opinion or controversy over the evidence</li> </ul>

Here are some examples of other important implementation considerations:

*Champions*

Individuals who demonstrate leadership qualities in the local setting or organization can be developed as champions to lead change. Champions are key people who are part of the network in the local setting, such as an in-patient unit, and support the proposed change (Greenhalgh et al., 2004). Engaging and developing champions in a setting involves an investment of resources for training of a champion (on the innovation and strategies to facilitate implementation), and to allow the champion protected time to promote implementation.

Champions can be involved in the implementation process through:

- Dissemination of the information about the practice change to their staff. Specifically by:
  - Leading interactive educational meetings or workshops,
  - Engaging local opinion leaders,
  - Participating in audit and feedback, and
  - Being resources in the setting.
- Persuasion of other staff through local and interdisciplinary committees
- Being involved in planning and tailoring implementation strategies to the local setting.

*Facilitators*

Facilitators can be an individual or group role that supports individuals or teams to change their practice (Dogherty et al, 2012). Often facilitators have other roles in the organization such as clinical



educators, practice developers ([Dogherty et al., 2010](#)). Some refer to facilitation roles by other labels such as 'change agent', 'knowledge brokers', 'champions', etc. ([Harvey et al., 2002](#)). Individuals who facilitate practice changes can be either internal or external to the unit or agency and have specific skills in helping others to accomplish change processes ([Stetler et al. 2006](#)). Using the role of facilitator has been effective in achieving complex practice changes ([Kauth,et al., 2010](#)).

Facilitators may engage in different activities to different levels; that may be related to individual differences in the facilitators but is also guided by the nature of the practice change, the phase of change and the practice context. In one recent study ([Dogherty et al., 2012](#)), across 4 stages of the process, facilitators performed a total of 51 activities that fell into the following groupings:

- Increasing awareness
- Developing a plan
- Knowledge and data management
- Recognizing the importance of change
- Administrative and project-specific support
- Project Management
- Fostering team-building/group dynamics
- Problem-solving
- Providing support
- Assessment

#### *Formal leadership*

Individuals holding formal leadership roles also need to be engaged to support a specific implementation project or to create a culture that supports change and innovation ([Gifford, et al., 2007](#); [Grol, et al., 2005](#); [Stetler, et al., 2009](#)). Leadership should also be involved in the planning phases of the implementation process, in particular with the assessment of barriers and facilitators.

In facilitating a specific implementation project (e.g. A clinical practice guideline), formal leaders can:

- Provide ongoing support by addressing individual concerns, encouraging staff and creating opportunities for education and problem solving. This also includes providing and allocating resources to support implementation and sustainability.
- Be accessible and visible in bringing the specific recommendations to be implemented and the evidence supporting these to the staff and interdisciplinary and administrative groups.
- Communicating clearly and regularly about the importance of the change.
- Communicate effectively to raise awareness of the innovation using multiple communication tools and to acknowledge the efforts of the staff to implement the recommendations. This can contribute to improving motivation and sustainability.
- Being part of the implementation team.
- Celebrating small achievements and successes.

In contributing to an overall culture that supports innovation and change, whether that is related to a context of 'routine' or pervasive evidence-based practice ([Stetler, et al., 2009](#)) or to a specific practice change ([Gifford, et al., 2006](#)), leaders can:

- Work within leadership groups in an organization to create a shared vision to support innovation. This can include a vision of promoting evidence- based care.



- Incorporate the vision of evidence-based care into expectations of professionals by changing job descriptions.
- Allocate human and material resources to support and develop a culture of change and innovation.

### *Marketing and mass media strategies*

Marketing and mass media strategies are impersonal channels that create an awareness of the innovation or practice change to occur (Greenhalgh, et al., 2004). Creating posters, publishing articles in organizational newsletters or an intranet webpage are examples of strategies that can bring a new innovation to the forefront of the minds of health care practitioners in an organization. As well, these strategies can also be useful to inform patients and families of new policies or practices in the organization or clinic area.

Mass media strategies, such as television and radio advertisement are useful in promoting public health policy, to provide health related information and to create expectation in care services. These strategies can be effective in practice change only if they are used in combination with other implementation strategies, as described above.

The resources required for these strategies can vary considerably depending on the reach and media used to market the innovation.

### *Business Case*

Resources are needed to implement every practice change. Resources can include financial, space, personnel and time demands. Creating a business case can be a useful tool to persuade leadership groups to supply the resources needed to implement the innovation, especially financial resources. You should have a good idea of the resources needed to implement your innovation based on the assessment of the barriers and facilitators. For example, if you have identified a major gap in knowledge and plan to address that through learning activities, then you might need such resources as:

- Time (salary compensation for the facilitator),
- Freed time for staff,
- Room rentals,
- Refreshments,
- Audiovisual rentals,
- Learning tools such as handouts (printing), reminder cards, writing instruments, etc.

Outlining a business case does not need to be complex or long. What it requires are clear statements about what resources you will require to implement the change. Your institution may have a template on developing a business case which could be helpful. Otherwise, when outlining the resources you need, be sure to include the following:

- Vision statement and/or problem statement: Outline why this practice change is important, and how it will contribute to the overall goals of the practice setting or organization.
- Resources needed: Specifically outline what exactly is needed. Include the amount of money needed and for what purpose, the space needed, the time needed to plan, implement and sustain the practice change over time and the dedicated personnel needed to move the plan forward. This can be outlined in a table for clarity.



- The amount of resources that will be used if the practice change is not implemented: It can be a convincing argument to outline what costs could be avoided if implementation of the practice change is properly supported.
- Outline what has been done and what is left to do in the implementation phase: Expanding on what has been done and what is the next step demonstrates the motivation and commitment to the project.

A business case is useful to present to leadership once an assessment of the barriers and facilitators to implementation has been done. It is important to be adequately aware of what is needed, otherwise you risk seeming ill-prepared and less likely to receive the resources you need.

Keep in mind that strategies should be tailored to your setting, for example, by adapting the strategy to the health care professionals, patient population and resources available in the setting. This will require creativity and insight from the stakeholder group, and an understanding of the barriers and facilitators in the setting.

Choosing and tailoring strategies that are unique to the setting is the starting point. The next step of moving the plan into action can be challenging and slow to start. One method of making change manageable is to aim for small tests of change, using the PDSA (Plan Do Study Act) cycle. This model advocates for:

- A quicker implementation process that begins on a small scale,
- Continuous testing of the plan,
- A redevelopment of the plan without a major impact on the setting, and
- Demonstrating whether the implementation will actually produce an improvement or change.

### Reflection

Although the PDSA cycle can be used with any implementation strategy to bring about change, plan to use effective evidence-based implementation strategies first when embarking on the cycle.

Proceeding through this phase of the process requires momentum, especially during the early stages when the initial plan is being revised and strategies are tried and tested. Momentum in the implementation process is built on success early on. Some ways to increase early success include:

- Careful planning and strong organizational skills,
- Effective and consistent communication throughout the entire process with stakeholders,
- Targeting Innovators and Early Adopters first or those practitioners who have characteristics that are associated with an increase in research utilization (see Target 2),
- Always considering your barriers and facilitators.

As confidence in implementation and resources permit, multiple PDSA cycles can be run at the same time. As well, the target group and goals for behaviour change can increase in scope as success is achieved over time.

### Reflection

- Be practical and action oriented. Don't waste time! Start small to get things off the ground.
- Change spreads! It is very challenging to target all practitioners at the "get go". Focus on one or a manageable number of eager individuals to implement a practice change.



- Be flexible. You will have planned on using strategies that seemed appropriate or effective until actually applied in your setting. Expect that you will go back and redevelop the plan. This process is far from linear.
- Change takes time, for some longer than others.
- You will need to evaluate your change after the implementation process. This is a good time to think about how you might go about that.

## Moving into action

- 1) Review the most relevant and influential barriers and facilitators from the assessment carried out in Target 2.
- 2) Carefully consider which implementation strategies to use in your setting to implement a practice change by:
  - a) Thinking about your overall goals for change,
  - b) Aiming to overcome the important barriers,
  - c) Choosing strategies that are shown to be effective in the literature,
  - d) Making use of your facilitators,
  - e) Considering the feasibility of the strategies in terms of resources such as financial, personnel, time and space.
  - f) Considering whether the strategies can be sustainable over time.
- 3) Use a pre-existing list of implementation strategies to review, and build on. This can be found in the resource list at the end of this section.
- 4) Once you've considered which implementation strategies to use, organize them in a spreadsheet, outlining the consideration and decision making process (Appendix E).
- 5) Discuss your ideas with your stakeholders and tailor them to your setting as needed.
- 6) Make a concrete and written implementation plan. For each strategy:
  - a) Secure the resources needed to make it happen.
  - b) Plan to start small and where you will likely have more success. Use the PDSA cycle to guide you. Try it, assess it, modify the plan if necessary and move forward!
  - c) Build in methods of monitoring and ongoing support during the trial period.
- 7) Build on your success by expanding your implementation (to the goals initially set out.)

## Reflection

Think about what has been achieved so far. Consider:

- Are we still on track to achieve the set out goal?
- Do we need to go back and rethink any decisions made?
- What assumptions have we made? Do they still hold true?
- Is there someone or a group in the organization that can assist in following through on the plan so far?
- As a project leader, what is my role at this stage?
- As a leader within the organization, what can I do to support the practice change at this stage?

## Real life example

**Example 1: Implementing a documentation tool to improve communication and practice of effective pain management.**



As part of a hospital wide implementation of a clinical practice guideline for pain assessment and management, the birthing centre and post-partum units in the hospital received feedback from their staff nurses that communication around pain was difficult and unclear between nurses and other health professionals. Normally, pain scores were documented on the vital signs sheet. A pain management flow sheet was available, but used routinely only for more complex patients (e.g.: Those who had had caesarean-sections.) The Assistant Nurse Managers (ANMs) and the champion on the unit decided to implement the existing pain management flow sheet for all patients to improve clarity of pain management in documentation and to improve communication with staff and other professionals.

The ANMs and champion informally evaluated the facilitators and barriers to implementing the use of the documentation tool. Some examples of facilitators included:

- Effective pain management was becoming an increasing priority among staff, as they were part of a hospital wide implementation project for pain assessment and management.
- A new law mandating a change in the documentation of pain had been recently put into place.
- Turnover of staff on the maternal child care unit was low.
- Nursing staff and other health professionals were already familiar with the pain management flow sheet documentation tool, as it was used for more complex patients on the unit.
- Modification of the pain management flow sheet was not needed.
- Leadership supported this initiative.

Some examples of barriers included:

- Knowledge and effective communication about pain management was not fully updated (but ongoing) as per larger implementation project.
- The maternal child care unit is composed of the birthing centre and post-partum care areas. Beliefs about pain management differed in these areas; one area was less consistent about practicing with current evidence-based knowledge.

The ANMs and champions proceeded to implement the tool over a 4 month period using the following strategies:

- As part of the existing individual or small group workshops already in place for increasing knowledge in pain management, they included teaching around the pain management flow sheet.
- They made a change in the medication orders sheet to facilitate the use of the new documentation tool.
- The ANMs first targeted eager nurses, and then let change spread!
- They performed regular audits and feedback to individual nurses.
- They placed visual reminders on the unit to promote the use of the documentation tool. For example, posters, flags in the medical chart, verbal reminders directed at specific individuals or during unit meetings or rounds.
- They included the new documentation tool in the orientation binder (a resource for new staff) in the post-partum unit.

The ANMs, champion and leadership team noted the following outcomes in the post-partum area:

- Pain was an increasing priority for nurses; they witnessed the nurses advocate for pain control through improved communication with other staff members.
- Communication of pain issues with physicians was clearer and more consistent.
- An appropriate use of narcotics was observed.





- Communication of pain continued to be difficult within the areas of the maternal child care unit, as the documentation tool was more effectively implemented and in use in one area compared to the other.

### **Example 2: Implementing a new protocol for treatment of hypo-glycemia.**

As part of a hospital-wide initiative to improve patient safety for patients with diabetes, an inter-professional team that included nursing, medicine, nutrition services, logistics services and pharmacy developed a new protocol and algorithm for nurses to follow when a patient's capillary blood glucose was below a set level. The documents were approved and an implementation plan was adopted with the appropriate collective orders, documentation requirements, etc. The new protocol was similar to a protocol that had been in place in one area for some years. The team decided that the nursing staff would need more knowledge about the protocol and the underlying evidence and that 90% of the staff on all in-patient units would need to be taught.

The team worked with the educators and developed a systematic, detailed educational programme to be delivered during in-service sessions. Their plan included consideration of the feasibility of releasing staff to participate in the education session and the demands on educators to provide the teaching. Within the timeline designated in the action plan, 90% to 100% of Registered Nurses on all units participated in the education session.

Six months later, an evaluation was done that included assessment of the amount of use of the designated products as per the protocol and interviews with nurses on some units. Overall, the results showed that most nurses were not adhering to the new protocol; on some units the old protocol was partially implemented but not consistently. Furthermore, the interview data showed that, in general, the experienced nurses did not believe that they needed the protocol as they knew what to do based on their experience, and the newer nurses found the protocol extremely helpful. However, the newer nurses also commented that, once they had more experience, they would be able to use their judgement just as their more experienced colleagues did!

The team met again to consider the next steps and, in their planning, they considered the lessons learned through the first attempt at practice change and modified the plan. They planned for a more diverse array of strategies in the next phase so as to address the lessons:

- Long standing, entrenched work practices existed (how we do things now) and had not been assessed prior to choice of education as the only implementation strategy.
- Some nurses did not believe that their entrenched practices really caused undesirable variations in blood glucose and were harmful to the patient.
- Nurses had little explicit understanding of the difference between a 'guideline' and a 'protocol'.
- The nurses felt they had other, competing and more important priorities and reported that their unit-based leaders did not emphasise this particular change.
- No attention had been paid to whether there were some clinicians who were more ready than others to make the change and whether they might be prepared to 'try out' the new protocol.
- No pilot phase with an evaluation was included; such a plan might have uncovered some of the barriers to practice change and resulted in an earlier change in intervention strategies.

### **Resources**

[Promoting Action on Research Implementation in Health Services \(PARIHS\) framework](#)



[Journal of Nursing Care Quality: The PARIHS Framework- A framework for guiding the implementation of Evidence Based Practice.](#)

[British Medical Journal: Closing the gap between research and practice: an overview of systematic reviews of interventions to promote the implementation of research findings.](#)

[KT Clearinghouse: Implementation Strategies](#)

[Worldviews on Evidence-Based Nursing: Audit and feedback as a clinical practice guideline implementation strategy: A model for acute care nurse practitioners.](#)

[Plan Do Study Act \(PDSA\)](#)

[National Primary Care Development Team: The Model for Improvement PDSA](#)

## Notes

### **We took action to select, tailor and implement change strategies: Future Directions**

What about the other phases of implementation?

Once the implementation process is underway, the next phases in the process include:

- Monitoring the practice change.
- Evaluating the practice change on health provider and system outcomes.
- Sustaining the practice change over time.

This guide will not discuss in detail these phases of implementation. However, monitoring the implementation outcomes, evaluation and sustaining practice change are crucial to the process. As you proceed through implementation, plan for how you will evaluate and sustain your practice change, and how you will assess whether your changes are having a positive effect on patient, provider and/or system outcomes. These steps require additional planning and resources.

See the resources below for further information on these phases.

## Resources

[Canadian Institutes of Health Research: Monitoring knowledge use and evaluating outcomes of knowledge use](#)

[Canadian Medical Association Journal: Monitoring use of knowledge and evaluating outcomes](#)

[British Medical Journal: Methods for evaluation of small scale quality improvement projects](#)

[NHS institute for innovation and improvement: Sustainability model and guide](#) (password needed)

[The Milbank Quarterly: Diffusion of innovations in service organizations: systematic review and recommendations.](#)

[Nursing Best Practice Units: Determinants of the sustained use of research evidence in Nursing \(SURE\) study](#)



See Appendix H for checklist of the implementation phases that you could use to guide your implementation project.

## Notes

### Appendix A: Reference List

The ADAPTE Collaboration. (2009). The *ADAPTE process: Resource toolkit for guideline adaptation, Version 2.0*. Retrieved from [www.g-i-n.net](http://www.g-i-n.net)

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Processes*, 50, 170-211.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, N.J.: Prentice-Hall.

Bero, L.A., Grilli, R., Grimshaw, J.M., Harvey, E., Oxman, A.D. & Thomson, M. (1998). Closing the gap between research and practice: An overview of systematic reviews of interventions to promote the implementation of research findings. *British Medical Journal*, 315, 465-468.

Brett, J.L. (1989). Use of nursing practice research findings. *Nursing Research*, 36, 344-349.

Brouwers, M., Kho, M.E., Browman, G.P., Burgers, J.S., Cluzeau, F., Feder, G., ... Zitzelsberger, L. for the AGREE Next Steps Consortium. (2010). AGREE II: Advancing guideline development, reporting and evaluation in healthcare. *Canadian Medical Association Journal*. Available online July 5, 2010. doi:10.1503/cmaj.090449

Ciliska, D. (2009). Introduction to evidence-informed decision making. *Canadian Institutes of Health Research*. Retrieved from <http://www.learning.cihr-irsc.gc.ca/course/view.php?id=10>

Coulter, A. & Ellins, J. (2007). Effectiveness of strategies for informing, educating, and involving patients. *British Medical Journal*, 335, 24-27.

Coyle, L.A. & Sokop, A.G. (1990). Innovation adoption behavior among nurses. *Nursing Research*, 39, 176-180.

Cummings, GG, Hutchison, AM, Scott, SD, Norton, PG, Estabrooks, CA (2010). The relationship between characteristics of context and research utilization in a pediatric setting. *BMC Health Services Research*, 10: 168.

Davies, B., Edwards, N., Ploeg, J., Virani, T., Skell, J. & Dobbins, M. (2006). Determinants of the sustained use of research in nursing: Final report. *Canadian Health Services Research Foundation & Canadian Institutes for Health Research*. Ottawa, ON.

Denis, J-L., Hebert, Y., Langley, A., Lozeau, D. & Trottier, L-H. (2002). Explaining diffusion patterns for complex health care innovations. *Health Care Management Review*, 27, 60-73.

Dogherty, E.J., Harrison, M.B., & Graham, I.D. (2010). Facilitation as a role and process in achieving evidence-based practice in nursing: A focused review of concept and meaning. *Worldviews on Evidence-Based Nursing*, 7 (2), 76-89.



- Dogherty, E.J., Harrison, M.B., Baker, C., & Graham, I.D. (2012). Following a natural experiment of guideline adaptation and early implementation: a mixed-methods study of facilitation. *Implementation Science*, 7,9. <http://www.implementationscience.com/content/7/1/9>
- Drenkard, K. (2010). The business case for Magnet ®. *JONA: The Journal for Nursing Administration*, 40, 263-271. doi: 10.1097/NNA.0b013e3181df0fd6
- Dulko, D. (2007). Audit and feedback as a clinical practice guideline implementation strategy: A model for acute care nurse practitioners. *Worldviews on Evidence-Based Nursing*, 4, 200-209.
- Fishbein, M. & Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory of research*. Reading, MA: Addison-Wesley.
- Flodgren, G., Parmelli, E., Doumit, G., Gattellari, M., O'Brien, M.A., Grimshaw, J. & Eccles, M.P. (2007). Local opinion leaders: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 1. CD000125. doi: 10.1002/14651858.CD000125.pub3
- Forsetlund, L., Bjørndal, A., Rashidian, A., Jamtvedt, G., O'Brien, M.A., Wolf, F.,... Oxman, A.D. (2009). Continuing education meetings and workshops: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2, CD003030. doi: 10.1002/14651858.CD003030.pub2
- Foy, R., Eccles, M.P., Jamtvedt, G., Young, J., Grimshaw, J.M. & Baker, R. (2005). What do we know about how to do audit and feedback? Pitfalls in applying evidence from a systematic review. *BMC Health Services Research*, 5, 50. doi: 10.1186/1472-6963-5-50.
- Gifford, W., Davies, B., Edwards, N., Griffin, P. & Lybannon, V. (2007). Managerial leadership for nurses' use of research evidence: An integrative review of the literature. *Worldviews on Evidence-Based Nursing*, 4, 126-145.
- Gifford, W., Davies, B., Tourangeau, A. & Lefebvre, N. (2011). Developing team leadership to facilitate guideline utilization: Planning and evaluating a 3-month intervention strategy. *Journal of Nursing Management*, 19, 121-132.
- goal. (n.d.). *Collins English Dictionary - Complete & Unabridged 10th Edition*. Retrieved from <http://dictionary.reference.com/browse/goal>
- Godin, G., Bélanger-Gravel, A., Eccles, M. & Grimshaw, J. (2008). Healthcare professionals' intention and behaviours: A systematic review of studies based on social cognitive theories. *Implementation Science*, 3, 36-48.
- Goossens, A., Bossuyt, P.M.M. & de Haan, R.J. (2008). Physicians and nurses focus on different aspects of guidelines when deciding whether to adopt them: Application of conjoint analysis. *Medical Decision Making*, 28, 138-145. doi: 10.1177/0272989X07308749
- Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W. & Robinson, N. (2006). Lost in knowledge translation: Time for a map? *Journal of Continuing Education in the Health Professions*, 26, 13–24. doi: 10.1002/chp.47
- Graham, I.D. & Tetroe, J.M. (2010). The knowledge to action framework. In J. Rycroft-Malone & T. Bucknall (Eds.), *Models and Frameworks for Implementing Evidence-Based Practice: Linking Evidence to Action* (pp. 207-221). West Sussex, UK: Wiley-Blackwell.



Grant, M.J. & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information and Libraries Journal*, 26, 91-108.

Gravel, K., Legare, F. & Graham, I.D. (2006). Barriers and facilitators to implementing shared decision-making in clinical practice: A systematic review of health professionals' perceptions. *Implementation Science*, 1, 16-28. doi: 10.1186/1748-5908-1-16

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P. & Kyriakidou, O. (2004). Diffusion of innovations in service organizations. *The Milbank Quarterly*, 82, 581-629.

Grimshaw, J.M., Thomas, R.E., MacLennan, G., Fraser, C., Ramsay, C.R. & Vale, L., Donaldson, C. (2004). Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technology Assessment*, 8, 1-84.

Grol, R., Dalhuijsen, J., Thomas, S., in 't Veld., C., Rutten., G. & Mokkink, H. (1998). Attributes of clinical guidelines that influence use of guidelines in general practice: observational study. *BMJ*, 317, 858-861.

Grol, R., Wensing, M., & Eccles, M. (2005). Improving patient care: *The implementation of change in clinical practice*. Philadelphia, PA: Elsevier Limited.

Harrison, M.B. & van den Hoek, J. for the Canadian Guideline Adaptation Study Group. (2011). CAN-IMPLEMENT©: A Guideline Adaptation and Implementation Planning Resource. Queen's University School of Nursing and Canadian Partnership Against Cancer, Kingston, Ontario. Retrieved from [www.cancerview.ca](http://www.cancerview.ca)

Harrison, M.B., Legare, F., Graham, I.D. & Fervers, B. (2010). Adapting clinical practice guidelines to local context and assessing barriers to their use. *Canadian Medical Association Journal*, 182, E78-84.

Harvey, G., Loftus-Hills, A., Rycroft-Malone, J., Titchen, A., Kitson, A., McCormack, B., Seers, K. (2002). Getting evidence into practice: The role and function of facilitation. *Journal of Advanced Nursing*, 37 (6), 577-588.

Harvey, G. & Wensing, M. (2003). Methods for evaluation of small scale quality improvement projects. *Quality and Safety in Health Care*, 12, 210-214.

Health Quality Council. (Accessed March 20, 2011). *The model for improvement*. Retrieved from <http://www.hqc.sk.ca/download.jsp?cmShAQn5JXIC6AcxLyP3jBlzBf0QfLQkUwK4QBZaJunl/nkbUeblg==>

Hinoul, P., Goosens, A. & Roovers, J.P. (2010). Factors determining the adoption of innovative needle suspension techniques with mesh to treat urogenital prolapse: A conjoint analysis study. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 151, 212-216.

Information Services-University of Kent. (Accessed April 26, 2011). *Critical appraisal of the journal literature*. Retrieved from <http://www.kent.ac.uk/library/subjects/healthinfo/critapprais.html>

Institute for Healthcare Improvement. (Accessed March 15, 2011). *Testing changes*. Retrieved from <http://www.ihl.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm>

Jamtvedt, G., Young, J.M., Kristoffersen, D.T., O'Brien, M.A. & Oxman, A.D. (2006). Audit and feedback: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2, CD000259. doi: 10.1002/14651858.CD000259.pub2



- Kauth, M.R., Sullivan, G., Blevins, D., Cully, J.A., Landes, R.D., Said, Q., & Teasdale, T.A. (2010). Employing external facilitation to implement cognitive behavioral therapy in VA clinics: a pilot study. *Implementation Science*, 5: 75. <http://www.implementationscience.com/content/5/1/75>
- Kitson, A., Rycroft-Malone, J., Harvey, G., McCormack, B. Seers, K. & Titchen, A. (2008). Evaluating the successful implementation of evidence into practice using the PARIHS framework: Theoretical and practical challenges. *Implementation Science*, 3, 1-13. doi: 10.1186/1748-5908-3-1
- Kitson, A. & Straus, S.E. (2010). The knowledge-to-action cycle: Identifying the gaps. *Canadian Medical Association Journal*, 182, E73-E77.
- KT Clearinghouse. (Accessed March 17, 2011). The knowledge-to-action cycle. *Canadian Institutes of Health Research*. Retrieved from <http://kclearinghouse.ca/knowledgebase/knowledgetoaction>
- Knowledge Utilisation Colloquium. (2011). Retrieved from <http://www.st-andrews.ac.uk/management/media/KU11%20Colloquium%20Programme.pdf>
- Langley, A. & Denis, J.L. (2011). Beyond evidence: The micropolitics of improvement. *British Medical Journal Quality & Safety*, 20(Suppl 1), i43-i46. doi: 10.1136/bmjqs.2010.046482
- Latimer, M.A., Johnston, C.C., Ritchie, J.A., Clarke, S.P. & Gillin, D. (2009). Factors affecting delivery of evidence-based procedural pain care in hospitalized neonates. *Journal of Obstetric, Gynecologic and Neonatal Nursing*, 38, 182-194. doi: 10.1111/j.1552-6909.2009.01007.x
- McKleroy, V.S., Galbraith, J.S., Cummings, B., Jones, P., Harshbarger, C., Collins, C., ... ADAPT team. (2006). Adapting evidence-based behavioural interventions for new settings and target populations. *AIDS Education and Prevention*, 18(Suppl A), 59-73.
- Nasser, M., Oxman, A.D., Paulsen, E., & Fedorowicz, Z. (2007). Local consensus processes: effects on professional practice and health care outcomes (Protocol). *Cochrane Database of Systematic Reviews*, 1, CD003165. doi: 10.1002/14651858.CD003165.pub3.
- National Collaborating Centre for Methods and Tools (Accessed March 17, 2011). *Introduction to evidence informed decision making*. Retrieved from <http://www.nccmt.ca/en/modules/eidm/>
- Newhouse, R.P. (2007). Creating infrastructure supportive of evidence-based nursing practice: Leadership strategies. *Worldviews on Evidence Based Nursing* 4, 21-29.
- NHS institute for innovation and improvement (accessed July 11, 2011). *Sustainability. Ensuring continuity in improvement*. Retrieved from [http://www.institute.nhs.uk/sustainability\\_model/general/welcome\\_to\\_sustainability.html](http://www.institute.nhs.uk/sustainability_model/general/welcome_to_sustainability.html)
- O'Brien M.A., Rogers, S., Jamtvedt, G., Oxman, A.D., Odgaard-Jensen, J., Kristoffersen, D.T., ... Harvey, E. (2007). Educational outreach visits: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 4, CD000409. doi: 10.1002/14651858.CD000409.pub2
- O'Connor, A. (2009). Patient-mediated interventions. In SE Straus, J Tetroe & ID Graham (Eds), *Knowledge translation in health care: Moving from evidence into practice*. West Sussex, England: Blackwell Publishing Ltd.



- Pan, I. & Dendukuri, N. (2010, April 28). Efficacy and cost-effectiveness of a gentamicin-loaded collagen sponge as an adjuvant antibiotic prophylaxis for colorectal surgery. Retrieved from [http://www.mcgill.ca/files/tau/Collatamp\\_Colorectal\\_FINAL.pdf](http://www.mcgill.ca/files/tau/Collatamp_Colorectal_FINAL.pdf)
- Ploeg, J., Skelly, J., Rowan, M., Edwards, N., Davies, B., Grinspun, D. ...Downey, A. (2010). The role of nursing best practice champions in diffusing practice guidelines: A mixed methods study. *Worldviews on Evidence-Based Nursing*, 7, 238-251. doi: 10.1111/j.1741-6787.2010.00202.
- Prochaska, J.O. & Velicer, W.F. (1997). The transtheoretical model of health behaviour change. *American Journal of Health Promotion*, 12, 38-48.
- Registered Nurses Association of Ontario (2002). *Crisis Intervention*. Toronto, Canada: Registered Nurses Association of Ontario.
- Registered Nurses Association of Ontario (2002). *Toolkit: Implementation of clinical practice guidelines*. Toronto, Canada: Registered Nurses' Association of Ontario.
- Registered Nurses Association of Ontario (n.d.) Champions. Retrieved from <http://rnao.ca/bpg/get-involved/champions>
- Rogers, Everett M. (2003). *Diffusion of innovations*. (5th ed.). New York, NY: Free Press.
- Rycroft-Malone, J. (2004). The PARIHS framework-A framework for guiding the implementation of evidence-based practice. *Journal of Nursing Care Quality*, 19, 297-304.
- Rycroft-Malone, J., Harvey, G., Seers, K., Kitson, A., McCormack, B. & Titchen, A. (2004). An exploration of the factors that influence the implementation of evidence into practice. *Journal of Clinical Nursing*, 13, 913-924.
- Shojania, K.G., Jennings, A., Mayhew, A., Ramsay, C., Eccles, M. & Grimshaw, J. (2010). Effect of point-of-care computer reminders on physician behaviour: A systematic review. *Canadian Medical Association Journal*, 182, E216-E225.
- Squires, J.E., Estabrooks, C.A., Gustavsson, P. & Wallin, L. (2011). Individual determinants of research utilization by nurses: A systematic review update. *Implementation Science*, 6, 1-21.
- Squires, J.E., Hutchinson, A.M., Bostrom, A., O'Rourke, H.M., Cobban, S.J. & Estabrooks, C.A. (2011). To what extent do nurses use research in clinical practice? A systematic review. *Implementation Science*, 6, 21-37. doi:10.1186/1748-5908-6-21
- Stetler, C.B. (2002). *Evidence-based practice and the use of research: A synopsis of basic concepts & strategies to improve care*. Amherst, MA: Nova Foundation.
- Stetler, C.B., Legro, M.W., Rycroft-Malone, J., Bowman, C., Curran, G., Guihan, M., Hagedorn, H., Pineros, S., Wallace, C.M. (2006). Role of "external facilitation" in implementation of research findings: a qualitative evaluation of facilitation experiences in the Veterans Health Administration. *Implementation Science*, 1:23 doi: 10.1186/1748-5908-1-23
- Stetler, C.B., Ritchie, J.A., Rycroft-Malone, J., Schultz, A.A. & Charns, M.P. (2009). Institutionalizing evidence-based practice: An organizational case study using a model of strategic change. *Implementation Science*, 4, 78-97. doi: 10.1186/1748-5908-4-78



Straus, S., Tetroe, J., & Graham, I.D. (Eds.). (2009). Knowledge translation in health care: *Moving from evidence to practice*. West Sussex, England: Blackwell Publishing Ltd.

Straus, S. E., Tetroe, J., Graham, I.D., Zwarenstein, M., Bhattacharyya, O. & Shepperd, S. (2010). Monitoring use of knowledge and evaluating outcomes. *Canadian Medical Association Journal*, 182, E94-98.

Thedacare Centre for Healthcare Values. (2011). *Mission, vision and values*. Retrieved from <http://www.createhealthcarevalue.com/about/mission/>

Titler, M.G. (2002). *Toolkit for promoting evidence-based practice*. Iowa City, IA: Research, Quality and Outcomes Management. Department of Nursing Services and Patient Care, University of Iowa Hospitals and Clinics.

Triandis, H.C. (1980). Values, attitudes and interpersonal behaviour. In M.M. Page (ed.), *Nebraska symposium on motivational beliefs, attitudes and values volume 1 (195-259)*. Lincoln, NE: University of Nebraska Press.

Turoff, M. & Linstone, H.A. (2002). *The Delphi method: Techniques and applications*. Retrieved from <http://is.njit.edu/pubs/delphibook/>

Woo, S., Berta, W. & Baker, G.R. (2009). Role of champions in the implementation of patient safety practice change. *Healthcare Quarterly*, 12, 123-128.

Zayim, N., Yildirim, S., & Saka, O. (2006). Technology adoption of medical faculty in teaching: Differentiating factors in adopter categories. *Educational Technology & Society*, 9 (2), 213-222.

## Appendix B: Glossary

**Adapting the evidence:** Existing evidence is evaluated and customized to fit the local context through a systematic process.<sup>1</sup>

**ADAPTE process:** "...a systematic approach to adapting guidelines produced in one setting for use in a different cultural and organization context. The process has been designed to ensure that the adapted guideline not only addresses specific health questions relevant to the context of use but also is suited to the needs, priorities, legislation and resources in the target setting."<sup>2</sup>

**Barrier:** A factor that may inhibit implementation.<sup>3</sup>

**Business case:** "A proposal that can assist [...] in presenting the reasoning for beginning a change project or group of tasks. [...]The business case includes the reason for the project, the expected business results and benefits, and the costs and the risks. [...] The case serves as a way to capture knowledge, functions as a basis for receiving funding and approval, helps prioritize the project against

---

<sup>1</sup> Straus, S., Tetroe, J., & Graham, I.D. (Eds.). (2009). Knowledge translation in health care: Moving from evidence to practice. West Sussex: Blackwell Publishing Ltd.

<sup>2</sup> The ADAPTE Collaboration. (2009). The ADAPTE process: Resource toolkit for guideline adaptation, Version 2.0. Retrieved from [www.g-i-n.net](http://www.g-i-n.net)

<sup>3</sup> Grol, R., Wensing, M., & Eccles, M. (2005). Improving patient care: The implementation of change in clinical practice. Philadelphia: Elsevier Limited.





other competing initiatives that might also require funding, and secures a consistent message to all key stakeholders in the process.”<sup>4</sup>

**Champion:** “...champions can take many different roles such as bringing awareness of best practices to their organization, influencing groups and committees to consider these best practices, mobilizing, coordinating, and facilitating the training and development of professional staff in best practice guideline implementation etc.”<sup>5</sup>

**Clinical practice guideline:** Systematically developed statements of the recommended best practice in a specific clinical area, designed to provide direction to the practitioners in their practice. <sup>6</sup>

**Delphi Method:** “Method for structuring a group communication process...to deal with a complex problem.” This may involve creating a questionnaire that is then sent to a larger group. The results are then summarized and a new questionnaire is formed for the respondents to evaluate the original answers. This can occur until a consensus is formed. <sup>7</sup>

**Evidence:** “credible verifiable data, facts, or information that have been systematically obtained.” Evidence can be based on research findings, local data, consensus of recognized experts/national or international standards, patient preferences, or clinical expertise. For the purposes of this document a preference is made for research based knowledge. <sup>8</sup>

**Facilitator:** A factor that may enhance implementation.<sup>9</sup>

**Focus Groups:** Discussion and group interviews to elicit information about a specific topic. <sup>10</sup>

**Goal:** “The aim or object towards which an endeavour is directed. “ It is a concrete, observable and measureable target that you are trying to achieve, usually within a specific time frame. <sup>11</sup>

---

<sup>4</sup> Drenkard, K. (2010). The business case for Magnet ®. JONA: The Journal for Nursing Administration, 40, 263-271. doi: 10.1097/NNA.0b013e3181df0fd6

<sup>5</sup> Registered Nurses Association of Ontario (n.d.) Champions. Retrieved from <http://rnao.ca/bpg/get-involved/champions>

<sup>6</sup> Registered Nurses Association of Ontario (2002). Toolkit: Implementation of clinical practice guidelines. Toronto: Registered Nurses Association of Ontario.

<sup>7</sup> Turoff, M. & Linstone, H.A. (2002). The Delphi method: Techniques and applications. Retrieved from <http://is.njit.edu/pubs/delphibook/>

<sup>8</sup> Stetler, C.B. (2002). Evidence-based practice and the use of research: A synopsis of basic concepts & strategies to improve care. Amherst, MA: Nova Foundation.

<sup>9</sup> Grol, R., Wensing, M., & Eccles, M. (2005). Improving patient care: The implementation of change in clinical practice. Philadelphia: Elsevier Limited.

<sup>10</sup> Tittler, M.G. (2002). Toolkit for promoting evidence-based practice. Iowa City, IA: Research, Quality and Outcomes Management. Department of Nursing Services and Patient Care, University of Iowa Hospitals and Clinics.



**Implementation:** The process by which knowledge is applied to a setting.

**Innovation:** An idea, practice or object that is perceived as new by an individual or other unit of adoption. <sup>12</sup>

**Knowledge to Action Framework:** "...based on a concept analysis of 31 planned action theories, was developed to help make sense of [...] 'knowledge translation' or 'implementation' by offering a holistic view of the phenomenon by integrating the concepts of knowledge creation and action."<sup>13</sup>

**Opinion Leaders:** "...informal leaders from the local healthcare setting who are viewed as important and respected sources of influence among their peer group."<sup>14</sup>

**Outcomes:** The effects of your intervention and practice change on specific outcomes. These should include patient outcomes (e.g.: Lower infection rates). They may also include process outcomes such as specific rates of targeted behaviours; provider outcomes such as reduced turnover, or organizational outcomes such as hospital accreditation.

**PARIHS framework:** The framework comprises three elements: evidence, context and facilitation where successful implementation is function of these and their interrelationships. This framework can be used as a practical tool by clinicians in the local setting or in research. <sup>15</sup>

**Plan, Do, Study, Act (PDSA) Cycle:** "...shorthand for testing a change, by planning it, trying it, observing the results, and acting on what is learned."<sup>16</sup>

**Stakeholders (taskforce or other organized group):** A special committee with an expressed purpose, made up of individuals or groups that have an interest in, or are directly or indirectly affected by the implementation process. <sup>17</sup>

---

<sup>11</sup> goal. (n.d.). Collins English Dictionary - Complete & Unabridged 10th Edition. Retrieved July 11, 2011, from Dictionary.com website: <http://dictionary.reference.com/browse/goal>

<sup>12</sup> Rogers, Everett M. (2003). *Diffusion of Innovations*. (5th ed.). New York: Free Press.

<sup>13</sup> Graham, I.D. & Tetroe, J.M. (2010). The knowledge to action framework. In J. Rycroft-Malone & T. Bucknall (Eds.), *Models and Frameworks for Implementing Evidence-Based Practice: Linking Evidence to Action* (pp. 207-221). West Sussex, UK: Wiley-Blackwell.

<sup>14</sup> Titler, M.G. (2002). *Toolkit for promoting evidence-based practice*. Iowa City, IA: Research, Quality and Outcomes Management. Department of Nursing Services and Patient Care, University of Iowa Hospitals and Clinics.

<sup>15</sup> Kitson, A., Rycroft-Malone, J., Harvey, G., McCormack, B. Seers, K. & Titchen, A. (2008). Evaluating the successful implementation of evidence into practice using the PARIHS framework: Theoretical and practical challenges. *Implementation Science*, 3, 1-13. doi: 10.1186/1748-5908-3-1

<sup>16</sup> Institute for Healthcare Improvement. (Accessed March 15, 2011). *Testing changes*. Retrieved from <http://www.ihi.org/IHI/Topics/Improvement/ImprovementMethods/HowToImprove/testingchanges.htm>



**Sustainability:** “the degree to which an innovation continues to be used, after initial efforts to secure adoption is completed” (Rogers 2005, pg. 429).<sup>18</sup>

**Systematic Review:** “seeks to systematically search for, appraise and synthesise research evidence [primary studies], often adhering to the guidelines.”<sup>19</sup>

### **Appendix C: EIDM Process Algorithm (adapted from a draft algorithm developed in the Transition Office at McGill University Health Centre)**

This algorithm provides an example of a graphic depiction of the Evidence Informed Decision Making Process that outlines decision points in five inter-dependent phases for implementation and gives the planner an opportunity to consider the Local Resources, including the Tools and Supports, that might be required or available to assist in implementation. The algorithm refers to five phases: Identifying the practice, searching and appraising the evidence, adapting to the local context, implementing the change, and evaluating.

Identifying the practice: first identify the clinical issue and then identify a team to review clinical practice. The team should include a project lead, team members and stakeholders

Searching and appraising the evidence: first formulate a question to guide the review of the evidence, search the literature, assemble relevant research and literature, appraise and synthesise research for use in practice. Ask if there is sufficient knowledge to guide practice.

If the answer is no, then consult other types of evidence, conduct research, or consider other methods to determine what the practice should be.

If the answer is yes, then proceed to the next phase.

Adapting to local context: Consider the acceptability and applicability of the proposed practice, write an evidence-informed practice document and recommendations (eg adapted clinical practice guidelines), assess barriers and facilitators of implementation in this setting.

Implementing the change: Plan implementation strategies and test on a small scale. Ask if the practice change is appropriate for full deployment.

If the answer is no, then modify the implementation plan as needed

If the answer is yes, then implement the practice change.

Evaluating: Monitor and evaluate the outcomes, disseminate the results, sustain the change.

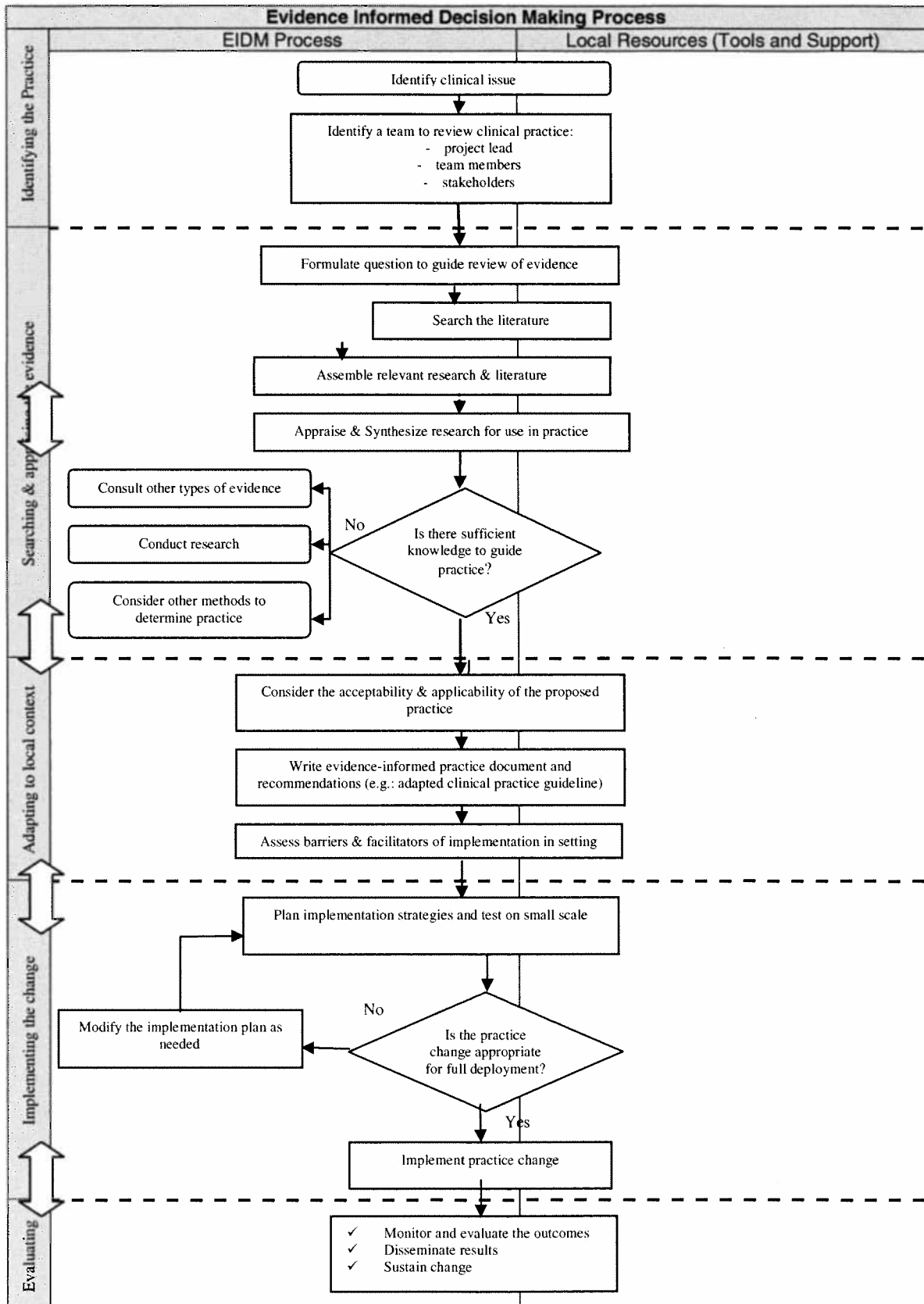
---

<sup>17</sup> Registered Nurses Association of Ontario (2002). Toolkit: Implementation of clinical practice guidelines. Toronto: Registered Nurses Association of Ontario

<sup>18</sup> Rogers, Everett M. (2005). Diffusion of Innovations. (5th ed.). New York: Free Press

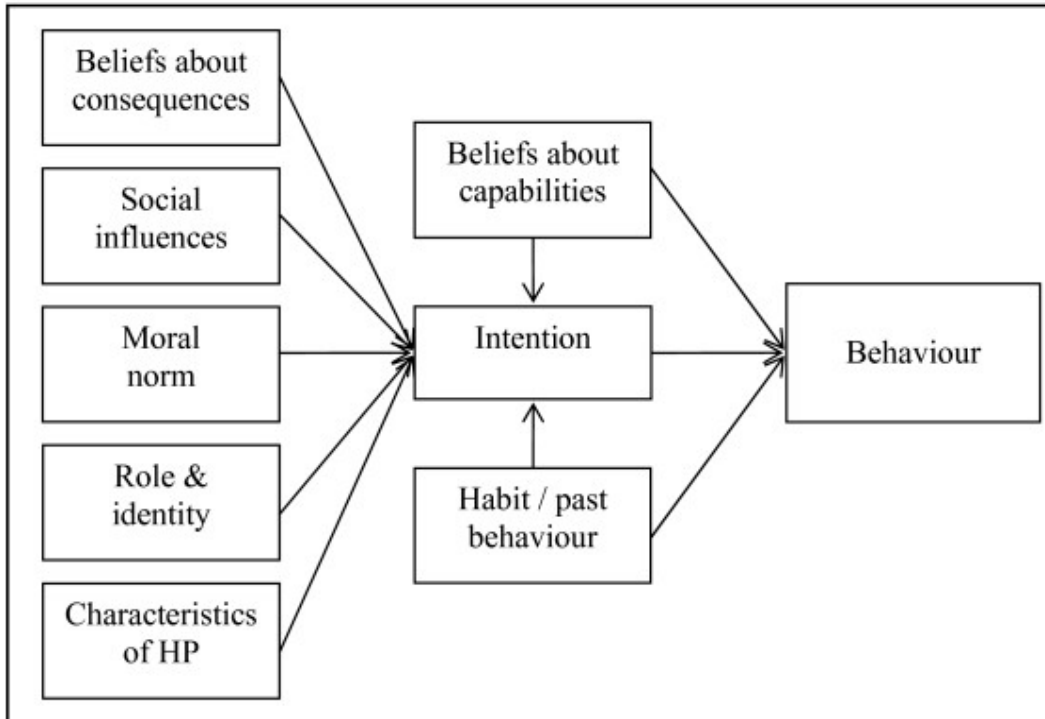
<sup>19</sup> Grant, M.J. & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. Health Information and Libraries Journal, 26, 91-108.

### Appendix C: EIDM Process Algorithm (adapted from a draft algorithm developed in the Transition Office at McGill University Health Centre)





### Appendix D: Factors influencing health care behaviours and intentions: A theoretical Model



HP : Healthcare professional

Reproduced with permission from Implementation Science 2008, 3, 36-48.

Appendix D: Factors influencing health care behaviours and intentions: A theoretical model.

This figure, reproduced here with permission from Implementation Science, volume 3 was published in 2008 by Godin and colleagues. The diagram identifies possible factors that could influence the intention and behaviour of health professionals. These factors were identified through a systematic review of studies that used social cognitive theories to explain healthcare behaviour.

The determinants of professionals’ intention to adopt a particular behaviour are their beliefs about consequences, social influences, moral norm, role and identity, and the characteristics of the health professionals. The intention to adopt the behaviour is influenced by the professionals’ beliefs about their capabilities and their habits and past behaviours. Together, these three influence the actual behaviour.

### Appendix E: Barriers, facilitators and implementation strategies spreadsheet tool

Goals and Outcomes:			
Factor	Barrier/Facilitation	Relevance	Implementation Strategy
Characteristics of the innovation			



Individual care providers			
Practice setting			
System			

**Appendix F: Examples of barriers and facilitators**

<b>Knowledge</b>	Lack of Awareness
	Lack of Familiarity
	Forgetting
<b>Attitudes</b>	Lack of agreement due to: <ul style="list-style-type: none"> <li>• The scientific value of the evidence</li> <li>• The rigidity of the guideline</li> <li>• The threat to professional autonomy</li> <li>• The perceived bias of the author</li> <li>• The lack of clarification and impracticality of the guideline</li> </ul>
	Lack of applicability due to: <ul style="list-style-type: none"> <li>• The characteristics of the patient</li> <li>• The clinical situation</li> <li>• The perception that knowledge implementation is not cost-beneficial</li> <li>• The lack of confidence in the individuals who are responsible for developing or presenting knowledge implementation</li> </ul>
	Lack of expectancy due to: <ul style="list-style-type: none"> <li>• The perception that implementation will not lead to improved outcomes for either the patient or the health care process</li> <li>• The negative feelings that may be provoked by the new behavior resulted from knowledge implementation, and/or not having taken into account existing feelings around the process of implementation</li> <li>• The lack of self-efficacy</li> <li>• The lack of motivation to use knowledge or to change one's habits.</li> </ul>
<b>External Barriers</b>	Factors associated with the patient: <ul style="list-style-type: none"> <li>• the inability to reconcile patient preferences with the use of knowledge</li> </ul>
	Factors associated with knowledge use as an innovation: <ul style="list-style-type: none"> <li>• The perception that the innovation cannot be experimented with on a limited basis</li> <li>• The perception that the innovation is not consistent with one's own approach</li> <li>• The perception that the innovation is difficult to understand and to put into use</li> <li>• The lack of visible results in using the innovation</li> <li>• The perception that the innovation cannot be created and shared with one</li> </ul>



	<p>another in order to reach a mutual understanding</p> <ul style="list-style-type: none"> <li>• The perception that the use of the innovation will increase uncertainty (for example, the lack of predictability, of structure, of information)</li> <li>• The perception that the innovation lacks flexibility to the extent that it is not changeable or modifiable by a user in the process of its adoption and implementation</li> </ul>
	<p>Factors associated with environmental factors:</p> <ul style="list-style-type: none"> <li>• insufficient time to put knowledge into practice</li> <li>• insufficient materials or staff to put knowledge into practice</li> <li>• insufficient support from the organization</li> <li>• inadequate access to actual or alternative health care services to put knowledge into practice</li> <li>• insufficient reimbursement for putting knowledge into practice</li> <li>• perceived increase in malpractice liability if new knowledge is put into practice.</li> </ul>

Adapted from KT Clearinghouse, CIHR <http://ktclearinghouse.ca> and Implementation Science 2006, 1, 16-28.

### Appendix G: Questions to assess barriers and facilitators

These can be used to assess barriers and facilitators with individual practitioners or formal leaders through:

- Informal discussions or conversations with individuals
- Semi-structured individual interviews
- Focus groups
- Following a presentation to introduce the innovation and group discussion
- A paper based survey

The answers will help you consider which implementation strategies might be most appropriate.

Adapt the questions so that they are specific to your innovation and health practitioner (adapted from Brett, 1989):

1. Have you heard or read about the innovation?
2. Have you observed this innovation in use?
3. What do you know about the innovation?
4. Do you already use this innovation?
5. Do you believe this innovation to be appropriate for this setting? Why or why not?
6. Do you think this innovation fits with your role (as a nurse, physician, physical therapist etc...)?
7. Do you think the innovation will lead to improved patient outcomes?
8. Do you feel you have the skills/training needed to carry out the innovation?
9. Do you think that there are enough resources (time, financial, space, personnel) to carry out the innovation?
10. Is this innovation important to you? To your colleagues? To the leadership group? To your organization? To the patients and families?

### Appendix H: Implementation checklist tool

Checklist

- A question or concern came up in my practice or practice setting.
  - Stakeholders were assembled to address the question and to review the evidence.



- Evidence for an innovation or practice change was found or created and reviewed.
  - The strength of the evidence was appraised.
  - The best evidence (one or more sources) was found.
- The gaps between the evidence and actual practice were identified through measurement.
  - Baseline data was collected in my practice setting about the actual state of practice at present.
  - A decision was made whether this concern is relevant enough to warrant moving to implement a change, based on the findings.
  - Goals for the practice change are written and are measurable.
  - The target for the behaviour change was determined. (Who? Where? When? What? How long?)
- The evidence was adapted to my local setting.
  - The source of evidence was identified.
  - The recommendations were evaluated against evidence.
  - The stakeholders were involved.
  - The recommendations were developed into a user friendly format for my setting.
- Barriers and facilitators were identified in my setting.
  - A spreadsheet was created.
  - Preparations and considerations were made prior to an assessment of barriers and facilitators.
  - A strategy or strategies to assess barriers and facilitators were chosen.
  - Barriers and facilitators were assessed.
  - The most relevant and influential barriers and facilitators as targets for implementation were determined.
- Implementation strategies were used to target goals, barriers and to enable facilitators of change.
  - The most relevant and influential barriers and facilitators in my setting were reviewed.
  - Implementation strategies were considered for use in my setting.
  - Implementation strategies were organized in a spreadsheet.
  - The plan was discussed with the stakeholders and adjustments were made.
  - An implementation plan was made.
  - Methods of monitoring and ongoing support during the trial period were created. Adjustments were made as needed.
  - Successes were built on by expanding the implementation (to the objective initially set out.)
- Outcomes were monitored.
- The outcomes for implementation were evaluated.
- Practice change was sustained over time.