Canadian Best Practices Initiative Methodology Background Paper:

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The purpose of this paper is to provide the history of the development of the methodology and classification system used on the Canadian Best Practices Portal for Health Promotion and Chronic Disease Prevention (www.phac.gc.ca/cbpp) to describe interventions. Creation of this system required a reinvestigation and updated definition of what we mean by "evidence".

A Brief History of the Initial Classification System

When the Canadian Best Practices Portal was launched in November of 2006, it was described as a virtual front door to an array of online best practices in health promotion and chronic disease prevention. There was a strong feeling among the members of the Steering Committee at that time that there was an obligation to provide users with interventions and systematic reviews that had been rigorously evaluated and proven to be effective. So the search began for sources of these types of interventions. The emphasis during the initial phase (2004 to 2006) of the Portal's development was on increasing access to "best practice" interventions which were supported by systematic review evidence and had a positive health outcome.

What is Evidence?
Ideally, evidence is as stated by the National Health Service Glossary:

> *"The best current research information available based on a systematic analysis of the effectiveness of a treatment, service or any other intervention and its use, in order to produce the best outcome, result or effect. In practice this means an approach to service provision development-centred on ensuring that users are given the most effective and appropriate provision as indicated by currently available research findings."[1]*

However, the reality is that for many health promotion interventions, this type of scientific, "medical model" evidence is not available, is inconclusive, has been conducted using less than ideal methodologies, or is of questionable relevance. Programming decisions must often be made in the face of uncertainty. In response to this reality, the Canadian Best Practices Initiative has expanded its inclusion criteria to include interventions which have demonstrated their desired changes through the most rigorous or stringent research or evaluation appropriate for their circumstance. The most appropriate research or evaluation for their circumstance may be a quantitative (e.g., experimental, quasi-experimental, observational), and/or qualitative (e.g., phenomenological, grounded theory, case study, ethnography, narrative) study designs. The CBPI believes that evidence is the findings from a range of rigorously implemented and appropriate quantitative or qualitative research and evaluation methodologies. To reflect this, we have slightly adapted the National Health Services evidence definition slightly to define evidence as:

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[1] National Health Services. Public Health Electronic Library, National Institute of Clinical Excellence, London: UK. Available from: http://www.phel.gov.uk/glossary/glossaryAZ.asp?getletter=E

> *Evidence includes the best available research and evaluation information available based on a systematic analysis of the effectiveness of an intervention, strategy or service and its use, in order to produce the best outcome, result or effect. Evidence may be generated from a range of rigorously implemented and appropriate quantitative and/or qualitative research and evaluation methodologies.[2]*

Evidence, from the perspective of the Canadian Best Practices Initiative, is not based on hearsay or an assumption of what works. The research or evaluation findings are critical to expanding beyond opinion and demonstrating evidence.

Next Stop: "Promising Practices"

Given as stated above, that programming decisions must often be made in the face of uncertainty, coupled with a desire to increase the number of interventions available on the Portal, led to the exploration of identifying "promising practices". Upon initial investigation of this concept[3], there appeared to be even more variation in the labels, assessment criteria and interpretations of this level of evidence than at the "best" level. To help sort out this quagmire, and include "promising practices" (or practices, programs and interventions with varying levels of evidence) in the interventions listed on the Portal, the CBPI consulted, by way of a two-day workshop, with 40 Canadian and international experts in health promotion and chronic disease prevention to explore the similarities and differences between several more prevalent assessment processes and labels.

To inform this workshop, an environmental scan of promising practices work in Canada and internationally was prepared by Dr. Roy Cameron and Heather McGrath[4] of the Centre for Behavioural Research and Program Evaluation (CBRPE). In addition, a review of existing classification frameworks (CDC, Cochrane, CBRPE, CTFPHC) was done, key informant interviews with experts in the field of population health intervention assessment methodologies were held to refine the proposed classification system, and several related discussions by CBPI Advisory Committee members.

This work resulted in Table 1 (below) which presents the classification categories for interventions (i.e., best practice, promising practice, discouraging practice) according to the research methodology used to evaluate the intervention and the resulting intervention effects.

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[2] Adapted from National Health Services. Public Health Electronic Library, National Institute of Clinical Excellence, London: UK. Available from: http://www.phel.gov.uk/glossary/glossaryAZ.asp?getletter=E

[3] Dubois, N. (March 2006). *"Promising Practices": A Concept Paper for the Steering Committee, Canada's Best Practices System for CDP & C*. Ottawa, ON: Public Health Agency of Canada. (unpublished).

[4] McGrath, H. & Cameron. R. (2007). *Promising Practices in Promising Practices: An Environmental Scan of Promising Practices Work in Canada and Internationally.* Ottawa, ON: Public Health Agency of Canada.

Table 1: CBPI Intervention Classification Levels

RESEARCH METHODOLOGY	RESULTS: INTERVENTION EFFECTS		
	Positive effects	No effects*	Negative effects
• Systematic reviews • Experimental designs 　(i.e., employs random assignment of participants to experimental conditions – e.g., RCTs, Solomon Four Group design, etc.)	**Best practice**	**No effect**	**Harmful practice**
• Quasi-experimental designs including: 　- Controlled observational studies without random assignment, but employing control/comparison groups (e.g., controlled before/after studies) 　- Counter-balanced designs • Observational studies including: 　- Cohort studies 　- Repeated measures/interrupted time series	**Promising practice**	**No effect**	**Discouraging practice**
• Case control studies • Observational studies without control/comparison groups (e.g., before/after study) • Qualitative studies • Expert opinion¥ • Process evaluation**	**To watch – appear promising** (further evaluation required)	**Insufficient evidence** (further evaluation required)	**To watch – appear discouraging** (further evaluation required)

*There are a number of reasons an intervention study may not have shown effects (e.g., small sample size, inconsistent implementation)

¥To be considered as expert opinion, the recommendation must have been generated through a review process by people with expertise in the topic area (specific criteria will be developed).

** A process evaluation focuses on how a program was implemented and operates (specific criteria will be developed).

Discomfort Grows

Beginning with a few, and growing to many, expert advisors to the CBPI began to voice discomfort with this "Best/Promising" labeling system. The gist was two-fold:
- A "promising" practice was often limited from being "best" not because it was in fact an inferior program, but because the evaluation methodology was not as rigorous; and,
- No practice can be guaranteed to be "best" when transplanted from the original (often artificial) environment in which it was created, to a different context.

This term "context" has been a strong driver away from the "best/promising" labeling system.

Low and behold, we were not alone in this line of thinking as evidenced by the quotes below:

> *"The definition of best evidence and best practice should be made on the basis of their fitness for purpose and their connectedness to research questions, not on the basis of a priori notions about the superiority of particular types of evidence or method or placement in an evidence hierarchy."[5]*

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[5] Measurement and Evidence Knowledge Network (October 2007). *The social determinants of health: Developing an evidence base for political action Final Report to World Health Organization Commission on the Social Determinants of Health.* http://www.who.int/social_determinants/knowledge_networks/add_documents/constructing_evidence_base_mekn.pdf. p.20

"No single approach to the generation of evidence or data is to be favoured over others. Evidence should not be appraised and evaluated on the basis of adherence to a single evidence hierarchy in which a particular method is to be given priority. Appraisal of evidence should be on the basis of whether the research method used is appropriate for the research question being asked and the knowledge being collected, and the extent to which in terms of its own methodological canon it is considered to be well executed. Some evidence will be more useful than others, but all sources of evidence may make a contribution to understanding how social factors influence health outcomes."[6]

So, exploration began again for a way to describe interventions in such a way that potential adopters could have confidence that there was some form of evidence attached to those interventions presented for consideration on the Portal.

Shifting the Locus of Control

What has emerged, is a description of interventions that provides the decision-maker with as much information as possible on which they can then make informed decisions as to whether there is potential for the adoption, or more likely, the adaptation of that practice in their context. This is in contrast to the "best/promising" system that judges the value of an intervention before the user even considers it. This approach acknowledges that there are many forms of evidence that need not be considered in a hierarchical way.

The descriptive fields in the classification system represent a hybrid of three well-respected approaches:
1. The RE-AIM Framework – a systematic way for researchers, practitioners, and policy makers to evaluate health behavior interventions. It can be used to estimate the potential impact of interventions on public health. (www.re-aim.org)
2. An article entitled "Methods of defining best practice for population health approaches with obesity prevention as an example". It was emphasized repeatedly during consultations that it was important to consider an intervention's "potential for population impact".[7] McNeil and Flynn expand on these elements:

   *"**Program logic**, where the theoretical basis of the program is considered, including whether it is logical and consistent with current knowledge of physiology, behaviour, etc.; **Reach**, which takes into account range and breadth of participation, including characteristics of the study population; **Uptake**, which includes utility (such as evidence and extent of stakeholder involvement) and feasibility (such as practicality and costs etc. including rates of participation)."* [8]

3. Three components of program assessment developed by Dr. Roy Cameron and colleagues at the University of Waterloo, Ontario: effectiveness, plausibility and practicality.

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[6] Ibid. p.17
[7] McNeil & Flynn. (2006). Methods of defining best practice for population health approaches with obesity prevention as an example. *Proceedings of the Nutrition Society*, 65, 403–411.
[8] Ibid.

The following chart plots the descriptive fields based on the Cameron approach as the organizing framework.

Effectiveness *"What has worked"*	Plausibility *"What should work"*	Practicality *"What might work in your context"*
Study design Outcomes Efficacy / effectiveness	Theoretical Basis / Program Logic	Population Focus Risk Factor / Risk Condition Determinant of Health Population Characteristic Setting Purpose Reach Adoption / Uptake Implementation Maintenance Context

This process has led to a revised interpretation of the term "best" in the title of the Portal and the CBPI:

> *Best Practices are interventions, programs/services, strategies, or policies which have demonstrated desired changes through the use of appropriate well documented research or evaluation methodologies. They have the ability to be replicated, and the potential to be adapted and transferred. A best practice is one that is most suitable given the available evidence and particular situation or context.*

> *In the context of population health / health promotion, such practices are used to demonstrate what works for enhancing the health status and health-related outcomes of individuals and communities, and to accumulate and apply knowledge about how and why they work in different situations and contexts.*

For inclusion in the Canadian Best Practices Portal, an intervention must successfully meet each of the following criteria:
- Addresses chronic disease or health promotion topics
- Designed for primary or secondary prevention, or reducing risk factors
- Addresses one or more of the social determinants of health
- Documented evaluation using quantitative (experimental, quasi-experimental, observational, descriptive observational study), and/or qualitative (phenomenological, grounded theory, case study, ethnography, narrative) study design
- If the intervention evaluation has not been reviewed/ screened by a credible collection source or published in a peer- reviewed journal, then it must meet quality and rigour criteria appropriate to study design
- Show evidence of effectiveness in eliciting the desired changes
- Evidence of effective strategies that are replicable and adaptable (practical)
- Sufficient information is available to allow for adequate annotation including: descriptive information of topic and population addressed, goals/ objectives, strategies and activities; and evaluation design and outcomes

The Road Ahead

Supporting the uptake of evidence-based practice does not only involve providing possible interventions. The CBPI is working towards a variety of knowledge exchange activities to enhance the uptake of content found through the Canadian Best Practices Portal and to increase the contribution of content from practitioners and researchers to the Portal. Phase III (2009+) of the CBPI will focus on monitoring the uptake of practice (or, as Dr. Larry Green would call it, "practice-based evidence) to collect information directly from practitioners about their experiences with various Portal practices in the Canadian context. Work with the National Collaborating Centre for Methods and Tools will build an understanding of the fidelity[9] of interventions.

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[9] The degree to which an intervention can be adapted from the version that was evaluated to be effective.