

Original Research

Commitment to Change Instrument Enhances Program Planning, Implementation, and Evaluation

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Abstract

Introduction: *This study investigates the use of a commitment to change (CTC) instrument as an integral approach to continuing medical education (CME) planning, implementation, and evaluation and as a means of facilitating physician behavior change.*

Methods: *Descriptive statistics and grounded theory methods were employed. Data were collected from 20 consecutive CME programs. Physicians were asked to list up to three things they intended to change in their clinical practice as a result of the program. A copy was sent 3 weeks later as a reminder. Six months later, a summary of peer-intended changes was sent to reinforce intended behavior change.*

Results: *Of 602 participants, 291 (48%) completed CTC forms, resulting in 803 citations. Responses were congruent with the educational objectives and intentions of the program planners. Using the constant comparative method of analysis, a framework was identified for interpreting physician learning strategies. It included change strategies and motivation, learning issues, better doctoring, changes to clinic practice, and diffusion.*

Discussion: *CTC was useful as a multipurpose tool providing planners with meaningful feedback to (1) assess congruence of intended changes in physician behavior with program objectives, (2) document unanticipated learning outcomes, and (3) enable and reinforce intended behavior change.*

Key Words: Commitment to change, continuing medical education (CME), continuing professional development, health services research, Memo-To-Myself, program evaluation

Introduction

Commitment to change (CTC) instruments have been used to enhance behavior change, with very

promising results.^{1–5} Several conceptual models and theories have been posited to describe possible causal factors underpinning the use of CTC for facilitating behavior change, including “goal setting, promise keeping, transtheoretical model of change, and reflective learning.”^{3,6–8} This study considered the use of a CTC instrument as an important component in the overall framework of planning, implementing, and evaluating an evidence-based, theory-driven approach to enhance physicians’ knowledge and skills on whiplash-associated disorders (WAD).

WAD cost the motorists of British Columbia about a half billion dollars annually, including wage loss, medical expense, and awards for pain and suffering.⁹ The whiplash claim rates in

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British Columbia, about 850 per 100,000, are very high compared with 70 per 100,000 in Quebec and 90 per 100,000 in Saskatchewan.¹⁰ Compounding this, at least 42% of family physicians in British Columbia feel they are poorly trained to manage back and neck pain. With the release of the first evidence-based synthesis and expert consensus on WAD,¹⁰ there was new knowledge about its management and treatment, a recommended diagnostic framework, and forms to improve documentation.

A seed grant was received to (1) conduct a needs assessment of stakeholders involved in the continuum of medical education, (2) evaluate systematic reviews of the health professional literature to identify educational strategies more likely to facilitate changes in clinical practice and improve patient health outcomes, and (3) create an evidence-informed, theory-driven approach to health professional education. The present article provides a theoretical framework for curriculum design, a rationale for using CTC within the curriculum, and a report of findings from research arising from their use.

Theoretical Framework

From systematic reviews of the CME and health education literature, the program planners adopted the PRECEDE-PROCEED model (PPM)¹¹ as the planning framework. PPM was developed by Green and Kreuter¹¹ to enhance the planning and implementation of educational programs in health promotion. It has been used in over 1,000 studies, including more than 200 randomized controlled trials in the health promotion field but also in other contexts.^{12,13} The model guides the participation of credible influential stakeholders through a comprehensive diagnostic process to better understand the nature of the problem of concern (social and epidemiologic concerns), as well as the identification of behavioral and nonbehavioral factors that contribute to the problem or would enable or hinder desired changes. PRECEDE and PROCEED are acronyms for determinants of behavior

change. PRECEDE stands for predisposing, reinforcing, and enabling constructs in educational diagnosis and evaluation. PROCEED considers additional elements, recognizing that other institutional factors, such as policy, regulatory, and organizational factors, influence behavior change.¹¹ Predisposing factors include existing knowledge, attitudes, beliefs, values, and perceptions that facilitate or hinder motivation for change. Enabling factors refer to skills, resources, or barriers that can help or hinder desired behavioral or environmental changes. Reinforcing factors are related to awards received and feedback the learner receives from others following change, which may encourage or discourage continuation of the behavior.¹⁴

Underpinning the PPM are two behavior theories, the Health Belief Model (HBM) and the Theory of Reasoned Action (TRA), each with robust constructs that the planners of this study believed had relevance to the use of CTC in CME.¹¹ The HBM suggests that demographic and psychosocial variables are influenced by various “cues to action” to motivate behavior change. These cues to action are educational messages or experiences, including advice from peers and reminders that are persuasive and influence individual perceptions concerning the perceived risks and benefits of making a change. The TRA suggests that individuals consider the social norms and practices of their peers in the adoption of behavior change.¹¹ Theoretical constructs underlying the HBM and the TRA are well researched within the health promotion community and have predictive value. The HBM and TRA constructs appear to be congruent with the findings of CME research concerning the importance of peer-to-peer communication, the use of educational influentials and opinion leaders as credible messengers, the use of reminder systems, and the need to create clear, persuasive arguments about why a desired change is needed.¹⁵

Rather than considering CTC as primarily an isolated instrument to enhance behavior change, the planning team considered CTC as part of an

Table 1 Underlying Conditions Planners Felt Important to Commitment-to-Change Successes and Failures

Program Component	Predisposing Conditions Influencing Behavior Change
Needs assessment	Comprehensive assessment of educational needs clearly identified by key stakeholders, including target audience Identification of prevalent attitudes, beliefs, and other contextual factors that could hinder or facilitate knowledge uptake and use
Objective setting	Objectives congruent with identified needs, relevant to practice, and that address identified priority contextual factors
Content	Credibility of source of content, level of evidence supporting desired change, instructional design, and presentation factors
Program delivery	Quality presentation, resources, and level of interaction
Program evaluated	Assess linkages of curriculum process, determine whether program as delivered was same as program planned, sensitivity of instruments
Program outcomes	Evidence of behavior change, changes in patient health outcomes

explicit systematic approach to program planning. Planners hypothesized that to more accurately assess causal claims being made about the utility of CTC to affect behavior change, other linkages among program planning, objective setting, program delivery, and program evaluation also needed to be considered. Failure in addressing potential strong confounders inherent in program planning, implementation, and the evaluation process can lead to errors of attribution for program successes and failures. This could occur, for instance, if there was a lack of congruence between needs assessment and selection of course objectives or if the program delivered was different from the program planned. Planners therefore considered the use of CTC as a tool for assessing program successes and failures throughout the implementation phase.¹⁵ Table 1 posits a set of underlying conditions that planners considered important in the use and evaluation of CTC as an effective change agent. As the program was delivered to physicians throughout British Columbia during a 2-year period, the collection of CTC responses was used for formative planning to assess whether the participants' intended behavior changes were congruent with the learning objectives, to identify unintended learning outcomes, and to use data

collected for curriculum renewal. Planners considered CTC as an agent for behavior change and a formative and summative evaluation tool that could be incorporated into a province-wide CME program.

Methods

Research Question and Design

This study investigated the use of CTC within a PPM framework. Specifically, we were interested in determining whether participants' intended changes reflected the educational objectives, whether there were unintended learning outcomes, and whether themes emerged (other than those related to objectives) to inform program development.

Setting and Participants

There were approximately 3,900 family physicians in British Columbia during the time of the intervention. Various program formats were used, including grand rounds, half-day programs (Whiplash Module Only) and full-day CME (Whiplash, Medico-legal, Chronic Pain Modules), telemedicine,

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and Web-based information. This study reports on 20 consecutive CME programs under the auspices of the University of British Columbia, Division of CME. Six hundred two self-selected physicians participated in the half-day or full-day CME program. Sessions were limited to 50 registrants. Brochures were posted on the Division's Web site and mailed on a region-to-region basis, depending on the location of the course.

Course Design

The course included a knowledge pretest and a discussion of challenges that participants encounter with patients who present with whiplash. The challenges identified were linked to the course outline. Methods included a series of structured lectures with high-quality slides, case-based examples, and indexed reference materials, plus a demonstration of physical examination, with an opportunity to practice.

Memo-To-Myself: CTC Instrument

"Memo-To-Myself" (MTM), like other CTC instruments, asks physicians to state what changes they plan on making in practice as a result of their learning experience. We called the instrument "Memo-To-Myself" to recognize that the purpose of the instrument from the participating physicians' perspective was to engage them in an act of reflection for self-learning. The use of individual reminders followed by a summary of peers' intended changes would provide further opportunities for reflection, action, and reinforcement.

Instructors at the beginning of the workshop were asked to alert participants regarding a form entitled *A Memo To Myself* included in their delegate kit and to explain the purpose of this form. Participants' instructions were as follows:

(i) In order to assist you in making this learning activity of more value to you, take a moment to consider the most important aspects of the material presented and

discussed, (ii) Please write down 3 things in the space at the bottom, that you will do when you return to your practice, as a result of this learning activity. Do not put your name on this sheet, (iii) Place the top copy of your memo into the envelope provided, address it to yourself and seal it. Return the envelope to the coordinator. This will be mailed to you in a couple of weeks, (iv) The remaining copy will be collected.

Participants were provided with three blank lines, numbered 1 to 3, on which to list their intended changes. Instructors were asked to remind participants that all responses were anonymous and that the duplicate copy would be collected to assist the organizers in evaluating the event.

A copy of each participant's intended changes was sent 3 weeks later as a reminder. Six months later, a summary of peer-intended changes was sent to reinforce intended behavior change.

Data Collection and Analysis

To determine whether the reported intended changes reflected the educational objectives of the program and to examine the themes that emerged to inform program planning and renewal, two forms of coding were used on the same dataset. MTM responses were collected after each program and were transcribed as written into an *Excel* spreadsheet. Each memo submitted was given a unique identifier, linking the memo to a specific CME program. If a memo contained more than one behavior change, each behavior change was separated. The raw data of the first four events were first categorized by one researcher and reviewed by members of the research committee, and the categories based on the intended educational objectives were reviewed and refined. As the type of responses throughout all events was highly consistent, frequency counts were made for each category and compared with the intended learning objectives. Memos that could not be assigned to a specific

course objective were classified as “unintended objectives” and assessed whether they were congruent with course objectives or course content. On a bimonthly basis, a summary of responses was provided to steering committee and research committee members.

Second, using the constant comparative method of grounded theory,^{16,17} each response was organized into an evolving conceptual framework to generate hypotheses about physicians’ conceptions of learning and behavior change. The purpose of the analysis was to inform future curriculum planning and curriculum renewal. The framework included all of the ideas put forward in the MTM. This process was continued until no new ideas were found on further analysis. To strengthen the findings, an independent analysis was carried out by a second author and a research assistant looking for alternative interpretations and modifications to the conceptual framework. After discussion, these were incorporated into the model. Whenever an interesting implication seemed to be suggested by the evolving framework, it was noted. These implications were considered and discussed and are presented in the latter part of this article.

Results

Data were collected from 20 consecutive full-day CME programs. Of 602 participants in the program, 291 registrants (48%) completed the MTM forms. Class size ranged from 7 to 55 participants, with a median of 30 participants.

Our mapping of MTM by course objective is shown in Table 2. All 12 categories of intended changes of clinical practice routines were consistent with the planners’ intended changes and course content. The first nine corresponded directly to the program’s intended objectives. The last three, although congruent with overall program goals, captured unanticipated learning outcomes. No responses received were contrary to program goals or incongruent with course content. Responses were collated and summarized after the first three

sessions and then throughout the program delivery cycle and provided confirmation that the key messages of the program were being consistently conveyed and that they were meeting a relevant and meaningful gap in current practice. Some key responses were incorporated into the curriculum as the program evolved to reinforce take-home messages.

Qualitative analysis revealed three major themes: (1) the management of WAD, (2) patient education, and (3) change strategies and motivation subthemes (Table 3). The subthemes provided an alternate perspective on the learning issues that appeared to be important to physicians in their practice and that could be used in organizing future curricula. In the management of WAD, physicians’ intended behavior centered around learning issues that directly related to content areas and objectives related to history taking, including accident dynamics, use of the recommended classification system, use of appropriate measurement instruments and forms, diagnostic tests, and treatment and medication. Not considered were equipment purchase needs and information about community resources in each area of the province. The change strategies and motivation subthemes of learning issues, better doctoring, changes to clinical practice, and diffusion provided greater insight into the impact of the program. For instance, the response of “learn more about chronic pain conditions” was a statement of a “felt need” and that the program was a motivating factor for further learning. The patient education subthemes of WAD management, exercise, pain management, prognosis, and treatment highlighted practical areas of information that physicians considered important in the education of patients. Key responses such as “reassure, reassure, reassure” were incorporated into the program because this response was consistent with a recommendation of the Quebec Task Force on WAD,¹⁰ which spoke of the importance of providing “realistic prognostic information” to reduce fear and anxiety in patients who experience prolonged symptoms and who are overly concerned

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Table 2 Map of Memo-To-Myself Responses by Planners' Intended Learning Objectives and Unanticipated Learning Outcomes (N = 291): 803 Citations

Intended Learning Objectives	Description	Citations	Cited (%)
Use of the recommended nomenclature for categorizing WAD patients	Classify and manage WADs based on Quebec Task Force recommendations*	158	54
Enhance patient history, examination, and documentation	Practice more precise documentation methods (for clinical and medicolegal purposes)*	66	27
	Practice more precise physical examination techniques (including purchase and use of goniometer)*	44	15
Appropriate diagnostic interventions	Practice more appropriate radiography investigations (for WADs grades II–IV)*	44	15
Decrease inappropriate treatment	Reduce medications for WAD patients (e.g., muscle relaxants, narcotics)*	77	26
Activation rather than passive treatment	Recommend active rehabilitation program for WAD patients when appropriate (e.g., exercise plan, return to usual activities, early return to work)*	135	46
	Discourage or decrease passive therapeutic modalities*	82	28
Increase patient reassurance	Provide patients with WAD-related information and/or education materials*	93	32
	Realistic reassurance of patients regarding prognosis for WAD recovery*	57	20
Unintended learning outcomes			
Motivation for continued education	Increase self-directed study and/or participate in more CME activities on WAD	17	6
Increase confidence	Practice with more confidence regarding the diagnosis and treatment of WAD	12	4
Community resource	Investigate existing community and multidisciplinary team resources	11	4

CME = continuing medical education; WAD = whiplash-associated disorder.

*Because physicians cited more than one intended change, the total percentage will be greater than 100%.

that these symptoms will translate to long-term disability or impairments.

Discussion and Implications

Participation rates among the 20 consecutive sessions varied considerably (range 20% to 75%). Most studies reporting participation rates using CTC were single-event studies specifically

focused on the evaluation of CTC. There are few published studies investigating CTC use across 20 or more consecutive programs. Lockyer et al.⁷ studied changes that learners intended to make in practice following an intensive day-long course offered at 21 sites. They reported that 97.7% of the 352 participants completed the CTC. This study employed multiple instruments, including demographic surveys, pretests, and post-tests, in

Table 3 Conceptual Themes and Subthemes Arising from Memo-To-Myself Responses

Theme	Subthemes	Representative Quotations
Change strategies and motivation	Learning issues	Learning more about chronic pain conditions. Recheck anatomy. Look up actual studies on which the recommendations are based.
	Better doctoring	More structured approach to the evaluation for the whiplash patient. More confident approach to whiplash assessment.
	Changes to clinical practice	Work on new "spiel" for patients focusing on activation and exercise. Change whiplash office form.
Management of WAD	Diffusion	Share assessment sheets with partners.
	Grading system	Grade all whiplash patients by classification given, i.e., WAD I, II, etc. Use the WAD grading system to help with investigation and treatment choices.
	Improved documentation and measures	Use instruments such as Neck Disability Index, McGill Pain Scale, and Insurance Claim Form CL19B as guide to good documentation early on. Will copy guided history and examination form and use it as a guideline. Collect more precise information regarding mechanisms of the MVA (i.e., vehicle speeds, angle of impact, etc.). Ask about head restraints. Record previous MVA injuries on first visit.
	Diagnostic testing	Complete the protocol Hx/Px, consider x-ray AP/lateral/open mouth. X-ray all grade II WAD and worse; AP odontoid, lateral views.
	Clinical examination	Do a more comprehensive neurologic examination. More systematic history and physical examination (i.e., include neck ROM, angle measurement, which I don't do routinely now).
	Treatment and medication	Be more directive in physiotherapy referrals that active treatment be done. I will not allow prolonged use of medications or passive therapies for my WAD patients. Strongly encourage early return to work and normal activities, including sports. Limit use of muscle relaxants/narcotics further.
	New equipment	Purchase a goniometer to help me objectify ROM and therefore see improvements.
	Community resources	Identify community resources (i.e., multidisciplinary teams, etc.). Involve counseling for chronic cases. Liaise more with manual physiotherapists and chiropractors to promote short-term therapy.
Patient education	WAD More patient education regarding natural Hx whiplash, etc.	

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Table 3 (continued) Conceptual Themes and Subthemes Arising from Memo-To-Myself Responses

Theme	Subthemes	Representative Quotations
	Exercise	<p>Will emphasize to patients that it is important to resume normal activities quickly in grade I and II WADs.</p> <p>Recommend proper use of head restraint.</p> <p>Teach patients ROM exercises to do at home.</p> <p>Photocopy page on neck exercises and hand out to patients.</p> <p>Be more reassuring and positive reinforcement of exercise.</p>
	Pain management	<p>Explain to patients how early ROM exercise breaks fibrous attachments and prevents future disability.</p> <p>Provide more information to patients regarding expected recovery time and avoid the expectation that they will not return to normal activities until they are pain free. Put the focus on the patients to help themselves recover.</p>
	Prognosis	<p>Aim of treatment is to return to normal functioning, not necessarily to become pain free.</p> <p>Discuss outcome/expectations and reassure patient, as I am now more confident in doing.</p> <p>Reassurance: clarity of diagnosis, appropriate investigation, and explain benign symptoms (paresthesia, weariness, and neurologic findings)</p> <p>Promote better patient acceptance of their role in long-term outcome.</p>
	Treatment	<p>Encourage patients to become more active in their recovery rather than rely on passive modalities.</p>

AP = anterior-posterior; Hx = history; MVA = motor vehicle accident; Px = physical examination; ROM = range of motion; WAD = whiplash-associated disorder.

addition to course and speaker evaluation. Discussing the high variance of response rates among program events, instructors believed that the contributing factors were time management differences and the level of participant fatigue resulting from all of the instruments employed.

Use of the constant comparative method to identify themes and subthemes provided planners with an alternate framework for thinking about physicians' own conceptions of learning and behavior change. For instance, the theme "change strategies and motivation" suggested variables, including the physicians' intention of diffusion among colleagues, the program as a stimulus for

seeking further education, and the physicians' ideas about "better doctoring." These concepts may be particularly important for further study to enable CME planners to identify and cultivate changes in learning attitudes, beliefs, and environments conducive to the support of lifelong learning.

Using CTC as an integral part of a more system-based approach to CME planning has extended current theoretical perspectives about CTC. The HBM and the TRA are well-researched robust behavioral change models within the health promotion community that have demonstrated predictive value. Given the similarities of factors

Lessons for Practice

- A commitment to change instrument, "Memo-To-Myself," can be incorporated into CME programs, providing reminders and feedback to physicians of their intentions and their colleagues' intentions to change behavior.
- For programs occurring over an extended period of time, Memo-To-Myself data can provide planners with early indications of whether the program is meeting its educational objectives.
- Memo-To-Myself identifies unanticipated learning outcomes and provides opportunities to reinforce key messages.
- The Theory of Reasoned Action and the Health Belief Model appear to have applicability and adoptability for CME.

influencing behavior change arising from CME research and the need for more predictive theories to inform CME programming,¹⁸ the HBM and the TRA appear to be models worthy of further exploration in the CME environment. Rather than seeing CTC primarily as an instrument to facilitate behavior change, planners using the PPM framework may consider CTC an integral component to program planning, implementation, and evaluation. In formative evaluation, planners may assess whether the program is producing the desired impact on the target audience, providing immediate feedback on whether planners effectively translated needs assessment findings into relevant and meaningful curriculum and whether their selection of educational strategies was appropriate. Based on such immediate feedback, planners may quickly assess whether the program is producing the desired outcomes or whether adjustment is warranted. In addition, the responses themselves can convey important ideas or messages that can be

incorporated into future programming as part of curriculum renewal, as was the case with using the message "reassure, reassure, reassure" in future courses.

Limitations

Given that the responses to MTM were anonymous, it was not possible to investigate whether there were demographic or other factors that might explain differences between responders and non-responders to the instrument.

Conclusions

The CTC instrument was an efficient useful multipurpose tool to (1) assess congruence with intended program changes, (2) document unintended learning outcomes, (3) facilitate reflective practice among the learner, and (4) reinforce behavior change through individual reminders and as peer-based reinforcers. CTC instruments inform CME planners with relevant and meaningful feedback to assess program planning, implementation, and evaluation. Given the similarities of factors influencing behavior change arising from CME research, the HBM and the TRA appear to be worthy of further exploration in the CME environment. The planners found the integration of the PPM and synthesis of theories underpinning the PPM and CTC an exciting and refreshing experience with promising benefits for learners and planners.

References

1. Purkis IE. Commitments for change: an instrument for evaluating continuing medical education. *J Med Educ* 1982; 57:61-63.
2. Pereles L, Lockyer J, Hogan D, Gondocz T, Parboosingh J. Effectiveness of commitment contracts in continuing medical education. *Acad Med* 1996; 71:394.
3. Mazmanian PE, Daffron SR, Johnson RE, Davis DA, Kantrowitz MP. Information about barriers to planned change: a randomized con-

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- trolled trial involving continuing medical education lectures and commitment to change. *Acad Med* 1998; 73:882–886.
4. Dolcourt JL. Commitment to change: a strategy for promoting educational effectiveness. *J Contin Educ Health Prof* 2000; 20:156–163.
 5. Dolcourt JL, Zuckerman G. Unanticipated learning outcomes associated with commitment to change in continuing medical education. *J Contin Educ Health Prof* 2003; 23:173–181.
 6. Wakefield J, Herbert CP, Maclure M, Dormuth C, Wright JM, Legare JB, Brett-MacLean P, Premi J. Commitment to change statements can predict actual change in practice. *J Contin Educ Health Prof* 2003; 23:81–93.
 7. Lockyer JM, Fidler H, Ward R, Basson RJ, Elliott S, Toews J. Commitment to change statement: a way of understanding how participants use information and skills taught in an educational session. *J Contin Educ Health Prof* 2001; 21:82–89.
 8. Kember D, Jones A, Loke AY, McKay J, Sinclair K, Tse H, Webb C, Wong KY, et al. *Reflective teaching & learning in the health professions*. Oxford, UK: Blackwell Science Ltd., 2001.
 9. Dayton M. Insurance perspectives on managing soft tissue disorders. In: Gunzburg R, Spalski M, eds. *Whiplash injuries: current concepts in the prevention, diagnosis and treatment of cervical whiplash syndromes*. Philadelphia: Lippincott-Raven, 1997:315–321.
 10. Spitzer WO, Skovron ML, Salmi LR, Cassidy JD, Duranceau J, Suissa S, Zeiss E. *Scientific monograph of the Quebec Task Force on Whiplash-Associated Disorders: redefining “whiplash” and its management*. *Spine* 1995; 8 Suppl:1S–73S.
 11. Green LW, Kreuter MW. *Health promotion planning: an educational and ecological approach*. Toronto: Mayfield Publishing Company, 1999.
 12. Green LW. Published applications of the PRECEDE model. Available at: <http://lgreen.net/precede%20apps/preapps.htm>. Accessed July 21, 2004.
 13. Breckon DJ, Harvey JR, Lancaster RB. *Community health education: settings, roles, and skills for the 21st century*. Gaithersburg, MD: Aspen Publishers, 1998.
 14. Green LW, Ottoson JM. *Community and population health*. Toronto: WCB/McGraw, 1999.
 15. White MI. *Toward an evidence-informed, theory-driven model for continuing medical education [thesis]*. Vancouver, BC: University of British Columbia, 2003. Available at: <http://ahousat.library.ubc.ca/theses/available/etd-04292003-084929/>. Accessed July 21, 2004.
 16. Glaser BG, Strauss AL. *The discovery of grounded theory: strategies for qualitative research*. New York: Aldine de Gruyter, 1967.
 17. Strauss AL, Corbin J. *Basics of qualitative research: grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications, 1990.
 18. Grimshaw JM, Thomas RE, MacLennan G, Fraser C, Ramsay CR, Vale L, Whitty P, Eccles MP, et al. Effectiveness and efficiency of guideline dissemination and implementation strategies. *Health Technol Assess* 2004;8:1–84. Available at: http://www.ncchta.org/projectdata/3_project_record_published.asp?PjtId=994. Accessed June 2, 2004.