

# **Reforming and Repositioning Continuing Medical Education**

## ***Preface***

*The heart and soul of medical practice is a profound respect for the patient, and, in turn, adherence to the historic professional values of ethics<sup>(1)</sup>, morality, and intellect. A commitment to continuous learning is inherent in these values. The individual physician is responsible for this commitment with assistance from the profession's institutions, which ensure the physician's access to the resources required to continue professional growth and learning. The beneficiaries of this commitment are the patients served by each physician. Thus, a system of quality Continuing Medical Education (CME) is a cornerstone of continued professional development and is key to the delivery of quality medical care.*

## ***Rationale for Reform***

Continuous learning through continuing medical education is an important part of the life of every practicing physician. However, many organizations and investigators have questioned the present CME system's effectiveness in the ever-changing contemporary healthcare environment. There is abundant evidence that quality of patient care is variable, and that the safety of patients encountering the health care system is not uniformly optimal.<sup>(2)</sup> One key to rectifying this lapse in consistency of quality care is a restructuring and strengthening of the existing CME system. Today's physician must stay current by learning smarter, not working harder. Continuing to educate physicians beyond medical school and medical specialty training requires a coordinated lifelong learning process of timely and effective CME, with measurable outcomes. Because it is imperative that every physician practice at the highest level possible, the CME system must be ever vigilant and responsive to a physician's educational needs.

Every physician should focus on individual learning needs relevant to his/her practice. Personal clinically based needs assessment is the fundamental starting point, but self-assessment alone is inadequate. External assessments are also required to complete the process of directed self-learning. It is crucial that the medical community as a whole share the responsibility of this lifelong learning process, with explicit attention to the relevance of content and assessment of outcomes.

Finally, the CME system and its established standards must be sufficient to support simultaneously the physician's ongoing needs for periodic re-licensing, re-credentialing, re-privileging, and Maintenance of Certification.

### ***Current State of CME and System Inadequacies***

Physicians have relied on the current CME system for the past four decades to keep abreast of rapidly changing medical knowledge, including emerging skills and techniques, and to enable them to practice in the most competent manner possible.<sup>(3),(4),(5)</sup> The CME system has contributed immensely in the physician's pursuit of medical knowledge and has performed an invaluable educational service to practicing physicians in this process. Recent national reports have called for greater accountability with respect to patient safety, cost, and quality of care.<sup>(6)</sup> These reports have stressed the importance of rapid dissemination of medical information and rapid adoption of evidence-based knowledge and skills necessary to improve physician practice performance. The CME system must be transformed to accommodate these aspirations. There is evidence that the system has not consistently:

- accommodated diverse physician learning styles and preferences.<sup>(7),(8)</sup>
- applied advances in educational research to ensure instructional best practices.<sup>(9),(10)</sup>

- engaged in and supported the processes of physician-directed self-assessment and practice performance assessment to determine specific educational needs.<sup>(11),(12),(13)</sup>
- facilitated rapid integration of newly acquired knowledge and skills into practice and changes in performance.<sup>(14),(15),(16)</sup>
- balanced funding sources and thereby has relied excessively on commercial support from manufacturers of drugs and devices.<sup>(17),(18),(19),(20)</sup>

### ***Addressing the Solution***

The Conjoint Committee on Continuing Medical Education (Conjoint Committee on CME), composed of key stakeholders (*See Table I*), was convened on October 15, 2002, for the purpose of addressing the intellectual challenges facing the medical profession and determining the best approach in initiating steps toward repositioning CME. The conclusion was unanimous: CME as it exists today needs change. To achieve this goal, the Conjoint Committee created a vision, addressed critical issues, and unanimously agreed upon recommended actions.

### ***Vision Statement***

The Committee defined a vision for CME focused on the physician learner:

*Continuing Medical Education is an essential element in lifelong physician professional development and continuous improvement, and must facilitate appropriate learning for optimum patient care.*

*Effective CME for physicians should:*

- *Enhance quality care*
- *Support professional activities*
- *Assess professional/educational needs*
- *Evoke professionalism*

- *Motivate learners*
- *Produce measurable outcomes*

### ***Process and Outcome***

The Committee agreed that the six competencies from the Accreditation Council for Graduate Medical Education (ACGME)<sup>(21)</sup>, plus a seventh from the American Osteopathic Association (AOA)<sup>(22)</sup> (*See Table 2*), and the original recommendations of the CMSS Task Force Report<sup>(23)</sup> would serve as the framework for the issues to be addressed. The group produced position papers to address a variety of issues facing CME. These papers led to the recommendations contained in this report.

Most fundamental change will require cooperation and coordination between and among present stakeholders and many others not as yet involved (i.e., individual specialty societies, accrediting organizations, medical schools, medical associations and faculty).

This report will be shared with all stakeholders, requesting their input and willingness to use the report, recommendations, and next steps<sup>(24)</sup>, which have been specified as a blueprint for reforming and repositioning CME. Moreover, stakeholders with a related mission and interest have been invited to become actively involved and will be expected to take primary responsibility for these actions with specific time frames.

## **Recommendations**

The Conjoint Committee on CME's efforts resulted in an extensive list of recommendations for change in the following seven areas. For each recommendation, next steps have been developed to guide implementation.

### **1. Medical Education Continuum:**

*The Conjoint Committee on CME should convene medical organizations and serve as the forum to facilitate communication and coordination, build relationships, and ensure visibility and accountability regarding CME among all stakeholders spanning the medical education continuum.*

### **2. Self -Assessment and Lifelong Learning:**

*Optimal patient outcomes are linked to the practice of competent physicians. Persons comprising the CME enterprise (physician learners, CME professionals, physician educators) should engage in self-assessment of competencies and lifelong learning to maintain competency.*

### **3. Core Curricula and Competencies:**

*Specialty-specific core curricula should be developed to achieve, maintain, and improve physician competencies as described in the American Board of Medical Specialties (ABMS)/Accreditation Council for Graduate Medical Education (ACGME)/American Osteopathic Association (AOA) core competencies. All specialties and subspecialties should reach consensus on the knowledge, skills, performance, and abilities expected of their specialty.*

**4. Valid Content: Evidence-Based Medicine:**

*CME professionals, learners, accreditors and medical organizations should assure that all recommendations for patient care presented in CME are based on the current best evidence available, physician expertise, and patient values.*

**5. Performance and Continuous Improvement:**

*An evolving CME system should facilitate continuously improved approaches to evaluate CME's effectiveness. New and existing methodologies should produce documented evidence substantiating physician utilization of acquired knowledge and skill in practice performance measurement and outcomes in patient care. Parallel or complementary systems should be developed to assist CME professionals in the design and delivery of effective CME to achieve these goals.*

**6. Metrics to Measure and Recognize Physician Learning and Behavioral Change:**

*The current CME credit systems should evolve to better recognize and measure physician learning and behavioral change. An evolving and growing CME system should facilitate evaluating CME's effectiveness in appropriate and meaningful forms and provide technologically advanced tools that are user-friendly.*

**7. Resources and Support:**

*A "blue ribbon" panel of medical, entrepreneurial, foundation, and governmental, and other organizational leaders should be established. This panel will offer advice and guidance regarding the processes of determining, balancing, and procuring the requisite resources and support necessary to focus the present CME system on societal,*

*professional, and entrepreneurial interests as the practice and scope of medicine evolves.*

**Table 1. Stakeholder Organizations**

Accreditation Council for Continuing Medical Education (ACCME)
Accreditation Council for Graduate Medical Education (ACGME)
Alliance for Continuing Medical Education (ACME)
American Academy of Family Physicians (AAFP)
American Board of Medical Specialties (ABMS)
American Hospital Association (AHA)
American Medical Association (AMA)
American Osteopathic Association (AOA)
Association for Hospital Medical Education (AHME)
Council of Medical Specialty Societies (CMSS)
Federation of State Medical Boards (FSMB)
Joint Commission on Accreditation of Healthcare Organizations (JCAHO)
Liaison Committee on Medical Education (LCME)
National Board of Medical Examiners (NBME)
Society for Academic Continuing Medical Education (SACME)

**Table 2. Competencies**

Patient Care
Medical Knowledge
Practice-Based Learning and Improvement
Interpersonal and Communication Skills
Professionalism
Systems-Based Practice
Osteopathic Philosophy and Osteopathic Manipulative Medicine*

---

\* Seventh Competency of the American Osteopathic Association

## References

1. **The Principles of Medical Ethics.** Preamble, Principles of Medical Ethics. Adopted by the AMA House of Delegates, June 17, 2001. (Accessed May 19, 2004, at <http://www.ama-assn.org/ama/pub/category/2512.html>.)
2. **Institute of Medicine.** Crossing the Quality Chasm. Washington, DC: National Academy Press; 2001.
3. **Bennet NL, et al.** Continuing medical education: a new vision of the professional development of physicians. *Acad Med.* 2000;75:1167-1172.
4. **Manning PR, DeBakey L.** Continuing medical education: the paradigm is changing. *J Contin Educ Health Prof.* 2001;21:46-54.
5. **Barnes BE.** Creating the practice-learning environment: using information technology to support a new model of continuing medical education. *Acad Med.* 1998;73:278-81.
6. **Institute of Medicine.** Crossing the Quality Chasm. Washington, DC: National Academy Press; 2001.
7. **Fox RD, Putnam RW, eds.** Changing and Learning in the Lives of Physicians. New York: Praeger; 1989.
8. **Cervero RM.** Place matters in physician practice and learning. *J Contin Educ Health Prof.* 2003;23 (Suppl 1):S10-8.
9. **Davis DA, et al.** Impact of formal continuing medical education: do conferences, workshops, rounds and other traditional continuing education activities change physician behavior or health care outcomes? *JAMA.* 1999; 282:867-874.
10. **Davis DA, Fox RD, eds.** The Physician as Learner: Linking Research to Practice. Chicago: American Medical Association Press; 1994.
11. **Parboosingh IJ, Gondocz ST.** The maintenance of competence (MOCOMP) program: motivating specialists to appraise the quality of their continuing medical education activities. *Can J Surg.* 1993;36:29-32.
12. **Mammary E, Charles P.** Promoting self-directed learning for continuing medical education. *Med Teach.* 2003;25:188-90.
13. **Borduas F, Gagnon R, Lacoursiere Y, Laprise R.** The longitudinal case study: from Schon's model to self-directed learning. *J Contin Educ Health Prof.* 2001;21:103-9.
14. **Cabana MD, et al.** Why don't physicians follow clinical practice guidelines? A framework for improvement. *JAMA.* 1999;282:1458-65.
15. **Cranney M, Warren E, Barton S, Gardner K, Walley T.** Why do GPs not implement evidence-based guidelines? A descriptive study. *Fam Pract.* 2001;18:359-63.
16. **Grimshaw JM, Eccles MP, Walker AE, Thomas RE.** Changing physicians' behavior: what works and thoughts on getting more things to work. *J Contin Educ Health Prof.* 2002;22:237-43.
17. **Angel M.** The pharmaceutical industry, to whom is it accountable? *N Engl J Med.* 2000; 342:1902-4.

18. **Relman AS.** Separating continuing medical education from pharmaceutical marketing. *JAMA*. 2001; 285:2009-12.
19. **Harrison R Van.** The uncertain future of continuing medical education: commercialism and shifts in funding. *J Contin Educ Health Prof*. 2003;23:198-209.
20. **Schaffer MH.** Commercial support and the quandary of continuing medical education. *J Contin Educ Health Prof*. 2000;20:120-6.
21. **ACGME Core Competencies**, September 28, 1999. (Accessed May 19, 2004 at <http://www.acgme.org/outcome/comp/comp/compMin.asp>.)
22. **AOA Competencies**, July 2003. (Accessed May 19, 2004, at [http://do-online.osteotech.org/index.cfm?PageID=acc\\_postdocdocstds](http://do-online.osteotech.org/index.cfm?PageID=acc_postdocdocstds).)
23. **Repositioning for the Future of Continuing Medical Education**, March 23, 2002. (Accessed May 19, 2004 at <http://www.cmss.org/print.cfm?itemid=1034>.)
24. **Recommendations and Next Steps**, (an addendum to **Reforming and Repositioning Continuing Medical Education**, a work product of the Conjoint Committee on CME soon to be made available.

## **RECOMMENDATIONS AND NEXT STEPS**

### **PRIORITIES WITH DASHBOARD PLANS**

*(This document contains the Recommendations in the report (above), and, further articulates specific plans for implementation with time frames, in most instances, for accomplishing the goals set forth.)*

#### ***Recommendation 1: Medical Education Continuum***

*The Conjoint Committee on CME should serve as the forum of medical organizations to facilitate communication and coordination, build relationships, and ensure visibility and accountability regarding CME among all stakeholders spanning the medical education continuum.*

- 1.1** *Continuous communication and collaboration should be established among accrediting, licensing, certifying and credentialing organizations responsible for instituting and ensuring standards for quality undergraduate, graduate and continuing medical education to assure that physicians engage in effective lifelong learning.*

***Responsible Organization: Accreditation Council for Graduate Medical Education (ACGME) (with LCME and ACCME)***

Create mechanisms for continuous communication and collaboration among accrediting organizations to facilitate coordination of educational processes across the full continuum of medical education to include medical schools (Association of American Medical Colleges (AAMC), the Liaison Committee on Medical Education (LCME), and the American Osteopathic Association (AOA), residency programs (Accreditation Council for Graduate Medical Education (ACGME), the American Osteopathic Association (AOA), and CME providers (Accreditation Council for Continuing Medical Education (ACCME), American Academy of Family Physicians (AAFP), the AOA, and the American Medical Association (AMA)). Linked and open communication among the accreditors and regulators of medical education has been suggested by a recent report of the Institute of Medicine.<sup>25</sup> The Federation of State Medical Boards and other licensing and recertifying organizations must be included in these processes to a greater extent as coordinated efforts among all organizations is necessary to ensure success.

#### **Target Actions**

Continuous communication and collaboration should be established among accrediting organizations Responsible for establishing standards for quality undergraduate, graduate and continuing medical education to assure that physicians engage in effective lifelong learning

#### **Target Dates**

Create mechanisms for continuous communication and collaboration among accrediting organizations to facilitate coordination of educational processes across the full continuum of medical education to include medical schools (AAMC), the LCME and

*1.1 – Cont'd.*

the AOA, residency programs (ACGME), AAFP, AOA, and the AMA. Linked and open communication among accreditors and regulators of medical education	
Understand each other's procedures, values, unit of analysis and policies	Ongoing
Explore ACGME accreditation of AOA OPTI (sponsoring institutions)	
AOA completes Institutional Review Document for mock review	Completed
Identified next steps in plan	Completed
ACGME accredits OPTI	April 2008
Explore joint Institutional Review by ACGME and LCME accreditation	
Meet with new LCME Secretary to explain ACGME procedures	Completed
Observe LCME visit	January 2005
Debrief with LCME staff	February 2005
Explore linkages with ACGME residency accreditation and Maintenance of Certification by ABMS	
ACGME attends task force on initial certification	Ongoing
Identify assessment tools used by RRCs and Share with ABMS	Completed
Retreat with individual boards and RRCs	May 2005
Explore linkages with ACCME	
Joint signing of policy of conflict of interest	Completed
Seek clarity about the role of ACCME and MOC	Ongoing
Reconvening of the Broadband group	Spring 2007

**1.2 Partnership should be encouraged among and supported by the American Board of Medical Specialties (ABMS), the AOA, and the Council of Medical Specialty Societies (CMSS).**

***Responsible Organizations: Council of Medical Specialty Societies/American Board of Medical Specialties Joint Planning Committee (CMSS/ABMS JPC)  
(With the American Osteopathic Association (AOA))***

Build and strengthen existing relationships between member boards and specialty societies of the ABMS, CMSS and the AOA in an effort to encourage collaboration and dissemination of information essential to assure the continuous professional development of physicians and Maintenance of Certification processes.

**Target Actions**

**Target Dates**

Establish that there exists a formal relationship between the Specialty Society and Board of each Specialty in the Allopathic and Osteopathic dyads. If none exists, begin a bilateral campaign to help it occur.

March 2005

Hold a Joint JPC meeting with the AOA as guests to share “best practices” to address the issue of establishing dyads to work on MOC projects

Fall 2005

Share experiences of success and difficulties between Allopathic and Osteopathic dyads by meeting of the JPC (CMSS & ABMS) and AOA

November 2005

Develop a database documenting the functional Board and Specialty Society dyads, allopathic and osteopathic, specifying the discipline, the projects the status of the joint efforts and the proposals for continuing projects and relationships as they relate to MOC.

February 2006

In those dyads where no formal relationship exists, have the ABMS, CMSS, and AOA formally intervene.

February 2006

Develop anecdotal “best practices” to highlight how these relationships developed and were nurtured and provide them (ABMS/CMSS) and (AOA) to disciplines which have not yet established dyads.

February 2006

Develop plans to implement collaboration between Boards (subspecialties) and Societies (subspecialties) toward working together to develop MOC programs at the subspecialty level.

March 2006

1.2 – Cont'd.

Offer to specialties, unable or not yet working together as dyads, the opportunity to meet with facilitators from the ABMS and CMSS to develop such collaborations. March 2006

1.3 ***Establish mechanisms to involve all specialty societies and their respective certifying boards to assure that all physicians engage in continuous professional development.***

***Responsible Organizations: CMSS/ABMS JPC (With AOA)***

The aspiration is that all physicians will maintain their certification. All Council of Medical Specialty Society (CMSS) specialty societies and their respective ABMS Boards, and the respective AOA organizations will work aggressively and consistently to achieve the goal in an efficient, effective manner.

**Target Actions**

Each specialty board (ABMS & AOA) agree and commit to MOC process

**Target Dates**

January 2005 – Completed

Using agreements (and difficulties encountered) as described above, monitor the progress of active cooperation and commitment to MOC by each of the Specialty Societies and Specialty Boards

January 2006

1.4 ***As the process evolves, make overt effort to involve other health professions in integrating education.***

***Responsible Organization: Joint Commission on Accreditation of Healthcare Organizations (JCAHO)***

Initiate efforts to engage other health professions with the intent to insure communication and collaboration across the inter-professional continuum of the healthcare educational system.<sup>26,27</sup>

**Target Actions**

Use JCAHO Public Policy process to initiate (completed)

**Target Dates**

March 2004

Roundtables on Health Professions Education (scheduled)

January 2005

Plan and hold National Conference on Health Professions Education

On-going to August 2005

Issue white paper on health professions education via press conference in Washington DC

October 2005

1.4 – Cont’d.

Begin implementation of recommendations from white paper for integration of health care professions education	November 2005
---	---------------

1.5 ***Establish CME research agenda and dissemination strategies.***

***Responsible Organizations: Society for Academic Continuing Medical Education (SACME) (With Alliance for Continuing Medical Education (ACME))***

Foster comprehensive research agenda in CME supported by all stakeholder organizations. Assist and encourage CME researchers in creating formal and informal networks to ensure rapid dissemination and adoption of innovations. Benchmarking commendable practices should be encouraged.<sup>28,29</sup>

<b><u>Target Actions</u></b>	<b><u>Target Dates</u></b>
SACME and ACME Center for Learning and Change collaborate to enhance the translation of research into practice	Ongoing
SACME to take lead in developing overall CME research needs assessment	April 2005
Enable additional new research through SACME’s Research Endowment Council	April 2005
Major CME research stakeholders determine CME research agenda	June 2005
Conduct cross-institutional research project based on the 1980s “change study”	November 2005

1.6 ***Assure high quality input from the public.***

***Responsible Organization: Conjoint Committee on CME***

Convene a group composed of the public members of each of the Conjoint Committee organizations to provide guidance and direction for collaboration with the Conjoint Committee on Continuing Medical Education. Incorporate public representation into processes to achieve greater cooperation, visibility and accountability.<sup>30</sup>

<b><u>Target Action</u></b>	<b><u>Target Dates</u></b>
Identify public members of the ABMS, CMSS, AOA, etc., as well as Member Boards and Societies	May 2006

1.6 – Cont'd.

interested in providing input and guidance to the Conjoint Committee

Determine timing and associated meetings which would be best to invite public members for a one-day meeting

July 2005

Schedule Meeting

September 2005

Hold Meeting

2006

***Recommendation 2: Self-Assessment and Lifelong Learning***

*Optimal patient outcomes are linked to the practice of competent physicians. Persons comprising the CME enterprise (physician learners, CME professionals, physician educators) should engage in self-assessment of competencies and lifelong learning to maintain competency.*

**2.1 *Promote the importance of identifying individual physician learning needs through self-assessment and analysis of their practice.***

***Responsible Organization: CMSS CME Directors***

- i. Physician CME organizations should promote the importance of identifying individual learning needs through self-assessment and an analysis of their practice. Successful strategies may require that physicians obtain data from multiple sources, including knowledge testing, practice-related data derived from electronic sources such as practice management systems or billing data, electronic medical records (EMR), feedback from peers, experts, staff, and patients or nonspecific public health data. CME organizations should provide education that facilitates physician acceptance and use of appropriate educational methodologies.<sup>31,32,33,34,35</sup>
- ii. CME organizations should develop and consistently use innovative, evidence-based tools and systems that link learner-centered self-assessment and effective education interventions to maintain physician competence.<sup>36</sup>
- iii. Physician learners should establish lifelong learning portfolios that contain self-identified goals and track experiences and progress in achieving these goals. These portfolios should comprise a lifelong database and documented record of learning experiences for the individual physician, beginning in medical school and concluding at retirement. These databases should facilitate peer review as well as self-assessment of performance improvement in patient care outcomes, while maintaining confidentiality of individual physician information.<sup>37,38,39</sup>

2.1 – Cont'd.

**Target Actions**

**Target Dates**

**CME Professional Organizations will work**

June 2005

to:

Enable CME professionals to promote the importance of self-assessment and lifelong learning to physicians. Educate CME professionals on successful strategies for physician identification of learning needs through self-assessment and analysis of practice

- Newsletter articles
- Sessions at national meetings
- Sessions at professional organizational Meetings (e.g., CMSS CME Directors, SACME, etc.)

Develop and disseminate on-line a selective bibliography on the topic of self-assessment and lifelong learning that are pertinent to the actions

June 2005

Develop self-assessment instruments appropriate for physician specialty and scope of practice. CME providers share self-assessment tools

December 2005

Support specialty societies and certifying boards in developing and approving self-assessment and lifelong learning activities for Maintenance for Certification

December 2005

Working with CMSS, ABMS, AOA, FSMB, NBME and the AMA, propose a strategy whereby those physicians who were never certified and those physicians whose certification is not time limited would demonstrate their currency by participating in some form of a demonstration of competence

January 2007/2008

Encourage CME providers to work with their physician learners to implement evidence-based performance improvement (QI) activities in their practice and award CME credit for such activities

December 2005

Develop opportunities for CME providers to learn skills and processes necessary for development of learning portfolios through physician career stages

December 2005

Collaborate to develop and implement physician learning portfolios:

December 2005 and beyond

- Work with AAMC and ACGME to develop systems that will follow physicians from medical school, through residency and into practice

2.1 – Cont'd.

- Work with Canadian accrediting bodies to explore implementation of practice learning portfolios
- Share best practices in development and implementation of individualized self-assessment and learning plans

2.2 ***CME professional self-assessment and continuous professional development***

***Responsible Organization: ACME***

- i. Organizations of CME Professionals should develop curricula and provide learning resources based on identified competencies for CME professionals.<sup>40</sup> Core competencies for CME professionals should include the abilities to serve as educational change agents and to facilitate physician learning and change.<sup>41</sup>

**Target Actions**

Finalize CME core competencies

**Target Dates**

Complete by December 2004

- ii. CME professionals should engage in self-assessment and lifelong learning through education, research, practice, and the appraisal of the literature to remain competent in providing effective CME.<sup>42</sup>

**Target Actions**

Determine CME skill sets (knowledge and skills) for each core competency

**Target Dates**

Complete by October 2005

Develop self-assessment processes to determine proficiency for each skill set

Complete by September 2006

Provide educational opportunities for CME professionals based on gaps and deficiencies determined from self-assessment data

Beginning January 2007

- iii Organizations of CME professionals should evaluate the desirability and feasibility of establishing a certification program for CME professionals. Such a certification program would define standards for:
- Skills and competencies;
  - Assessment approaches to evaluate skills and competencies;
  - Educational opportunities to acquire and maintain skills and competencies; and
  - Employer recognition and reward systems for CME professionals who have demonstrated their competence.<sup>43</sup>

2.2 – *Cont'd.*

**Target Actions**

**Target Dates**

Establish a task force to determine the desirability and feasibility of establishing a certification program

January 2005

Finalize task force report with recommendations

December 2005

Determine strategies to ensure employer Recognition and reward systems

June 2006

**2.3 Faculty development for physician educators**

***Responsible Organizations: SACME and ACME (With Others as Partners)***

- i. Organizations of CME professionals should provide educational opportunities for CME professionals to become competent in the design and delivery of faculty development for physician educators.<sup>44</sup>
- ii. CME professionals should create faculty development opportunities that further physician educator competencies in:
  - a. Evidence-based content;
  - b. Teaching/presentation skills;
  - c. Principles and strategies to support physician learning; and
  - d. Methods to influence change in physician behavior.<sup>45</sup>
- iii. The CME Enterprise should ensure that the CME system:
  - Assesses teaching skills of physician educators in a structured and informed manner;
  - Promotes effective teaching using a variety of modalities; and
  - Develops psychometrically sound evaluation instruments to measure the effectiveness of teaching skills.<sup>46</sup>
- iv. Institutions and organizations should offer recognition and reward systems (promotion and tenure) for physician educators who demonstrate effective educational skills.

**Target Actions**

**Target Dates**

Identify global needs of CME faculty including teaching skills, conflict of interest, evidence-based content

April 2005

Identify venues for development of CME faculty skills, including meetings of medical specialty societies, ACME, SACME, AMA, AOA and others

March/April

2.3 – Cont'd.

Develop on-line educational tools that can be shared by CME professionals to enhance their faculty development programs

September 2005

Work to develop reward and recognition system for medical school faculty who do effective post-graduate teaching

November 2005

**Recommendation 3: Core Curricula and Competencies**

*Specialty-specific core curricula should be developed to achieve, maintain, and improve physician competencies as described in the ACGME/ABMS/AOA core competencies. All specialties and subspecialties should reach consensus on the knowledge, skills, performance, and attitudes expected of their specialty.*

**3.1 Each specialty and subspecialty should develop Core Curricula<sup>47</sup>**

**Responsible Organizations: CMSS/ABMS JPC (With AOA)**

i. Every specialty should establish, and regularly review and update standards for core curricula that describe the knowledge, skills, and attitudes expected of their specialty. (Ultimate completion by each of the 24 specialties by 01/01/07.)

**Target Actions**

8 specialties  
16 specialties  
24 specialties

**Target Dates**

Completion by 11/30/05  
Completion by 7/31/06  
Completion by 12/31/06

ii. Specialty boards and specialty societies should form teams for the purpose of identifying the sections of the core curricula that are applicable within specialties and subspecialties.<sup>48</sup> (Ultimate completion with formal dyads in each specialty by 01/01/07.)

**Target Actions**

8 specialties – Functional Dyads  
16 specialties – Functional Dyads  
22 specialties – Functional Dyads

**Target Dates**

Established by 9/31/06  
Established by 12/31/07  
Established by 12/31/08

iii. A mechanism should be established to develop core curricula that are applicable across specialties. (Ultimate completion by 3/31/08.)

**Target Actions**

Create sub-sets of specialties to explore curricula common to all specialties.

**Target Dates**

3.1 – Cont'd.

Primary Care	Achieve Agreement by 7/31/07
Medical Specialties	Achieve Agreement by 12/30/07
Surgical Specialties	Achieve Agreement by 7/30/08
Traditionally Hospital-based Specialties	Achieve Agreement by 6/30/08
Entire Group Consensus	Achieve Agreement by 3/31/09

- iv. The specialty core curricula should drive the development of educational content. CME professionals can use the specialty core curricula described above (Refer to 3.2(i)) to create educational content. Such content will be delivered in educational activities based on needs assessment and appropriate instructional design and evaluation to achieve the specific competency(ies) identified. *(Ultimate completion by 12/31/08.)*

**Target Actions**

**Target Dates**

Assurance that content is delivered based on formal individual needs assessment and linked with competencies

8 specialties	Completion by 6/30/07
12 specialties	Completion by 12/31/07
18 specialties	Completion by 6/30/08
24 specialties	Completion by 12/31/08

**3.2 Knowledge, skills and attitudes prescribed by the specialty or subspecialty should be described in terms of the competencies so that appropriate needs assessment, curriculum and outcomes assessment can be accomplished.<sup>49</sup>**

***Responsible Organizations: CMSS/ABMS JPC (With AOA, the Accreditation Council for Continuing Medical Education (ACCME) and the Accreditation Council for Graduate Medical Education (ACGME))***

Competencies are the foundation upon which to build core curricula, and it is recognized that a variety of competency models might be used for specific applications. However, knowledge, skills, or attitudes prescribed by the specialty or sub-specialty should be described in terms of some competency model so that appropriate needs assessment, curriculum, and outcomes assessment can be accomplished.

**Target Actions**

**Target Dates**

Competencies adopted in concept by CMSS and AOA specialty societies

Completed

Competencies as described by the ACGME (and AOA) are adopted by specialty boards and incorporated into MOC plans

January 2006

### 3.2 – Cont’d.

Specialty boards should begin to identify and publicize methodologies for evaluation of the MOC competencies as they become available and accepted	Ongoing
Specialty societies describe their plans for curriculum development of generic competencies and timeframe for availability (Professionalism, etc.)	July 2006
Initial curricula availability in three generic areas from ten Specialty Societies	July 2007
Curricula/teaching materials available in three generic areas from all Specialty Societies	July 2009
Evaluation of MOC candidates in competencies by ten boards	July 2010
Evaluation of MOC candidates in competencies by all Specialty Boards	July 2012

#### ***Recommendation 4: Valid Content: Evidence-based Medicine***

*CME professionals, physician learners, accreditors, and medical organizations should assure that all recommendations for patient care presented in CME are based on the current best evidence, physician expertise and patient values.*

#### ***Responsible Organization: AAFP (with ACCME and AOA) (i.e., accrediting bodies)***

#### ***4.1 Design and deliver CME based on current and emerging best evidence, physician expertise and patient values.***

Content experts should be involved in the development of CME content, design and delivery to present recommendations for patient care based on the highest strength of evidence available. Source and strength of evidence should be conveyed to the learner.<sup>50</sup>

#### **CME Professionals:**

- Apply accreditors’ current policies (ACCME Content Validation and AAFP Evidence-Based CME [EBCME])

#### **Learners:**

- Recognize, value and apply evidence-based CME in practice
- Integrate best evidence, clinical expertise and patient values to improve practice.

#### **Accreditors (to include regulators):**

- Implement reward and recognition system for accrediting CME providers who effectively apply and demonstrate best practices in the delivery of EBCME.

4.1 – Cont'd.

- Monitor CME system for best practices in the delivery of evidence-based content

<b><u>Target Actions</u></b>	<b><u>Target Dates</u></b>
AAFP pilot double credit for Evidence-based CME	January 2005
Evaluate AAFP Evidence-based CME initiative	January 2006
Develop strategies for increasing/improving evidence-based CME content—ACME, AAFP, AMA, ACCME, AOA	Fall 2005 Winter 2006
ACCME and AAFP explore reward and recognition system for accrediting CME providers who effectively deliver evidence-based content	January 2006

4.2 ***Eliminate inappropriate bias through independence.***

***Responsible Organizations: ACCME (with AOA and AAFP)***

Establish and incorporate specific training of CME professionals, physician planners and faculty regarding boundaries and ethical expectations that exist when professionals have commercial interests such as those of FDA-regulated industries.<sup>51,52</sup>

**CME Professionals:**

- Establish and incorporate specific training of CME staff, planners, and faculty regarding boundaries and ethical expectations

**Learners:**

- Identify and report bias and lack of independence in CME accreditors (to include regulators)
- Monitor CME system for prevalence of independence and ethical practices as well as non-compliance
- Implement reward and recognition system for learners and CME professionals who offer bias-free education and demonstrate best practices in the separation of education from promotion

<b><u>Target Actions</u></b>	<b><u>Target Dates</u></b>
Implement ACCME Standards for Commercial Support	May 2005
Implement methods of resolving faculty conflicts of Interest through evidence-based content and peer review	May 2005
Identify best practices for independent content through ACCME accreditation process	January 2006

4.3 *Adopt best evidence and independence in CME.*

***Responsible Organizations: TriGroup (SACME, the Association for Hospital Medical Education (AHME) and ACME)***

Medical organizations should adopt the expectation of best evidence and independence as principles for their members who deliver and participate in CME, adopt them as part of a “Learner’s Bill of Rights,” provide resources to member organizations to carry them out, and provide evidence of added value to CME and the practice of medicine.<sup>53</sup>

CME professionals should develop methods to assist physicians in making clinical decisions when there is ambiguity, insufficient evidence, or lack of evidence.<sup>54</sup>

**Target Actions**

**Target Dates**

Integrate strategies for integration of EBM into CME content at all appropriate continuing professional development activities for CME professionals

May 2005

Integrate strategies for ensuring CME content is independent from commercial bias at all appropriate continuing professional development activities for CME professionals

May 2005

Disseminate best practices in continuing professional development for physicians that teach how to integrate EBM into practice

November 2005

Analyze AAFP EB CME initiative that awards double credit for activities that meet criteria for evidence-based content

December 2005

Formulate a “Learners Bill of Rights” promoting best evidence and a promise to add value to CME learning and the practice of medicine

November 2005

***Recommendation 5: Performance and Continuous Improvement***

*An evolving CME system should facilitate continuously improved approaches to evaluate CME's effectiveness. New and existing methodologies should produce documented evidence substantiating physician utilization of acquired knowledge and skill in practice performance measurement and outcomes in patient care. Parallel or complementary systems should be developed to assist CME professionals in the design and delivery of effective CME to achieve these goals.*

**5.1 Evaluate the impact of CME activities on physician learning and performance.**

***Responsible Organizations: ACME and SACME (With AHME)***

The evaluation of CME programs should include mechanisms to assess the quality of the educational process, the knowledge gained, and the impact on physician practice and patient care.<sup>55</sup>

**Target Actions**

**Target Dates**

Design research methodologies to collect information regarding best CME practices in evaluating the impact of CME activities physician learning and performance

December 2005

Review and document in a spreadsheet report examples of the impact of CME on physician learning and performance from the Alliance's 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> Editions of Best Practices in CME accreditation

October 2005

Collaborate with the ACCME and AAMC on findings of their survey and study of CME effectiveness and incorporate these data in the report

August 2005

Finalize the report of findings regarding CME effectiveness for review by the Conjoint Committee on CME

July 2005

***Recommendation 6: Metrics to Measure and Recognize Physician Learning and Behavioral Change***

*The current CME credit systems should evolve to better recognize and measure physician learning and behavioral change. An evolving and growing CME system should facilitate evaluating CME's effectiveness in appropriate and meaningful forms and provide technologically advanced tools that are user-friendly.*

**6.1 *Evolve the CME credit system.***

***Responsible Organizations: AMA and FSMB (With AOA and AAFP)***

Evolve the current CME credit system to identify innovative ways for recognizing for learning and change. Strategies for such evolution include:

- i. Recognize new educational interventions, such as “point of care” and performance improvement learning [continuous practice assessment], and
- ii. Develop new process-based metrics linked to the types and quality of learning outcomes, rather than solely on a time-based attendance system, and offering recognition of learning relevance and accountability.

Guidelines for evolving the current CME credit system should be based on an extensive gathering of information that includes consultation with leading researchers, experts, and organizations; assessment data; and pilot testing.

**Target Actions**

**Target Dates**

Approval by the AMA Council on Medical Education of the Performance Improvement model for AMA PRA category 1 credit.\*

September 2004

Review by the AAFP Commission on Continuing Medical Education of the Point of Care criteria for On-line Clinical Resources.\*

January 2005

Approval by the AMA Council on Medical Education of the Point of Care model for AMA PRA category 1 credit.\*

March 2005

ACCME and the AMA to work together on developing guidance for CME providers for the new types of category 1 credit.

May 2005

AMA to revise the PRA instruction booklet to reflect changes and newly recognized activities for PRA category 1 credit.\*

Fall 2005

6.1 – Cont'd.

Disseminate information about PRA changes to providers using multiple formats.	Late 2005, ongoing 2006
Organizations that have CME credit systems to continue to work together to continue to evolve the credit systems.*	2006

\* All these steps should involve an ongoing dialogue with all other stakeholders that use the credit system, particularly those that use it to meet requirements for hospital privileges, licensure, board certification, or other forms of physician credentialing

6.2 ***Evaluate and measure the effectiveness of CME in the context of evolutionary changes to the various CME credit systems.***

***Responsible Organizations: AMA, AAFP, AOA and CMSS***

Evolution and measurement of CME effectiveness should be based on the associated changes in physicians' knowledge, skills, attitude, competence, or performance-in-practice. The evaluation should consider the incidence, context and prevalence of practice-based learning programs (which include traditional CME) specific to the physician's scope of practice. Evaluation should validate improvement in areas that correlate with the physician's individual goals, values and identified needs. Factors should be identified that either facilitate or impede the success of evaluation systems. Emergence of the Electronic Medical Record (EMR) will substantially impact and should facilitate effectiveness evaluation by providing outcomes data.<sup>56, 57</sup>

**Target Actions**

Review the existing research literature to identify data that addresses:

1. What CME formats deliver the best educational results in accordance with the content to be taught?
2. Demonstrate value of CME activities, as opposed to education delivered outside the CME structure.
3. CME as an index to professional development (i.e., educational and performance tracking for a physician that regularly participates vs. one who never does).

**Target Dates**

December 2005

Work with SACME's Research Committee and other interested parties on a draft for a series of focused pilot projects to assess how effectively individual physician learning cycles* integrate with:	June 2006
---	-----------

1. Formal certified conferences/courses
2. Hospital based education (RSCs, journal clubs, etc.)
3. Directed self-learning activities associated with practice based performance improvement (enduring materials, clinical databases, etc., melded into a learning portfolio)

## 6.2 – Cont'd.

Invite organizations to participate in tightly organized, narrowly defined interventions to assess CME effectiveness in relation to new and traditional learning modalities. August 2006

Pilot participants selected. They initiate work within an agreed framework (timeline and scope). October 2006

Initial findings on process and pilot participant findings shared with the Conjoint Committee on CME (identified barriers, impact of EMRs, etc.). March 2007

- \*1. Identifying a clinical question/problem statement
2. Selecting scientifically valid sources to research an answer
3. Assessing the available evidence
4. Determining an outcome (reaffirmation, increased awareness, initiating a commitment to change, etc.)

## 6.3 *Re-evaluate CME requirements.*

### *Responsible Organizations: FSMB and ABMS*

Certifying boards, medical licensing boards, and other credentialing or regulatory agencies should work in collaboration to adopt CME requirements that are reasonable, relevant, and effective. This endeavor should result in a credible mechanism for public assurance of a physician's commitment to continued professional development and the pursuit of excellence.

### Goals

The new credit system for CME should include measurement of outcomes, both intermediate (documentation of learning by assessing pre and post test knowledge, skills, and behaviors) and ultimate outcome through the measurement of behavior changes resulting in improvement in patient care.

Licensure Boards and Specialty Certification Boards should require that a portion of CME be specialty specific.

A universal standard for CME credit should be accepted and adopted by all groups associated with CME.

The public should be invited to comment on the proposed changes in CME credit.

6.3 – Cont'd.

**Target Actions**

**Target Dates**

Information about the new credit system for CME that has been adopted by the AAFP and the AMA should be disseminated by the ABMS and the FSMB

A national roundtable teleconference was held on December 16, 2004, by the FMB with participating State Medical Boards in which representatives from AAFP and AMA presented the new CME credit paradigm

The role of CME credit should be considered by both the Maintenance and Licensure Committee of the FSMB and the Maintenance of Certification committee of the ABMS

July 2005

The Maintenance of Licensure and the Maintenance of Certification Committees should collaborate to avoid duplication of efforts

Chairs from the respective committees now sit with the other organization's committee to create greater communication between the two

The attendees at the Summit on Maintenance of Licensure should consider the role of CME credit in measuring the continued competence of physicians

March 24-25, 2005

The new credit system of the AAFP and the AMA should be adopted by Licensure Boards and Specialty Certification Boards (*Note: With 69 state and territory licensing jurisdictions and with many CME requirements in statute, this date is probably unrealistic.*)

January 2006

The new CME credit paradigm will be presented and discussed at the Public Forum of the annual meeting of the FSMB

May 13, 2005

**6.4 Nurture organizational collaboration to eliminate duplication of documentation.**

***Responsible Organizations: AMA and FSMB (With AAFP and AOA)***

Information should be shared with credit-granting organizations, licensing authorities, certifying and credentialing agencies regarding the physician’s successful acquisition of knowledge, skills, and improvement in practice outcomes. A tracking mechanism (ideally an electronic central repository) should be developed that will provide ease of usage and primary source verification.

**Target Actions**

**Target Dates**

FSMB Maintenance of Licensure summit may identify possible CME credit reporting schema that would capture traditional and emerging learning modalities among the recognized trusted agents (stakeholders).

March 2005

Work with MedBiquitous and other interested parties to identify how uniform standards for Learning Object Metadata (LOM) could be adapted so as to ensure interoperability of CME data reporting across all platforms.

May 2005

MedBiquitous LOM standard launched

Early 2006

Convene a meeting of representative specialty societies, FSMB, JCAHO, ABMS and AMA to identify political and technical barriers to adoption of uniform CME data reporting standards. Propose solutions.

Summer 2006

Review findings and recommendations for next steps with the Conjoint Committee on CME.

November 2006

***Recommendation 7: Resources and Support***

*A “blue ribbon” panel of medical, entrepreneurial, foundation, governmental and other organizational leaders should be established. This panel will offer advice and guidance regarding the processes of determining, procuring, and balancing the requisite resources and support necessary to focus the present CME system on societal, professional, and entrepreneurial interests as the practice and scope of medicine evolves.*

**7.1 Assess financial implications of proposed change.**

***Responsible Organizations: ACME and ACCME (With AOA)***

Initiate collaborative discussions among all stakeholders with recognized or potential participation in repositioning CME to assess the financial implications for prospective change. Explore the feasibility of balancing entrepreneurial support to CME provided by FDA regulated companies with other funding sources such as learners, payers (both public and private), regulators, health care organizations, institutions, health plans, employers, and others committed to continuously improving the performance of physicians and the quality of patient care. This

7.1 – Cont'd.

process should include objective analyses of the integration of current successful system, and program costs in relation to proposed changes (i.e., benefit and cost recovery strategies) necessary to achieve desired results.<sup>58</sup>

**Target Actions**

**Target Dates**

At the February 2005 meeting of the Conjoint Committee, engage in a focused discussion of industry funding of CME and explore opportunities to balance entrepreneurial support of CME provided by FDA regulated companies with other funding sources such as learners, payers, regulators, etc.

February 2005

Determine a plan to identify, contact and conduct interviews of all stakeholders with recognized or potential interest in funding CME

June 2005

Initiate collaborative discussions among stakeholders expressing and interest in funding based on interviews

August 2005

Establish a “blue ribbon” panel for purposes of determining, procuring and balancing the requisite resources and support necessary to reform and reposition CME

October 2005

Determine the processes to include objective analysis of the integration of current successful systems, and program costs in relation to proposed changes (i.e., benefit and cost recovery strategies) necessary to achieve desired results

December 2005

**7.2 Determine funding options and approaches to support implementation of changes.**

***Responsible Organizations: CMSS and ACME***

Identify entrepreneurs, foundations, and governmental sources to fund appropriate studies facilitating research and expert opinion in determining strategies and best approaches for implementing change in the CME system. This effort should be directed toward examining the integration of CME into a strategic, lifelong process of professional development and education, rather than focusing primarily on the future funding of CME events.

**Target Actions**

**Target Dates**

Identify entrepreneurs, foundations and governmental sources to fund studies facilitating research and expert opinion in determining strategies and best approaches for implementing change in the CME system

May 2005

Procure funding from entrepreneurs, foundations  
and governmental sources to support the on going  
efforts and activities of the Conjoint Committee

June 2005

### References

25. **Institute of Medicine.** Health Profession Education: A Bridge to Quality. Washington, DC: National Academy Press; 2003.
26. **Zwarenstein M, Bryant W, Reeves S.** In-service interprofessional education improves inpatient care and patient satisfaction. *J Interprof Care.* 2003;17:401-2.
27. **Zwarenstein M, Reeves S, Barr H, Hammick M, Koppel I, Atkins J.** Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database Syst Rev.* 2001; (1)CD002213.
28. **Xu G, Hojat M, Veloski JJ, Gonnella JS.** The changing health care system. A research agenda for medical education. *Eval Health Prof.* 1999;22:152-68.
29. **Landry MD, Sibbald WJ.** Changing physician behavior: a review of patient safety in critical care medicine. *J Crit Care.* 2002;17:138-45.
30. **Towle A.** Shifting the culture of continuing medical education: what needs to happen and why is it so difficult? *J Contin Educ Health Prof.* 2000;20:208-18.
31. **Frankford DM, Patterson MA, Konrad TR.** Transforming practice organizations to foster lifelong learning and commitment to medical professionalism. *Acad Med.* 2000;75:708-17.
32. **Evans AW, McKenna C, Oliver M.** Self-assessment in medical practice. *J R Soc Med.* 2002;95:511-13.
33. **Fidler H, Lockyer JM, Toews J, Violato C.** Changing physicians' practices: the effect of individual feedback. *Acad Med.* 1999;74:702-14.
34. **Violato C, Lockyer J, Fidler H.** Multisource feedback: a method of assessing surgical practice. *BMJ.* 2003;326:546-8.
35. **Norman GR, Shannon SI, Marrin ML.** The need for needs assessment in continuing medical education. *BMJ.* 2004;328:999-1001. Epub 2004 Apr 24.
36. **Parboosingh J.** Learning portfolios: Potential to assist health professionals with self-directed learning [PC Diary/MOCOMP]. *J Contin Educ Health Prof.* 1996;16:75-81.
37. **Lynch DC, Swing SR, Horowitz SD, Holt K, Messer JV.** Assessing practice-based learning and improvement. *Teach Learn Med.* 2004;16:85-92.
38. **Pearson DJ, Heywood P.** Portfolio use in general practice vocational training: a survey of GP registrars. *Med Educ.* 2004;38:87-95.
39. **Wilkinson TJ, Challis M, Hobma SO, Newble DI, Parboosingh JT, Sibbald RG, Wakeford R.** The use of portfolios for assessment of the competence and performance of doctors in practice. *Med Educ.* 2002;36:918-24.

40. **Alliance for CME Competency Areas for CME Professionals** Available at Alliance for CME Web Site, [www.acme-assn.org](http://www.acme-assn.org).
41. **Abrahamson S, Baron J, Elstein AS, Hammond WP, Holzman GB, Marlow B, Taggart MS, Schulkin J.** Continuing medical education for life: eight principles. *Acad Med.* 1999;74:1288-94.
42. **Mazmanian PE, Davis DA.** Continuing medical education and the physician as a learner: guide to the evidence. *JAMA.* 2002;288:1057-60.
43. **Tallett SE, Babitskaya G, Parboosingh JT, Rothman A.** The maintenance of certification program: an early evaluation. *Ann R Coll Phys Surg Can.* 2002;35:268-72.
44. **Cartwright CA, Korsen N, Urbach LE.** Teaching the teachers: helping faculty in a family practice residency improve their informatics skills. *Acad Med.* 2002;77:385-91.
45. **Hitchcock MA, Mylona ZH.** Teaching faculty to conduct problem-based learning. *Teach Learn Med.* 2000;12:52-7.
46. **Elliot DL, Skeff KM, Stratos GA.** How do you get to the improvement of teaching? A longitudinal faculty development program for medical educators. *Teach Learn Med.* 1999;11:52-7.
47. **Carraccio C, Wolfsthal SD, Englander R, Ferentz K, Martin C.** Shifting paradigms: from Flexner to competencies. *Acad Med.* 2002;77:361-7.
48. **Duffy FD, Zipes, DP.** The Future of Certification and Recertification. *Am J Med.* 2004, Vol. 117.
49. **Scheiber SC, Kramer TA, Adamowski SE.** The implications of core competencies for psychiatric education and practice in the US. *Can J Psychiatry.* 2003;48:215-21.
50. **Bensing J.** Bridging the gap. The separate worlds of evidence-based medicine and patient-centered medicine. *Patient Educ Couns.* 2000;39:17-25.
51. **Harrison, R.V..** The uncertain future of continuing medical education: commercialism and shifts in funding. *J Contin Educ Health Prof.* 2003;23:198-209.
52. **Weber LJ, Wayland MT, Holton B.** Health care professionals and industry: reducing conflicts of interest and established best practices. *Arch Phys Med Rehabil.* 2001;82(Suppl 2):S20-4.
53. **Grimshaw JM, Eccles MP, Walker AE, Thomas RE.** Changing physicians' behavior: what works and thoughts on getting more things to work. *J Contin Educ Health Prof.* 2002;22:237-43.
54. **Fraser SW, Greenhalgh T.** Coping with complexity: educating for capability. *BMJ.* 2001;323:799-803.
55. **Davis D, Evans M, Jadad A, Perrier L, Rath D, Ryan D, Sibbald G, Straus S, Rappolt S, Wolk M, Zwarenstein M.** The case for knowledge translation: shortening the journey from evidence to effect. *BMJ.* 2003;327:33-5.
56. **Grimshaw JM, Eccles MP, Walker AE, Thomas RE.** Changing physicians' behavior: what works and thoughts on getting more things to work. *J Contin Educ Health Prof.* 2002;22:237-43.
57. **Margolis PA, Lannon CM, Stuart JM, Fried BJ, Keyes-Elstein L, Moore DE Jr.** Practice based education to improve delivery systems for prevention in primary care: randomised trial. *BMJ.* 2004;328:388. Epub 2004 Feb 06.

58. **Harrison, R.V.** The uncertain future of continuing medical education: commercialism and shifts in funding. *J Contin Educ Health Prof.* 2003;23:198-209.