**HOD ACTION: Council on Medical Education Report 10 adopted and the remainder of the report filed.**

REPORT OF THE COUNCIL ON MEDICAL EDUCATION

CME Report 10-A-09

Subject: Promoting Physician Lifelong Learning

Presented by: Claudette E. Dalton, MD, Chair

Referred to: Reference Committee C
(Rodney G. Hood, MD, Chair)

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Council on Medical Education Report 3 (A-08), "Physician Lifelong Learning," described some potential barriers to physicians engaging in lifelong learning, which was defined as involving

> "a set of self-initiated activities (behavioral aspect) and information seeking skills (capabilities) that are activated in individuals with a sustained motivation to learn and the ability to recognize their own learning needs."[1]

Recommendation 2 of the report asks that our American Medical Association, through its Initiative to Transform Medical Education, study the following and report back at the 2009 Annual Meeting:

- The status of teaching the "basic science" of lifelong learning during medical school and residency training, including evidence-based medicine, information retrieval, and critical analysis of the literature.
- The strategies that have been effective in teaching the skills of self-assessment among physicians-in-training and in practice, and in promoting their use.
- The patterns of utilization of the various continuing medical education (lifelong learning) modalities by physicians, with the identification of those that are both efficient and effective for planning, tracking, and documenting learning experiences, as well as changing practice behavior.
- The mechanisms that are effective in mitigating the actual and opportunity costs of participating in lifelong learning.

PREPARING PHYSICIANS-IN-TRAINING FOR LIFELONG LEARNING

This section summarizes the current status of training physicians for lifelong learning.

*Medical School*

Medical school accreditation requirements expect that students are introduced to the knowledge and skills that prepare them to be lifelong learners.

Liaison Committee on Medical Education (LCME) accreditation standard ED-5A states that:

> The educational program must include instructional opportunities for active learning and independent study to foster the skills necessary for lifelong learning.
> (*Functions and Structure of a Medical School*, June 2008 edition)

The explanatory annotation to the standard as contained in *Functions and Structure of a Medical School* clarifies the "skills of lifelong learning" further. The skills include:

> self-assessment on learning needs and independent identification, analysis, and synthesis of relevant information, as well as the assessment of whether the information sources are credible.

In addition, the LCME expects that content areas related to the skills of lifelong learning are present in the curriculum, including the principles of clinical and translational research (standard ED-17-A), and biostatistics, evidence-based medicine, medical informatics, and research methods (standard ED-10).

Data from the 2007-2008 LCME Annual Medical School Questionnaire, which was sent to the deans of all 126 LCME-accredited US medical schools with students enrolled and had a 100% response, shows that medical schools are teaching these subject areas. While education occurs in both the preclinical and clinical phases of the curriculum, it is more prevalent in the preclinical years (see Table 1).

TABLE 1: CURRICULUM PLACEMENT OF SUBJECT AREAS RELATED TO LIFELONG LEARNING

| Subject | Number of Schools with Teaching Sessions in the Preclinical Years | Clinical Years |
|---|---|---|
| Biostatistics | 109 | 39 |
| Clinical/Translational Research | 56 | 35 |
| Evidence-Based Medicine | 104 | 86 |
| Medical Informatics | 89 | 54 |
| Research Methods | 100 | 43 |

Medical students, in aggregate, believe that they are appropriately prepared in some of these areas but less so in others. The 2008 Association of American Medical Colleges Medical School Graduation Questionnaire was completed by more than 13,000 fourth-year medical students. About 10% of respondents indicated that the time devoted to instruction in evidence-based medicine in general was inadequate and 6% believed that the time was excessive. There was more concern about inadequate coverage of more specific topic areas: conducting a systematic literature review (22% of respondents reported coverage was inadequate), interpretation of clinical data and research reports (19% inadequate), biostatistics (25% inadequate). However, 90% agreed that they had the knowledge and skills to carry out searches of medical information databases and 80% agreed that they could critically review published research.

*Residency Training*

The Accreditation Council for Graduate Medical Education Common Program Requirements include an expectation, under the competency titled "Practice-based Learning and Improvement," that residents:

> demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.[2]

This includes the ability to: locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems and use information technology to optimize learning.[2]

There are no comprehensive data on the inclusion of learning experiences related to the skills of lifelong learning across residencies in the various specialties or on how well-prepared learners believe that they are. Some existing data indicate that residents may not be optimally prepared, at least in biostatistics. For example, a multi-program cross sectional study of internal medicine residents showed that residents lacked sufficient knowledge in biostatistics to interpret the results in published clinical research studies.[3] A survey of medical students, internal medicine residents, and internal medicine teaching faculty at one institution found similar results from self-report data. The great majority of respondents (82%) did not believe that their training in biostatistics was adequate for their needs.[4]

## SELF-ASSESSMENT

An important element of lifelong learning is the ability of the physician to determine his/her learning needs and then to identify educational activities or sources of information to meet these needs. While in training, the medical student and resident are, in general, in a system where both learning needs and learning outcomes are defined by others. For the physician-in-practice, more responsibility rests with the individual.

Systematic studies of the literature have shown that physicians "have a limited ability to self-assess."[5] In general, those who "are least able"[6] in terms of knowledge and skills also are least able to accurately self-assess their level of performance.[5,6]

Several recommendations have been made to improve the quality and utility of self-assessment as a measure of what physicians know and can do.

- Include external validation or benchmarks against which the physician can measure his/her performance.[7]
- Assure that feedback is provided to the physician on his/her performance.[8]
- Allow time and opportunity for physicians to reflect on the feedback that they receive.[9-10]
- Make education and associated self-assessment more relevant by linking it more explicitly to the physician's practice.[7]

## PATTERNS OF UTILIZATION OF CONTINUING MEDICAL EDUCATION

Physicians are beginning to participate in new methods of continuing medical education, that are more active and practice-based than the traditional models. Table 2 includes data from the

Accreditation Council for Continuing Medical Education Annual Reports for 2002, 2005, and 2007.[11]

TABLE 2: PHYSICIAN PARTICIPATION IN SELECTED CONTINUING MEDICAL EDUCATION (CME) FORMATS*

| Format | Number of Physicians Participating** 2002 | 2005 | 2007 |
|---|---|---|---|
| Courses | 1,663,231 | 1,589,382 | 1,666,127 |
| Regularly-scheduled sessions | 2,331,762 | 2,344,081 | 2,384,541 |
| Live internet | 23,700 | 63,620 | 55,671 |
| Performance Improvement | Not available | 744 | 5,437 |
| Internet Searching and Learning | Not available | 7,798 | 103,155 |
| Internet Enduring Materials | 305,410 | 1,304,715 | 2,514,649 |
| Total Physicians Participating in all Formats† | 5,415,945 | 7,650,207 | 8,698,299 |

* Directly or jointly sponsored by ACCME-accredited providers
** Physicians may be counted more than once
† Including those not listed above

While participation in courses and regularly-scheduled sessions (such as grand rounds) has remained about constant, there has been a growth in the use of internet enduring materials, internet searching/learning in the context of patient care (just-in-time education) and performance improvement continuing education. However, the level of participation in these types of learning still does not match that in more traditional methods. There are no data, however, on the number of physicians who engage in activities such as internet searching and performance improvement outside the context of a formal continuing education program.

## EFFECTIVENESS OF VARIOUS CONTINUING MEDICAL EDUCATION FORMATS

There have been various studies attempting to determine what continuing education formats result in positive learning outcomes, especially changes in practice behavior. Systematic literature reviews in the 1990s showed that sessions in which the participant is active and has the opportunity to practice skills can lead to changes in practice.[12-13]

With the advent of the internet, new options for continuing education have emerged. A literature review showed that formal internet-based programs were as effective in imparting knowledge as traditional formats (such as in-person courses) with the same objectives.[14] Further study

indicated that evidence-based online continuing education can result in outcomes, such as behavior change and knowledge gain, that are at least comparable to gains from interactive, live small group workshops.[15]

In summary, formal educational activities in which the physician is active result in better learning outcomes, especially related to practice change. These experiences do not need to be in-person, if they are structured appropriately. The experience would be even more meaningful if the program addresses gaps in the physician's learning that are self-identified or identified by other means.[7]

Informal learning, including consultation with peers, journal reading, and other activities in the context of patient care, also is valuable.[16] Physicians who were evaluated by their peers and colleagues as competent learned through experience in the practice setting. These effective learners had the following characteristics:

- They were reflective and self-directed.
- They were stimulated by and learned from patients and from others, especially medical colleagues.[16]

The organizational context must support physicians so that they can engage in informal learning. This starts with the learning environment for medical students and residents, which should allow guided self-assessment and self-directed learning.[8,17] For the practicing physician, the organizational environment should be structured to allow reflective practice[18] and provide opportunities for collegial interaction and feedback

## FACILITATING PHYSICIAN PARTICIPATION IN LIFELONG LEARNING

Physician participation in traditional models of continuing education is difficult in the current pressured practice environment. For example, time away from practice and cost are barriers to physicians traveling to courses. In addition, evidence indicates that learning and practice change require active rather than passive learning formats.

As described above, new educational formats have emerged that may provide a more flexible and learner-centered approach to continuing physician professional development. These have the potential to overcome the time and cost barriers to physician participation that are characteristic of more traditional models. Continuing medical education now can be structured to meet the following needs.

- *The need for benchmarks against which physicians can structure and measure their learning.* Self-assessment would be facilitated if more guidance were provided to physicians on what they are expected to learn and how their performance compares to standards/expectations. For example, the Conjoint Committee on Continuing Medical Education has recommended that the specialty society and medical specialty board for each specialty develop content-based core competencies that can be used to guide curriculum development for continuing education in the specialty.[19]

- *The need to make lifelong learning efficient by structuring education to meet multiple requirements.* Physicians are expected to engage in self-assessment of their practice performance, for example for the American Board of Medical Specialties Maintenance of

Certification process.[20] This type of performance improvement learning activity may also be eligible for AMA Physician's Recognition Award (PRA) category 1 credit, which is applicable toward continuing education requirements for re-licensure.[21]

- *The need for active learning in the context of patient care*. Informal learning now is possible in the context of the care of an individual patient through internet based just-in time learning. Types of just-in time continuing education also are eligible for AMA PRA Category 1 credit.[21]

RECOMMENDATIONS

The AMA Initiative to Transform Medical Education identified the following gap in the educational preparation of physicians:

> Physicians are not prepared [by the educational system] to develop and carry out their own lifelong learning curriculum, including identifying their own learning needs and establishing learning goals to meet these needs.[22]

In the recent past, there have been some positive steps taken that will help to address this concern, including the introduction of new formats of continuing education and enhanced understanding that physicians-in-training need to be prepared with basic skills that will support their lifelong learning.

Additional effort is needed, however, to create a true educational continuum that culminates in a physician who is prepared to assess and act on his/her own learning needs. The published literature, as cited above, provides direction. Therefore, the Council on Medical Education recommends that the following be adopted and that the remainder of this report be filed:

1. That our American Medical Association encourage medical schools and residency programs to explicitly include training in and an evaluation of the following basic skills:
   - the acquisition and appropriate utilization of information in a time-effective manner in the context of the care of actual or simulated patients;
   - the identification of information that is evidence-based, including such things as data quality, appropriate data analysis, and analysis of bias of any kind;
   - the ability to assess one's own learning needs and to create an appropriate learning plan;
   - the principles and processes of assessment of practice performance;
   - the ability to engage in reflective practice. (Directive to Take Action)

2. That our AMA work to ensure that faculty members are prepared to teach and to demonstrate the skills of lifelong learning. (Directive to Take Action)

3. That our AMA encourage accrediting bodies for undergraduate and graduate medical education to evaluate the performance of educational programs in preparing learners in the skills of lifelong learning. (Directive to Take Action)

4. That our AMA monitor the utilization and evolution of the new methods of continuing physician professional development, such as performance improvement and internet point-of-care learning, and work to ensure that the methods are used in ways that are educationally valid and verifiable. (Directive to Take Action)

5. That our AMA continue to study how to make participation in continuing education more efficient and less costly for physicians. (Directive to Take Action)

6. That Directive 295.940, Physician Lifelong Learning, be rescinded. (Rescind HOD Directive)

Fiscal Note: $1200 for staff time to collect and synthesize data/information as specified.

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