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Continuing Medical Education And the Competent Family Physician

SUMMARY

Several principles of adult education are explored in terms of how they relate to current practices in developing continuing medical education (CME) programs. The key to effective CME is its link with clinical competence. This entails reviewing how individual learning needs are determined, and how these needs are translated into programs. Ultimately, the success of CME depends on evaluating improvements in areas of physician knowledge, skills, and attitudes which will have a positive impact on health care delivery. (Can Fam Physician 1986; 32:348-351.)

SOMMAIRE

L'article explore plusieurs principes de l'éducation des adultes en termes de leur relation aux pratiques actuelles d'élaborer des programmes de formation médicale continue (FMC). La clé de l'efficacité de la FMC est sa relation à la compétence clinique. Ceci implique de réviser la façon de déterminer les besoins individuels d'apprentissage et comment transposer ces besoins en programmes. Ultimement, le succès de la FMC dépend de la capacité d'évaluer les améliorations dans les domaines des connaissances, des habiletés et des attitudes qui auront un impact positif sur la dispensation des soins.

Key words: Continuing medical education, family physician, health care delivery

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CONTINUING medical education (CME) has several definitions, perhaps the most useful of which is: "any and all ways by which a physician maintains his/her education after the completion of formal undergraduate and postgraduate training".¹ This widely used definition is sufficiently broad to cover many approaches to CME, is chronologically accurate, but does not reflect the vast and complex arena in which the forces that shape CME come into play.

By contrast, undergraduate education is a relatively clean (although

enormous) slate, on which the basic skills of medical practice may be etched. Postgraduate education is primarily a hospital-based, skill-oriented, finite experience with defined objectives. CME falls at the end of this continuum of medical education as a relative newcomer, both historically and developmentally. The focus of this article is a set of separate but well defined issues—adult education, CME, and clinical competence. While separate entities, the three are intertwined, with the ultimate aim of improving the quality of health care. The family physician plays a central role in this progression from CME participant, to increased competence, to provider of better health care.

Organized CME developed during the past several decades as a significant professional response to the rapid proliferation in medical knowledge, research, new specialties, and paramedical fields.² Its ultimate goal was to achieve optimum patient care. That CME has become a major industry in

Canada and the U.S. is borne out by the estimate that over \$3 billion is spent annually for such programs in the U.S. alone.³ With this background, one might ask:

- is there a theoretical basis that underlies adult learning and therefore CME?
- how effective is CME?
- can we improve CME?

The Theoretical Basis Of CME

McCluskey⁴ has combined both empiric and theoretical concepts to support the view that adults as well as children have the potential for continuing learning and enquiry. Tough⁵ analyzed motivating factors in adult learning projects, including curiosity, enjoyment of the content and the ability to practise a new skill. He felt that long-range goals include imparting knowledge or skills to others and strategies to deal with future events.

Of all the learning theorists, Carl Rogers⁶ has provided the most practi-

cal framework for understanding adult learning, through observations made in psychotherapeutic relationships. Just as effective psychotherapy was a process centered on the client rather than on the therapist, so learning had to be learner-centred rather than teacher-dependent. Learning, therefore, can only be facilitated by the teacher, and is maximized when the content area is relevant to the learner, and the climate supportive. Maslow⁷ also recognized this last feature.

Houle⁸ identified subgroups, based on the perceived purposes and values of continuing education, relevant to planning CME programs. He identified three major groups: goal-oriented learners, with very specific objectives, for whom learning may be episodic as new needs or new interests arise (e.g., casualty officers for whom advanced cardiac life support or advanced training in life support programs are prerequisites to practice); activity-oriented professionals who achieve meaning from the learning activity itself, distinct from its content (such people are 'group joiners' who derive a great deal from the social content inherent in such events); and learning-oriented students for whom learning is a continuous process, and who seek out knowledge for its own sake.

Knowles⁹ pioneered the term androgogy (vs. pedagogy) for adult education and characterized several features of the adult learning process, including the need and the capacity to be self-directed, the use of experience and life problems in learning, and the identification of one's readiness to learn for personal reasons rather than external ones. He also outlined the final step in the theoretical basis for adult education (i.e., the application of these principles to a learning model useful as a guide to CME planners),⁹ and others. These principles included:

- establishing a climate conducive to learning.
- creating the mechanism for mutual planning.
- diagnosing the needs for learning.
- formulating program objectives (the content) to satisfy these needs.
- designing a pattern of learning experiences.
- conducting these learning experiences with suitable techniques and materials.
- evaluating the learning outcomes and rediagnosing the learning needs.

How Successful is CME?

This broad question has two smaller questions. First, how can the impact of CME be evaluated? Second, does its success relate to the application of adult education principles to CME models?

Wilson states: "Evaluation of the results of education is an art in its infancy: to ask a participant if he has enjoyed a course or if it was relevant . . . is one thing. To find out whether he is . . . applying anything, another".¹⁰ Methods used in the assessment of learning in the CME arena, perhaps more than in any other, are as yet fragmentary pieces in the larger jigsaw puzzle of clinical competence.

Dixon¹¹ has defined four levels of assessment. The first level (type I or the classical 'happiness index') determines the physician's perception of a CME event, and is useful in the sense that program planners may develop a better product. But 'better' here is used in the context of the marketplace, rather than of clinical competence.

Type II measures of outcome are based on physicians' competence, as reflected by changes in knowledge, skills, or attitudes. A recent survey of the literature evaluating CME¹² located a total of 238 studies, of which 86 or 36% were of the type II variety. Of these, the majority tested knowledge; fewer analyzed skills or attitude changes. Most of these studies showed positive changes in all three parameters, a fact which has been supported by previous literature reviews by Bertram and Brooks-Bertram¹³ and Lloyd and Abrahamson.¹⁴

The next level of evaluation (type III) measures change in behavior and is a reflection of physician performance in the practice setting. Such CME studies are becoming increasingly common in the literature. In 1979, Lloyd and Abrahamson¹⁴ found only 26 such studies, while Davis and co-workers¹² located 128 five years later. The majority of these studies used medical audit as the methodological tool while others employed laboratory data, account sheets, claim reviews, and pharmacy records.

The last level of evaluation (type IV) assesses health care outcomes. This difficult maneuver, the ultimate test of the worth of a CME intervention, has been reported by only a handful of authors.¹²

Difficulties in mounting trials of types III and IV have to do with the complexity of assessment methods and the cost of such exercises. They have not been neglected by CME providers through ignorance or disregard for issues of clinical competence or performance. Rather, it is the entrepreneurial system in which CME providers must operate that mitigates against assessing specific results. Herzog¹⁵ estimated that the 'happiness index' costs approximately 2% of total course cost, pre- and post-test knowledge gains 6%, mailed survey questionnaires to discern physician change after a course 113%, and survey plus observation of change 371%. It is hardly any wonder that CME providers, who operate in the marketplace, opt for the less expensive, less specific, and less competence-based evaluation tools. Another factor elucidated by Mitsunaga,¹⁶ discouraging 'hard core' evaluation, is the "response of adult learners to evaluation which involves appraisal of their performance"—in other words the basis on which assessments of clinical competence must be made.

Using these outcome measures as markers, and remembering the concepts of adult education, the androgogic teacher, and the optimum atmosphere for learning, can we examine how frequently and how well these principles are applied to actual CME programs?

In a study on the effectiveness of CME, Stein¹⁷ referred to five major literature reviews of CME research publications, which indicated that the mere transmission of facts about new findings may be insufficient to change practice performance. He cited eight educational studies which he felt fulfilled most of the important educational criteria and from which he culled some common characteristics. All of these programs used, implicitly or explicitly, four essential elements, reflecting Knowles's seven principles of androgogy.

Laxdal¹⁸ contrasted what he found in the real world with Knowles's⁹ ideal situation. Based on a review of 66 educational publications, Laxdal found that the "gross failure to demonstrate effectiveness of CME is chiefly due to failure to identify the learning needs of practitioners, and the health needs of their patients, as well as inadequate evaluation methods". Similarly Davis, Putnam, and Gass¹⁹ found, on

reviewing the effectiveness of short courses, that attention to two details—needs determination and reinforcement of learning—dictated the success of the intervention.

Given that motivation is an important adult education principle, it is useful to examine why physicians participate in CME. Cervero²⁰ surveyed Illinois physicians participating in CME, and clustered their reasons for attending into four main categories. These were:

- to maintain and improve professional competence and service to patients.
- to understand one's self as a professional and as an individual.
- to interact with colleagues professionally and socially.
- to enhance personal and professional status.

The results were corroborated by Williams et al.'s¹ findings in Ontario.

The variety of rewards which attending physicians anticipate are very similar to those suggested by the adult educator, A. Tough.⁵ He included intellectual and cognitive rewards as well as personal pleasure, satisfaction, self esteem, impressing others, and receiving praise.

In summary, some of the reasons for CME's apparent failure to achieve its ultimate goals may be grouped under the following headings.

- Participants are not always involved in planning programs; planners in many cases make assumptions about their audience's learning needs.
- Objectives often are not clearly set out for the participant.
- Formats for most CME programs are frequently not conducive to successful adult learning. Lectures with little or no audience participation are the most common type of CME course.

Clinical Competence And CME

There are three major areas in which CME relates most clearly to physician competence: assessment of learning needs; the types of programs or formats; and evaluation of outcomes. In essence, each of these is derived from the theoretical constructs of adult education.

From a clinical perspective, all learning needs arise ultimately from perceptions of competence. Determin-

ing these needs, and subsequently developing CME objectives, involves two approaches: the individual or informal, and the organized or formal. Self-determination of competence is a highly individualized and personal ability influenced by several factors: professional considerations, undergraduate and postgraduate experiences, and a combination of self-directedness, motivation, and self-awareness. The views of some of the adult learning theorists are not far removed from these concerns. Houle²¹ affirms "that every practicing professional should recognize the need to: maintain competence, use the theories and techniques of innovative practice, understand relevant and new developments, apply ethical principles required in a constantly changing work environment, and preserve an appropriate perspective on life work and not be engulfed by it".

Professional considerations which have an impact on competency or on the awareness of learning needs have also mushroomed in the last two decades. Foremost, or at least most visible, is the growing public concern about physicians' competence.

Professional associations have attempted to provide their members with tools to determine learning needs. The College of Family Physicians of Canada, for example, has evolved its own Self-Evaluation Program. A variant of this approach which tests not knowledge but practice patterns, is the individual physician profile, pioneered by the University of Wisconsin's CME Department.²² Information derived from multiple patient contacts is then channelled into an appropriate self-assessment program, tailored to the physician's practice pattern. The CFPC has adopted a similar approach in its re-certification program.

Awareness of one's competence is also a by-product of the physician's own experience, including his or her undergraduate training. Traditional medical school curricula, concerned primarily with imparting knowledge to students, have gradually begun to acknowledge the importance of introducing problem solving and critical thinking concepts. This has led to an examination of the complex skills involved in problem solving and clinical reasoning.²³

The determination of learning needs and objectives for a formal or

organized course requires that decisions be made by one group of physicians (or in many cases, non-physicians) on behalf of others. For the most part, the methods used to construct such a CME event (e.g., suggestions from physicians, planning committees) bear little or no relation to issues of competence, and as a consequence little or no relationship to practice. Green²⁴ has labelled this type of program the 'content model'.

Courses built around perceived needs are not without their difficulties because of frequent lack of congruence between perceived and objectively determined educational needs. An elegant study by Weinberg²⁵ indicated that physicians are remarkably inaccurate when identifying deficiencies in their own skills. Furthermore, not all the principles of adult education relative to needs determination apply, since CME is not the equivalent of adult interest courses; other professional issues not determined by the learner must be considered in the planning process. For example, in Sibley's²⁶ randomized controlled trial of CME, despite statistically significant gains in knowledge, study physicians tended to improve in performance or quality of care only in topics *not* identified by study physicians as high priority learning needs.

However effective or ineffective many CME programs may be—and their wide use suggests pragmatic benefits despite a lack of clear outcomes—future CME direction must be from what might be termed the competency-base, first conceptualized by Brown and Uhl,²⁷ where medical audit measures were used to elicit educational needs or deficits.

Conclusion

Current organized CME events are still very much the product of the content model, based on the assumption that physicians learn best from lectures during blocks of time away from their practices. Brown and Uhl²⁷ have aptly described this traditional approach, conjuring up the image of "a room full of preoccupied but hopeful attending physicians . . . anticipating the learned presentation by the medical school faculty . . . hoping that such an educational program will somehow be useful in the care of their patients".

This format can become compe-

tency-based only if several conditions are met. The physician must recognize a learning deficiency or competency issue, and this program must fit that need; the program must permit the physician to raise and have answered clinical problems and questions; and it must be based on real patient issues, as in the medical audit approach. These are three big 'ifs', reflecting adult learning principles.

Despite innovations in CME methodology such as teleconferencing, audio and video tapes, dial-access programs, and computer based methodologies, the most important advance has been the introduction of these adult learning concepts into CME programs, as articulated by Miller.²⁸ One manner in which this may be accomplished is by presenting and discussing clinical problems, as in traditional hospital rounds.

While the acquisition of new knowledge is an important prerequisite of clinical competence and thus a major component of most CME events, one must not overlook two other major components of competence—skills and attitudes. It is thus incumbent on CME providers to emphasize, in addition to 'updates' on medical advances, the refurbishing of 'old' skills (for example examination techniques) and the vast array of attitudinal issues, vital to practice.

Finally, the outcomes of CME interventions must be evaluated, partly for the physician's sake, partly in the hope of improving CME delivery. Such outcomes must go beyond the perceptions of physician participants and their teachers, to involve measures of competence or performance, and even health care. This is indeed the ultimate challenge facing CME. ●

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