

TOWARDS MORE EFFECTIVE CME PROGRAMS

Shahul Ameen

Psychiatrist, St. Thomas center for Neurobehavioral and Emotional Health and Addiction Medicine (SNEHAM), Changanacherry.

Correspondence: Mise En Scene, Behind Anandashramam, Changanacherry PO. PIN 686 101. E-mail: shahulameen@yahoo.com

The previous editorial¹ discussed factors that contribute to effectiveness of CME (Continuing Medical Education) programs. This article compiles relevant suggestions from available literature about various steps we can take to ensure that CME programs are as effective as possible, with special emphasis on the process of needs assessment.

TARGET AUDIENCE

In their guidelines to CME organizers, Al-Jarallah and Premadasa suggest that background of the prospective participants should have an overriding influence on the learning objectives and subject content of CME programs as a whole and also the individual sessions. Participants could be analysed in terms of their educational level in the subject area, prior experience in the specialty or sub-specialty, and the relevance of the content of the program to their needs and practice. CME organizers can clearly indicate the type of target audience who are likely to benefit from the whole program or individual sessions.²

In most situations, large groups of participants running into hundreds are unlikely to benefit if they were to attend the same presentation. Such huge numbers would also prevent the participants from being involved in any useful form of interaction. Occasionally, especially when the topic is of major interest to many, more than one session may have to be conducted to cater to the needs of different groups of practitioners — While some of these sessions may repeat the exact content to groups who share the same ability levels, in some other sessions

the content may have to be covered at different depths as they would target, for example, specialists or sub-specialists practising in different settings.²

LEARNING NEEDS AND THEIR ASSESSMENT

Advancement in the fields of diagnostics and therapeutics is rapid and continuous, causing information gaps between the currently available knowledge and the clinicians' present knowledge. A "learning need" is the gap between current clinical competence or performance and that which is desired or optimal. (Here, "competence" refers to the ability to perform, and includes knowledge, skills, judgment, attitudes and other personal qualities.) Learning needs can be closed by educational interventions. "Needs assessment" is a systematic diagnostic process to determine clinician learning needs before the selection and delivery of education.³

As the purpose of CME is to improve patient care, learning needs which preclude optimum patient care must be identified as a first step in CME program planning, so that CME activities can then be organized and offered to address those needs.³ The process of needs assessment can be compared to the clinical diagnostic process physicians undertake every day — We approach patient management in a systematic fashion and diagnose patients' illnesses before prescribing treatments. Likewise, physicians' educational needs should be "diagnosed" before administration of educational therapies,⁴ so that appropriate CME interventions can then be directed

Please cite this article as: Ameen, S. Towards more effective CME programs. Kerala Journal of Psychiatry 2017; 30(1):1-8.

at those needs, and effects of the intervention reassessed after an appropriate period, the way we assess effects of treatments we prescribe.³

TYPES OF LEARNING NEEDS

Two important types of learning needs are commonly identified:⁵

1. *Perceived or felt needs*: These are the gaps between current clinical competence and optimal competence as subjectively perceived by the individual practitioner. These needs are personal and specific.⁶
2. *Real or true needs*: These are the gaps between actual competence and optimal competence as defined and agreed upon by 'experts' in the field. Real needs must be objectively observed and determined.

Perceived and real needs may or may not overlap. Both should be given importance, as neither is sufficient in and of itself.

National Association for Continuing Education classify learning needs into inferred, verbalized and proven needs.⁷ *Inferred needs* would include need for new information like details of new diagnostic or treatment methods, new indications for current agents, opinions of key experts about advancements in medical knowledge, regulatory and legislative changes that affect patient care, etc. *Verbalized needs* are, as the name implies, needs expressed by the attendees — like those revealed in results of surveys, opinions expressed in evaluation forms of previous CME activities, and the consensus opinion of members of a medical specialty group. *Proven needs* are the ones based on objective data sources like guidelines and recommendations by professional societies, quality assurance data, review of journal articles, and morbidity and mortality data.

According to Grol and Weising, CME events should be planned on the basis of not only the personal needs of the practitioners but also the needs of the workplace and the local health care system.⁸

IDENTIFYING LEARNING NEEDS

Physicians can recognize their educational needs through practice experience, especially by noting and pursuing questions that arise during interactions with patients.^{3,6} Learning that occurs in the context of the daily workplace is far more likely to be relevant and also reinforced in terms of better practice.⁹ Kolb describes a learning cycle whereby learning needs are identified through structured reflection on experiences and then met by specified educational activities — The cycle is then completed by applying the new learning to professional practice and in the process, identifying more learning needs arising from those subsequent experiences.¹⁰

Office practice data concerning the frequency and nature of presenting problems can be organized into 'practice profiles'.¹¹ Office files, charging slips and daily schedule books can serve as sources of these practice profiles. Periodic review of such profiles can be of help in selecting relevant educational topics. Perol et al. showed that doctors who kept an office visit diary of learning issues were able to generate more specific learning objectives than those who did not.¹²

Other useful steps include screening journals, consulting experts or colleagues, or attending clinical case conferences, journal clubs, regional group meetings or CME programs.^{3,6} Pre- and post-tests available in journals and from major medical organizations are also valuable. However, such tests may contain biases not representative of particular practice environments.³

Relying on clinicians to identify their own learning needs is not an approach without problems, though. According to Norman et al., there is no evidence that doctors routinely use methods like the ones mentioned above.¹³ Sibley et al. observed that practitioners tend to pursue education around topics they are already good at and avoid areas in which they are deficient.¹⁴ Tracey et al. found a poor correlation between doctors' self-assessment of their knowledge and their subsequent performance in objective tests of their knowledge.¹⁵ Hence,

assessment of needs should not be based entirely on self-assessment but should use evidence from a range of sources.

More objective methods which the CME organizers can use to get a more effective list of practice gaps include chart or case study audits, standardized assessments like self-assessment multiple choice questions or standardized patient examinations, use of focus groups, meetings between colleagues, visits to various departments or practices, survey of participants' expectations, and evaluation of past activities. Published or collected data like evidence-based journal articles, health care statistics available in government websites and quality assurance reports may also be useful. However, some of these methods may be limited in scope, and often it may not be practically feasible for the average CME organizer to use them. In such situations, relatively informal methods based on professional judgment and plans for organizational development could be opted for.¹⁶⁻²⁰

Jennett and Laxdal propose the following steps for an ideal needs assessment system:³

1. Set up standards and criteria for a particular diagnosis or problem. This can be done by a committee of experts and learners.
2. Monitor the actual performance of physicians within their office or practice by chart review using established criteria so that the data can be compared to acceptable standards.
3. Measure the gap between standard and actual performances and note any discrepancies that represent learning needs.
4. Examine those needs to determine if they are educational, administrative, etc.
5. Plan an appropriate activity to address the gap.
6. Reassess performance to determine effectiveness of the intervention.

Jennett and Laxdal argue that this approach has proven successful, but agree that it is expensive and that the process can be threatening and even damaging if the focus is on the investigation and revealing of deficiencies than on education.³

SETTING PRIORITY

Faced with multiple educational programs to choose from, how can busy practitioners select the most relevant topics that will help them in practice? Or how can a hospital quality assurance committee choose the educational intervention which will be of most relevance and value to their staff? The College of Family Physicians of Canada recommends a weighted scoring process which emphasizes three factors:²¹

- Frequency of patient visits for the selected problems,
- Potential severity of the problem, and
- Potential effects of medical intervention on the eventual outcome of the problem.

Each factor is then given a weight of one to five. To determine which areas should be given educational priority, an emphasis score for each area being considered is calculated by the formula: assigned weight for frequency x assigned weight for severity x assigned weight for the medical intervention. A maximum emphasis score would be $5 \times 5 \times 5 = 125$, while a minimum score would be $1 \times 1 \times 1 = 1$.²¹

STEPS CME COMMITTEES CAN USE

Jennett and Laxdal state that well-informed CME committees that are thoroughly representative of both learners and teachers (for example, six to ten active members composed of learners, educators, clinical experts and administrators) can determine learner needs and adequately define needs and priorities for short courses in a single meeting. Approaches such committees can use include:³

- Propose program topics based on interests or perceived needs of the group or population being served.
- Use clear and concise questionnaires to poll learners and teachers for their preferences, opinions and experiences.
- Use well-established, valuable methods like the Nominal Group and Delphi procedures.²²
- Use personal or telephone interviews. These personal contacts provide a sense of learner

involvement, an important factor in successful planning.

Jennett and Laxdal also suggest the following steps CME committees can use in the planning phase:³

1. Identify the audience and analyse their characteristics, including their activities and preferred learning methods and environment.²³
2. Discuss and select methods to identify needs.
3. Elicit learners' perceived needs. Utilize at least one objective method of determining real or true needs.
4. Set priorities. For example, circulate the list of probable topics to all possible members and ask them to list their top five choices for a CME program in the order of priority.
5. Call a program planning meeting when the feedback has been collated and summarized. To this meeting, invite two or more clinicians to represent the learners, at least one expert teacher (probably a consultant in the discipline chosen as the top priority), and someone with considerable program planning experience.
6. Decide on the time, places and learning methods (like, for example, a series of one to three-hour conferences to address identified problems in medical care).

ROLE OF ELECTRONIC MEDICAL RECORDS

Norman et al. list the roles electronic medical records can play in the needs assessment process.¹³ With appropriately designed systems, clinicians could conduct their own objective analyses of their diagnostic habits and therapeutic patterns. The process could also be automated in such a way that profiles on selected clinical problems could be generated at pre-set intervals, and such analyses could be submitted to local CME bodies. The practice profiles could also be electronically matched to relevant practice guidelines or review articles.

Doctors could maintain notes about their interesting or problematic patients, and software tools could be

developed to help capture essential information about such patients in a structured way and provide a means of coding the records for subsequent retrieval. A motivation for the maintenance of such records would be continuing education credits for simply recording the information, with further credits to be earned if relevant patient-related questions are developed and pursued.¹³

LEARNING OBJECTIVE AND ITS THREE DOMAINS

A "learning objective" is a description of an observable change in performance that would result from a learning activity.² Objectives can be *general* (at the level of the entire program) or *specific* (the outcome expected from a narrower activity like a short lecture). To be useful, learning objectives should state the abilities the participants can expect to gain from the sessions. ("After attending this workshop, the participants will be able to do cognitive behaviour therapy for their patients with obsessive compulsive disorder" would be an example). Such learner-centred objectives would enable prospective participants to assess beforehand whether a given CME activity is likely to benefit them, and also help the resource persons to select the most appropriate teaching methods to achieve those objectives.

Learning objectives have been classified into three domains. Skills that come under each of these domains require different CME strategies.

1. *Cognitive domain*: This involves the acquisition of information. Methods to achieve objectives in this domain would include lectures, discussions and reading assignments.
2. *Psychomotor domain*: This domain is concerned with performance of skills, like doing manual procedures. Lecturing would not be an appropriate method to achieve objectives in this domain. The procedures must be demonstrated, and if necessary, the participants must be given an opportunity to practise, initially under supervision.
3. *Affective domain*: This covers the many desirable attitudes medical professionals are

expected to possess. Knowledge by itself does not lead to desired attitudes, and hence lecturing or giving reading material aimed at increasing knowledge is unlikely produce changes in attitudes. Instead, strategies like role modelling, role playing, discussion of issues in small groups or undertaking specific assignments would be needed.²

Importance of the affective domain also lies in the fact that, as Abrahamson et al. point out, new information, however relevant, may have no effect at all on patient care if it is not consistent with physicians' pre-existing habits and beliefs.²⁴⁻²⁶ Hence, CME programs should focus more on changing habits and attitudes than on simply providing information.²⁴

EIGHT PRINCIPLES OF CME

Abrahamson et al. list eight principles of CME:²⁴

- CME planning and program development should be based on needs assessment, including outcome data.
- Goals of CME should include the development of skills necessary for lifelong learning, the exercise of clinical reasoning, an understanding of the decision-making process, and specific content acquisition.
- Various goals of CME should be reinforced by appropriate choices of learning methods.
- Incorporation of new instructional strategies should be based on their intrinsic strengths as learning tools and done only after thorough evaluation.
- Faculty development is important, and should include exposure to both theory and application of new learning methods so that the faculty is enabled to translate their content expertise into formats more appropriate to the learners' needs.
- Educational activities should be supportive of and coordinated with the transition to evidence-based medicine.
- Professional and, whenever possible, interdisciplinary interaction should be given priority.

- Assessment of CME effectiveness should cover whether the program changes physicians' practice behaviours and affects clinical outcomes.²⁴

EFFECTIVE SMALL GROUP LEARNING

Learning in small groups is an effective CME strategy.²⁷ Small group teaching has three essential elements:²⁸

1. *Active participation:* The most important feature in small group teaching is discussion among all present. Though an ideal number of attendees for effective participation is five to eight, groups of about 20 can still use the standard techniques quite effectively.
2. *Face-to-face interaction:* Once seated, the members should be able to see one another so that nonverbal communication is facilitated. Hence, it would be beneficial to provide seating arrangement in a circle.
3. *Purposeful activity:* Meetings should have one or more definitive purposes and should proceed in an orderly fashion. While most group learning may be concerned with medical subject content, the format can also be used to influence attitudes or to develop skills of critical thinking and problem-solving.

Overall task of the group should be clearly defined and steps should be taken to maintain the group directed at that pre-defined goal. However, the instructor need not constantly intervene to ensure that the group is moving purposefully. Roles of the instructor and the participants should be defined in advance, and those members who are excessively dominating or quiet should be handled appropriately.²⁸

ASSESSMENT OF CME EFFECTIVENESS

Effectiveness of CME programs should be evaluated in short, medium and long-term basis.²

Short-term effectiveness: Whether a CME activity helped its participants achieve the learning objectives or not could be assessed at the end of a

session or activity or within a few days of conclusion of the program, using tests that assess knowledge or performance of skills. Self-assessment questionnaires may be used to collect opinions on whether the participants acquired new knowledge or skills, whether what they learned would be useful in their practice, whether they will be able to apply the new knowledge and skills in their practice, and whether what they learned would have an impact on their practice. Though the results of such surveys would not indicate that the new competencies would indeed be used in their practices or whether they would have any desired effect on the health services outcomes, such data can serve as a measure of the participants' perceptions.²⁹

Medium-term and long-term effectiveness: Assessment of the long-term impact of a CME program could be carried out after a few months of its completion or even later. The institution where the professional practises would be the most appropriate setting to do this. Aim of such an assessment would be to review whether the newly gained competencies are retained and being used continually. Though this would not be as convenient as administering post-session questionnaires, CME organizers should aim for this approach wherever feasible. If the participants are a homogenous group, a review of medical records in an institution or direct observation of practice could be an option. Other parameters that could be used as indicators of CME effectiveness include epidemiological data, quality assurance studies and prescribing patterns.²

SOME FINAL SUGGESTIONS

Here are some specific suggestions from diverse authors on various aspects of CME activities:

- Organizers should reach out to the physicians in practice who do not always come to CME activities.²⁷
- Competencies required for CME speakers should be identified and standardized.³⁰

- CME speakers should be given advance information about characteristics of the attendees and their needs and expectations.³¹
- Whenever possible, employ multiple exposure and multiple instructional techniques.³²
- Interprofessional continuing education should get focus as a core element in comprehensive CPD (Continuing Professional Development), as it would support existing profession-specific CPD with cross-professional competencies that would foster coordinated care delivery.³⁰
- Expand the focus of CPD from the primary focus of disease-specific CPD to address potentially complex population and public health issues.³³
- Lewis recommends evidence-based interventions like interactive group discussions to be used only as a supplement to traditional CME techniques, and not as a complete replacement, as traditional CME can continue to serve its “mostly social, semieducational” purposes.³³
- Mazmanian et al. propose a model for CME activities with four progressive levels of achievement. The first level provides CME credit for attendance in a lecture-based format, the second level provides credit for recall and application of knowledge in clinical practice, the third level provides credit for demonstrating competence in a particular area, and finally the fourth level provides credit for demonstrated performance that leads to positive practice change and improved patient outcomes. The authors add that it is the fourth level of education that organizations should be striving for while designing CME activities.³⁴
- Successful CME must be truly continuous and not opportunistic, erratic or casual.³⁵
- All professional societies could publish a directory of the members who have actively engaged in the process of professional development, and it can be made accessible to the public.³⁶

Professional organizations like American Association of Family Physicians (AAFP) require

that members can retain their active membership only if they attend stipulated amount of CME activities. (In case of AAFP, it is 150 credits of CME every three years).³⁷ Indian Psychiatric Society too can consider such an option.

REFERENCES

1. Ameen, S. What makes CME programs effective? Kerala Journal of Psychiatry 2016; 29(1): 1-9.
2. Al-Jarallah K, Premadasa IG. Guidelines to CME organizers. Kuwait Institute for Medical Specialization [monograph on the internet]. Kuwait: Kuwait Institute for Medical Specialization; 2003 [cited 2016 November 28]. Available from: <http://kims.org.kw/booklet/GuidelinesWebPDF.pdf>.
3. Jennett PA, Laxdal OE. Assessing educational needs in medical practice: Guidelines for the CME planning committee member. Can Fam Physician 1984; 30:1917-22.
4. Neufeld VR. Current concepts in continuing medical education: An overview for clinicians. Ann R Coll Physicians Surg Can 1983; 16:223-7.
5. Atwood HM, Ellis J. The concept of need -An analysis for adult education. Adult Leadership 1971; 19:210-2, 244.
6. Slotnick HB. How doctors learn: physicians' self-directed learning episodes. Acad Med 74;1106-17.
7. National Association for Continuing Education [Internet]. Guidelines for needs assessments; c2014 [cited 2016 November 16]. Available from: http://naceonline.com/needs_assessment.php.
8. Grol R, Wensing M. What drives change? Barriers to and incentives for achieving evidence-based practice. Medical J Aust 2004; 180: S57-60.
9. Davis DA, Thompson MA, Oxman AD, Haynes B. Changing physician performance: a systematic review of the effect of continuing medical education strategies. JAMA 1995; 274:700-5.
10. Kolb DA. Experiential Learning. Chicago: Prentice Hall; 1984.
11. Sivertson SE, Meyer TC, Hansen R, Schoenenberger A. Individual physician profile: Continuing education related to medical practice. J Med Educ 1973; 48:1006-12.
12. Perol D, Boissel JP, Broussolle C, Cetre JC, Stagnara J, Chauvin F. A simple tool to evoke physicians' real training needs. Acad Med 2002; 77:407-10.
13. Norman GR, Shannon SI, Marrin ML. The need for needs assessment in continuing medical education. BMJ 2004; 328(7446):999-1001.
14. Sibley JC, Sackett DL, Neufeld V, Gerrard B, Rudnick KV, Fraser W. A randomized trial of continuing medical education. N Engl J Med 1982; 306:511-5.
15. Tracey J, Arroll B, Barham P, Richmond D. The validity of general practitioners' self assessment of knowledge: cross sectional study. BMJ 1997; 315:1426-8.
16. Davis N, Davis D, Bloch R. Continuing medical education: AMEE Education Guide No 35. Med Teach 2008; 30:652-66.
17. Grant J, Stanton F. The effectiveness of continuing professional development: A report for the Chief Medical Officer's review of continuing professional development in practice. Edinburgh: Association for the Study of Medical Education; 1999.
18. Fish D, Cole C. Learning through the critical appreciation of practice. Massachusetts: Butterworth-Heinemann; 1998.
19. Parry NM. The needs assessment in continuing medical education. Medical Writing 2014; 23(2):125-8.
20. Grant J, Chambers E. The good CPD guide: A practical guide to managed CPD. London: Joint Centre for Education in Medicine; 1999.
21. Canadian Family Medicine. Educational Objectives for Certification in Family Medicine. Willoivdale: The College of Family Physicians of Canada; 1980.
22. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. Int J of Clin Pharm 2016; 5:1-8.
23. Patel VL, Cranton PA. Transfer of student learning in medical education. J Med Educ 1983; 58:126-35.
24. Abrahamson S, Baron J, Elstein AS, Hammond WP, Holzman GB, Marlow B, et al. Continuing medical education for life: eight principles. Acad Med 1999; 74(12):1288-94.
25. Connors AF, Dawson NV, Desbiens NA, Fulkerson WJ, Goldman L, Knaus WA, et al. A controlled trial to improve care for seriously ill hospitalized patients: The study to understand prognoses and preferences for outcomes and risks of treatments (SUPPORT). JAMA 1995; 274(20):1591-8.
26. Elstein AS, Christensen C, Cottrell JJ, Polson A, Ng M. Effects of prognosis, perceived benefit, and decision style on decision making and critical care on decision making in critical care. Crit Care Med 1999; 27(1):58-65.
27. Cauffman JG, Forsyth RA, Clark VA, Foster JP, Martin KJ, Lapsys FX, et al. Randomized controlled trials of continuing medical education: what makes them most effective? J Contin Educ Health Prof 2002;22(4):214-21.
28. Newble DA. Handbook for medical teachers. Boston: MTP Press; 1981.
29. Grant J. CME: Its validation and outcome. In: Mansfield A, editor. CME and the Royal College of Surgeons. Abstracts of the 1st Conference held at the Royal Society of Medicine: 'British Continuing Medical Education: a Framework for the Future' (4th and 5th July). 1994.
30. Balmer JT. The transformation of continuing medical education (CME) in the United States. Adv Med Educ Pract 2013; 4:171-82.
31. Muroff LR. The anatomy of an outstanding CME meeting. J Am Coll Radiol 2005; 2(6):534-40.
32. Davis D, Galbraith R. Continuing medical education effect on practice performance: effectiveness of

continuing medical education: American College of Chest Physicians Evidence-Based Educational Guidelines. *Chest* 2009; 135:42S-48S.

33. Lewis CE. Continuing medical education: past, present, and future. *West J Med* 1998; 168:334-40.

34. Mazmanian PE, Galbraith RG, Miller SH, Schyve PM, Kopelow M, Thompson JN, et al. Accreditation, certification and licensure: how six general competencies are influencing education and patient care. *J Med Lic Disc* 2008; 94(1):8-14.

35. Ahmed K, Wang TT, Ashrafian H, Laver GT. The effectiveness of continuing medical education for specialist recertification. *Can Urol Assoc J* 2013; 7(7-8):266-72.

36. Siddiqui JS. Continuous professional development of medical doctors in Pakistan: Practices, motivation and

barriers, research impacts: Proving or improving? Fremantle: The Australian Association for Research in Education (AARE); 2007.

37. American Association of Family Physicians [Internet]. Member CME Requirements. [cited 2016 November 28]. Available from: <http://www.aafp.org/about/membership/cme-requirements.html>.

<p>Source of support: None Conflict of interest: None declared Published online: 13th December 2016</p>
