Continuing Medical Education Methodology: Current Trends and Applications in Wound Care

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Abstract

The field of professional medical continuing education is changing rapidly. The traditional format for continuing education for health care professionals has long been classroom learning. This form of learning has been found to be relatively ineffective in changing learners' practice patterns. The reasons most often cited are that there is little interaction and that the learning does not occur when the learner is ready to learn. Interaction greatly enhances retention and the tendency for the learner to later apply the learning in actual clinical encounters. There are a growing number of online continuing medical education (CME) Web sites that combine on-demand didactic presentations with the ability to discuss the content with peers. The easy access and interaction potential of this new CME media promises to improve the effectiveness of future CME.

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Introduction

There is a growing body of evidence that the continuing medical education (CME) learning that is done most often by medical professionals, consisting of live CME programs and print publications, are ineffective educational experiences.[1] What makes an educational experience effective? Basically, if the learner remembers the science being taught and can apply it at a later time in a real-life clinical situation, it is considered effective. The term "changing practice patterns" is often used. Educators put a high value on evidence-based teaching that can cause measurable changes in practice patterns for those receiving it. Educators want to know that what they are teaching is filtering down to the practice level to improve the care of patients—and the evidence shows, to a larger extent, that it is not.

Unfortunately, "didactic presentations and distributing printed information only have little or no beneficial effect in changing physician practice."[1] In other words, by themselves (or even together), the most common forms of CME that are currently being delivered to physicians are not very effective, and therefore, all this fine evidence-based teaching that is being delivered at live meetings and in journals is not resulting in much better patient care. This is a significant problem for the medical system we work in and is a growing concern in the CME community.

During academic training, we have been used to attending classes in which we outline bodies of knowledge and memorize and regurgitate it for exams. We know that

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this form of learning can be effective for short-term learning, but it does not prepare us well for long-term retention or for applying the knowledge in real-life situations. We end up rememorizing the material years later for board exams. We soon forget much of it again, because it lacks any real-world, practical context.

Learning Mechanism

Adult learning, the learning that we as professionals do after we finish postgraduate school, occurs quite differently. It is largely self-directed. It does not occur as outlining and memorizing broad bodies of knowledge to be applied later, as we were used to doing in school. Instead of being *topic* centered, it is *problem* centered. It is highly interactive and designed to be applied immediately to a problem at hand, often at the point of care. Typically, learners encounter an issue/problem they need to solve and formulate pertinent questions. They are experienced learners having accumulated a large reservoir of experience in how to find answers throughout their careers. Once the problem at hand is well defined, they formulate a plan to find the answer, which may include one or more resources. Following the availability of solution, they adopt and may optimize the solution before applying it to practice. Finally, they observe the result and assess whether it was a suitable and successful solution to the issue or problem they needed to solve. Following is the summary of this process, which essentially includes six steps that are repeated thousands of times throughout one's career and result in very effective learning:

1. Encounter/identify an issue.

2. Formulate question: What do they want to learn?

3. Formulate plan to find answer: Where and how do they find answer?

4. Seek answer.

5. Find answer, apply it to practice, and acquire feedback.

6. Observe and assess result: Did it work? Should it continue to be used?

Learning in Clinical Training

A real-world example would be helpful here. Let us take the case of the clinical training done by medical residents or clinicians. During rounds with attending and coresidents, they are asked to present a patient. Let us say the patient presents with shortness of breath, has a history of chronic obstructive pulmonary disease (COPD) and tobacco use, and has prior employment in the coal-mining industry. They are stopped halfway through their presentation by a question from the attending who asks, "What contribution does the patient's work in the coal mines have on his COPD and poor pulmonary function?" The resident freezes, their mind goes blank, and they start to blabber out some nonsense that sounds ridiculous even to them. The attending kindly lets them off the hook but requires them to prepare a presentation on the connection between coal mining and COPD for rounds the following day. This scenario is often depicted in popular medical media shows, and one is refamiliarized with this common scenario. Whether they recognize it or not, medical clinicians continue to relive this "drama" all throughout their practice life, although on a more personal, patient-by-patient, self-directed level.

Learning in Practice

Clinicians continue this type of adult learning throughout their careers. A patient presents with a set of signs and symptoms that is not totally familiar. They are put on a standard treatment plan, but the clinician knows there is something different here, something beyond their experience. What do they do? They follow the six steps, and in this self-directed manner, they find the answers they need to help this patient presenting with an atypical case.

Adult Learning Principles as Applied to Wound Care

The same principles apply to the practice of 21st-century wound care. For example, the clinician who is experienced in treating plantar mal perforans ulcerations encounters a patient who, despite good thorough wound debridement, effective offloading, and local wound care, is not healing. The wound has remained the same size or has enlarged over the course of two months. Popular culture suggests a definition of insanity as doing the same thing over and over and expecting different results. Experienced clinicians know that something different needs to be done at this point.

Clinicians in today's world turn to two main sources for answers to the questions that arise as part of this self-directed learning. The first place most physicians turn is to their peers. Yes, most physicians have an

effective colleagues network, and whether they pick up the phone or see their colleagues in the halls of the hospital, they share experiences and knowledge with each other and learn more in this manner than any other. The second place they turn for answers to clinical questions is to the Internet. The Internet has the most effective index that has ever existed. Popular search engines and their academic services now index countless journals by keywords. It is easy to find the abstracts of almost any article published since 2000. From his/her desk, today's clinician has access to the world's journal literature and can find what he/she needs in minutes. Often, however, going to original research or even literature review journal articles is too time-consuming and inefficient, especially if the patient is waiting in a treatment room for you to return. More and more, clinicians are turning to their peers online. There are online professional medical education services that combine multimedia lectures by renowned educators with blog format discussion forums. These Web-based portals employ a colleague-matching system that provides introductions among members with similar interests, backgrounds, training, and experience. Finally, a powerful search that spans a text transcript of all lectures, all discussion that takes place on the sites, and the routine online publications that the sites produce will quickly find an answer to a clinical practice question.

Professional Medical Education Is Coming to Physicians Online

Continuing medical education, the formal education that physicians participate in to keep their knowledge current, their skills sharp, and their licenses to practice medicine active, is moving online at a rapid pace. Online CME was 6.9–8.8% of total CME consumed in 2008 and is predicted to rise to 50% in the next 7–10 years.[2] As such, even this form of knowledge improvement is moving toward a self-directed model.

There are a few other very effective medical information sources on the Web designed specifically for clinicians to use to find answers rapidly at the point of care. These services are typically paid (approximately $500 per year) and contain concise peer-reviewed summaries of almost every medical condition. They tend to be well organized and generally employ contributions by the clinicians most renowned in their field. Additionally, there are several free services. Some services provide innovative solutions and help in establishing a diagnosis by having you enter clinical signs and symptoms. Such services may allow clinicians to choose from an

extensive repository of clinical photos, primarily for the purposes of education. By adding medical history information to the matched clinical photos, it presents a very effective differential diagnosis to the clinician. Some services are also available for smart phones, and this quick access for clinicians, at the point of care, has greatly matured. More and more, these services have become an effective alternative to calling a trusted colleague for a phone consult when a question needs an answer.

Effectiveness of Continuing Medical Education

The most common forms of CME for medical professionals today are live lectures, with print publications and online lectures quickly gaining on them. But all occur outside the context of clinical problem solving and share more in common with the traditional rote learning done in school than with the way adults learn best.[1]

Consistent data suggest that adults learn best on the job, in small groups or one-on-one, being taught by trusted peers. Adding "interactive activities" to live lectures or publications reinforces the teaching and improves the application of learned science to patient care. A "journal club" is a far richer and more effective educational experience than the solo reading of journals. Abrahamson and colleagues[3] observed that significant improvement to rote learning experiences is gained by adding "collegiality, interaction, and collaboration into the learning environment, instead of being a solitary learning activity." The more interaction added, the more effective the education becomes. Cauffman and associates[4] found that the "most effective educational strategies used multiple interventions, two-way communications, printed and graphic materials in person, and locally respected health personnel as educators." Finally, Marinopoulos and coworkers[5] found that the more media-rich the educational program, the more effective it became. Specifically, "print media seem to be less effective than live media, and multimedia generally seem to be more effective than single media."

Conclusion

The education of clinicians has traditionally started with classroom learning, progressing to small group learning in real clinical environments involving real patients. In effect, a great volume of information is first categorized and memorized for later recall. It is not until the young

clinicians are called upon to apply the memorized information to real clinical situations that they begin to learn more effectively and to develop the higher analysis skills that result in what we call clinical "judgment." In contrast, practicing clinicians behave as quintessential adult learners, seldom returning to memorizing large bodies of knowledge. Instead, they target specific questions that they need answered to improve their treatment of patients and the pursuit of their careers. It is this pattern of adult learning that sets them apart from students in school and explains why traditional classroom and online CME tend to lack effectiveness. It is in the best interests of continuing medical educators to add interactivity to traditional CME, to improve its effectiveness, so as to best contribute to the preparedness of today's clinicians.

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