

Current Trends in Obstetrics and Gynecology Ultrasound Continuing Medical Education

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ABSTRACT

Continuing medical education (CME), by definition, should contribute to the professional growth and development of the participating healthcare providers. The purpose of this review is to put CME in a historical perspective and discuss its role in contemporary ultrasound practice in the USA. Ultrasound is continuously enhancing and improving the practice of obstetrics and gynecology. As ultrasound technology becomes more sophisticated, medical training must evolve and CME should play an important role in keeping the practitioner current. The medical educators' responsibility is to ensure that new technology is used properly to improve and maintain the health of patients. Applying contemporary educational techniques and adhering to established adult-learning principles will lead to effective and efficient learning environments, thus contributing to improved patient care.

Keywords: Ultrasound, Continuing medical education (CME), Women's health.

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INTRODUCTION

Continuing medical education (CME), by definition, should contribute to the professional growth and development of the participating healthcare providers. For the past few decades, efforts to eliminate all perceptions of commercial bias in medical education and an improved understanding of the elements of effective adult learning has been driving a significant evolution in CME. By the same token, ultrasound imaging in obstetrics and gynecology is a rapidly changing and evolving discipline requiring an aggressive effort to 'keep up.' Identification and selection of efficient and effective CME can be challenging for the ultrasound

practitioner. Modern adult learning theory has defined elements that contribute to enhanced learning and retention of instructional material and thus, CME events that honor those concepts are likely to be more rewarding. The purpose of this review is to put CME in a historical perspective and discuss its role in contemporary medical practice in the USA. Additionally, we will exam the current state of ultrasound CME and define future directions for development.

History of CME

Since the beginning of formal medical training, physicians have been seeking ways to maintain their competence and keep abreast of new developments. When possible, physicians sought opportunities to meet with experts and their peers for the sake of continuing their professional growth and training. These grand rounds presentations, case discussions and medical conferences have always been well intentioned, however, recognizing their significant financial cost, organizers began turning to commercial entities for support and sponsorship. As commercial interests became more actively involved, concerns were raised about conflicts of interest and biased presentations.

Until the early 1980's, CME was largely unregulated and the form and content was primarily left up to the organizers of the events. Quality and applicability to the learners' needs could not be assumed. Likewise, commercial influence over the instructional content was possible and even common. Governments, licensing entities, health plans and hospitals began requiring physicians to obtain a number of CME credits to continue to practice. Those entities, along with patient advocacy groups, wanted assurance that the learning was both sufficient to maintain competency and untainted by commercial influence.

The first formal efforts at CME regulation came from the Accreditation Council on Continuing Medical Education (ACCME), the successor of the American Medical Association's Committee on Accreditation of Continuing Medical Education and the Liaison Committee on Continuing Medical Education.¹ Subsequently, other regulatory organizations, such as the European Accreditation Council for Continuing Medical Education (EACCME)² and the Royal College of Physicians and Surgeons of Canada³ have come on line. Across the globe, the vast majority of accredited CME events are sanctioned by

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organizations answering to one of these three accrediting bodies. Fortunately, they now have agreements of mutual recognition to allow conversion of certain CME credits across jurisdictions.²

While in the past it was acceptable to merely deliver content in a unidirectional, didactic fashion, contemporary CME accreditation requires organizers of an instructional event to move toward content and delivery that will lead to an objective and measurable impact on an attendee's knowledge and behavior and on the outcomes of their patients. Meanwhile, consumer advocacy groups have insisted that content is designed and physicians are taught in an environment clearly separated from any form of commercial influence.⁴

Maintenance of Certification and Maintenance of Licensure are two relatively new concepts to enter the CME arena and they will surely have a huge impact on future directions of CME.^{5,6}

Adult Learning Principles

Most students grew up in a classroom-learning environment characterized by unidirectional information flow from a 'teacher.' For most children in primary and secondary schools, this can be a fairly effective method of instruction. Malcolm Knowles was one of the first educators to start identifying the differences in learning styles between the pre-adult and adult student, coining the phrase 'adult learning' and developing andragogy; a specific instructional theory focused on this mature group of learners.⁷ Table 1 lists commonly accepted differences between the two developmental stages. Recognition of these characteristics makes design of instruction, which meets the needs of the intended learner, more effective.

While the specifics of adult learning theory are often debated, five important principles are fairly well accepted:

1. Adults take responsibility for their lives. They are self-directed and have a deep need to control their learning.

Table 1: Comparisons of learning characteristics

<i>Pre-adult learners</i>	<i>Adult learners</i>
• Followers	• Planners
• Empty vessel	• Experienced
• Passive	• Self-directed
• Individuals	• Collaborators
• Assume doing well	• Like regular feedback
• Resilient	• Challenge but do not overwhelm

2. Adults bring a large number and variety of experiences to an instructional event. They learn best when their prior knowledge is recognized, acknowledged and recall of that knowledge is stimulated.
3. Adults arrive with a predetermined learning agenda which comes from their personal concerns, developmental stage and current roles.
4. Adult learning is life-centered, rather than subject centered, and learning is most efficient when an instructional event presents new knowledge, integrated with old knowledge that applies to real life.
5. Adults need to know why they are learning something. They learn best through self-discovery with real and simulated experiences.

Presumably, continuing medical education programs that are designed with these principles in mind have the best chance of meeting the current goals of changing physicians' knowledge and behavior, and improving patient outcomes.

If one is asked to give an individual direction to a specific destination, the first task must be to determine the person's starting location. Likewise, the design of effective adult instruction should be centered on determining, not only what the student hopes to add to their knowledge base and/or skill set, but also what they already know. Traditional needs assessment for CME has consisted of gathering a planning committee together, determining which speakers they can get and asking those speakers what they want to talk about. While the use of expert opinion is good for determining appropriate cutting-edge information, this method completely ignores the baseline knowledge and instructional desires of the participants.

Review of the above noted principles should lead one to conclude that the audience at a CME event should not be considered homogeneous. Each learner arrives with their individual prior experiences, learning styles and learning agendas. A conference designed with a didactic format, not taking this notion into consideration, is destined to disenfranchise a significant segment of the participants. The instructional material will overwhelm some while underwhelming and boring others. Interactive formats that allow the participants to drive the learning agenda while teaching and learning from each other should be far more desirable and effective. Additionally, since adults are life, rather than subject focused, case-based learning will hold an audience's attention to a far greater degree. The ultrasound specialty lends itself well to this instructional style.

Table 2: Summary of the Ian Donald Inter-University School of Medical Ultrasound Hawaii branch courses

<i>Years</i>	<i>CME credits</i>	<i>Invited speakers</i>	<i>Local speakers</i>	<i>Attendees</i>
2005	12.0	3	6	120
2007	19.0	4	10	150
2009	14.0	8	9	123
2011	12.5	9	10	110

Professional development in the ultrasound realm should have a large component focused on acquisition and maintenance of technical skills and the fifth principle of adult learning tells us that putting the ultrasound transducer in the hands of the participant will contribute to a rich learning experience. Traditionally, training has been done through preceptor programs, presuming that the preceptors practice will deliver an appropriate quantity and variety of anatomic pathology. Subsequently, hands-on CME instruction has been done through the use of models; good for learning normal anatomy and construction of a proper ultrasound image, but typically lacking in pathology. Simulation, through the use of phantoms and digital wizardry, is a relatively new arrival on the scene with the potential for delivering a large variety of normal and abnormal scanning opportunities.

Simulations

In addition to cognitive knowledge, ultrasound has an important technical component that also needs to be developed and maintained. If the discipline of ultrasound follows the trend in other specialties, presence and maintenance of a practitioner's competency will need to be confirmed and documented. While the use of live models for training and assessment is common, this is generally an expensive, awkward and time-consuming undertaking. Given the low rate of reproductive tract and fetal anomalies in the general population, models usually have normal anatomy and rarely offer the opportunity to recognize and learn anatomic pathology. It seems intuitively obvious that simulators and phantoms would lend themselves very well to the ultrasound-training environment and early studies are very encouraging.⁸⁻¹¹

While high and low fidelity phantoms and simulators are available, their use in CME remains fairly limited. An informal review of ultrasound conferences advertised over the Internet showed that only 4% claim the use of simulation (Fig. 1).

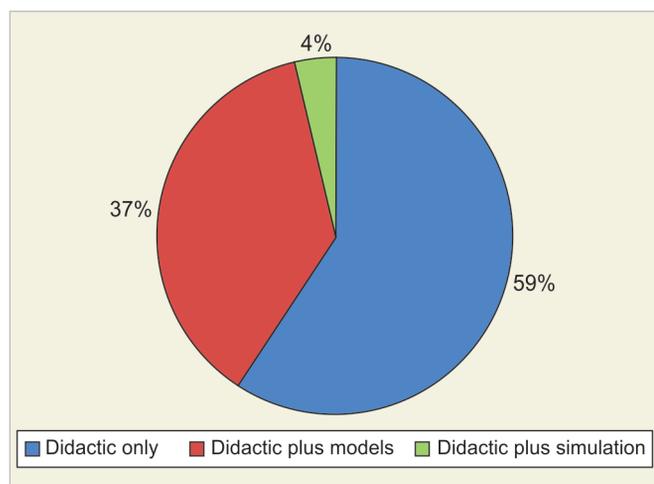


Fig. 1: Structure of the ultrasound conferences

Challenges

Looking forward, two important challenges are facing the delivery of CME. First, is the increasing demand from government and consumer groups for maintenance and objective conformation of professional competence, and the second is the ever increasing scrutiny of commercial influence over physician learning.

The American Board of Medical Specialties (ABOG) and the Accreditation Council for Graduate Medical Education (ACGME) developed and approved six domains deemed essential for the modern practice of medicine; medical knowledge, patient care and procedural skills, interpersonal and communication skills, professionalism, practice-based learning and improvement, and systems-based practice. The MOC process has four parts designed to assess ongoing competence; licensure and professional standing, lifelong learning and self-assessment, cognitive expertise, and assessment of practice performance. Inglehart and Baron provide an excellent overview of the MOC process and the strategies employed by the various specialty boards.¹²

The American Board of Radiology has recognized and embraced the concept of MOC for diagnostic radiology and their program is similar to those of the other specialty boards. The recertification cycle is 10 years in length and in addition to the professional standing evaluation, must include 500 hours of CME, 'self-assessment modules' and a proctored exam measuring cognitive knowledge.¹³ The American Registry for Diagnostic Medical Sonography (ARDMS)¹⁴ and the American Institute of Ultrasound Medicine (AIUM)¹⁵ do not have MOC requirements beyond obtaining a specified number of CME credits. The ARDMS is currently compiling a recertification assessment process that will be required of all ARDMS certification holders after an initial 10-year approval period. Based on the history of other medical disciplines, a mechanism for confirming continued competency of ultrasound professionals will soon be required.

As discussed previously, government agencies, health plans institutions and consumer groups have a strong interest in assuring that decisions made by physicians will be free of conflicts of interest and commercial bias.¹⁶ Of the three main accrediting bodies, the ACCME has the most detailed document outlining the role of commercial support in CME¹⁷ while the others have similar, albeit less comprehensive statements. In brief, decisions regarding identification of CME needs, educational objectives, selection and presentation of content, persons and organizations in control the content, education methods and evaluation of the activity, must be made free of control of a commercial interest. All members of the planning committee and the speakers must

be willing to disclose any commercial relationships (income, stock, speaker's fees, research grants, etc.) that have the potential of influencing the educational content. Commercial exhibits, while allowed, cannot influence the planning or interfere with presentations.

The institute of medicine has defined a conflict of interest as 'a set of circumstances that creates a risk that professional judgment or actions regarding a primary interest will be unduly influenced by a secondary interest.'

Ultrasound CME—Hawaii Experience

The Ian Donald Inter-University School of Medical Ultrasound Hawaii branch has successfully held four courses to date and has a fifth conference in preparation for September 2013 (Table 2). The primary goals of the conference are to effectively educate the obstetrics and gynecology community in Hawaii on the recent innovations and trends in obstetrics and gynecology ultrasound as well as to provide a foundation and resource for those physicians who perform office ultrasounds for their patients.

The first course in 2005 began as a 2-day hospital based conference sponsored by the Straub Foundation. The conference was well attended and the interest from the community confirmed a need for structured ultrasound CME in Hawaii.

The second Ian Donald course was held in 2007 and provided a comprehensive 3-day course, organized by the University of Hawaii John A. Burns School of Medicine, accredited for 19 hours of CME by the ACCME. The course was attended by 150 physicians, sonographers and affiliated medical staff. In post-conference reviews, it became clear that the 3-day format was too lengthy for many of the community physicians.

Respecting learners' feedback from the post-conference review, both the 2009 and 2011 courses were shortened to a 2-day format, accredited for 14.0 and 12.5 CME credits respectively. Attendance at both the 2009 and 2011 conferences remained consistent at the 150 mark. Recognizing the ACCME standards for commercial support,¹⁷ industrial interests were not allowed to sponsor the conference. However, exhibitors are allowed to purchase exhibition space in an area adjacent to, but separate from the educational venue. While portions of the 2009 and 2011 conference format have remained traditionally didactic, interactive lectures, debates and case presentations with audience participation were introduced and well received. Consistent with adult-learning principles, our speakers have consistently earned the highest reviews for those sessions. These interactive learning formats will be repeated and expanded in the 2013 course.

A high-quality ultrasound CME course in Hawaii provides many advantages for local physicians and sonographers and visiting professionals attending the conference. While our course offers the local community the opportunity to attend a large scale, specialized conference in ultrasound without having to shoulder the burden of expensive travel arrangements and closing their practices for an extended period of time, it also gives visiting ultrasound professionals a glimpse into the interesting pathology experienced by our unique patient population. It is the authors' hope that the Hawaii course will continue to provide quality CME ultrasound education and advance clinical care.

CONCLUSION

Ultrasound is continuously enhancing and improving the practice of obstetrics and gynecology. As ultrasound technology becomes more sophisticated, the imaging professional requires CME to maintain proficiency. The medical educators' responsibility is to ensure that learners understand the conscientious use of new technology to improve and maintain the health of patients. Delivery of efficient and effective instruction requires respect for adult learning theory while ensuring that the instruction is untainted by commercial bias. Hands-on learning can be very effective and ultrasound simulations should be incorporated into learning events, whenever possible. The role of Maintenance of Certification and Maintenance of Licensure, in the CME realm, will continue to be defined.

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