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Ultimately, continuing medical education (CME) is to improve patient outcomes. Those CME activities that are based on well-conducted needs assessments are effective in changing the behaviors of physicians. It is encouraged that physicians receive active CME, including self-directed learning formats. Specific methods to be conducted can be workshops, small, practice-based study groups, programs delivered on CDs, interactive computer programs, Web sites, workbooks, journals, practice guidelines, and peer consulting.

However, without a justification and grounding of the content for CME by needs assessment, programs are not likely to be effective in spite of the format. Learning needs are personal and are identified by the individual learner through surveys, audits, practice experience, questioning, self-assessment, and peer review. There is no evidence that these methods are being used. Educational needs are different in that they are the interests or perceived interests of target groups that can be determined by surveys, focus groups, analysis of regional practice patterns, and CME program evaluations.

A possible strategy is to proceed with a structured practice audit. A study has shown that doctors who keep an office visit log of learning issues were able to generate specific learning objectives. An alternative is to do a standardized assessment exercise designed to assess actual community practice issues. One method to accomplish this is through an exercise consisting of 10 stations taking a total of 25 minutes that is modeled after objective structured clinical examinations (OSCEs). However, other strategies can be used, including:

- periodic internal audits
- individualized audit results compared with current literature or practice guidelines
- individualized audit results compared with exemplary peers (benchmarking)
- facilitated note keeping and reflection around sentinel patients

**Keys to Learning Proper Procedural Skills**

There are barriers toward teaching physicians new procedures. Some of these include a lack of trained faculty, adequate patient numbers, cost, and equipment access. However, instruction of students and residents in a workshop setting can be both reliable and cost-effective and provide the opportunity to practice in a safe setting that enhances retention and minimizes errors. A study was performed to determine if a workshop format would also be successful in teaching procedural skills to practicing physicians. An interactive workshop for internists was conducted teaching a skin biopsy and arthrocentesis at a meeting of the American College of Physicians. After a 20-minute videotape was shown, a skin biopsy was demonstrated on a pig's foot model, and arthrocentesis was demonstrated on a polyurethane model which beeped when inserted properly.

Groups of 20-25 participants were then divided into smaller groups, with one faculty member for five participants. A total of 450 physicians participated in the skin biopsy exercise and 586 in the arthrocentesis workshop. A follow-up study performed eight months later reported that there were significantly more of the physicians performing these two procedures and significantly fewer referred significantly fewer patients to specialists. The workshop model was concluded to be a feasible teaching format for practicing physicians, incorporating the basic principles of adult learning. Additional studies need to be performed to assess improved patient satisfaction and outcomes.

*(Alguire PC. "Teaching physicians procedural skills at a national professional meeting." Medical Education Online. 9:1; 2004. http://www.med-ed-online.org.)*

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**Training Residents to Interact with Pharmaceutical Representatives**

Only 25 percent of internal medicine residency programs provide formal instruction on how to interact with representatives of drug companies. A survey of 200 internal medicine faculty members and residents found that there was a low level of knowledge about the marketing techniques used by drug company representatives and professional guidelines on interacting with them. It was recommended that medical schools consider incorporating such instruction in their curriculum. Since the pharmaceutical companies spend billions of dollars annually to change the behavior of physicians, doctors need to be informed decision makers and become aware of the potential conflict of interest among these sales representatives.

Another study showed that 90 percent of physicians would dispense a drug sample to treat hypertension instead of using the drug that was their preferred choice. A six-hour curriculum has been developed by Wake Forest University Baptist Medical Center for internal medicine residents that includes videotaped interviews with patients and how they are affected by drug costs, as well as their thoughts on gifts to doctors from drug companies. In addition, the curriculum included information about drug company strategies and how to critically interpret promotional materials. Statements were reviewed from professional organizations about interactions between physicians and drug company representatives. After a pilot study, residents improved their score from 33 percent to 86 percent on a test designed to determine their knowledge on these issues.

*(Watkins R and Kimberly J. "What residents don’t know about physician-pharmaceutical industry interactions." Academic Medicine. 79: 432-437; May 2004.)*
Early Clinical Experience in Medical Education

A study at the University of Manchester Medical School examined what it is that clinical experience can add to early medical education. Students in the study felt that experience with patients helped them to build confidence to talk with patients and act appropriately in their presence as "medical students" rather than as friends. They thought that such interaction would develop professional identity and believed that contact with doctors was highly motivating. Professional staff felt that providing clinical experience at such a critical time in the development of students could build an awareness of their professional status and future responsibilities, encouraging humility and integrating personal and professional development. They also felt it could help students understand more about people.

In addition, experience could stimulate the intellectual development of students, encouraging them to evaluate the way they learned and to teach them study skills they could use later. Staff and students also thought that experience could be helpful in strengthening behavioral and social sciences by seeing their importance and integrating them in the curriculum. Both students and faculty favored early experience and did not believe it weakened basic science learning. It was also believed that it would be complementary to problem-based learning.

(Dornan T. and Bundy C. British Medical Journal. Volume 329: 834-837; October 9, 2004.)

Analyzing Teaching on the Run

A novel concept referred to as a triad is described as a method for planning a teaching event. Even busy clinicians can use this method to teach "on the run" in a clinical setting. This method can be a five-minute moment or an hour lecture. The triad concept is based on:

- **Set**: What needs to be thought of beforehand.
- **Dialogue**: What happens during the teaching event.
- **Closure**: How do you finish off the teaching event?

The SET includes being clear about the desired learning outcomes. These must be specific and achievable in the time available as well as relevant to the learner. The environment and teaching "props" need to be adequate. If patients are involved, they should be suitable and there should be privacy. The learners should not be tired or distracted by other work.

DIALOGUE involves the interaction between the learner and the teacher. It should include delivering the content in a stimulating manner. Eye contact should be used and people addressed by their names, asking questions to keep them involved. Learners should be informed as to what is expected of them.

CLOSURE is a summary that includes links to topics for self-directed or future learning. It is important that the session be completed on time. After a session, ask what went well and what could be improved.


Physician Shortage Predicted in Several Decades

In the next 20 years, it is likely that there will be a shortage of 200,000 physicians. Since the mid-1980s, there had been a premise that there was going to be a surplus of physicians in the United States.

A study conducted at the Medical College of Wisconsin in Milwaukee concluded that there was no evidence of a surplus but rather that there is a shortage of physicians developing. The study states that the number of physicians is not keeping up with the growth of the population. It also predicts this will occur unless there are measures to curb current economic and medical trends.

Alan Garber, M.D., from Stanford University School of Medicine and Harold C. Sox, M.D., from the American College of Physicians recommend increasing the number of physicians gradually to avoid major new investments in capital or teaching personnel.

(Cooper RA. Annals of Internal Medicine; 141: 705-714, 732-734.)
Lack of Sleep and Intern Medical Errors

Interns made five times more diagnostic errors and 21 percent more medication errors when they were working traditional 30-hour shifts. In addition, 36 percent more medical errors occurred when they worked traditional shifts. In a study at Brigham and Women's Hospital in Boston, they reduced interns' work schedules to 16-hour shifts and their workweek to 63 hours. As a result, the rate of serious medical errors was also reduced significantly. Carolyn M. Clancey, M.D., director of the Agency for Healthcare Research, stated that, "The impact of sleep deprivation on performance has been well documented in other industries, but studies like these are providing evidence of its impact in health care. This research clearly demonstrates that changing the design and structure of the systems in which clinicians practice is essential to improving patient safety."

The study included 624 intensive care unit admissions that totaled 2,203 patient days over a one-year period. Six physicians observed the interns, and their charts were reviewed by two nurse-chart reviewers. Authors of the study indicated that the interns' role in the ICU did not diminish, nor did the change in the work schedule result in shifting the burden to more senior staff. Furthermore, there was no significant increase in the number of medications ordered or tests interpreted by the interns in the revised work schedule. The lead author, Christopher P. Landrigan, M.D., M.P.H., director of the Sleep and Patient Safety Program at Brigham and Women's Hospital, commented that further limitation of consecutive work hours may be an important means of preventing medical errors.