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# Teaching Basic Surgical Skills to Family Medicine Residents

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Family medicine residents often come from such widely diverse medical school backgrounds that the members of any first-year residency class will likely exhibit a significant range of capabilities and experience in basic surgical skills. With the rare exception of the resident who has had an extensive surgical experience outside the medical school environment (eg, the ex-corpsman who worked as a surgical technician or surgical assistant), most first-year residents do not have adequate skills to handle the minor surgical problems that will immediately begin to surface in the emergency room and as the resident builds a residency practice in the model family medicine clinic. After this problem was identified in both first- and second-year residents, teaching sessions were de-

signed with the overall goal of helping to elevate each resident's basic surgical skills to a level at which he or she can then learn from each subsequent minor surgical encounter. The attempt to raise the individual skill levels became an essential part of the residents' orientation program and took place during the first month of residency.

## Teaching Sessions

A format consisting of three 3-hour sessions, two in the classroom, and a third in the dog laboratory, was selected. In addition to the authors, a fourth-year general surgery resident participated in all three teaching sessions.

## Classroom Session I

The first hour of this session was used for a discussion of antisepsis and sterile technique and discussion and demonstration of basic instruments, needles, and suture materials.<sup>1</sup> The second hour was devoted to a demonstration of two-

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handed knot-tying, followed by individual instruction and practice for each resident, using short lengths of rope and then suture materials. The remainder of the session was used for the demonstration and practice of making incisions, suturing skin, and suture ligation. To practice these skills, each resident was issued a 3/8-inch plywood board to which a matching sheet of 3/8-inch foam rubber carpet padding with a lacquered surface simulating the surface of skin had been secured with thumbtacks. Though many materials, such as pigskin, have been previously used for this purpose,<sup>2</sup> this type of carpet padding was inexpensive, readily available, and effective.

### Classroom Session II

The second session had three parts: a film on the technique of arterial and venous cutdowns, followed by a blackboard elaboration; an illustrated lecture on vasectomy; and a discussion and blackboard presentation on tracheostomy, cricothyroid tracheostomy, and the insertion of a chest tube.

### Dog Laboratory Session

In separate rooms, two 30-lb mongrel dogs were anesthetized, and the neck, chest, abdomen, and groins were shaved. Four residents were assigned to one room, three to the other. The surgical resident and one faculty instructor were each assigned to one of the two rooms, and the second faculty instructor circulated between the rooms.

The session began with a demonstration of the laryngeal anatomy and was followed by each resident's using a laryngoscope to insert an endotracheal tube. In each room, the residents and their instructor opened all of the equipment necessary to perform a laparotomy and established a sterile back table. Each person scrubbed and put on a gown and gloves. The Mayo stand and the dog were draped; all instruments were removed from the sterile tray and placed on the Mayo stand. The different instruments were handed to each resident one at a time. Residents learned the name of each instrument and how to hold and to use each one.<sup>3</sup> Having dealt with these basic skills, the residents were now ready to perform a sequence of surgical procedures on the anesthetized dogs.

First, each resident made an elliptical skin incision, as one would for removing a nevus, and then

closed the wound.<sup>1</sup> This procedure was followed by a series of venous and arterial cutdowns, using the external jugular veins in the neck and the right and left femoral arteries and veins in the groins, with catheter insertion, irrigation, and wound closure by each resident.<sup>2,3</sup> Next, two residents performed a midline abdominal incision, one opening the upper and the other opening the lower abdomen. Abdominal wall bleeders were clamped and tied. The intra-abdominal anatomy was discussed, and structures were identified by the residents. Splenectomy was then performed by the residents, using the two common ways of separating any organ from its blood supply, ie, "clamp, clamp, cut, and tie" and "tying in continuity" (tying the vessel on two sides, cutting tissue in between, and then cutting the sutures). Suture ligatures were also practiced during the splenectomy. The abdomen was then closed, using interrupted suture techniques to close the long skin incision. During the final hour of the laboratory session, tracheostomy, cricothyroid tracheostomy, and insertion and suturing of chest tubes into the right and left hemithorax were performed.

At the conclusion of this final session, each participating resident was given a book dealing with fundamental surgical skills provided by the Department of Family Medicine.<sup>3</sup> In lieu of written handouts, this book served as both an elaboration and a summary of the basic skills taught in the course. From a long-range perspective, this book provided an ongoing resource for the continuation of each resident's surgical skills education throughout the residency and beyond.

After these teaching sessions were over, each resident was asked to fill out anonymously an evaluation form for this part of the orientation process.

### Teaching Evaluation

From the author's perspective, the following observations were made. Attendance by the seven first-year residents at all three teaching sessions was prompt and complete. The residents appeared to be "engaged" by the informal atmosphere and emphasis on practical performance of each session. By the end of the two classroom sessions, all seven residents were able to demonstrate such basic skills as recognizing suture types, perform-

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ing two-handed knot tying and instrument tying, and knowing the names and use of the needle holder, tissue forceps, and scissors. By the end of the dog laboratory session, it was clear that all seven residents could actually do the procedural skills, including, but not limited to, cutdowns, chest tube insertion, division of tissues, endotracheal intubation, skin incisions, suturing, and suture ligation.

All seven residents acknowledged that these

three teaching sessions greatly improved a large number of their basic surgical skills. All residents indicated that these teaching sessions, especially the animal laboratory experience, should be included in any future first-year resident orientation.

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## Entry Into Practice: Problems in Making the Transition

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Physicians who recently entered practice in Georgia were surveyed by mail to determine the degree of psychological stress encountered on entry into practice, the sources of information available to help them in making the transition, and the kinds of problems they encountered.

### Methods

A list of all practicing primary care physicians was obtained from the Composite Board of Medical Examiners. The entire population of 828 physicians was surveyed, with 481 questionnaires returned, constituting a response rate of 58 percent.

The design of the survey instrument was based on available literature<sup>1-6</sup> and contained questions related to such physician background characteristics as age, sex, primary and secondary specialty, community size, medical school and year of graduation, year of starting practice, and practice

arrangement such as solo practice, group practice, or partnership. These background characteristics were analyzed with regard to specific areas producing difficulty for the physician during his or her first two years in practice.

### Results

The degree of stress of the transition from the residency training program to the practice setting was assessed from two different perspectives. The first perspective involved rating the stress of the transition into practice as none, moderately stressful, or very stressful. Of those physicians responding to the questionnaire, 68 percent reported experiencing a moderately or very stressful transition.

Another perspective was obtained by comparing the psychological stress of the first year in practice with that of the internship year, with 37 percent rating the stress of the transition equal to or greater than the stress of the internship year.

Only a small percentage (11 percent) of physicians cited training programs as being a source of assistance when making the transition from training to practice. The principal source of help cited was a physician in the practice setting (49 per-

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