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Survey of Residency Training in Preoperative Evaluation

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CHANGES in the healthcare system have promoted the evolution of anesthesia from an intraoperative to a perioperative practice. The growing emphasis on the reduction of costs, the improvement of medical outcomes, and the maintenance of high-quality care[1] has created professional opportunities and intellectual challenges for anesthesiologists.[2] Anesthesiologist involvement in the management of surgical patients in a preoperative clinic has been shown to decrease unnecessary testing and costs, reduce operating room delays and cancellations, and improve patient and physician satisfaction.[3–5] Continued improvement in preoperative assessment, however, may rely on educating anesthesiologists in the skills of physical diagnosis and patient assessment, personnel and business management, and conducting or understanding outcome-based research.[6] We hypothesized that the majority of accredited anesthesiology residency training programs do not support or encourage resident development of these necessary skills. Therefore, we surveyed U.S. residency programs with respect to their arrangements for preoperative assessment and how residency training in this area is accomplished.

Methods

A three-page survey (see Web Enhancement) was mailed to every accredited anesthesia residency program in the United States (N = 140), as listed in the *Graduate Medical Education Directory, 1997–1998*.[7] The survey was composed of three sections which evaluated the existence and general structure of the preoperative clinic, resident scheduling and supervision within the preoperative clinic, and resident curriculum in preoperative evaluation. The survey was addressed to the program chair with a request that it be forwarded to the anesthesiologist most responsible for preoperative assessment. If the initial survey, which was mailed in October 1998, was not returned in 4 to 6 weeks, the program was contacted by phone and an additional survey was telefaxed. All completed surveys were received by February 1999, and responses were entered into a computerized database and checked for accuracy by an independent observer. Results were tabulated and analyzed using appropriate descriptive and comparative statistics. Differences in various program characteristics were tested by chi square or logistic regression, as appropriate, with $P < 0.05$ considered significant.

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Results

Responses were received from 115 of the 143 (80%) programs surveyed. Characteristics of responding and nonresponding programs are noted in figure 1. Three programs no longer trained anesthesia residents and were excluded from analysis; the remaining 112 programs accounted for 3,466 (82%) of current residents in training, and 97 (84%) had a preoperative assessment clinic. Responses regarding the existence and general structure of the preoperative clinic, resident scheduling and supervision within the preoperative clinic, and preoperative evaluation curriculum are tabulated in tables 1, 2, and 3, respectively.

A block rotation with a length of 3.3 ± 2.1 days (mean ± SD; range, 1–8) was utilized in only 37% of the programs that rotate residents through the clinic. A total of 342 and 777 residents, respectively, were in programs that did not have or did not rotate residents through a preoperative clinic. Collectively, this represents 32% of the residents in training. Additional details of resident scheduling are noted in table 2.

The percentage of attending staff with some interest or level of expertise in the area of preoperative assessment is illustrated as a histogram (fig. 2). Almost one third of programs reported that zero to 10% of their staff had any interest or proficiency in this area, and an average of only 18% of attending staff had such expertise at each program. Eighty-seven programs (83%) assigned at least one attending anesthesiologist to be responsible for the preoperative clinic per day, and 46% attempted to assign an

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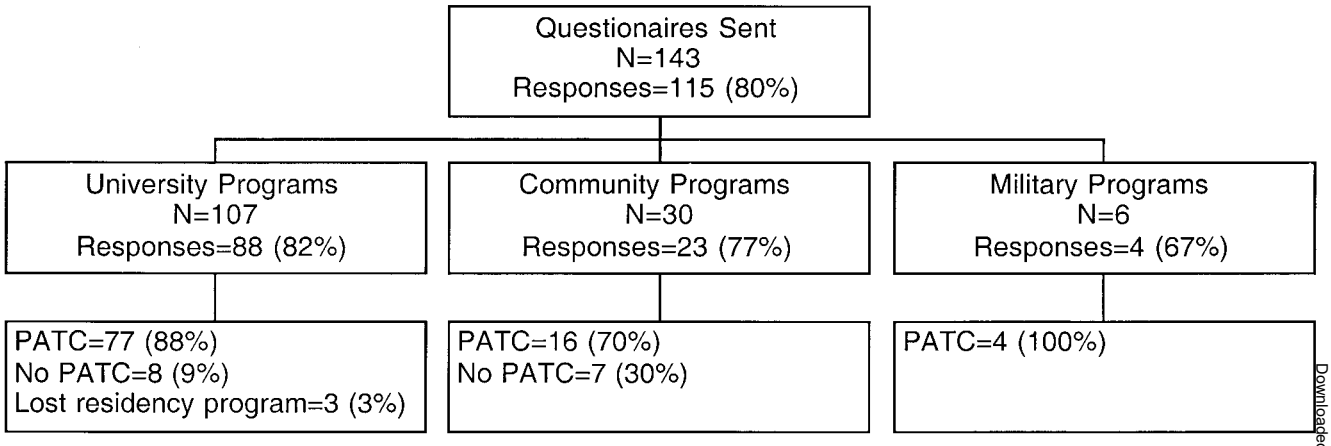

Fig. 1. Characteristics of programs responding and not responding to the survey.

attending with some level of expertise in this area. Additional details regarding attending coverage are shown in table 3. Ninety-seven percent of responding programs indicated that competency in preoperative assessment was an important skill for anesthesiologists (table 3).

Logistic regression indicated that program size was positively related to the presence of residents in the clinic ($P = 0.0383$) and the presence of an attending anesthesiologist in the clinic ($P = 0.0003$), but not the existence of an established curriculum ($P = 0.75$). The percentage of attending anesthesiologists with expertise in preoperative assessment was unrelated to the presence of residents or attending anesthesiologists in the clinic, nor to the existence of an established curriculum ($P > 0.4$ in each case).

Written comments regarding the impressions of attending and resident anesthesiologists working in the preoperative clinic were included on 85 surveys; of these, 58% were negative, with such characterizations such as "the penalty box," "an onerous task," "frustrating," "neutral at best," and "a necessary evil." The majority of comments referred to the limited control of the testing or consultations performed, the inability to schedule patients appropriately, the lack of communication between surgeon and anesthesiologist, and the lack of ancillary staff to request and follow-up on information from other facilities.

Table 1. General Clinic Structure for Preoperative Assessment

Feature	Number of Programs (% of Programs Responding) or Median (Interquartile Range)
Volume of patients seen per day*	
< 20	21 (21%)
20–40	48 (49%)
40–60	23 (23%)
> 60	6 (6%)
Percent of total operating room cases seen in clinic	
< 50%	26 (27%)
50–70%	31 (32%)
70–90%	34 (35%)
> 90%	6 (6%)
Patients seen per anesthesia provider†	15 (10–25)
Providers seen per patient† (*e.g.*, anesthesiologists, nurses)	3 (2–3.5)
Appointments†	
% Unscheduled	36.1 ± 33
% Time with providers	51.6 ± 21
% Time waiting	47.7 ± 21
Person(s) responsible for clinic administrative policies	
Anesthesiologist	40 (40%)
Nurse manager	15 (15%)
Hospital administrator	5 (5%)
Combination of above	40 (40%)

* Number of programs (% responding to item in questionnaire).

† Median (interquartile range).

Discussion

The evolution of anesthesiology challenges residency training programs to educate practitioners who can successfully function in roles outside the operating room. However, despite the value of preoperative assessment to patients, physician colleagues, and the specialty, little educational support has been given to this essential daily practice. Although almost all programs agree that competency in preoperative assessment is an important skill for anesthesiologists, less than one half have a formal curriculum in this area, and nearly 50% do not teach

Table 2. Resident Scheduling in Preoperative Assessment

Feature	Number of Programs (% of Responding Programs with Active Residencies, N = 112)	Percent of All Residents
No preoperative clinic	15 (13)	8
No residents in the clinic	30 (27)	24
Residents in the clinic	65 (58)	66
Block rotation	24 (37)	
Random assignment	28 (43)	
Combination	13 (20)	

Table 3. Attending Coverage and Curriculum in Preoperative Assessment

Feature	Number of Programs (% of Responding Programs)*
Attending coverage	
Physically present	57 (59)
By pager only	29 (30)
No review of resident evaluation by attending	18 (19)
Curriculum	
Formal established curriculum	43 (43)
Lectures ≤ 6 times/yr	55 (55)
Interview skills addressed	53 (53)

* Percentage calculated from number of programs with residency training and a preadmitting test center (for attending coverage) or number of programs with residency training responding to questions about curriculum (N = 99–100).

patient interview skills. Although the educational benefit of training within preoperative clinic has not been studied, the value of such clinics has been clearly noted,[3–5] and the benefit of training in such an environment could be suggested. Regardless, 39% of programs (representing 34% of residents) do not expose their residents to a preoperative clinic experience.

There are at least five reasons to believe that curriculums in preoperative assessment, patient management, and perioperative outcomes research and the establishment of preoperative clinics are necessary. First, improved physical diagnostic abilities and operative risk assessment skills could potentially enhance patient outcomes and lower costs.[8–11] Second, interventions such as physical examinations and face-to-face discussions more than immediately before anesthesia and surgery have been suggested to improve the anesthesiologist–patient relationship[12] and overall patient satisfaction and outcome.[13,14] Third, by effectively managing the resources involved in a preoperative clinic, anesthesiologists enhance their roles within their institutions[6] and may become responsible for a greater portion of perioperative care resources.[2] Fourth, by fostering an interest in preoperative care, expanding clinic and patient management responsibilities, enhancing departmental and hospital support, and creating beneficial patient outcomes, an improvement in anesthesiologist satisfaction could be realized. Finally, if communication skills are addressed during residency training, interactions with patients and other healthcare providers, particularly in uncomfortable situations, should improve as well.

The major limitation to this survey is the reliance on the perceptions of the individuals filling out the survey. Although the identities of these individuals were deliberately anonymous to encourage candidness, we believe the responses are from the anesthesiologists most involved in the area of preoperative curriculum, as directed by our cover letter to the departmental chairs. Consequently, although we believe our survey most closely reflects the preoperative assessment environment at each program, we did not formally evaluate the survey instrument before its distribution. A second limitation was the restriction of detail obtained by the survey; although a more comprehensive instrument could have been developed, we had concerns regarding whether such a survey would be completed. We view our survey as a preliminary insight into areas that may benefit from further exploration.

It is unrealistic to expect the next generation of anesthesiologists to successfully manage the administrative and clinical roles in perioperative medicine without basic exposure during residency training. Attending anesthesiology staff who have interest in preoperative care are essential for curricula and leadership roles to be

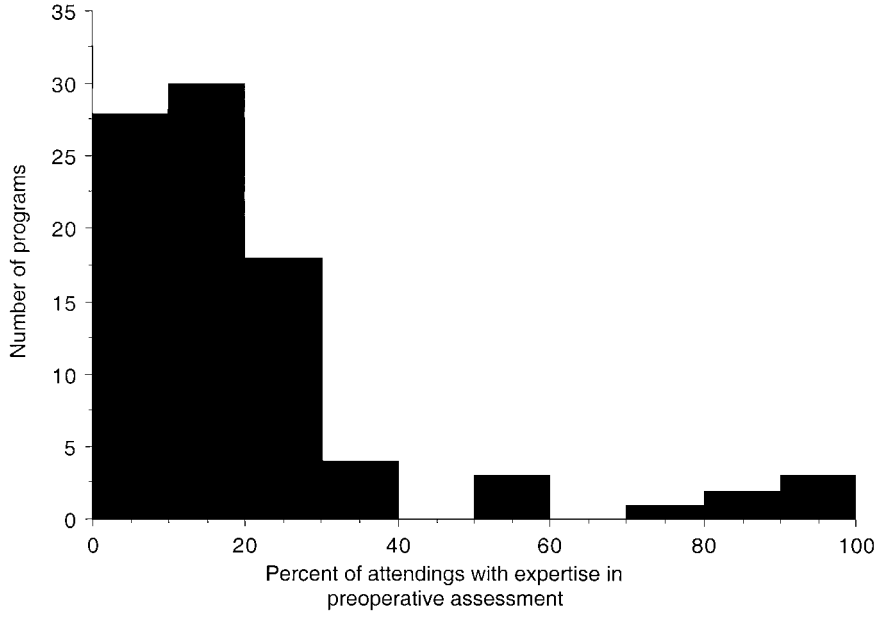

Fig. 2. Histogram of attending anesthesiologists with expertise in preoperative assessment.

developed. Although many departments appear reluctant to allocate resources in this area, the potential benefit of preoperative care to patients, institutions, and the specialty is large. The demonstrated value of the preoperative clinic will allow for its continued growth; whether anesthesiologists will lead that mission is clearly up to the profession.

Many current residents have no contact with either a preoperative clinic or an established curriculum in preoperative assessment. Few departments have a significant number of staff with interest or expertise in this area. Development in this area is essential to change the negative attitudes of anesthesiologists about working in the preoperative clinic.

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