Controversial issues in pediatric anesthesia training and practice: in the USA

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History

Training and clinical practice in pediatric anesthesia as a subspecialty in the United States started to accelerate in the late 1940's when increasing numbers of physicians began to dedicate part or all of their professional activities to the care of children. William McQuiston in Chicago, Digby Leigh in Los Angeles, Jack Downes in Philadelphia, and Robert Smith in Boston are examples of anesthesiologists who were viewed as subspecialists. The publication of Dr. Leigh's textbook in 1948 and Dr. Smith's in 1959 were important landmarks in the development of the subspecialty. Much of the early work was centered in children's hospitals and large medical centers, such as Massachusetts General Hospital or the University of California, San Francisco, though individual pockets of excellence were found in smaller settings. As the numbers of dedicated pediatric anesthesiologists increased, professional organizations such as the American Academy of Pediatrics, Anesthesia Section, and the Society for Pediatric Anesthesia developed to provide venues for the support of education and research, as well as clinical care.

Fellowship Training

Resident training in pediatrics became an intricate part of general core anesthesiology residencies. In addition, postgraduate fellowship training in pediatrics began in an ad hoc manner in many of the large resident training programs, and by the early 1970's, many recognized fellowship programs could be found across North America. Most fellowship programs have been a year in length, with time beyond a year occasionally dedicated to research or focus on clinical areas such as cardiac anesthesia. The most common reasons for taking fellowships included a desire to subspecialize in pediatric clinical practice, to develop an academic career, and to continue in training while preparing for Board examinations or petitioning to stay in the country. The nature of fellowship training changed in 1997 when the Accreditation Council for Graduate Medical Education (ACGME) offered accreditation of pediatric anesthesiology programs. This process results in accreditation of training programs, not subcertification of the individual graduates. ACGME is the accrediting body for core anesthesiology residencies, as well as the fellowship training programs in pain management, critical care, and pediatrics.

Pediatric programs that wish to become ACGME-accredited must meet rigorous program requirements and are periodically evaluated by ACGME site visits. There is an extraordinary emphasis on the responsibility of training programs to provide an adequate educational experience, including a broad clinical experience, quality education, safe and effective patient care, and resident safety. The six core competencies of (1) patient care, (2) medical knowledge, (3) inter-personal and communication skills, (4) professionalism, (5) practice-based learning, and (6) systems-based practice are the basics of the educational experience. There are currently 43 approved programs and a total of 78 officially enrolled fellows for the 2003-2004 academic year. The program directors of approved fellowships meet yearly at the Winter Meeting of the Society for Pediatric Anesthesia to discuss common issues.

Accreditation of pediatric anesthesiology fellowships has accomplished several things in its short history. There have been changes to the existing programs, with increased attention to issues such as teaching curricula, faculty productivity, and resident responsibilities. In addition, there has developed a defined forum where issues common to all fellowships can be discussed. Fellow candidates now have uniform criteria that are used to identify the qualifications of approved programs. Lastly, the subspecialty is starting to act as a cohesive force, coordinating the activities of fellowship programs, the SPA, the AAP Anesthesia section, and the ASA's Committee on Pediatric Anesthesia to identify the issues that will mold its future and the subspecialty's role in that future.

An issue that has been of interest in both academic and community practice venues is that of subcertification in pediatric anesthesiology. Unlike fellowship programs in critical care and pain management, graduation from an accredited fellowship program in pediatric anesthesiology does not currently lead to eligibility for certification in that subspecialty under the auspices of the American Board of Anesthesiology. This is a controversial subject for several reasons. What is the criteria for subcertification? Do clinicians with many years experience caring for children qualify for the certificate, even if they did not have a fellowship many years ago? What are the advantages and disadvantages of subcertification? If a clinician does not have subcertification, will there be a limitation on their practice? This will be the subject of ongoing discussions.

Clinical Care

The venues of clinical care in pediatric anesthesiology in the United States are remarkably diverse, ranging from large children's hospitals where over 15,000 cases per year are performed to small community hospitals, where less than 100 pediatric cases per year are performed. There is a preponderance of high risk care, especially in children under a year of age, in either children's hospitals or large regional medical centers. In a recent review of discharge databases in Iowa, it was found that 93 of the 119 hospitals and freestanding outpatient centers in the state performed at least one procedure in children under 2 years of age. Of note, 57 of the facilities performed less than 25 procedures/year and, in aggregate, accounted for less than 8% of the total procedures. Although it has been widely believed that the vast majority of pediatric care is done by anesthesiologists with no advanced training beyond their core residency, there is currently not a good source of state or national data that accurately describes either the training or ongoing experience of anesthesiologists who care for either routine or high risk cases.

What are the present and future challenges is clinical care? There are several important issues confronting pediatric anesthesiology. First of all, economic forces of supply and demand are at work. At the current time, there is an active job market for pediatric anesthesiology subspecialists. Both academic centers and community hospitals are very interested in hiring anesthesiology staff with pediatric experience. Many children's hospitals are, themselves, short of staff and look to their graduating fellows as a source of recruitment. This conspicuous demand is based on several factors; an increased appreciation by the public of the desirability of having a pediatric anesthesiologist care for their child, decreased graduates from both residencies and fellowships in recent years, and expansion of pediatric services in both specialty and generalist hospitals.

Second, although the number of fellows in pediatric anesthesiology has increased in the last year, there are multiple unfilled slots in accredited programs. The job market for anesthesiologists in general is robust, with many graduates being offered extraordinarily attractive starting salaries and conditions of employment. This makes it hard for residents to make the decision, instead, to spend another year of training in a subspecialty. The robust market also makes it difficult for academic programs to attract qualified graduates because of the economic incentives offered in non-academic positions.

A third important issue is the role of pediatric anesthesiologists in providing care for children in both specialty and general hospitals. The overwhelming majority of pediatric patients are currently anesthetized safely by generalists. There are not enough pediatric anesthesiologists currently available (or available in the foreseeable future) to even consider their involvement in all cases as a reality. However, there is a wide diversity of opinion about what the qualifications should be for clinicians anesthetizing high-risk pediatric patients, such as newborns. Are both the public and the specialty advantaged to have the sickest of patients cared for in an environment where both the anesthesiologists and the entire system involved in perioperative care are devoted to maintaining expertise in pediatric care? It is hard to argue against having the sickest of patients cared for in an environment where everyone, including the physicians, nurses and the institution itself, is prepared to make the extraordinary efforts necessary to properly care for these patients. Each institution and anesthesiology department should evaluate their capability for caring for pediatric patients, ensuring that adequate systems and individuals with appropriate expertise are in place.

A subset of this issue is the challenge of providing care in new venues. Anesthesia departments are increasingly asked to provide sedation or anesthesia care outside the traditional operating room environment. We are asked to provide care in the cardiac catheterization suite, the angiography suite, the MRI scanner, the emergency department, in hematology/oncology clinics, and radiation therapy units, to name just a few. It is often cumbersome to provide this care and frequently is not done in an efficient fashion. However, it is an opportunity to improve the level of care for many children.

A large challenge in many institutions that have a high pediatric volume is the issue of adequate revenue. Many children's hospitals and large academic medical centers serve populations that have a high proportion of children funded by the Medicaid system. Reimbursement from Medicaid and selected other funding sources is at the low end of the payment range, decreasing the resources available to physicians and hospitals that serve these populations. Balancing clinical service and economic stability has been done in a

variety of ways, including philanthropy, increasing outreach activities to better funded populations, limiting access, dependence on non-physician providers, lower funding of compensation and activities such as research, and partnering with institutions with a stronger economic base. Clinicians and clinician researchers can usually find higher levels of compensation and access to other resources in institutions that minimize their care of intercity, at-risk pediatric populations.

Lastly, the scope of care that can be provided to children is expanding. New procedures, therapeutic and diagnostic modalities, medications, and systems of care have expanded our ability to manage sicker and sicker children. We have taken on roles in the operating room, the pain services, and areas outside the operating room that bring our expertise to new venues. However, this demands that we not only be skillful and knowledgeable, but that we also are both flexible and innovative. If we are able to respond to changing needs and opportunities, we are in a position to grow our specialty and its contribution to the scope of care.

In summary, pediatric anesthesiologists are in a unique position to advance as providers of high quality care, leaders in the education of all anesthesiologists, and, above all, advocates for the growth and development of all children.

Web sites

The Accreditation Council for Graduate Medical Education
www.acgme.org

American Academic of Pediatrics, Anesthesia Section
www.aap.org/sections/anes/anesmemwelcome.htm

Society for Pediatric Anesthesia
www.pedsanesthesia.org

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