EDITOR’S NOTE: For several decades, the American Board of Pediatrics (ABP) has assimilated workforce data using questionnaires administered in association with its various examinations and through a tracking system that provides an annual update of residents and fellows in training. These data provide critical information regarding trainees and practitioners in pediatrics and the overall workforce landscape. The Journal of Pediatrics will publish a regular series of these workforce reports; the first appears below. This introductory paper highlights the current workforce for general pediatrics and provides a brief overview of pediatric subspecialties. Future papers will feature workforce data on each of the 13 subspecialties for which the ABP administers examinations, according to the order in which the first examinations were administered: Cardiology (1961), Hematology-Oncology (1974), Nephrology (1974), Neonatal-Perinatal Medicine (1975), Endocrinology (1978), Pulmonology (1986), Critical Care Medicine (1987), Gastroenterology (1990), Emergency Medicine (1992), Rheumatology (1992), Adolescent Medicine (1994), Infectious Diseases (1994), and Developmental-Behavioral Pediatrics (2002). We welcome your comments.

—William F. Balistreri, MD, Editor-in-Chief, The Journal of Pediatrics, James A. Stockman, III, MD, President, the American Board of Pediatrics, Linda A. Althouse, PhD, Director of Psychometrics, American Board of Pediatrics

PEDIATRIC WORKFORCE: A LOOK AT GENERAL PEDIATRICS
DATA FROM THE AMERICAN BOARD OF PEDIATRICS

LINDA A. ALTHOUSE, PHD, AND JAMES A. STOCKMAN III, MD

Workforce studies regarding the supply and demand of pediatricians are not new. In fact, numerous studies using sophisticated modeling techniques have been published within the past decade. However, most of these studies addressed the entire physician workforce and not just pediatrics. In addition, although some workforce studies indicated that there were too few pediatricians, contrasting results were found in other studies. There were also studies indicating that appropriate numbers of pediatricians were being trained and that apparent disparities were a result of the assumptions made, data files used, and uncertainty regarding factors such as future demand for services under managed care, gender implications, and geographic distribution. It is not the intent of this paper to critique workforce papers published earlier nor to create a new model. Rather, the intent is to share the data accumulated by the ABP. The data presented in this article are a subset of the full workforce data available on the ABP Web site (www.abp.org), which includes data up through the 2004–2005 academic year.

METHODS

The ABP uses three primary methods to collect and maintain data about workforce numbers. The first method revolves around the tracking system of residents in training, including subspecialty trainees. The tracking of pediatric residents in accredited training programs in the United States and Canada began in 1991, with the tracking of first-year level trainees (PL1s). The tracking of PL2s and PL3s began in subsequent years. Subspecialty tracking did not begin until 1995.

The tracking process for general pediatrics occurs in conjunction with the In-training Examination (ITE), which is offered to all accredited residency training programs in the United States and Canada. In 2004, the ABP contacted all accredited general pediatrics programs in the United States and Canada.
training programs in the United States (202) and Canada (16) to obtain tracking information as part of the ITE registration process. Program participation is 100% with approximately 94% of all residents taking the ITE. A similar tracking process occurs for pediatric subspecialties in conjunction with the registration process for the Subspecialty In-Training Examination. Program participation in the subspecialty tracking process is almost 100%, with approximately 64% of fellows taking the Subspecialty In-Training Examination.

The second method of data collection is the use of questionnaires completed by first-time applicants during the examination application process for the general pediatrics certifying examination and for the subspecialty examinations. In addition to demographic data such as gender and medical school, information is solicited regarding career intentions. For medical school information, the two categories used are American medical school graduate (AMG) and international medical school graduate (IMG).

The third method consists of continual maintenance of the ABP’s master database that tracks examination applicants and certification outcomes over the lifetime of an ABP diplomate.

RESULTS

General Pediatrics Resident Tracking

In 2004–2005, there were 218 accredited general pediatrics training programs in the United States and Canada. Table I (available at www.jpeds.com) provides the total number of residents for categorical and internal medicine/pediatrics (Med-Peds) since the beginning of tracking. Tracking for other combined residency programs did not begin until 1993.

The total number of residents enrolled in pediatrics programs continues to increase across all three groups. Since 1991, the number of categorical residents has increased by 22%, whereas the number of Med-Peds residents has more than doubled. Enrollment in combined residency has increased by 10.5% since 1993. The percentage of Med-Peds residents relative to the total number of pediatric residents peaked in 1998–1999 at 17.2%. In 2004, Med-Peds accounted for 15% of total pediatric residents, whereas categorical pediatrics accounted for 83.7%.

Table II (available at www.jpeds.com) provides the breakdown by sex and medical school for the total number of entering trainees for categorical pediatric residents. Complete tracking information for all training years, along with Med-Peds and combined training programs, can be found in the workforce/research on the ABP Web site. The percentage of women entering categorical pediatric training programs has steadily increased since 1991. Women now account for 68.9% of enrolling trainees. The actual number of women has increased by 34% since 1991. In 1975, only 30% of pediatric residents were women. Today, only 31% of pediatric residents are men. The AMG percentage was at its peak in 1999–2000, when 82.7% of enrolling trainees were AMGs. This peak coincides with the national push in the 1990s to increase the number of physicians in all primary care areas. Although the percentage of AMGs has been declining since 1999–2000, the overall percentage of AMGs has increased by 9.7% since 1991. The average dropout rate for categorical pediatrics since tracking began in 1991–1992 is 3.3%. This rate is computed by comparing the PL1 tracking numbers with the PL3 numbers 2 years later (see the ABP Web site for tracking statistics at each level of training). The rate of decrease for categorical pediatrics can be attributed to trainees who changed career paths by switching to another specialty or into combined training programs, or to trainees entering ABP-approved abbreviated pathways that require only 2 years of training.

Pediatrics Career Choices

During the General Pediatrics examination application process, first-time applicants are asked to complete a short survey regarding their career area. Each year since 1991, more than 60% of residents selected a career in general pediatrics, with a peak of 73% in 1998. The percentage selecting a pediatric subspecialty field has increased from 20% in 1998 to 25% in 2004.
These data indicate that, although general pediatrics remains the most common practice area, the interest in subspecialties is increasing. This finding is in agreement with results of the third-year resident survey administered by the American Academy of Pediatrics. Table III (available at www.jpeds.com) provides the percentages determined from the survey data.

Figure 1 provides the gender breakdown for career choices in 2004; the percentage of men selecting subspecialty careers continues to be greater than women. Figure 2 provides the medical school breakdown data for those choosing general pediatrics versus subspecialties in 2004; IMGs appear to demonstrate greater interest than AMGs in subspecialty training.

Pediatrics Subspecialty Training Tracking

As with general pediatrics, the subspecialty trainees are tracked on an annual basis. Table IV (available at www.jpeds.com) provides the total number of subspecialists in training since 1998, along with sex and medical school breakdown data. As the interest in subspecialty careers continues to increase, the percentage of females and AMGs training in subspecialties is also rising.

Table V (available at www.jpeds.com) provides the number of entering fellows for each pediatric subspecialty for 2004–2005. This table does not contain data regarding fellows who train in more than one subspecialty or Med-Peds graduates in combined pediatrics and dual-specialty training programs.

The trends for subspecialty choices have not changed over the past 10 years. Neonatal-perinatal medicine remains the leading subspecialty choice. Critical care medicine, hematology-oncology, cardiology, and emergency medicine continue to complete the top five choices.

Certified Diplomates

Since its inception in 1933 through the end of December 2004, the ABP has certified 82,270 general pediatricians. Of these certified pediatricians, 19.4% have obtained an additional certificate in a pediatric subspecialty (Table VI; available at www.jpeds.com).

The ratio of current ABP-certified pediatricians to children under the age of 18 in each of the 50 states and the District of Columbia is shown in Table VII (available at www.jpeds.com). The population of children listed in the table is based on the US Census Bureau Population Estimates and includes all children under the age of 18. The number of pediatricians includes only generalists with known addresses. In addition, pediatricians older than the average retirement age of 65 are excluded. Based on these adjustments, the total number of currently certified general pediatricians is 43,362.

Currently, the overall national ratio is approximately 1700 children to 1 ABP-certified pediatrician, but this does not reflect regional differences. Seventeen states have fewer than 1 ABP-certified pediatrician per 2000 children, and only 10 states have more than 1 ABP-certified pediatrician per 1400 children.

DISCUSSION

After witnessing a rise in the number of pediatric positions offered in the National Residency Matching Program in the 1990s, the number has begun to level off and appears steady. In 2000, the percentage of US medical school seniors filling pediatric residency positions (both categorical and Med-Peds) was 14.6%, compared with 14.2% in 2004. According to the American Academy of Pediatrics, the results for the 2005 match indicate that 97.4% of the first-year positions are being filled, slightly up from 95.8% in 2004. Although there are concerns that graduating medical school seniors are moving away from primary care, in general, this does not appear to be the case for pediatrics. The question then becomes: Are sufficient numbers of trainees entering pediatric residencies and fellowship programs?

As noted earlier, the disparate results of workforce projections make the answer to this question difficult to obtain.
because of the multitude of factors that must be addressed and accounted for in workforce models. One can look at the growing number of pediatricians and conclude that we have an ample number of care providers. However, this growth in numbers may not correspond to a growth in the actual availability of pediatric care.

The existing workforce data do not discriminate between those working full-time or part-time. With the ratio of women entering pediatrics increasing, this is an area that will need further attention, as women are more likely to work part-time. However, studies are also showing that the percentage of men seeking to limit their work hours is also increasing.

Although there is no universal agreement about the “ideal” ratio of pediatricians to children, some guidelines have been provided. As noted in the Future of Pediatric Education II (FOPE II) report, the Graduate Medical Education National Advisory Committee recommends that the ideal pediatrician–child ratio is about 1 pediatrician per 2000 children. Another study stated that the ratio is 1 pediatrician per 1500 children. FOPE II offers a third guideline indicating that the ideal ratio is 1 pediatrician per 1200 to 1400 children.

As the overall number of pediatricians increases, it is important that the number of pediatricians in underserved areas also increases. Studies have indicated that the distribution of pediatricians does not parallel that of the child population and that rural pediatrician–child ratios remain lower than urban ratios. Relationships between the distribution of pediatricians and per capita income have also been shown, indicating a further unequal distribution of pediatricians across the United States. The geographic area in which pediatricians complete their residencies also appears to play a large role in their final establishment of practice, with states lacking pediatric residency programs having lower pediatrician–child ratios.

The above factors may contribute to a perception within the pediatric community that a shortage of pediatricians exists, particularly in the pediatric subspecialties. With relatively few pediatric subspecialists, even a small absolute increase in patient volume can have a large impact on subspecialists’ availability and accessibility. If some pediatric subspecialties have more apparent need for practitioners than others, these subspecialties must be identified and uniquely addressed.

Many studies have projected physician workforce needs, but it was not until FOPE II that a detailed study focused exclusively on pediatrics was available. The FOPE II data are useful not only to those studying workforce trends but also to medical students and pediatric residents making career decisions. FOPE II estimates that approximately 3000 entering pediatrics residents are needed each year to meet projected workforce requirements, which is consistent with tracking data. Although it appears that workforce numbers are steady or slightly increasing, research must continue to assess the factors that may impact workforce distribution, as well as those that may affect pediatric subspecialty choices.

A recent study suggested that there will be an oversupply of general pediatricians by the year 2020. The ABP data do not support this speculation, as it appears that the number of trainees is aligned with the number of residents needed based on FOPE II. In addition, the cited study, like many workforce studies, provides the supply-side perspective. Before conclusions can be made regarding workforce numbers, both supply and demand perspectives need to be addressed. As noted by Goodman et al, relatively little research has been done in the area of workforce requirements for pediatricians, and the work that has been done has resulted in contradicting results.

Workforce projections and models are not new. However, the methods used and assumptions made can yield disparate findings. It is important that workforce research continues, but it is equally important to understand factors influencing each model. The ultimate goal is to ensure high-quality care for all children by producing an adequate number of qualified pediatricians.