

The status of US allergy/immunology physicians in the 21st century: A report from the American Academy of Allergy, Asthma & Immunology Workforce Committee

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The American Academy of Allergy, Asthma & Immunology has tracked the US allergy/immunology physician workforce (AIPW) over the past 3 decades by funding 2 workforce surveys (1999, 2004). Results have demonstrated both accomplishments and challenges for the US AIPW. Accomplishments include increases in diversity (25% women in 2004, 20% in 1999, 10% in 1989; 6% underrepresented minorities in 2004, 5% in 1999), 95% of AIPW has completed an allergy/immunology (A/I) training program, and 91% are American Board of Allergy and Immunology (a conjoint board of the American Board of Internal Medicine and the American Board of Pediatrics)—certified (90% in 1999). Training positions and program numbers are slowly increasing, and numbers of new graduates from accredited A/I programs have also increased. We are seeing patients with more complex allergic and immune diseases and giving less allergen immunotherapy. Personal, professional, and economic satisfaction is increasing. Challenges relate primarily to diminishing practitioner supply (4245 in 2004 vs 4356 in 1999) amid growing US population demand. The AIPW is gradually aging (the average age is 53 years in 2004, compared with 51 years in 1999) and working longer before retiring. The combination of job satisfaction, the high demand for A/I services, and the large number of fellowship applicants all support expanding the supply of trained allergists/immunologists. (*J Allergy Clin Immunol* 2007;119:802-7.)

Key words: Workforce, allergist, immunologist, sex, demographics

The clinical subspecialty of allergy/immunology (A/I) has a long and storied history in the 20th century. As the prevalence of allergic diseases continues to increase and the US population also grows, it follows that the need for A/I services will also continue to grow. Emerging data implicate

Abbreviations used

AAAAI: American Academy of Allergy,
Asthma & Immunology
ABAI: American Board of Allergy and Immunology
A/I: Allergy/immunology
AMA: American Medical Association
CHWS: Center for Health Workforce Studies

allergic diseases (including asthma) as major sources of morbidity and a significant economic burden for the health-care system.¹ Thus, the role of the allergist/immunologist is likely to continue in importance in the foreseeable future.

In September 1998, the American Academy of Allergy, Asthma & Immunology (AAAAI) commissioned the Center for Health Workforce Studies (CHWS) at The State University of New York Albany to develop a survey to investigate workforce issues surrounding the subspecialty in response to several trends anecdotally noted by stakeholders in the A/I community. The most notable trend observed was that although the total US physician workforce had increased steadily for more than 40 years, between 1990 and 1998 the number of A/I physician trainees enrolled in fellowship programs had declined from 322 to 214 (a decrease of 34%). This decline came over a period when asthma and allergy-related disorders were on the rise and public concern and initiatives to prevent and treat asthma and allergic conditions were growing. In September 2003, the AAAAI continued the collaboration begun in 1998 with the CHWS to conduct a follow-up survey of physicians providing A/I services in the United States in 2004. The purpose of the 2004 survey was to update the information collected 5 years previously, as well as to assess A/I physicians' perspectives on several additional issues to understand better the forces affecting US A/I practices.

DEFINITION OF THE POPULATION

The CHWS sought to identify the study population of all physicians providing A/I services in the United States in 2004. Given the large number of physicians providing A/I care throughout the country, it was not possible to survey each and every one. So, for the purposes of examining this population, the CHWS included all United States-based

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Year	Allergy and Immunology		Pediatrics		Internal Medicine		Family Practice	
	Residents	Annual Percent Change	Residents	Annual Percent Change	Residents	Annual Percent Change	Residents	Annual Percent Change
1985	276	--	6,088	--	17,832	--	7,276	--
1986	244	-11.6%	5,817	-4.5%	18,116	1.6%	7,238	-0.5%
1987	271	11.1%	6,262	7.6%	18,153	0.2%	7,346	1.5%
1988	281	3.7%	6,321	0.9%	18,074	-0.4%	7,175	-2.3%
1989	249	-11.4%	6,395	1.2%	18,731	3.6%	7,089	-1.2%
1990	322	29.3%	6,115	-4.4%	18,734	0.0%	6,680	-5.8%
1991	298	-7.5%	6,233	1.9%	18,662	-0.4%	6,610	-1.0%
1992	281	-5.7%	6,680	7.2%	19,191	2.8%	6,976	5.5%
1993	316	12.5%	7,460	11.7%	20,603	7.4%	7,976	14.3%
1994	297	-6.0%	7,394	-0.9%	20,693	0.4%	8,587	7.7%
1995	254	-14.5%	7,354	-0.5%	21,081	1.9%	9,261	7.8%
1996	214	-15.7%	7,618	3.6%	21,298	1.0%	10,049	8.5%
1997	205	-4.2%	7,613	-0.1%	21,714	2.0%	10,501	4.5%
1998	214	4.4%	7,728	1.5%	21,130	-2.7%	10,607	1.0%
1999	209	-2.3%	7,715	-0.2%	21,237	0.5%	10,533	-0.7%
2000	207	-1.0%	7,629	-1.1%	21,173	-0.3%	10,127	-3.9%
2001	219	5.8%	7,650	0.3%	20,914	-1.2%	9,799	-3.2%
2002	255	16.4%	7,699	0.6%	21,136	1.1%	9,603	-2.0%
2003	244	-4.3%	7,773	1.0%	21,351	1.0%	9,529	-0.8%
Total Change								
1999-2003	+ 35	16.7%	+ 58	0.8%	+ 114	0.5%	- 1,004	-9.5%

Source: Medical Education Theme Issues of JAMA, 1986-2004.

FIG 1. Numbers of residents/fellows enrolled in graduate medical education programs, A/I, and other selected specialties, 1985-2003.

physician fellows and members of the AAAAI and all United States–based physicians who self-declared a primary specialty in allergy, A/I, clinical laboratory immunology, or immunology in the American Medical Association's (AMA's) Masterfile of Physicians. Even though this population includes non-ABAI-certified physicians identifying themselves as providing A/I services, over 90% of respondents to the 2004 survey are ABAI-certified.

To create the final mailing list, CHWS included the entire list of US physician members from the AAAAI database and a random sample of 805 physicians from the AMA database. The random sample was stratified by sex, age (under 53 years, 53 years and older; the median age of the group was slightly less than 53 years), geographic location (census regions: Northeast, Midwest, South, West), and territories, making the number of potential respondents a total of 4871 physicians. Further explanations of the sampling procedures are available in the full report.

SURVEY DISTRIBUTION DETAILS AND RESPONSE RATE

On September 3, 2004, the survey was distributed to the 4871 physicians on the final mailing list. Completed surveys were returned to CHWS in business reply envelopes provided in each survey package. There were 2 subsequent mailings to nonresponders. In all, 2721 responses were collected from the 4871 potential respondents (55.9%). This level of response does not vary

significantly from the response rate (56.3%) of the 1999 survey. Physicians included on the AAAAI database responded to the survey at a rate of 60.1%. Physicians identified through the AMA database responded to the survey at a rate of 34.3%. To prevent redundancy across lists, the AAAAI database and the AMA database were merged to cross-reference physician name and location.

KEY FINDINGS

Many important changes occurred in the A/I physician workforce between 1999 and 2004. For further details, the full report can be found in its entirety on the Journal Web site at <http://journals.elsevierhealth.com/periodicals/ymai/home>. The following represents the Workforce Committee's view summarizing the most important findings of the report.

The A/I physician workforce contracted between 1999 and 2004

As predicted by the previous workforce report in 1999, the number of A/I physicians in the US decreased from 4356 in 1999 to 4245 in 2004. This was a result of fewer new A/I physicians being added to the supply as existing physicians left practice. The low rate of replacement during the time period was a result of the low numbers of fellows training in the subspecialty, as well as the relatively high number of IMGs training in the subspecialty (Figs 1 and 2).

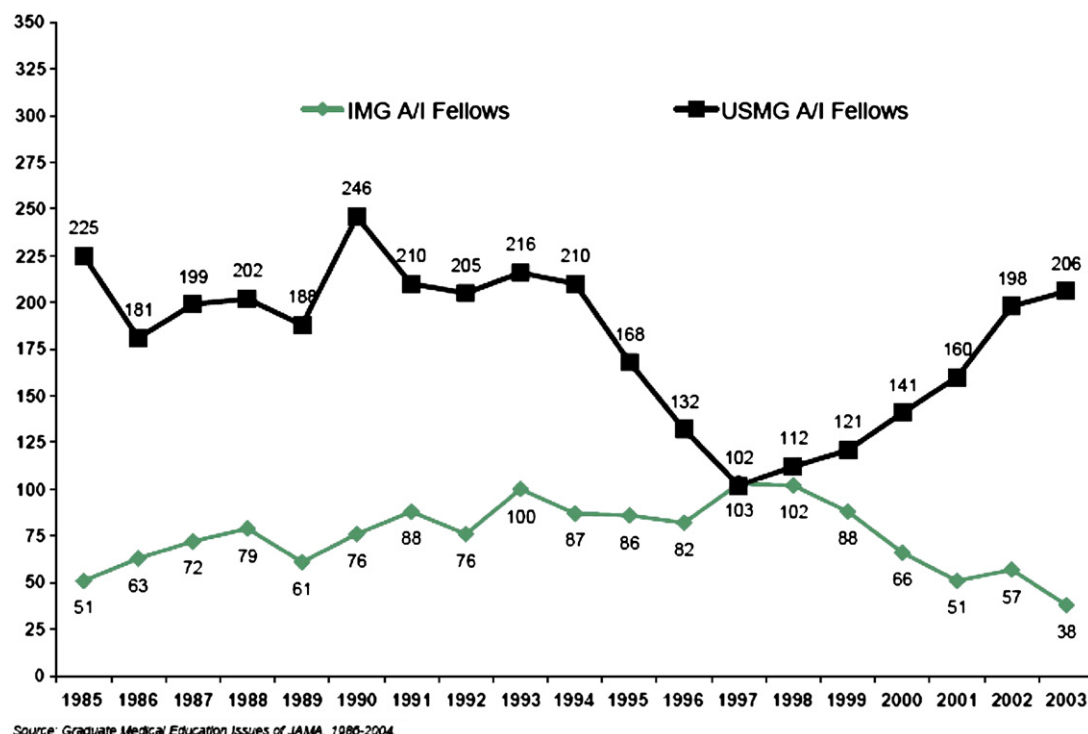


FIG 2. Number of US medical graduates (USMGs) and IMG fellows training in A/I, 1985 to 2003.

Because the conditions typically treated by A/I physicians continued to increase, A/I physicians have compensated for their shrinking numbers by practicing longer hours per week (an average increase of 2 hours per week) compared with 1999. There was also evidence suggesting that A/I physicians' careers are lengthening as well. These changes in work structure (longer hours, more years) have resulted in the number of A/I patient care full-time equivalents increasing by more than 150, but it is still not enough to keep up with the population growth rate (Fig 3).

(Thus, access to A/I services has become increasingly compromised, albeit at a lower level than it would have been without these increased efforts of A/I physicians.

There has been a recent increase in the production of A/I physicians

By 1999, the number of fellows enrolled in accredited A/I programs had diminished to a 10-year nadir (205, from a high of 322 in 1990). Beginning in 2000, however, a resurgence in training in the specialty occurred, primarily because of a substantial increase in interest from US medical graduates. Although this resurgence is a positive indicator for our subspecialty, especially in the wake of the declines in supply experienced in the past 5 years, several questions remain related to this trend: (1) How did this resurgence come about? Is it a result of renewed interest in the subspecialty? (2) Can this level of production be sustained or even increased? And if so, for how long? (3) Is this level of production great enough to replace existing A/I physicians as they leave practice and to meet the growing future demand for A/I services? The answers to

these questions are as of yet not fully defined but are of vital importance to our subspecialty.

There are also interesting changes in the demographics of the US A/I physician workforce. There are more women (25% in 2004 compared with 20% in 1999 and 10% in 1989). The workforce has experienced a small increase in underrepresented minority A/I physicians (6% in 2004 compared with 5% in 1999). Our physician workforce is slowly aging, with 16% 65 years of age or older compared with 13% in 1999. Each of these findings can be both encouraging and challenging. Although the number of women A/I physicians continues to increase, the report suggests that this may not directly translate to increased FTE equivalents in the workforce because, with social and biological norms, female physicians may be more likely than their male counterparts to work part time. Also, although our fraction of minority physicians is in keeping with other specialties and subspecialties, a larger percentage must be recruited and trained to provide care for minority patient populations for whom ethnic identity with their caregivers can have positive therapeutic benefits. Finally, the aging workforce is more testimony to the workforce shortage and could bode ill for the long-term health of the subspecialty if not corrected.

Several changes have occurred in various regional A/I physician marketplaces that are affecting the balance between supply of A/I physicians and demand for A/I services

Population demographics are continually changing in the United States. Thus, it is not surprising to note that

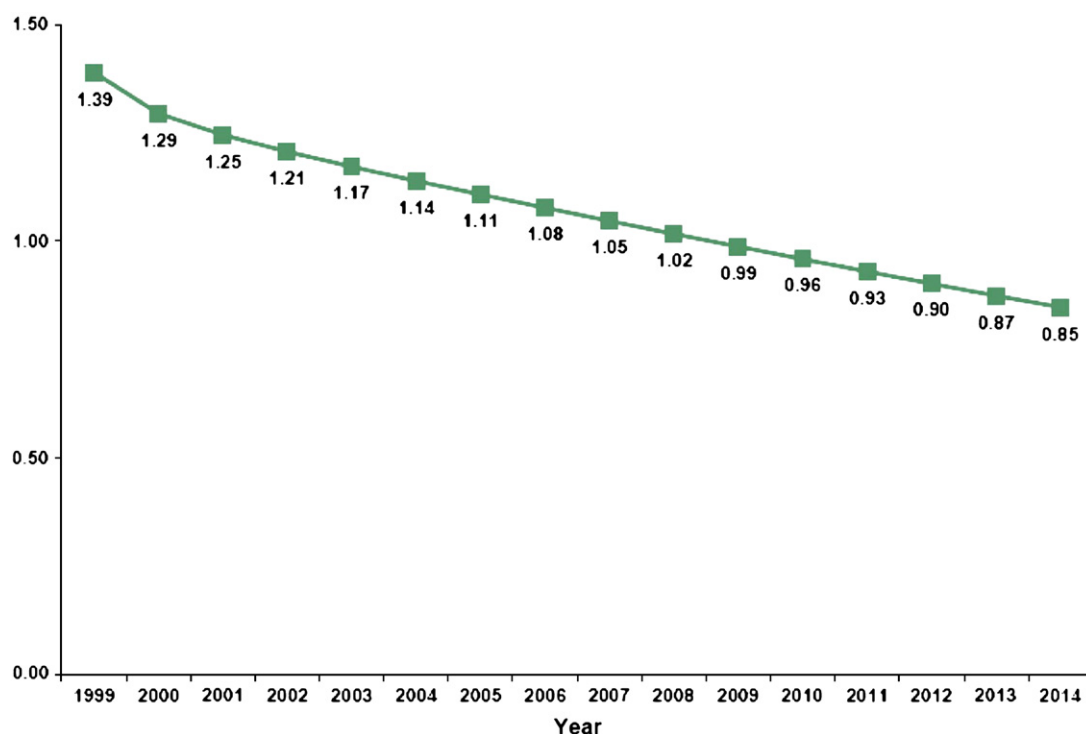


FIG 3. Forecast of A/I physician supply in the United States, 1999 to 2014 (expressed as full-time equivalents per 100,000 population).

the regional distribution of A/I physicians has changed as well. In 1999, A/I physicians in the New England, Mountain, and Pacific Census divisions reported that there were few or no available practice opportunities and that competition with other physicians, including A/I physicians, was high. A/I physicians in the Mountain and Pacific Census divisions tended to report that the supply of A/I physicians exceeded demand for A/I services in their local practice areas. The areas of the country identified as having the greatest opportunities for new A/I practices included most of mid-America (the East and West North Central and the East and West South Central Census divisions). Of note, those were also the regions where A/I physicians reported the lowest levels of competition with other physicians. By 2004, these perceptions had changed substantially.

In 2004, A/I physicians reported that the availability of practice opportunities in the Mountain and Pacific Census divisions had improved. On the other hand, the East and West North Central Census divisions were no longer considered to have large numbers of practice opportunities available. Competition among A/I physicians was also reported to be greater in these regions than reported in 1999. The East and West South Central Census divisions continued to be perceived as having relatively large numbers of practice opportunities.

The regional changes in the A/I physician marketplace observed between 1999 and 2004 appear to have been, at least in part, associated with change in the demographics of A/I physicians' availability in a given region. For

example, in the East and West North Central Census divisions, the A/I physician marketplace declined, with fewer reported practice opportunities in 2004 than 1999 and greater reported levels of competition in 2004 than 1999. This was apparently related more to changes in supply of A/I physicians than demand of A/I services because the supply of A/I physicians either remained the same or increased.

Conversely, in the Mountain and Pacific Census divisions, the A/I physician marketplace improved, with more practice opportunities and lower levels of competition in 2004 than 1999. This may be both a supply and demand issue because the supply of A/I physicians did not keep up with significant population growth (and thus increasing demand) in these regions. This has resulted in a widening disparity in supply and demand between 1999 and 2004. Moreover, in New England, which demonstrated a poor A/I physician marketplace in 1999, the supply of A/I physicians had declined significantly by 2004. These changes are evidence of a rebalancing of the regional A/I physician marketplaces around the country.

Continuing a trend noted in 1999, A/I physicians in 2004 were more likely to have completed an A/I fellowship training program and be ABAI board-certified than ever before

More than 90% of A/I physicians reported being ABAI board-certified and having completed an A/I fellowship training program in 2004. Thus patients with allergic, asthma-related, and/or immunologic conditions have

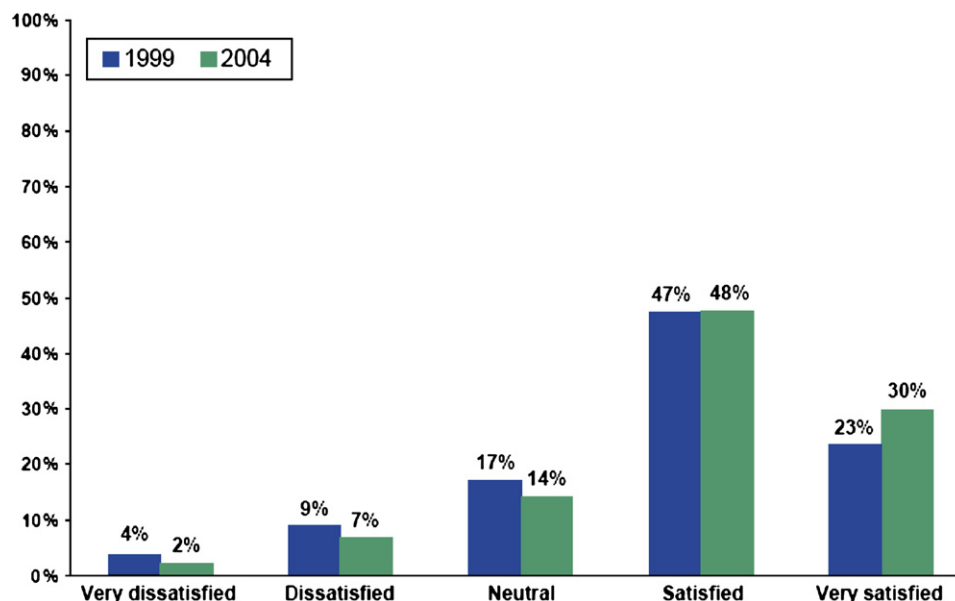


FIG 4. Professional satisfaction of A/I physicians, 1999 and 2004.

greater access to formally trained, certified physicians and high-quality care than ever before.

Medical liability insurance issues do not seem to have affected A/I practice dramatically

Although the issue of medical liability insurance is important to all physicians, A/I physicians did not report dramatic changes in their practices as a result of this issue. Although almost two thirds of A/I physicians reported increases in medical liability insurance premiums in the recent past, very few (less than 10%) reported changing their practice patterns as a result. As the medical liability situation continues to evolve nationally, it will be important to continue to track any effects on A/I practice.

Allergy/immunology physicians continued to report high levels of professional and economic satisfaction with their A/I practice

Continuing the trend noted in 1999, the vast majority of A/I physicians in 2004 reported being professionally satisfied or very satisfied with their A/I practices. This is despite an increase in work hours and length of time in practice. There are increased levels of professional and economic satisfaction over the results of the 1999 survey (Figs 4 and 5).

The results for job satisfaction, fair financial remuneration, and lifestyle should ensure continuing recruitment of excellent residents to the subspecialty.

Allergy/immunology physicians continue to be optimistic about the future of A/I practice in the United States

Allergy/immunology physicians reported that they expect demand for A/I services to increase because of the expanding population, the continuing high prevalence of

asthma and allergic conditions, and as the new treatments and medications that will be available in the future.

Although A/I physicians did report limited practice opportunities currently in some regions of the country, they were optimistic about future local and regional practice opportunities to help maintain and increase the greater interest among internal medicine and pediatric residents that has been clear since 1999. A detailed breakdown of the changes in volume of cases by type and details regarding the assessment of practice opportunities is available in the full report on the AAAAI Web site at <http://www.aaaai.org>. (Fig 6).

CONCLUSION

The AAAAI Workforce Committee, with the support of the Board of Directors, is committed to the continued monitoring of the US A/I physician workforce. In particular, it is important to track trends in the training of new A/I physicians, including the number of fellows and the composition of fellows in training. The most recent data from this report suggest that the current rate of new allergists/immunologists entering the workforce is inadequate to ensure continued access to A/I physicians throughout the country. Since the 1999 A/I workforce report, several national forecasting efforts have concluded that the nation will face a relatively large physician shortage in the coming years.^{2,3} Even though training in the subspecialty has recently experienced an increase, it is critical to monitor new A/I physician production closely given the historical tendency for major shifts in interest in the subspecialties among new trained physicians. Moreover, given the constantly changing dynamics in the A/I physician workforce marketplace, it is also important to track where new A/I physicians are establishing

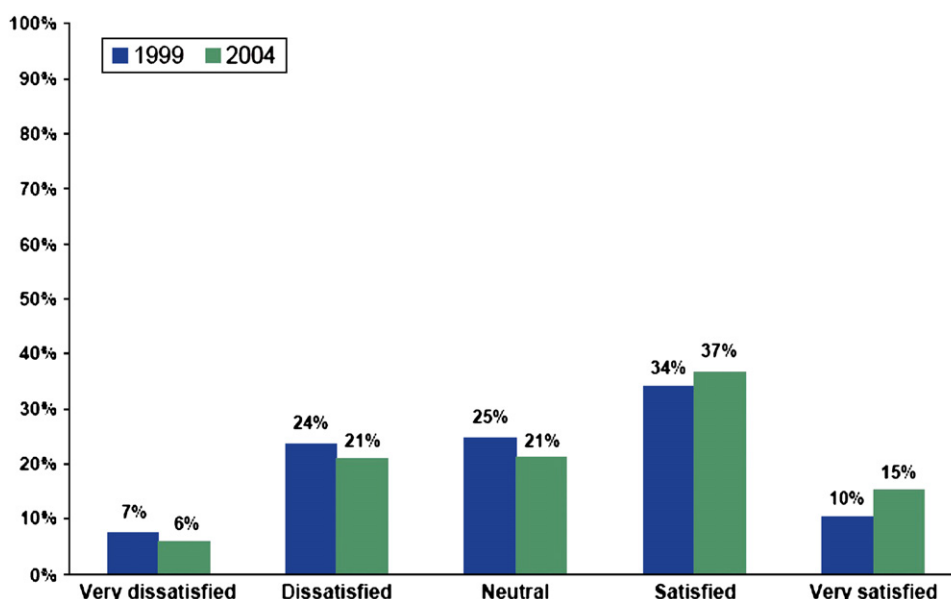


FIG 5. Economic satisfaction of A/I physicians, 1999 and 2004.

	No Available Opportunities		Few Available Opportunities		Some Available Opportunities		Many Available Opportunities	
	1999	2004	1999	2004	1999	2004	1999	2004
	Local (Within 50 Miles of Respondent's Practice)							
Local (Within 50 Miles of Respondent's Practice)	15%	15%	45%	38%	36%	41%	4%	7%
Within State	6%	4%	37%	27%	49%	54%	8%	14%
National	N/A	2%	N/A	14%	N/A	50%	N/A	34%

FIG 6. Assessment of future practice opportunities for A/I physicians, 1999 and 2004. NA, Not assessed.

their practices and understand how these new practices differ from older practices.

It must also be appreciated that A/I program directors and associated faculty are also aging and diminishing in numbers because of movement of faculty into private practice or industry. Factors influencing these numbers include eroding support from many departments of internal medicine and pediatrics, significant difficulty in securing National Institutes of Health funding for direct A/I-related research and training, and significant financial disparities that are affecting all aspects of academic medicine. A mass of dedicated faculty including training program directors is essential to maintain the current level of trainee production at each program. Expanding existing and starting new programs will clearly demand additional resources.

To accomplish the goal of preserving and increasing the A/I physician workforce and providing best possible care for patients with allergic, asthmatic, and immunologic diseases, more resources must be identified to fund this expansion. Funds for Graduate Medical Education educational efforts to train future A/I physicians must include fellow salaries as well as faculty salary and research support. The A/I community must be proactive to lobby for increased GME support for more trainee positions, the

National Institutes of Health (and other national funding sources) for direct allergy-related research funding for faculty and fellows, and development of creative methods to access philanthropic monies to support A/I fellowship training efforts. Finally, individual A/I physicians must understand the need to give back to our subspecialty through direct financial contributions to efforts such as the AAAAI Educational and Research Trust fund, which was established for and remains dedicated to preserving and expanding our subspecialty through direct financial support of training programs and faculty development. Together, these collective efforts will ensure the continued vitality of the A/I subspecialty for future generations.

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