# Physicians Providing Allergy and Immunology Services 2004

*August 2005*

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**Preface**

The prevalence of asthma and allergy-related disorders in America continues to increase. Allergies affect as many as 40 to 50 million people in the United States, more than 20 percent of the nation's population.[1] It has been estimated that absenteeism and reduced productivity due to allergies cost businesses in the United States more than $250 million per year.[2]

Despite the breadth of asthma and allergy-related disorders, a relatively small population of physicians specializes in the medical discipline of Allergy and Immunology (A/I). In 1998, the American Academy of Allergy, Asthma and Immunology (AAAAI) commissioned an investigation of the workforce issues surrounding the specialty. The investigation was a response to several disturbing trends anecdotally noted by stakeholders in the A/I community. The most notable trend was that while the total number of physicians in the US had increased steadily for more than 40 years, between 1990 and 1998, the number of physicians training in A/I fellowship programs had declined from 322 to 214, a decrease of 34 percent. This decline in production was coming at a time 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.

Concerns about substitution by physicians in other specialties, such as Otolaryngology, Pulmonology, and Dermatology, as well as the primary care providers (Pediatricians, Family Practitioners, and Internists) due to increased managed care penetration throughout the country reinforced the need to examine the A/I physician workforce systematically and comprehensively, focusing on trends in fellowship training, A/I physician practice, and plans to leave practice.

The Center for Health Workforce Studies conducted the investigation of the production, supply, demand, and distribution of the A/I physician workforce. Through a series of reports, culminating in the summary report, *The Allergy and Immunology Physician Workforce 2000*,[3] the Center described the current state of the specialty, made projections of the supply of A/I physicians and demand for A/I services in the future, and developed a number of recommendations to respond to the projected shortfall of A/I physicians in the future.

The current report describes the findings from an update of several pieces of the comprehensive assessment of the A/I workforce, including a national survey of practicing A/I physicians. Comparisons are drawn between the data collected in 2004 and the data collected in 1999. The

comprehensive report in 2000 suggested that A/I was going to face the difficulties of a dwindling supply and growing demand for A/I services. Five years later, how has the A/I physician supply changed in order to cope with the situation? This report documents many of the workforce changes that have occurred in the specialty over the past five years. The goal of the report is to develop an understanding of how the A/I physician workforce has changed, continues to change, and may change in the future.

This report was prepared by the Center for Health Workforce Studies at the University of Albany, State University of New York. The Center is dedicated to the collection, analysis, and distribution of health workforce data to assist health, professional and educational organizations; policy makers; and the public understand issues related to the supply, demand, distribution, and use of health workers. This report was prepared by Gaetano J. Forte, Director of Information Management at the Center. The views expressed in this report are those of the Center for Health Workforce Studies and do not necessarily represent positions or policies of the University at Albany, State University of New York, or the American Academy of Allergy, Asthma and Immunology.

*August 2005*

**Acknowledgments**

The Center wishes to acknowledge the American Academy of Allergy, Asthma and Immunology's Workforce Committee, chaired by Dr. Gailen Marshall, for its helpful review and comments on earlier versions of this report. The Center also wishes to acknowledge Rebecca Brandt, Managing Director, Research and Training, at AAAAI for her help in coordinating this project. The Center also wishes to acknowledge the guidance of Edward Salsberg, Director of the Association of American Medical Colleges' Center for Workforce Studies, on the project. The project would not have been possible without the financial support of AAAAI. Finally, we wish to acknowledge the physicians who took the time to participate in the study and respond to our survey.

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## Executive Summary

This report presents the results of the *Survey of Physicians Providing Allergy and Immunology Services in the United States in 2004*. The survey focused on issues around the characteristics of physicians providing allergy and immunology services (A/I physicians), the provision of A/I services, practice characteristics, and impressions and perceptions of the current and future A/I practice market. The survey was sent to more than 4,800 physicians who identified themselves as allergists either through membership in the AAAAI or were designated as such by the American Medical Association (AMA) in 2004. The survey achieved a response rate of 56 percent.

The survey conducted in 2004 was a follow-up to a similar survey conducted in 1999. Where appropriate this report presents comparisons between responses to the 1999 and 2004 surveys.

### Key Findings

### 1. Number of Practicing A/I Physicians

It is estimated that in 2004 there were 4,245 physicians actively providing A/I services in the US. This number is slightly lower than the 4,356 physicians identified as providing A/I services in 1999. In terms of A/I physicians per 100,000 population, in 2004, there were 1.38 A/I physicians per 100,000 population in the United States. In 1999, there were 1.57 A/I physicians per 100,000 population.

### 2. Demographic Characteristics of A/I Physicians

- In 2004, 25 percent of A/I physicians were women; in 1999, women were 20 percent of A/I physicians; in 1989 women were 10 percent of A/I physicians.
- In 2004, the median age of an A/I physician was 53 years; in 1999, the median age was 50 years.
- In 2004, 16 percent of A/I physicians were 65 years of age and older; in 1999, 13 percent of A/I physicians were 65 years of age and older.
- In 2004, under-represented minority physicians (African-Americans, Latinos, and Native Americans/Alaskans) made up 6 percent of A/I physicians; in 1999, under-represented minority physicians were 5 percent of A/I physicians.

**3. Education, Training, and Certification of A/I Physicians**

- In 2004, 80 percent of A/I physicians had graduated from a medical school in the United States, while 20 percent had graduated from an international medical school. This figure was the same in 1999. In 1989, 82 percent of A/I physicians had graduated from a medical school in the United States, and 18 percent had graduated from an international medical school.
- In 2004, 95 percent of A/I physicians reported having completed a formal A/I fellowship training program; in 1999, 86 percent of A/I physicians reported having completed such a training program.
- In 2004, 91 percent of A/I physicians reported being certified by the American Board of Allergy and Immunology; in 1999, 90 percent of A/I physicians reported being board-certified; in 1989, only 62 percent reported being certified by the board.

**4. Geographical Distribution of A/I Physicians**

- A/I physicians were dispersed unevenly across the United States in 2004. The ratio of A/I physicians to 100,000 population ranged from a low of 1.04 in the Mountain Census division to a high of 2.00 in Middle Atlantic Census division.
- While all parts of the country experienced a decline in the A/I physician supply, the New England and Mountain Census divisions experienced the greatest decrease in A/I physician supply; the Middle Atlantic and East North Central Census divisions experienced the smallest decrease.
- The decrease in the supply of A/I physicians between 1999 and 2004 was due to two main factors: 1) population growth; and 2) inadequate rate of replacement of A/I physicians leaving practice. The relative importance of population growth compared to rate of replacement varied by Census division. For example, in the New England Census division, population growth was low relative to other parts of the country, and thus the inadequate rate of replacement of A/I physicians leaving practice was more important, while in the South Atlantic Census division, where population growth was high relative to other parts of the country and the number of A/I physicians was essentially the same in 1999 and 2004, population growth was the more important factor in the decrease in the supply of A/I physicians in the area.

## 5. A/I Practice Characteristics

### A) Practice Organization

- Nearly half (47 percent) of A/I physicians had group practice arrangements in 2004, while 34 percent were in solo practice arrangements; fewer had group practice arrangements in 1999, and more were in solo practice arrangements.
- In 2004, 64 percent of A/I physicians were owners or had ownership interest in their practices.
- Median levels of staffing at an A/I practice in 2004 were: 2.8 A/I physicians; 0.3 physician assistants; 0.4 nurse practitioners; 1.6 registered nurses; 0.8 licensed practical/vocational nurses; and 1.5 medical assistants.

### B) Productivity

- In 2004, A/I physicians reported spending, on average, 35 hours in A/I patient care per week; in 1999, A/I physicians reported spending, on average, 33 hours in A/I patient care per week.
- Using a full-time equivalent (FTE) standard developed in 1999 (38.4 patient care hours per week = 1 FTE), it is estimated that there were 3,698 A/I patient care FTEs in the United States in 2004. This compares to 3,561 A/I patient care FTEs in 1999.
- In 2004, the median number of patient visits per week reported by A/I physicians was 57; in 1999, the median number was 55. A/I physician reported the average number of new patient visits per week was 13 in 2004. In 1999, the median number of new patient visits per week was 12.
- The greatest gains in patient visits per week were reported by older A/I physicians.

### C) Practice Capacity

- For non-emergent, established patients the average waiting time to see an A/I physician was 10 days in 2004. In 1999, the waiting time was about the same. For new patients the average waiting time to see an A/I physician was 12 days in 2004, about 1 day shorter than was reported in 1999.

- In 2004, 62 percent of A/I physicians reported that their practices were far from full and they could accept many new patients; in 1999, 55 percent of A/I physicians reported that their practices were far from full.
- In 2004, 46 percent of A/I physicians reported that their practices were growing. This is slightly lower than the 50 percent of A/I physicians who reported their practice were growing in 1999.
- Perceptions of current local (within 50 miles of respondents' practice location) practice opportunities were reported to be bleak by A/I physicians. In 2004, 66 percent of A/I physicians reported few or no available practice opportunities at the local level. These perceptions were consistent with the perceptions of A/I physicians in 1999.
- Perceptions of the current availability of practice opportunities at the state level were more optimistic. In 2004, 63 percent of A/I physicians reported that there were some or many available practice opportunities at the state level. These perceptions were consistent with the perceptions of A/I physicians in 1999.
- Perceptions of the current availability of practice opportunities at the national level were even more optimistic. Eighty-seven percent of A/I physicians reported some or many available practice opportunities at the national level.

**D) Medical Aspects of Practice**

- In 2004, the median percentage of patients treated with immunotherapy/allergy shots reported by A/I physicians was 19 percent; in 1999, the median percentage was 22 percent. Use of immunotherapy/allergy shots was positively related to physician age (older physicians reported larger percentages of patients being treated with immunotherapy/allergy shots) in both 1999 and 2004.
- In 1999 and 2004, A/I physicians reported that just over one third of their patients were children (under 16 years of age).

**E) Practice Satisfaction**

- In 2004, 78 percent of A/I physicians reported that they were satisfied or very satisfied professionally with their A/I practice; in 1999, 70 percent of A/I physicians reported similarly.

- In 2004, 52 percent of A/I physicians reported that they were satisfied or very satisfied economically with their A/I practice; in 1999, 44 percent of A/I physician reported similarly.
- In 2004, 36 percent of A/I physicians reported increases in their personal practice incomes in the previous two years; in 1999, 31 percent reported increases. Moreover, in 2004, 31 percent reported decreased personal practice income in the previous two years. This was a smaller percentage than in 1999 (41 percent).

**F) Use of Electronic Resources in Practice**

- Eighty-five percent of A/I physicians reported using the internet and web-based resources in their A/I practices, with 32 percent using them more than once daily.
- Three-quarters of A/I physicians reported using email in their A/I practices, with 38 percent using it more than once daily.
- More than half of A/I physicians reported using clinical applications in their A/I practices, with 30 percent using them more than once daily.
- Thirty-nine percent of A/I physicians reported using personal digital assistants in their A/I practices, with 21 percent using them more than once daily.
- Thirty-seven percent of A/I physicians reported using medical decision support software in their A/I practices, with 7 percent using them more than once daily.
- Use of electronic resources by A/I physicians varied by age, with younger A/I physicians reporting greater and more frequent use of these types of resources in their practices.

**6. Recent Changes in Practice**

**A) Changes in Common Diagnoses**

- In 2004, 42 percent of A/I physicians reported increases in asthma cases in the previous two years; in 1999, 56 percent of A/I physicians reported increases in asthma cases.
- In 2004, 43 percent of A/I physicians reported increases in sinusitis cases in the previous two years; in 1999, 55 percent of A/I physicians reported increases in sinusitis cases.
- In 2004, 33 percent of A/I physicians reported increases in rhinitis cases in the previous two years; in 1999, 46 percent of A/I physicians reported increases in rhinitis cases.

- In 2004, 42 percent of A/I physicians reported increases in food allergy cases in the previous two years; in 1999, 22 percent of A/I physicians reported increases in food allergy cases.
- In 2004, 30 percent of A/I physicians reported increases in atopic dermatitis cases in the previous two years; in 1999, 17 percent of A/I physicians reported increases in atopic dermatitis cases.
- In 2004, 53 percent of A/I physicians reported increases in urticaria/angioedema cases in the previous two years; in 1999, 45 percent of A/I physicians reported increases in urticaria/angioedema cases.
- In 2004, 26 percent of A/I physicians reported decreases in insect sting reaction cases in the previous two years; in 1999, 33 percent of A/I physicians reported decreases in insect sting reaction cases.

**B) Changes in Case Complexity**

- In 2004, 56 percent of A/I physicians reported increased case complexity over the previous two years; in 1999, 52 percent reported increased case complexity.

**C) Changes in Productivity**

- In 2004, 44 percent of A/I physicians reported seeing the same amount A/I patients and 34 percent reported seeing more A/I patients over the previous two years; in 1999, 42 percent reported seeing more A/I patients, while 36 percent reported seeing the same number of A/I patients.
- In 2004, 23 percent of A/I physicians reported spending more hours per week in A/I patient care over the previous two years, while 10 percent reported spending fewer hours per week; in 1999, 41 percent reported spending more time in A/I patient care per week, and 7 percent reported spending less time.

**D) Changes in Patient Insurance Coverage**

- In 2004, 24 percent of A/I physicians reported that they see more patients covered by Medicaid than they did two years ago; 17 percent reported that they see more patients covered by Medicare; 18 percent reported that they see more patients covered by private insurance; and 18 percent reported that they see more patients who are uninsured.

- Eighteen percent of A/I physicians reported more referrals from health maintenance organizations (HMOs) in the previous two years, while 25 percent reported fewer referrals from HMOs.
- Twenty-six percent of A/I physicians reported more referrals from preferred provider organizations (PPOs) in the previous two years, while 17 percent reported fewer referrals from PPOs.
- Twenty percent of A/I physicians reported more referrals from non-managed care sources in the previous two years, while 22 percent reported fewer referrals from non-managed care sources.

**E) Changes in Medical Liability Insurance Premiums**

- In 2004, sixty-five percent of A/I physicians reported that their medical liability insurance premiums had increased in the previous two years.
- Of those who reported increased medical liability insurance premiums, 7 percent reported that the increase had increased the number of tests they ordered per patient, and 8 percent reported that the increase had increased the likelihood that they would refer patients to other physicians.

**7. Future Changes in Practice**

**A/I physicians reported expecting several important changes in A/I practice in the near future:**

- In 2004, 49 percent of A/I physicians reported expecting new treatments and medications to increase demand for A/I services in the next five years; 68 percent reported expecting the incidence and prevalence of asthma and allergic conditions to increase demand for A/I services; 31 percent reported expecting the incidence and prevalence of immunologic conditions to increase demand for A/I services; 24 percent reported expecting new practice parameters to increase demand for A/I services.
- Twenty-five percent of A/I physicians reported expecting to retire from practice in the next five years. More than two thirds of A/I physicians did not anticipate retiring from practice for more than a decade. A/I physicians' retirement expectations did not change substantially between 1999 and 2004.

- Fourteen percent of A/I physicians reported expecting to increase the number of hours they spend providing A/I services in the next 12 months.
- Expectations of future local practice opportunities were more optimistic than assessments of current local practice opportunities. In 2004, 48 percent of A/I physicians reported expecting some or many practice opportunities to be available over the next 5 years within 50 miles of their current practice location. In 1999, 40 percent of A/I physicians reported similarly.
- Expectations of future practice opportunities at the state level were also more optimistic than assessments of current practice opportunities. In 2004, 68 percent of A/I physicians reported expecting some or many practice opportunities to be available over the next 5 years at the state level. In 1999, 57 percent of A/I physicians reported similarly.
- Expectations of future practice opportunities at the national level were very positive. In 2004, 84 percent of A/I physicians reported expecting some or many practice opportunities to be available over the next 5 years.

**8. A/I Practice Marketplace**

- In 2004, A/I physicians reported experiencing local competition from a number of physicians. Otolaryngologists (37 percent), Pulmonologists (32 percent), and other A/I physicians (29 percent) were the most frequently reported as competitive. Compared to 1999, the percentage of A/I physicians who reported competing locally with these physicians were lower, suggesting lower levels of competition with these physicians.
- Levels of competition also varied by across regions. While Otolaryngologists were still the chief competitors for all regions except the West North Central Census division, there were fewer A/I physicians reporting competition with Otolaryngologists in the Pacific Census division, and more reporting competition with Otolaryngologists in the East South Central Census division.
- In 2004, 52 percent of A/I physicians perceived that the supply of A/I physicians and demand for A/I services were balanced in their practice locales. Thirty-seven percent perceived that the supply of A/I physicians exceeds demand for A/I services. Finally, 10 percent perceived that the supply of A/I physicians was falling short of the demand for

A/I services. These perceptions were not substantially different from those reported by A/I physicians in 1999.

- Aggregate perceptions of the relationship between A/I physician supply and demand for A/I services did vary regionally. In 2004, A/I physicians in the Mountain Census division were most likely to report that the local A/I physician supply was inadequate to meet demand for A/I services. A/I physicians in the East North Central Census division were most likely to report that the local supply of A/I physicians exceeded the demand for A/I services. Regional changes between 1999 and 2004 were also evident. A/I physicians in the Mountain, Middle Atlantic, and Pacific Census divisions showed the greatest increase in the percentage of physicians who perceived a shortage of A/I physicians. On the other hand, A/I physicians in the East and West North Central Census divisions showed the greatest increase in the percentage of physicians who perceived that supply exceeded demand.

**Discussion**

Many important changes occurred in the A/I physician workforce between 1999 and 2004. Among the most important were:

***1. The A/I physician workforce contracted between 1999 and 2004.*** As forecast in 2000, the number of A/I physicians decreased from 4,356 in 1999 to 4,245 in 2004. The reason for this decrease was that fewer new A/I physicians were being added to the supply as existing physicians left practice. The low rate of replacement during the time period was due to the historically low numbers of fellows training in the specialty, as well as the relatively high number of IMGs training in the specialty who may or may not remain in the country subsequent to completion of training.

What effect did this decrease in the number of A/I physicians have on A/I practice? Since the conditions typically treated by A/I physicians continued to increase, A/I physicians compensated for their shrinking numbers by practicing longer hours per week. The average number of hours A/I physicians reported spending in A/I patient care increased by 2 hours per week. There were also several pieces of evidence that suggested A/I physicians' careers might be lengthening as well. In total, the compensation resulted in the number of patient care FTE A/I physicians

increasing by over 150. This compensation was not, however, enough to keep up with the rate of growth of the population, so access to A/I services was still compromised, albeit at a much lower level than it would have been without the increased effort of A/I physicians.

***2. There has been a recent surge in the production of A/I physicians.*** At the end of the 1990s, training in A/I had reached lows not experienced in more than 15 years. Beginning in 2000, however, a resurgence in training in the specialty occurred. Moreover, USMGs returned to the specialty, increasing the likelihood that those completing A/I fellowship training programs would, indeed, become part of the A/I workforce in the US. While this resurgence is a positive indicator for the specialty, especially in the wake of the declines in supply experienced in the past five years, several questions remain related to this trend: 1) How did this resurgence come about? Is it a result of renewed interest in the specialty? Or, is it the result of fellows remaining in training for longer periods of time? 2) Will this level of production continue? And, 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 of vital importance to the specialty.

***3. Several changes occurred in the regional A/I physician marketplace affecting the balance between the supply of A/I physicians and demand for A/I services.*** As the supply of A/I physicians changed, so did the relationship between the supply and the demand for A/I services. 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 were also most likely 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 the middle part of the country (the East and West North Central, and the East and West South Central Census divisions). Those were also the regions where A/I physicians reported the lowest levels of competition with other physicians. By 2004, however, the regional marketplaces had changed.

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 no longer were assessed as having a great number of practice opportunities available. Greater levels of competition among physicians were also reported in these regions, suggesting that the marketplace has softened since 1999 in these regions. The East and West South Central Census divisions continued to experience markets with relatively many practice opportunities.

The regional changes in the A/I physician marketplace observed between 1999 and 2004 appear to have been at least partially associated with change in the availability of A/I physicians. For example, in the East and West North Central Census divisions, the regions where the A/I physician marketplace declined (i.e., there were fewer practice opportunities in 2004 than 1999, greater levels of competition in 2004 than 1999), the supply of A/I physicians either remained the same or increased. On the other hand, in the Mountain and Pacific Census divisions, regions where the A/I physician marketplace improved (i.e., there were more practice opportunities and lower levels of competition in 2004 than 1999), the supply of A/I physicians did not keep up with population growth, and thus had declined between 1999 and 2004. Moreover, in New England, one of the regions with a poor A/I physician marketplace in 1999, the supply of A/I physicians declined drastically. These changes are evidence of a re-balancing of the regional A/I physician marketplaces around the country.

***4. Continuing a trend noted in 1999, A/I physicians in 2004 were more likely to be board-certified and to have completed an A/I fellowship training program than ever before.*** More than 90 percent of A/I physicians reported being board-certified and having completed an A/I fellowship training program in 2004. Individuals with allergic, asthma-related, and/or immunologic conditions have greater access to formally-trained, certified physicians and high quality care than ever before.

***5. Medical liability insurance issues do not seem to have affected A/I practice dramatically.*** While the issue of medical liability insurance is important to all physicians, A/I physicians did not report dramatic changes in their practices. Although almost two-thirds of A/I physicians reported increases in medical liability insurance premiums in the recent past, very few (less than 10 percent) 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 its effects, or lack thereof, on A/I practice.

***6. A/I physicians continued to report high levels of professional satisfaction with their A/I practice.*** As was the case in 1999, the vast majority of A/I physicians in 2004 reported being professionally satisfied or very satisfied with their A/I practices. Levels of satisfaction were generally higher in 2004 as well. Further, in 2004, more A/I physicians reported being economically satisfied with their practices as well. Increasing levels of professional and economic satisfaction will help ensure that A/I physicians continue providing high quality care to their patients in the future.

***7. A/I physicians continue to be optimistic about the future of A/I practice in the US.*** A/I physicians reported that they expect demand for A/I services to increase due to the growing incidence and prevalence of allergic and asthma-related conditions and the new treatments and medications available in the future. While A/I physicians did report limited practice opportunities currently in some regions of the country, they were very optimistic about future local and regional practice opportunities. These assessments of future practice opportunities are important to help maintain the recent higher levels of production of new A/I physicians.

Finally, we encourage the continued monitoring of the 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. It is not clear that the current levels of production are adequate to ensure that there is access to A/I physicians throughout the country. Since the 2000 A/I workforce report, several national forecasting efforts have concluded that the nation will face a relatively large physician shortage in the coming years.[4] Even though training in the specialty has recently experienced a surge, it will remain important to monitor new A/I physician production closely. Moreover, given the constant dynamics in the A/I physician workforce marketplace, it is also important to track where new A/I physicians are establishing their practices and understand how these new practices might differ from those that came before them.

**Background: A/I Physician Workforce Studies**

In order to place the data collected in 2004 in the appropriate context, it is important to recall the work done earlier related to the A/I physician workforce. Starting in 1998, the Center for Health Workforce Studies investigated a wide range of issues consulting a number of primary and secondary data sources in order to develop a comprehensive understanding of the dynamics affecting the supply of and demand for A/I physicians.

The Center's work began at a time when the number of physicians training in A/I had been declining for the better part of a decade. Concomitant to the decline in production was a national push by policy planners to reduce health care costs by encouraging the growth of managed care and promoting the expansion of the role of the primary care physicians. Many specialists were concerned about how these trends might affect their practices in the future. A number of specialty-specific physician workforce projects were undertaken nationally, including one commissioned by the American Academy of Allergy, Asthma and Immunology (AAAAI).

To understand and determine the potential effects these trends were going to have on the A/I physician workforce, the Center initially conducted a comprehensive workforce study. The study included: 1) analysis of existing data obtained from the AAAAI membership database and the American Medical Association's (AMA) Masterfile of Physicians;[5] 2) a survey of the A/I physician workforce in the US; 3) a survey of A/I fellowship program directors in 1999; and 4) a survey of A/I fellows completing training in 1999. The Center followed up by continuing the fellowship program directors and fellows completing training surveys through 2002;[6] conducting a brief analysis of the impact of managed care on A/I practice[7]; conducting a survey of second year pediatrics and internal medicine residents on the factors they find influential when choosing a specialty;[8] and conducting two additional sample surveys of the A/I physician workforce related to issues of volunteerism[9] and the use of non-physician clinicians (nurse practitioners and physician assistants).[10]

The initial comprehensive workforce report, published in 2000, contained a number of interesting and important findings. Among them:

***1. The number of fellows training in A/I dropped precipitously between 1990 and 1998, declining from 322 in 1990 to 214 in 1998 (34 percent). It was estimated that just 84 physicians completed an A/I fellowship program in 1999.***

In 1999, 41 percent of A/I fellowship program directors reported reducing the number of fellows in their programs in the prior three years. The most commonly cited reasons for reducing program size were reduced financial support for the program and difficulty attracting qualified applicants.

*Background Figure 1. Number of Graduate Medical Education Programs, A/I and Other Selected Specialties, 1985-2003*

| | Allergy and Immunology | | Otolaryngology | | Dermatology | | Pulmonary Disease | |
|---|---|---|---|---|---|---|---|---|
| Year | Programs | Annual Percent Change | Programs | Annual Percent Change | Programs | Annual Percent Change | Programs | Annual Percent Change |
| 1985 | 87 | -- | 107 | -- | 97 | -- | N/A | -- |
| 1986 | 87 | 0.0% | 107 | 0.0% | 100 | 3.1% | 170 | -- |
| 1987 | 85 | -2.3% | 106 | -0.9% | 98 | -2.0% | 177 | 4.1% |
| 1988 | 87 | 2.4% | 106 | 0.0% | 99 | 1.0% | 180 | 1.7% |
| 1989 | 86 | -1.1% | 106 | 0.0% | 100 | 1.0% | 183 | 1.7% |
| 1990 | 86 | 0.0% | 107 | 0.9% | 100 | 0.0% | 176 | -3.8% |
| 1991 | 86 | 0.0% | 106 | -0.9% | 101 | 1.0% | 177 | 0.6% |
| 1992 | 85 | -1.2% | 105 | -0.9% | 101 | 0.0% | 177 | 0.0% |
| 1993 | 85 | 0.0% | 105 | 0.0% | 101 | 0.0% | 176 | -0.6% |
| 1994 | 85 | 0.0% | 106 | 1.0% | 103 | 2.0% | 169 | -4.0% |
| 1995 | 84 | -1.2% | 108 | 1.9% | 105 | 1.9% | 170 | 0.6% |
| 1996 | 80 | -4.8% | 105 | -2.8% | 101 | -3.8% | 177 | 4.1% |
| 1997 | 79 | -1.3% | 105 | 0.0% | 101 | 0.0% | 162 | -8.5% |
| 1998 | 77 | -2.5% | 104 | -1.0% | 102 | 1.0% | 159 | -1.9% |
| 1999 | 73 | -5.2% | 103 | -1.0% | 104 | 2.0% | 158 | -0.6% |
| 2000 | 72 | -1.4% | 103 | 0.0% | 105 | 1.0% | 156 | -1.3% |
| 2001 | 71 | -1.4% | 103 | 0.0% | 106 | 1.0% | 153 | -1.9% |
| 2002 | 70 | -1.4% | 102 | -1.0% | 107 | 0.9% | 152 | -0.7% |
| 2003 | 71 | 1.4% | 102 | 0.0% | 109 | 1.9% | 152 | 0.0% |
| Change | | | | | | | | |
| 1999-2003 | -2 | -2.7% | -1 | -1.0% | +5 | 4.8% | -6 | -3.8% |

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

The decline in the number of fellows in A/I training programs lasted from 1991 through 1999. Since 1999, however, the trend has reversed, with a dramatic increase of nearly 17 percent through 2003, from 209 fellows in training in 2000 to 246 in 2003. A similar decline was observed in the number of A/I training programs as well. Between 1991 and 1999, the number of programs decreased from 86 to 73. The decline in the number of programs entailed the

closure of some programs and the merging of programs as well. Since 1999, the number of A/I training programs has continued to decline, although much more slowly. In 2003, there were 71 accredited A/I training programs in the US. The decline in A/I training programs since 1999 is similar to the trend observed in other specialties, with the exception of Dermatology, a specialty observed to be in high demand nationally.

*Background Figure 2. Number of Graduate Medical Education Programs, A/I and Other Selected Specialties, 1985-2003*

| | Allergy and Immunology | | Pediatrics | | Internal Medicine | | Family Practice | |
|---|---|---|---|---|---|---|---|---|
| Year | Programs | Annual Percent Change | Programs | Annual Percent Change | Programs | Annual Percent Change | Programs | Annual Percent Change |
| 1985 | 87 | -- | 236 | -- | 442 | -- | 385 | -- |
| 1986 | 87 | 0.0% | 234 | -0.8% | 442 | 0.0% | 383 | -0.5% |
| 1987 | 85 | -2.3% | 234 | 0.0% | 442 | 0.0% | 382 | -0.3% |
| 1988 | 87 | 2.4% | 230 | -1.7% | 441 | -0.2% | 383 | 0.3% |
| 1989 | 86 | -1.1% | 226 | -1.7% | 440 | -0.2% | 383 | 0.0% |
| 1990 | 86 | 0.0% | 215 | -4.9% | 426 | -3.2% | 383 | 0.0% |
| 1991 | 86 | 0.0% | 217 | 0.9% | 427 | 0.2% | 393 | 2.6% |
| 1992 | 85 | -1.2% | 214 | -1.4% | 418 | -2.1% | 395 | 0.5% |
| 1993 | 85 | 0.0% | 215 | 0.5% | 416 | -0.5% | 407 | 3.0% |
| 1994 | 85 | 0.0% | 215 | 0.0% | 415 | -0.2% | 430 | 5.7% |
| 1995 | 84 | -1.2% | 215 | 0.0% | 416 | 0.2% | 455 | 5.8% |
| 1996 | 80 | -4.8% | 216 | 0.5% | 417 | 0.2% | 474 | 4.2% |
| 1997 | 79 | -1.3% | 216 | 0.0% | 415 | -0.5% | 489 | 3.2% |
| 1998 | 77 | -2.5% | 209 | -3.2% | 410 | -1.2% | 502 | 2.7% |
| 1999 | 73 | -5.2% | 208 | -0.5% | 403 | -1.7% | 502 | 0.0% |
| 2000 | 72 | -1.4% | 209 | 0.5% | 394 | -2.2% | 501 | -0.2% |
| 2001 | 71 | -1.4% | 208 | -0.5% | 390 | -1.0% | 497 | -0.8% |
| 2002 | 70 | -1.4% | 207 | -0.5% | 392 | 0.5% | 481 | -3.2% |
| 2003 | 71 | 1.4% | 202 | -2.4% | 388 | -1.0% | 477 | -0.8% |
| Change | | | | | | | | |
| 1999-2003 | *-2* | *-2.7%* | *-1* | *-2.9%* | *-15* | *-3.7%* | *-25* | *-5.0%* |

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

*Background Figure 3. Number of Residents/Fellows Enrolled in Graduate Medical Education Programs, A/I and Other Selected Specialties, 1985-2003*

| | Allergy and Immunology | | Otolaryngology | | Dermatology | | Pulmonary Disease | |
|---|---|---|---|---|---|---|---|---|
| | Residents | Annual Percent Change | Residents | Annual Percent Change | Residents | Annual Percent Change | Residents | Annual Percent Change |
| **1985** | 276 | -- | 1,094 | -- | 745 | -- | N/A | -- |
| **1986** | 244 | -11.6% | 1,090 | -0.4% | 772 | 3.6% | 339 | -- |
| **1987** | 271 | 11.1% | 1,095 | 0.5% | 799 | 3.5% | 676 | 99.4% |
| **1988** | 281 | 3.7% | 1,036 | -5.4% | 771 | -3.5% | 635 | -6.1% |
| **1989** | 249 | -11.4% | 1,030 | -0.6% | 825 | 7.0% | 794 | 25.0% |
| **1990** | 322 | 29.3% | 1,002 | -2.7% | 824 | -0.1% | 725 | -8.7% |
| **1991** | 298 | -7.5% | 1,061 | 5.9% | 859 | 4.2% | 881 | 21.5% |
| **1992** | 281 | -5.7% | 1,071 | 0.9% | 861 | 0.2% | 911 | 3.4% |
| **1993** | 316 | 12.5% | 1,192 | 11.3% | 912 | 5.9% | 948 | 4.1% |
| **1994** | 297 | -6.0% | 1,221 | 2.4% | 876 | -3.9% | 1,045 | 10.2% |
| **1995** | 254 | -14.5% | 1,211 | -0.8% | 850 | -3.0% | 969 | -7.3% |
| **1996** | 214 | -15.7% | 1,197 | -1.2% | 851 | 0.1% | 959 | -1.0% |
| **1997** | 205 | -4.2% | 1,171 | -2.2% | 853 | 0.2% | 966 | 0.7% |
| **1998** | 214 | 4.4% | 1,149 | -1.9% | 840 | -1.5% | 984 | 1.9% |
| **1999** | 209 | -2.3% | 1,113 | -3.1% | 870 | 3.6% | 1,031 | 4.8% |
| **2000** | 207 | -1.0% | 1,077 | -3.2% | 858 | -1.4% | 1,024 | -0.7% |
| **2001** | 219 | 5.8% | 1,045 | -3.0% | 883 | 2.9% | 1,072 | 4.7% |
| **2002** | 255 | 16.4% | 1,093 | 4.6% | 932 | 5.5% | 1,109 | 3.5% |
| **2003** | 244 | -4.3% | 1,071 | -2.0% | 994 | 6.7% | 1,104 | -0.5% |
| **Change 1999-2003** | *+ 35* | *16.7%* | *-42* | *-3.8%* | *+ 124* | *14.3%* | *+73* | *7.1%* |

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

***2. The number of US medical school graduates (USMG) training in A/I fellowship programs declined drastically between 1990 and 1998, decreasing from 246 in 1990 to 112 in 1998 (54 percent).***

The decline of USMGs training in the specialty had a number of important implications for the workforce. First, as the proportion of USMGs decreased, the proportion of international medical graduates (IMGs) increased. This was particularly problematic as it was found that as many as 25 percent of the IMG fellows had temporary visas, which when they expire require the physician to return to their native country for a specified period of time before being eligible to return, thus reducing the effective production of A/I physicians even more. It was estimated that

the 84 fellows completing A/I training in 1999 translated into 54 new full-time equivalent (FTE) A/I physicians with much of the loss due to IMG graduates leaving the country.

*Background Figure 4. Number of Residents/Fellows Enrolled in Graduate Medical Education Programs, A/I and Other Selected Specialties, 1985-2003*

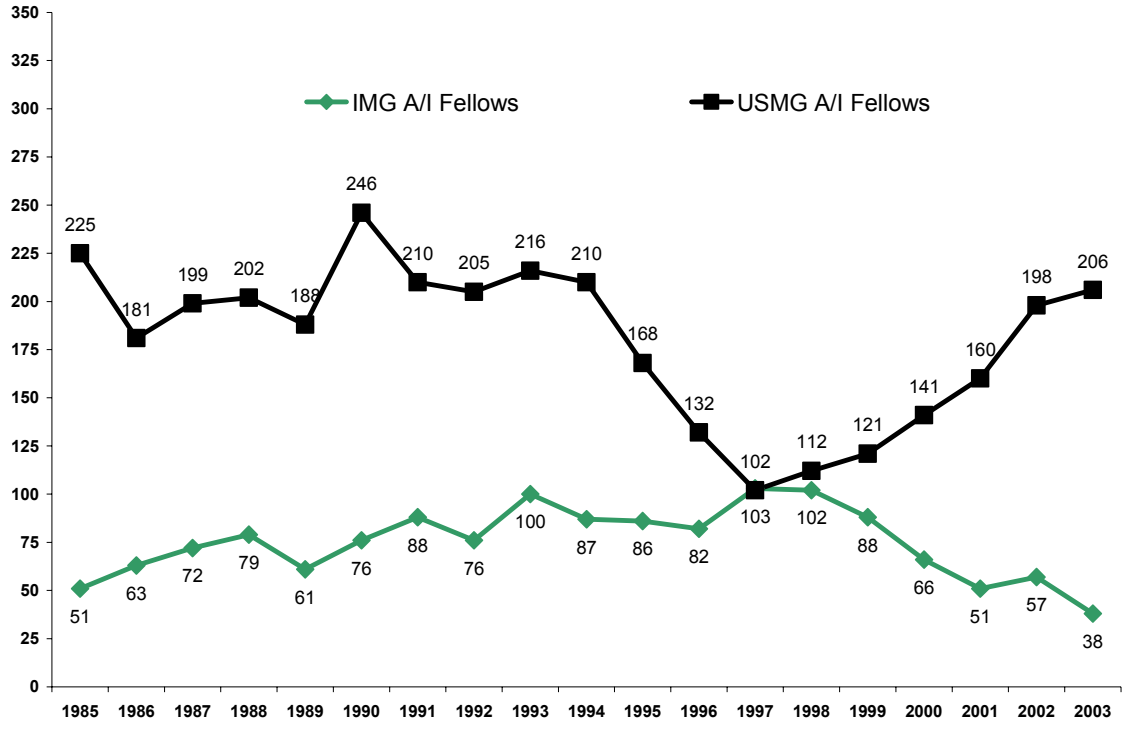
| | Allergy and Immunology | | Pediatrics | | Internal Medicine | | Family Practice | |
|---|---|---|---|---|---|---|---|---|
| Year | Residents | Annual Percent Change | Residents | Annual Percent Change | Residents | Annual Percent Change | Residents | Annual Percent Change |
| **1985** | 276 | -- | 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.*

At the same time, there were a number of indications that interest in A/I fellowship programs by USMGs was beginning to increase. Program directors reported that potential fellows (pediatric and internal medicine residents) held positive and improving views of A/I. Program directors also predicted that practice opportunities would be more numerous in the future. Few fellows completing training in A/I reported difficulties finding satisfactory practice positions.

Beginning in 1997, a dramatic turnaround in the composition of fellows training in A/I has occurred. In that year, more than half of the fellows training in A/I were IMGs. Since then, however, the number of IMGs training in the specialty has decreased each year. By 2003, just 16 percent of the fellows training in A/I were IMGs.

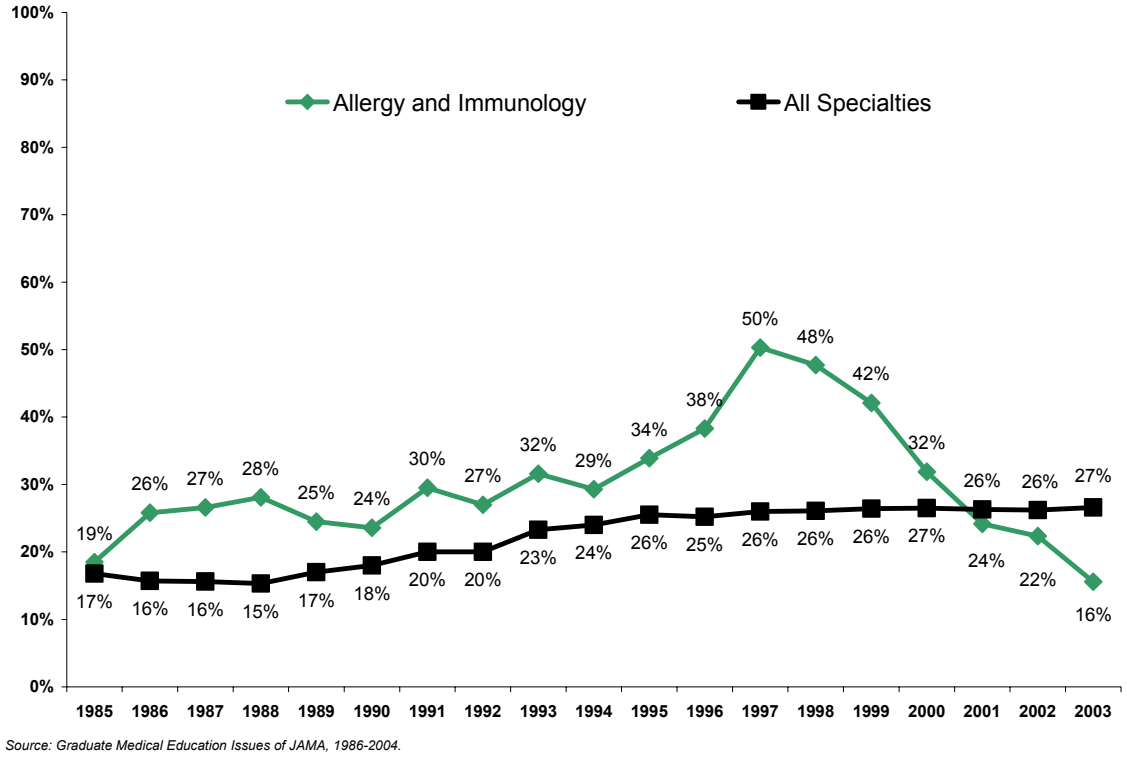
*Background Figure 5. Number of USMG and IMG Fellows Training in A/I, 1985-2003*




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

Two other trends are important to note while interpreting the decline of IMGs training in the specialty. First, considering all graduate medical education in the US, the percentage of all residents/fellows who are IMGs has remained at between 25 percent and 27 percent since 1995. Second, as mentioned above, the number of fellows in A/I training has increased substantially over the past several years, from a low of 205 in 1997 to 244 in 2003. Thus, the observed decline in the percentage of fellows who are IMGs training in A/I is important as an indication of the renewed interest in the specialty by USMGs, as well as a boost to the effective production of A/I physicians who will practice in the US. Given the observations in 1999, the trends in A/I fellowship training bode well for coping with the predicted shortage of A/I physicians in the future (see point 4 below).

*Background Figure 6. Percentage of Residents/Fellows who are IMGs in A/I and among All Specialties, 1985-2003*




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

***3. The supply of A/I physicians was undergoing demographic changes that had significant implications for the future of the specialty. These changes included an increasing participation of women in the specialty and an increase in the average age of A/I physicians.***

Women have made (and continue to make) great strides in their participation in medicine. Between 1990 and 1999, the proportion of A/I physicians who were women increased from 10 percent to 18 percent. Moreover, nearly half of the fellows in training were women, portending a continued increase in the representation of women in the specialty. While the increase is welcomed and is a reflection of increased equity and opportunities for women and a greater choice for patients, the increasing participation by women could lead to a decline in the availability of A/I services. Historically, female physicians worked fewer hours than male physicians[14], so as women increase among the supply of A/I physicians, there may be a decline in the availability of A/I services. It turns out that among the newest cohort of physicians, lifestyle issues are of concern[15] to both women and men, so the difference between their work hours is less among the newest cohort of physicians than it has been historically.

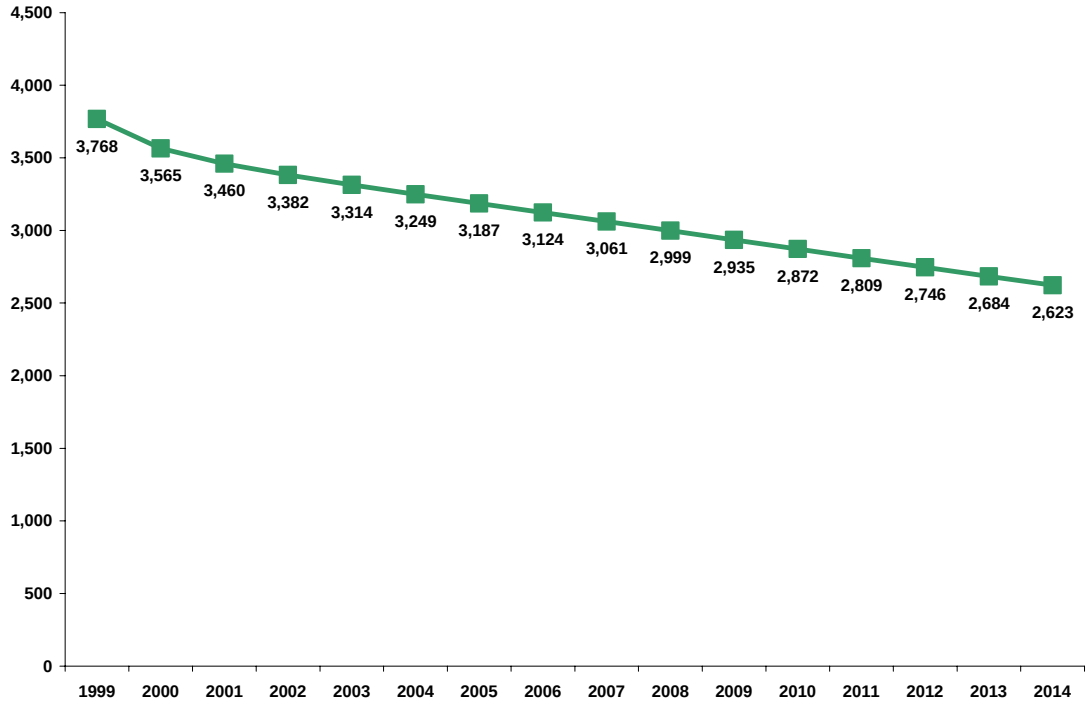
In terms of age, the A/I physician workforce was older, on average, than the general physician population in the US. Because production of new A/I physicians was at such a low level, the age of A/I physicians became particularly important. An older population of physicians indicated that, on average, A/I physicians were closer to retirement than the general physician population in the US. In fact, 37 percent of core* A/I physicians reported that they planned to stop providing A/I services within the next 10 years. Non-core A/I physicians reported even earlier plans to retire.

***4. In light of the decrease in the number of new A/I physicians completing training observed in the 1990s and the aging of the current A/I physician supply, it was expected that the absolute number of A/I physicians and the ratio of A/I physicians to population would begin to decrease in the years subsequent to the study, leading to a decline in access to A/I physicians.***

Using data collected from A/I physicians, A/I fellowship program directors, and physicians completing training in the specialty, the Center forecast that there would be a significant decline in the supply of A/I physicians if the observed trends remained constant. Under the assumptions that demand remained constant and that the supply of A/I physicians in 1999 was slightly higher than demand, the conclusion drawn from the forecast was that there would be a shortage of A/I physicians within ten years. Because the effective production rate was not keeping up with the retirement rate of practicing A/I physicians, the supply of A/I physicians would soon drop below demand for A/I services. If demand for A/I services were to increase over time, the shortage would likely occur even sooner.

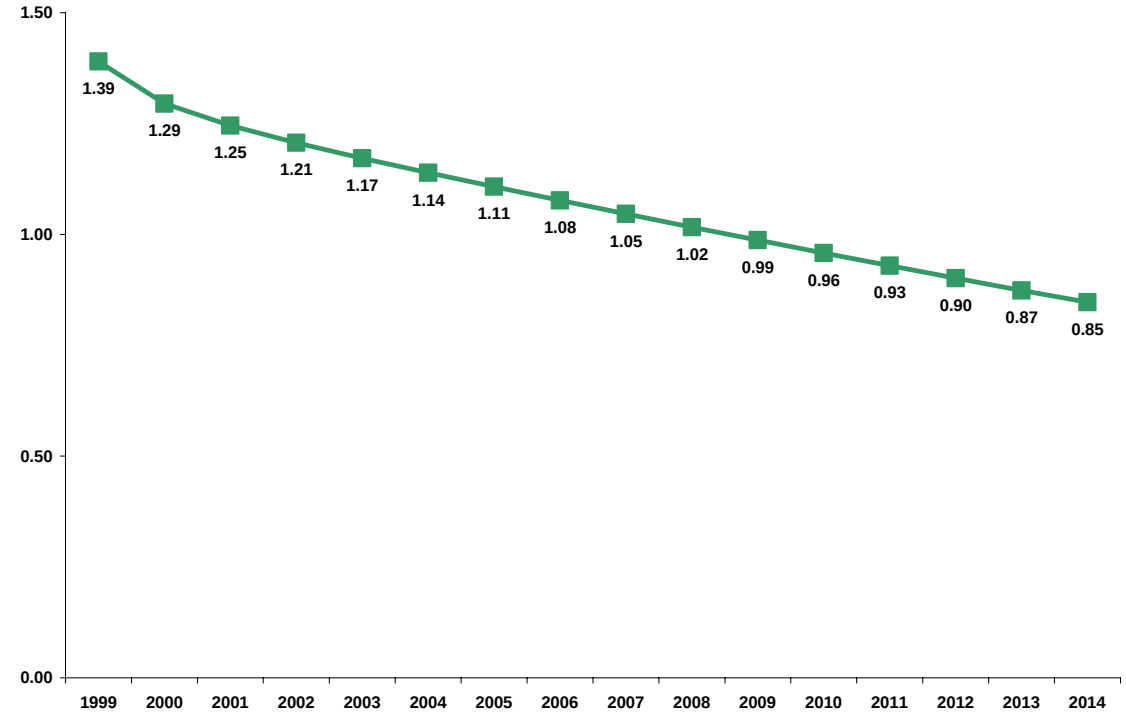
* In the 2000 workforce report, an analytical distinction between core and non-core A/I physicians was employed. A core A/I physician was defined as a physician who spent 30 or more hours per week providing A/I patient care services, or a physician who spent 20 to 29 hours per week providing A/I patient care services and those hours comprised a majority of his/her clinical practice time. All other physicians providing allergy and immunology patient care services were classified as non-core A/I physicians. For more information, please see *The Allergy and Immunology Physicians Workforce 2000*.[3]

*Background Figure 7. 1999 Forecast of A/I Physician Supply** in the US, 1999-2014 (expressed as full-time equivalents)*




*Source: Forte, et al. Allergy and Immunology Physician Workforce 2000. Rensselaer, NY: Center for Health Workforce Studies, SUNY Albany. June 2000.*

*Background Figure 8. 1999 Forecast of A/I Physician Supply[**] in the US, 1999-2014 (expressed as full-time equivalents per 100,000 population)*




*Source: Forte, et al. Allergy and Immunology Physician Workforce 2000. Rensselaer, NY: Center for Health Workforce Studies, SUNY Albany. June 2000.*

### *5. A trend toward increasing board certification of A/I physicians and greater access to similarly-trained, certified A/I physicians was noted.*

As the specialty of allergy and immunology became more entrenched and established within medicine (the ABAI was established in 1971, growth of formalized fellowship training programs from the 1970s through the 1990s, etc), there has been a steady, long-term growth trend in the number of A/I physicians with formal training and who are board-certified in the specialty. As a result, Americans with allergy and asthma-related conditions have greater access to formally-prepared specialists than ever before. In 1999, 86 percent of A/I physicians had completed a formal A/I fellowship program and 90 percent were board-certified in the specialty. Among younger A/I physicians, the percentages were even higher. All in all, the nation had the greatest access to high quality care from physicians providing allergy and immunology services than it ever had up to that point in time.

[**] Note: The FTE values and forecast FTE values in Figures 7 and 8 on pages 9 and 10 include the efforts of a wider range of physicians (most notably a number of Otolaryngologists) who were excluded from the subsequent 2004 study. In order to present valid comparisons of the 1999 and 2004 data, throughout the rest of the report, those physicians have been excluded from the 1999 statistics.

***6. Practice patterns among A/I physicians were changing, and there were significant differences observed in the practice patterns of older and younger A/I physicians.***

In the past, A/I physicians, like physicians in other specialties, were solo practitioners. While solo practice arrangements were still frequent among A/I physicians in 1999, like the general physician population, other practice arrangements (such as group practice) were becoming more common among A/I physicians. This was especially the case among younger A/I physicians who were much more likely to practice in group practice arrangements than older A/I physicians.

Another A/I practice characteristics observed to change was the use of immunotherapy. Older A/I physicians were more likely to report treating higher percentages of their patients with allergy shots than younger A/I physicians were. Moreover, A/I physicians who had not completed an A/I fellowship program were much more likely to employ immunotherapy than those who had completed an A/I fellowship program. These observations suggested that as the number of A/I physicians who had completed A/I fellowship programs increased, the use of immunotherapy might decrease.

***7. Finally, A/I physicians were observed to be generally satisfied with their professional practice and saw the future as holding more practice opportunities for A/I physicians.***

While a majority of A/I physicians reported limited practice opportunities available in their local communities in 1999, they were more optimistic about practice opportunities outside their local areas and future practice opportunities. That A/I physicians reported more numerous opportunities outside their local practice areas was indicative of the slight pressure they were feeling from local competition with other physicians and suggested that they were not overly concerned that demand for their services would shrink below supply levels or, conversely, that the supply of A/I physicians would swell above demand levels. Almost three-quarters of A/I physicians reported being satisfied professionally with their practices in 1999.

## Results of the Survey of Physicians Providing Allergy and Immunology Services in the United States in 2004

### Introduction

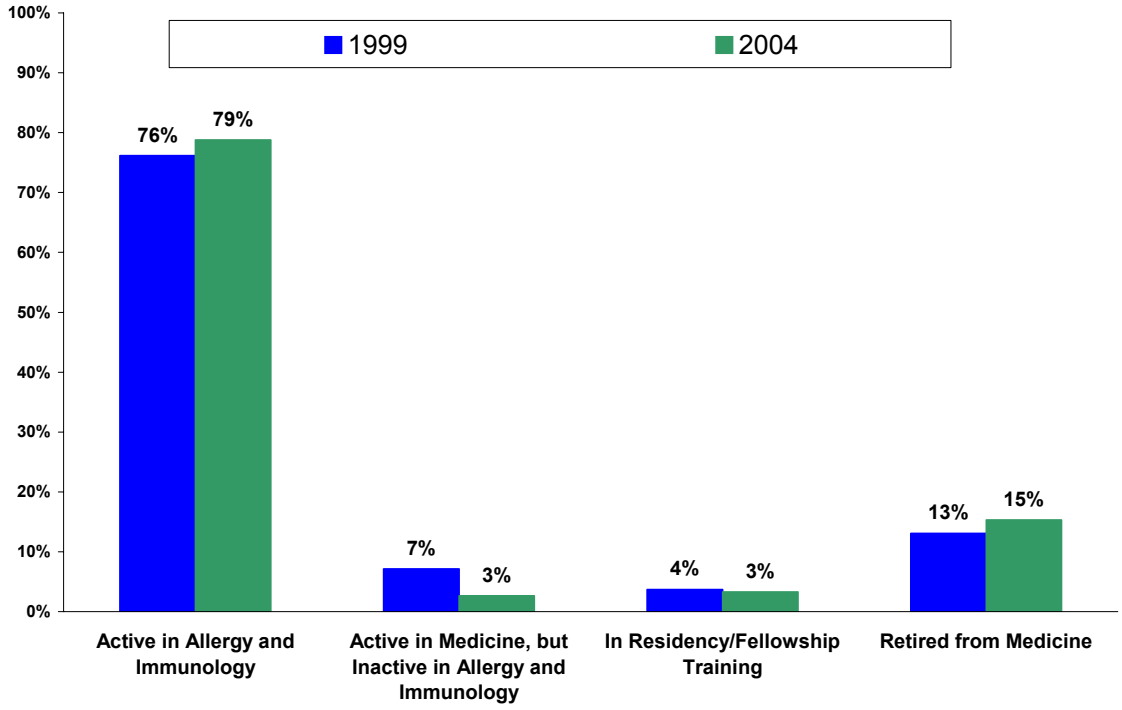
This section of the report is organized around a number of key issues in physician population profiling including: current services provision status, demographics, training experiences, practice characteristics, competition with other physicians, employment opportunities, and plans for retirement. All results have been adjusted for response bias. See appendices A and B for complete technical and methodological details regarding the conduct of the survey. See appendix C for a copy of the survey instrument.

This section of the report also presents a number of comparisons with a similar survey conducted in 1999. Where possible, comparisons are made with the general physician population in the United States and with allergists in 1989.

### 1. Overview of Respondents

As Figure 1 indicates, the vast majority (79 percent) of the population of physicians surveyed was actively practicing in the specialty. A significant percentage (15 percent) responded that they were retired from medicine. Three percent (3 percent) indicated that they were in graduate training, and 3 percent reported actively practicing medicine in a specialty other than allergy and immunology. In terms of numbers of physicians, of the physicians who met the criteria to receive the survey (see Appendix A), 4,245 were practicing allergy and immunology; 142 were practicing medicine in a specialty other than allergy and immunology; 176 were in graduate medicine training; and 824 were retired from medicine.

*Figure 1. Current Professional Status of A/I Physicians, 1999 and 2004*



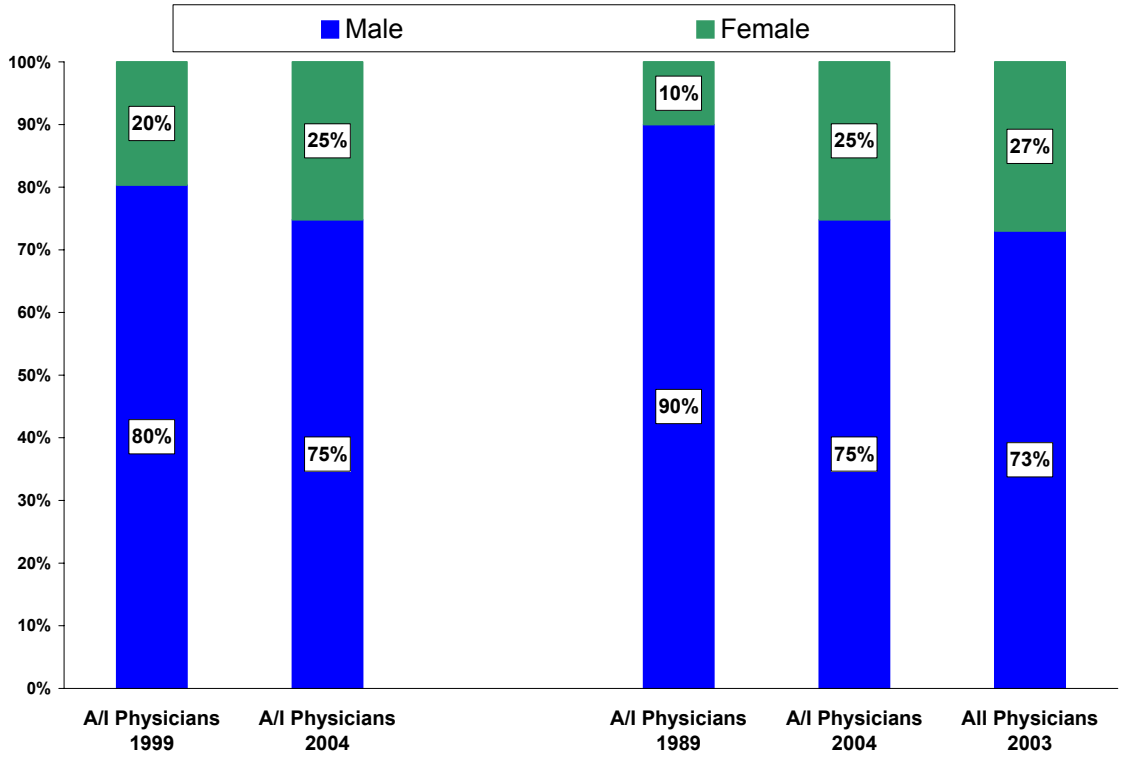

While not directly comparable due to differences in how physicians were selected to receive the survey, examining this distribution over time, more physicians reported being retired in 2004 than in 1999, fewer reported being in graduate training, and slightly more reported being in active allergy and immunology practice. The remainder of the report presents the survey responses of those currently practicing in the specialty. These physicians represent the allergy and immunology physician workforce (A/I physicians).

The following sections of the report will analyze the responses of physicians currently practicing in allergy and immunology in terms of demographics, geographic location, practice characteristics and patterns, perspectives on the specialty and the job market for physicians like themselves, as well as issues of competition with physicians from other specialties and medical liability insurance premiums. Where possible, the survey results will be compared with a previously conducted, similar survey of physicians providing allergy and immunology services, as well as all physicians practicing in the United States.

## 2. Demographic Characteristics of the A/I Physician Workforce

In 2004, 25 percent of the A/I physician workforce was female. As indicated in Figure 2, the relative proportion of women among the A/I physician workforce grew substantially between 1999 and 2004 from 20 percent to 25 percent. Going back slightly further, in 1989, only 10 percent of the A/I physician workforce was female.[11] In just 15 years, the relative proportion of women in the specialty has more than doubled. The A/I physician workforce lags just slightly behind all physicians in terms of gender representation, as in 2003, about 27 percent of the physicians in the United States were women,[12] having increased from 24 percent in 1998 to 27 percent in 2003.[13]

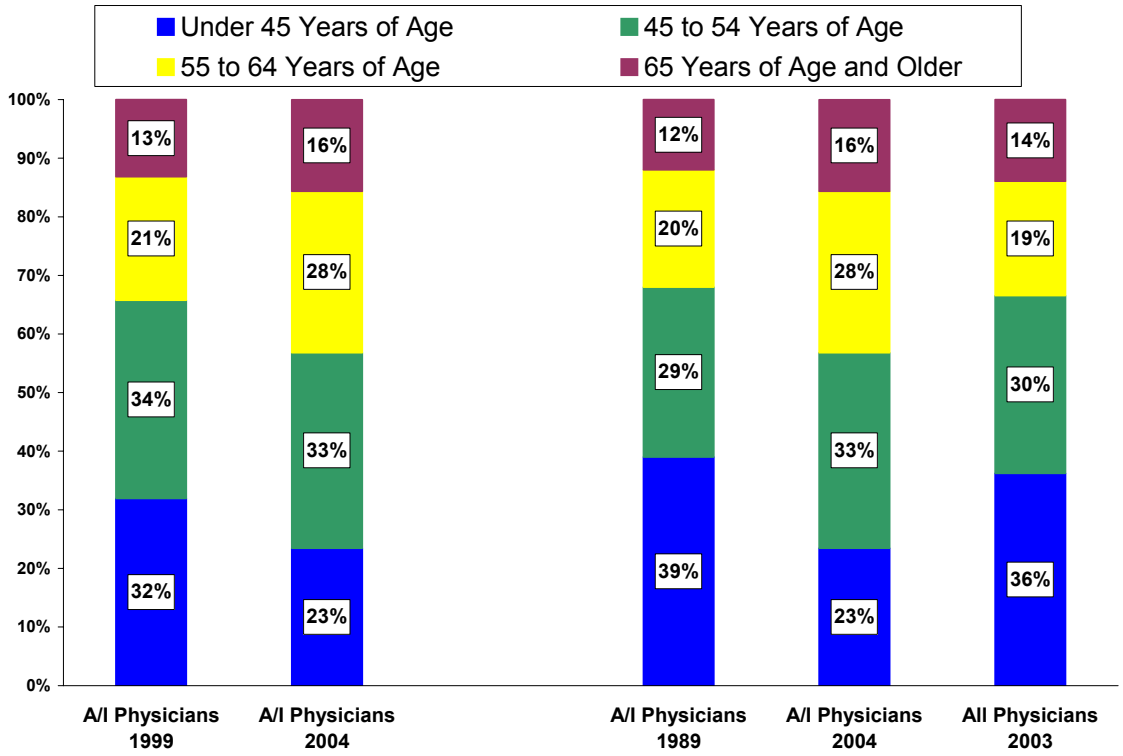
*Figure 2. Gender Distribution of A/I Physicians, 1999 and 2004*




The A/I physician workforce aged slightly between 1999 and 2004, with a median age of 53 years of age in 2004 compared to 50 years of age in 1999. The age distribution has also changed during the time period. In 2004, just 23 percent of the A/I physician workforce was under 45 years of age, while 16 percent were 65 years of age or older. In 1999, 30 percent of the A/I physician workforce was under 45 years of age, and 14 percent were 65 years of age or older. The change since 1999 continues a trend of fewer young A/I physicians and more older A/I

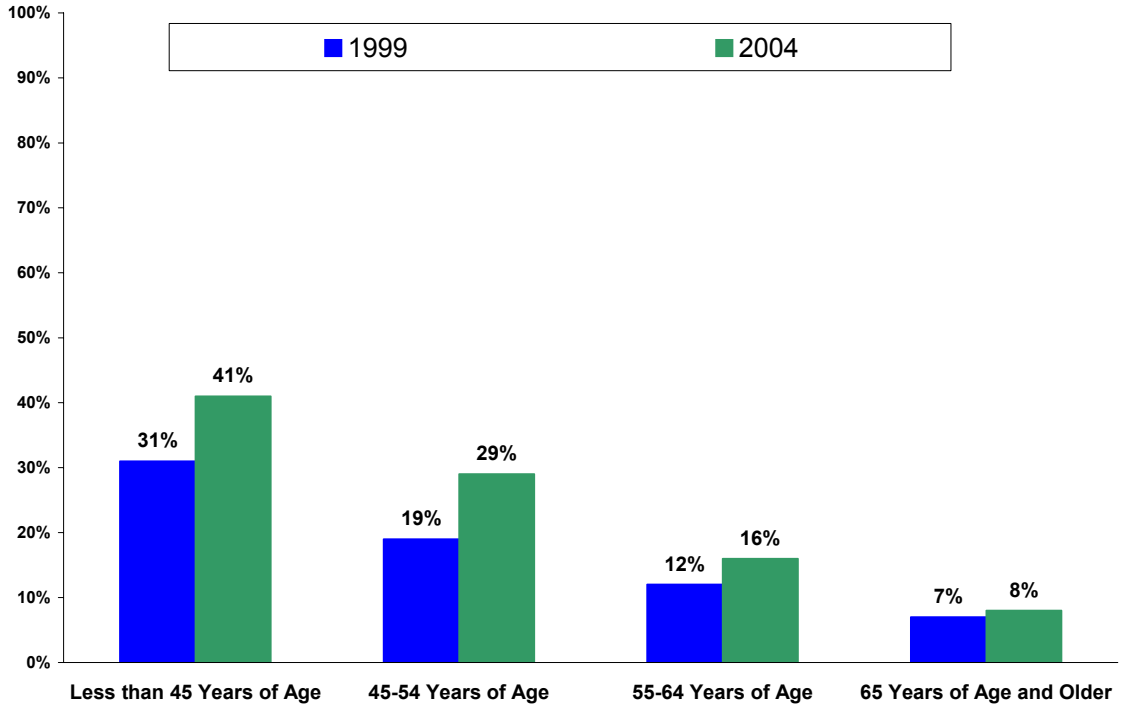
physicians that started as early as 1989, when 39 percent of the A/I physician workforce was under 45 years of age and 12 percent was 65 years of age or older. The observed aging of the A/I physician workforce appears to be part of the overall trend of aging in the physician workforce, the health workforce, and the overall US population.

*Figure 3. Age Distribution of A/I Physicians, 1999 and 2004*




The varied age distributions and increases in the representation of women in the A/I physician workforce come together more clearly in Figure 4 which presents the percentage of women in each of four age groups in 1999 and 2004. At both time points, the younger age groups of A/I physicians had significantly greater proportion of women than the older age groups. Comparing 2004 to 1999, it is clear that the representation of women continues to increase.

*Figure 4. Representation of Women Among A/I Physicians by Age Group, 1999 and 2004*




The workforce implications of this growth is debatable as there exists evidence[14] that women practice quantitatively less than their male counterparts, while at the same time there exists evidence[15] that the newest cohorts of physicians expect and are practicing medicine with more concern for lifestyle issues (e.g., more time with family, a more balanced work-to-leisure ratio, etc). Our previous work suggested that allergy and immunology is a specialty that offers a more balanced lifestyle for physicians than other specialties. Thus, while certainly speculative, it may turn out that the specialty is more attractive than others for this reason, especially among the newer cohorts of physicians. The recent resurgence in the number of fellows training in the specialty provides evidence to support this speculation.

In terms of race/ethnicity, in 2004, three quarters of the A/I physician workforce was white. Of the non-white A/I physicians, almost half were Asian/Pacific Islanders and a quarter were from the Indian Subcontinent. There were few underrepresented minorities (black/African Americans and Hispanics) among the A/I physician workforce. Comparing 2004 to 1999, the A/I physician has become slightly more diverse: there were more Asian/Pacific Islanders and physicians from the Indian Subcontinent in 2004 than in 1999. Further, there were slightly more

underrepresented minorities among the A/I physician workforce in 2004 (6 percent) than in 1999 (5 percent).

*Figure 5. Race/Ethnicity Distribution of A/I Physicians, 1999 and 2004*

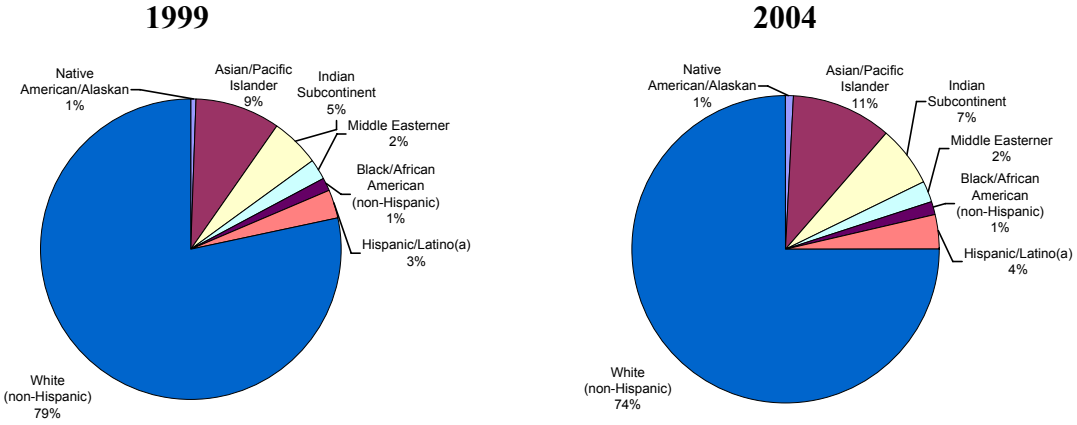



*Figure 6. Geographic Distribution of A/I Physician Workforce in the US, 2004*


There were approximately 1.38 A/I physicians per 100,000 population in the United States in 2004. The A/I physician workforce, however, was not distributed evenly across the country. Figures 6 and 7 present the A/I physician to population ratios for the nation and for the nine Census divisions. As is evident, the northeastern part of the country (New England and Middle Atlantic Census divisions) had higher ratios of A/I physicians to population than other parts of the country. In the East South Central Census division (Alabama, Kentucky, Mississippi, and

Tennessee) and in the Mountain Census division (Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah and Wyoming), there were the fewest A/I physicians per population than in other parts of the country.

Not surprisingly, the ratios of A/I physicians to population declined between 1999 and 2004. Overall, the supply of A/I physicians declined from 1.59 per 100,000 population in 1999 to 1.39 in 2004. The parts of the country most affected by the decline were the Mountain Census division and the New England Census division, losing about 29 percent and 24 percent of their respective A/I physician supply between 1999 and 2004. The observed decline in supply was the effect of the decline of A/I fellowship training in the 1990s. By 1999, there were just over 200 fellows training in the specialty, down from over 300 in the early 1990s. Consequently, when older A/I physicians left practice between 1999 and 2004, there were not enough newly-trained A/I physicians to replace them. Since 2000, the number of fellows-in-training has increased markedly, but it remains to be seen whether the decline in supply can be ended.

*Figure 7. A/I Physician to Population Ratios by Region, 1999 and 2004*

| | Population (000s) | | A/I Physicians per 100k Pop | A/I Physicians per 100k Pop |
|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 |
| New England | 13,430 | 14,239 | 2.01 | 1.52 |
| Middle Atlantic | 38,292 | 40,332 | 2.16 | 2.00 |
| East North Central | 44,195 | 46,032 | 1.40 | 1.36 |
| West North Central | 18,695 | 19,698 | 1.49 | 1.31 |
| South Atlantic | 48,945 | 55,183 | 1.51 | 1.33 |
| East South Central | 16,471 | 17,480 | 1.34 | 1.12 |
| West South Central | 30,014 | 33,282 | 1.47 | 1.29 |
| Mountain | 16,813 | 19,799 | 1.46 | 1.04 |
| Pacific | 43,444 | 47,610 | 1.49 | 1.27 |
| United States | 274,099 | 297,550 | 1.57 | 1.38 |

Demographically, the supply of A/I physicians varied as well by region. Figure 8 presents the age, gender, and medical school location distributions for A/I physicians in 1999 and 2004. Overall, in 2004, 25 percent of A/I physicians were women and 20 percent were graduates of international medical schools. The mean age of the A/I physician workforce was 53 years of age. In each of these characteristics, there was regional variation. First, A/I physicians in the Pacific (Alaska, California, Hawaii, Oregon, and Washington) and in the West South Central (Arkansas, Louisiana, Oklahoma, and Texas) Census divisions were the oldest, both in terms of the mean age of the A/I physicians practicing in those divisions and the percentage of A/I

physicians 65 years of age and older. A/I physicians in the Middle Atlantic (New Jersey, New York, and Pennsylvania) Census division were most likely to be women and to be graduates of international medical schools. The West North Central (Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota) and the East South Central Census divisions had the lowest levels of international medical school graduates.

*Figure 8. Regional Demographics of A/I Physicians, 1999 and 2004*

| | Mean Age | | % Female | | % IMG | | % 65 + Years of Age | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 52 | 54 | 13% | 18% | 16% | 18% | 14% | 11% |
| Middle Atlantic | 51 | 54 | 25% | 32% | 29% | 30% | 15% | 17% |
| East North Central | 51 | 52 | 23% | 27% | 26% | 26% | 15% | 12% |
| West North Central | 50 | 53 | 17% | 20% | 16% | 11% | 9% | 15% |
| South Atlantic | 49 | 51 | 18% | 24% | 18% | 17% | 9% | 13% |
| East South Central | 50 | 51 | 19% | 24% | 11% | 11% | 11% | 13% |
| West South Central | 51 | 55 | 20% | 24% | 19% | 16% | 15% | 22% |
| Mountain | 52 | 54 | 13% | 19% | 14% | 18% | 12% | 17% |
| Pacific | 52 | 55 | 18% | 23% | 16% | 17% | 13% | 18% |
| | | | | | | | | |
| United States | 51 | 53 | 20% | 25% | 20% | 20% | 13% | 16% |

Comparing 2004 with 1999, each region experienced a growth in the relative proportion of women among the A/I physician workforce of between 3 percent and 7 percent. While the overall percentage of A/I physicians who graduated from international medical schools did not change, there were small increases in the New England, Middle Atlantic, Mountain, and Pacific Census divisions, and decreases in the West North Central and West South Central Census divisions. In terms of age, each region experienced a similar aging of their A/I physician workforces, with the West South Central Census division experienced the greatest increase in mean age and percentage of A/I physicians 65 years of age and older.

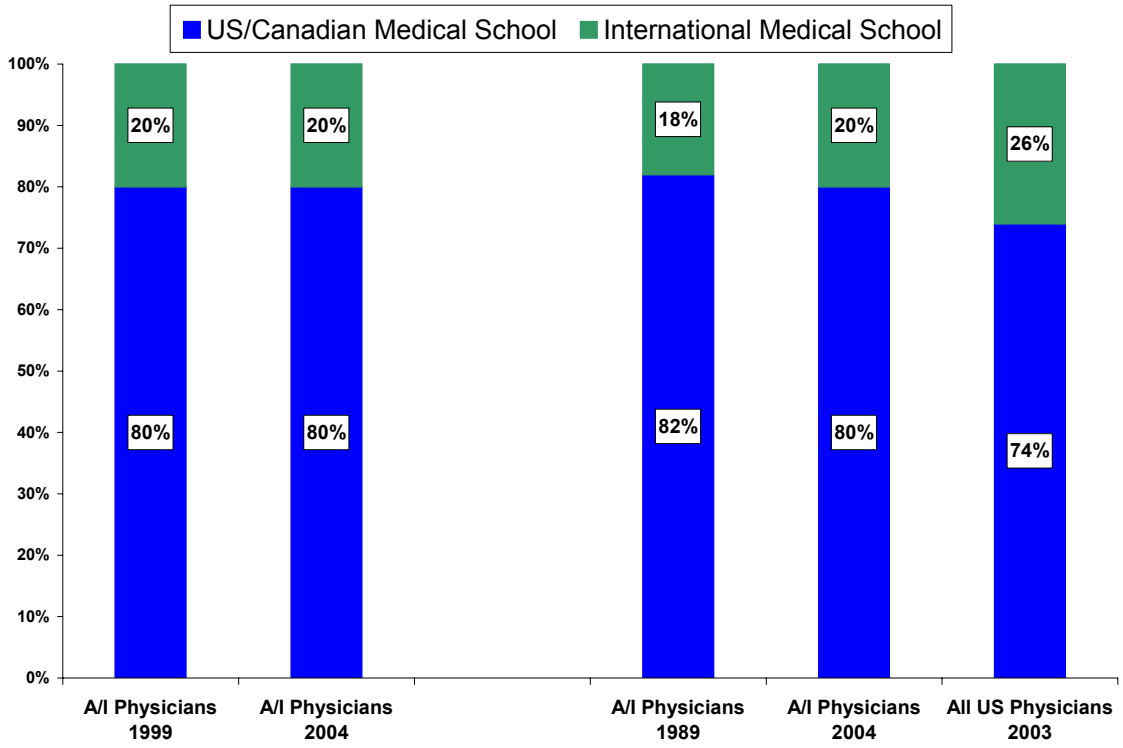
### 3. Professional Training Characteristics of the A/I Physician Workforce

In this section, data relating to A/I physicians' undergraduate medical education, graduate medical education and board certification status is presented.

Overall, 80 percent of A/I physicians graduated from a medical school in the United States or Canada, and 20 percent graduated from international medical schools (Figure 9). These percentages did not change between 1999 and 2004. Looking back even further in time, the percentage of A/I physicians who graduated from international medical schools has only

increased by 2 percent since 1989. Between 1990 and 2003, the percentage of international medical school graduates among all physicians in the United States increased by 4 percent, from 22 percent to 26 percent. The lack of change in the proportion of international medical school graduates among the A/I physician workforce is somewhat surprising because in the mid to late 1990s, the decline in the number of fellows training in allergy and immunology was largely driven by an exodus of fellows from US medical schools. In fact, in the late 1990s, a majority of the graduating fellows were graduates of international medical schools. The recent surge in fellowship training, however, has reversed the trend with overall increases in the number of fellows, fellows from US medical schools, and significant declines in the number of international medical school graduate fellows.

*Figure 9. Medical School Location of A/I Physicians, 1999 and 2004*




The vast majority of A/I physicians entered the specialty after completing a pediatric or internal medicine residency program. In 2004, more than half (52 percent) of A/I physicians had completed training in pediatrics and 47 percent had completed internal medicine training. The few remaining A/I physicians were trained in Otolaryngology (less than 1 percent) and other specialties (2 percent). Between 1999 and 2004, the percentage of A/I physicians who were

trained in internal medicine has increased, while the percentage trained in pediatrics remained the same. Another change worth mentioning was the near elimination of otolaryngology trained A/I physicians.

*Figure 10. Initial Residency Training of A/I Physicians, 1999 and 2004*

| | Internal Medicine | Pediatrics | Otolaryngology | Other |
|---|---|---|---|---|
| A/I Physicians 1989 | 43% | 48% | 2% | 7% |
| A/I Physicians 1999 | 41% | 52% | 3% | 4% |
| A/I Physicians 2004 | 47% | 52% | Less than 1% | 2% |

Examining the initial residency training of A/I physicians more close, Figure 11 presents the training experiences of A/I physicians by age group. There is a clear linear trend of smaller percentages of A/I physicians training in otolaryngology and other specialties over time, with the oldest groups of A/I physicians having the largest percentages of training in otolaryngology and other specialties and the youngest groups of A/I physicians have far smaller percentages. Moreover, comparing the 1999 and 2004 survey responses, evidence of this trend also appears, with smaller percentages of otolaryngology and other specialty training in each age group over time. Speculation based on these data suggests that eventually all A/I physicians will have completed training in pediatrics or internal medicine, as the members of the A/I physician workforce who started practicing allergy and immunology prior to the requirements of initial pediatrics or internal medicine training age out of the workforce.

*Figure 11. Initial Residency Training of A/I Physicians by Age Group, 1999 and 2004*

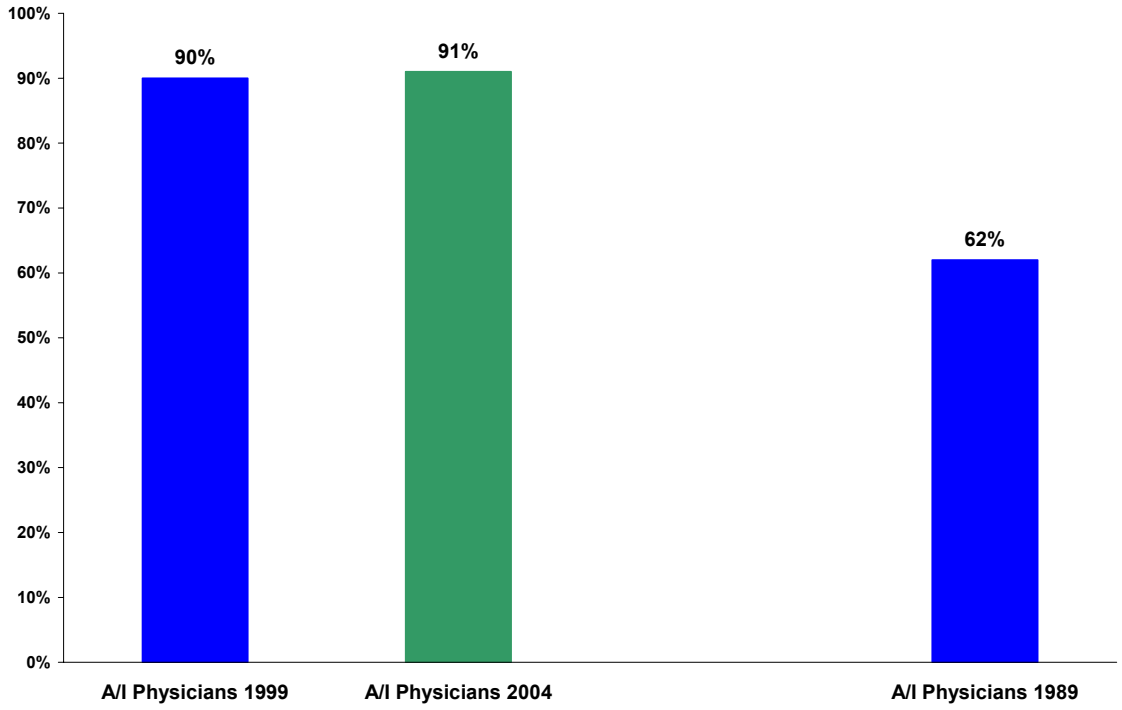
| | Internal Medicine | | Pediatrics | | Otolaryngology | | Other | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 50% | 58% | 48% | 44% | 1% | 0% | 1% | 0% |
| 45 to 54 Years of Age | 37% | 48% | 59% | 53% | 2% | 0% | 3% | 1% |
| 55 to 64 Years of Age | 38% | 37% | 51% | 62% | 5% | 0% | 4% | 2% |
| 65 Years of Age and Older | 36% | 49% | 48% | 46% | 6% | 1% | 10% | 5% |

*Figure 12. Source of A/I Physicians' Formal Allergy and Immunology Training, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| A/I Fellowship/Residency | 86% | 95% |
| Otolaryngology Fellowship/Residency | 2% | 0% |
| Other Fellowship/Residency | 6% | 4% |
| Short Courses | 10% | 3% |
| None | 1% | 1% |

Figure 12 presents the distribution of the various sources of A/I training among current A/I physicians. In 2004, 95 percent of A/I physicians reported having completed a formal allergy and immunology fellowship training program. Four percent (4 percent) reported having received allergy and immunology training in the course of residency or fellowship in another specialty. Three percent reported having been trained through short courses. Only 1 percent reported no formal training in the specialty. Comparing the 2004 data to the 1999 data, the trend suggests a continued movement toward a physician workforce with a more standardized set of training experiences, with more physicians reporting A/I fellowships and fewer reporting other specialty training or short courses.

*Figure 13. Board Certification in Allergy and Immunology of A/I Physicians, 1999 and 2004*




A/I physicians reported a high level of board certification in allergy and immunology (Figure 13). Ninety-one percent (91 percent) reported being board certified in 2004. This level is a slight increase compared to 1999. Moreover, the great increase in the level of board certification since 1989 implies an overall increase in the quality of care provided by A/I physicians. Further, A/I physicians were also very likely to report being board certified in internal medicine (44 percent) or pediatrics (50 percent) (Figure 14).

*Figure 14. Other Board Certifications of A/I Physicians, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Internal Medicine | 36% | 44% |
| Pediatrics | 50% | 50% |
| Otolaryngology | 9% | 1% |
| Other Specialty | 11% | 0% |

In summary, this section presented data on the training characteristics of the current A/I physician workforce. The data show that the A/I physicians workforce is a highly-trained, highly-qualified group of physicians. Comparing the 2004 survey responses to those collected in 1999, a trend toward a more consistently trained workforce is evident as well.

## 4. Current Practice Characteristics of the A/I Physician Workforce

In this section current practice characteristics are the focus. The section begins with an examination of how A/I physicians spend their professional time, moves into the organization of A/I practice, medical aspects of A/I practice, practice activity, capacity, and productivity, and concludes with an examination of practice satisfaction.

*a) General Overview*

The average amount of time an A/I physician spends per week in a variety of professional activities is shown in Figure 15. On average, an A/I physician spends just over 35 hours per week in A/I patient care and just under an hour in other patient care for a total of 36 hours in patient care. A/I physicians spend a little more than 2 hours a week in research activities, dividing the time fairly evenly between clinical trials, investigator-initiated clinical research, bench research, and diagnostic laboratory research. Teaching and administrative duties round out the professional week for A/I physicians, taking up about an hour per week, respectively. In the 5-year period between 1999 and 2004, the activity distribution did not change substantially, with the exception of A/I patient care hours, which increased by almost 2 hours per week.

*Figure 15. Median Hours per Week Spent in Selected Professional Activities, A/I Physicians, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| A/I Patient Care Hours | 33.4 | 35.3 |
| Other Patient Care Hours | 0.7 | 0.7 |
| A/I Clinical Trials Hours | 0.6 | 0.6 |
| A/I Research Hours | 0.6 | N/A |
| A/I Investigator-Initiated Clinical Research | N/A | 0.6 |
| A/I Bench Research | N/A | 0.5 |
| A/I Diagnostic Laboratory Research | N/A | 0.5 |
| A/I Teaching | 0.9 | 1.0 |
| A/I Administrative Hours | 0.9 | 0.8 |
| Other Non-A/I Hours | N/A | 0.7 |
| Total Hours | 37.2 | 40.7 |

*Note: Due to difference in the wording of the survey items, direct comparison of the 1999 and 2004 data on professional activities should be limited to categories where data appear in both columns (e.g., A/I patient care; Other patient care, etc).*

The small increase in median hours spent in A/I patient care produced an increase in the number of full-time equivalent (FTE) A/I physicians between 1999 and 2004. In previous work (cite 2000 workforce report), we determined that an FTE was approximately 38.4 hours per week in A/I patient care. Applying that standard to the 1999 and 2004 survey data, there was a total of 3,561 A/I physician patient care FTEs in 1999 in the US and 3,698 in 2004 (Figure 16). While the increase in FTEs mitigated the decrease in the number of A/I physicians between 1999 and 2004, it was not great enough to keep up with the overall growth in the US population. Thus, a decline in the ratio of A/I patient care FTEs occurred between 1999 and 2004, moving from 1.31 per 100,000 population to 1.24 per 100,000 population in 2004 (Figure 17).

*Figure 16. A/I Physician Patient Care FTEs, 1999 and 2004*

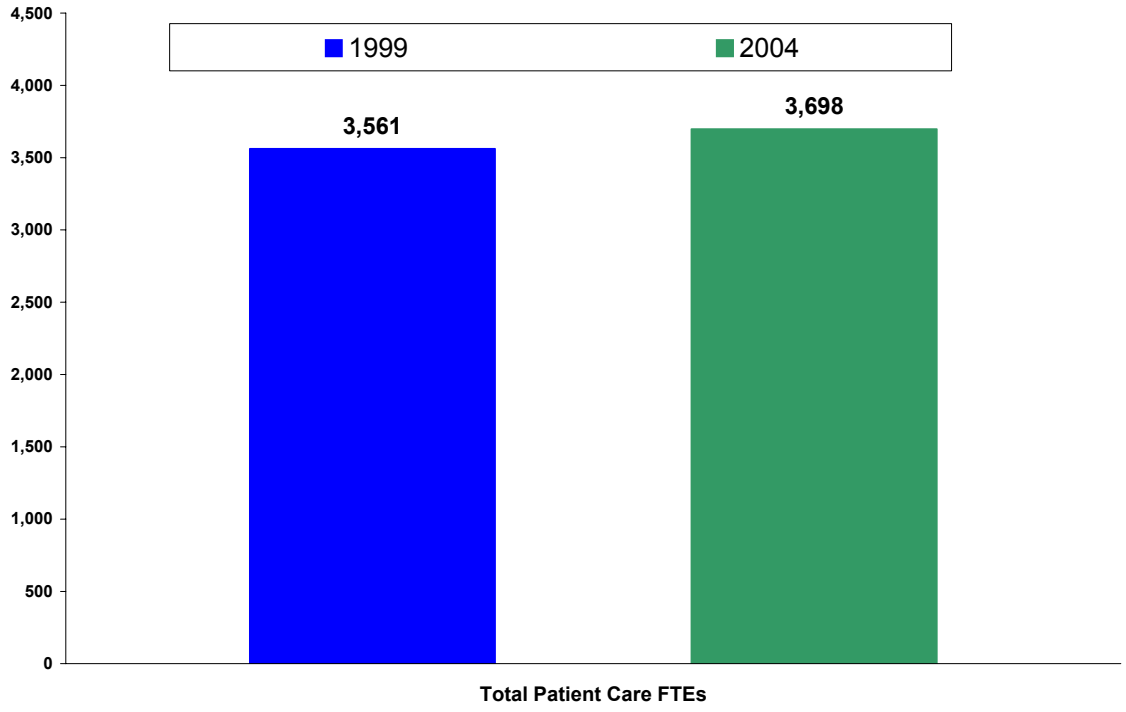



*Figure 17. A/I Physician to Population and Patient Care FTE to Population Ratios by Region, 1999 and 2004*

| | Population (000s) | | A/I Physicians per 100k Population | A/I Patient Care FTEs per 100k Population | A/I Physicians per 100k Population | A/I Patient Care FTEs per 100k Population |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 1999 | 2004 | 2004 |
| New England | 1,343 | 1,424 | 2.01 | 1.60 | 1.52 | 1.38 |
| Middle Atlantic | 3,829 | 4,033 | 2.16 | 1.76 | 2.00 | 1.75 |
| East North Central | 4,419 | 4,603 | 1.40 | 1.18 | 1.36 | 1.25 |
| West North Central | 1,869 | 1,970 | 1.49 | 1.24 | 1.31 | 1.24 |
| South Atlantic | 4,894 | 5,518 | 1.51 | 1.25 | 1.33 | 1.15 |
| East South Central | 1,647 | 1,748 | 1.34 | 1.12 | 1.12 | 1.08 |
| West South Central | 3,001 | 3,328 | 1.47 | 1.30 | 1.29 | 1.21 |
| Mountain | 1,681 | 1,980 | 1.46 | 1.18 | 1.04 | 0.93 |
| Pacific | 4,344 | 4,761 | 1.49 | 1.26 | 1.27 | 1.15 |
| United States | 270,298 | 293,655 | 1.57 | 1.31 | 1.38 | 1.24 |

The distribution of A/I patient care FTEs regionally follows a similar pattern as the total A/I physician distribution. The highest patient care FTE per 100,000 population ratios were found in the Middle Atlantic and New England Census divisions, followed by the East and West North Central divisions toward the middle of the country. In the East South Central and the Mountain Census divisions, there were the lowest A/I patient care FTEs per 100,000 population ratios in the country. In just about all of the regions, there was a increase in the number of patient care

FTEs between 1999 and 2004. However, the increase was not enough in most regions to keep up with the growth in the populations of those regions. In slower growing regions (e.g., Middle Atlantic, East North Central, West North Central), the ratio of A/I patient care FTEs per 100,000 population was relatively stable, even growing in the East North Central. In the faster growing regions (e.g., Mountain and South Atlantic), the ratio of A/I patient care FTEs per 100,000 declined. The mitigation of A/I patient care FTE decline due to A/I physicians spending greater numbers of hours in patient care per week that was observed nationally can also be observed regionally. The regional supply of A/I patient care physician FTEs decreased much less pronouncedly than the total number of A/I physicians decreased between 1999 and 2004. For example, New England experienced a 24 percent decline in the number of A/I physicians per 100,000 population between 1999 and 2004, but only a 14 percent decline in FTEs per 100,000 population.

*Figure 18. Median A/I Patient Visits per Week to A/I Physicians by Age of Physician, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Under Age 45 | 55 | 51 |
| 45 to 54 Years of Age | 61 | 62 |
| 55 to 64 Years of Age | 53 | 62 |
| 65 Years of Age and Older | 44 | 46 |

Figure 18 presents the median A/I patient visits per week reported by A/I physicians in 2004. Overall, A/I physicians have 57 A/I patient visits per week. That figure is slightly higher than what was reported in 1999: 55 A/I patient visits per week. The number of A/I patient visits per week increases with age, until one reaches the oldest age category and the patient visits decline dramatically. The pattern in 2004 is similar to the pattern in 1999, except that the decline in patient visits began earlier in 1999 (55-64 years of age group), suggesting that A/I physicians might have been maintaining high levels activity for longer portions of their careers than they had in the past.

*b) Organization of Practice*

In 2004, 47 percent of the A/I physician workforce was practicing in group practice arrangements, while 34 percent of the workforce was practicing in solo practice arrangements (Figure 19). About 12 percent of the A/I physician workforce practices in medical centers,

academic or otherwise. There were more A/I physicians in group practices in 2004 than in 1999, and at the same time, there were fewer in solo practice arrangements in 2004 than in 1999. These changes follow the overall trend in medical practice toward the group practice that has been occurring for over a decade.

Examining the percentage of A/I physicians practicing in solo and group practice arrangements by age shows the national trend more clearly. Considering the 2004 survey responses in Figure 20, there is a clear pattern evident that solo practice arrangements were more common among older A/I physicians. In the 1999 survey responses, the same pattern is evident, although solo practice arrangements were more common at every age group relative to the 2004 survey results. The trend toward consolidation of practices into larger and larger groups seems likely to continue.

*Figure 19. Primary Practice Setting Distribution of A/I Physicians, 1999 and 2004*

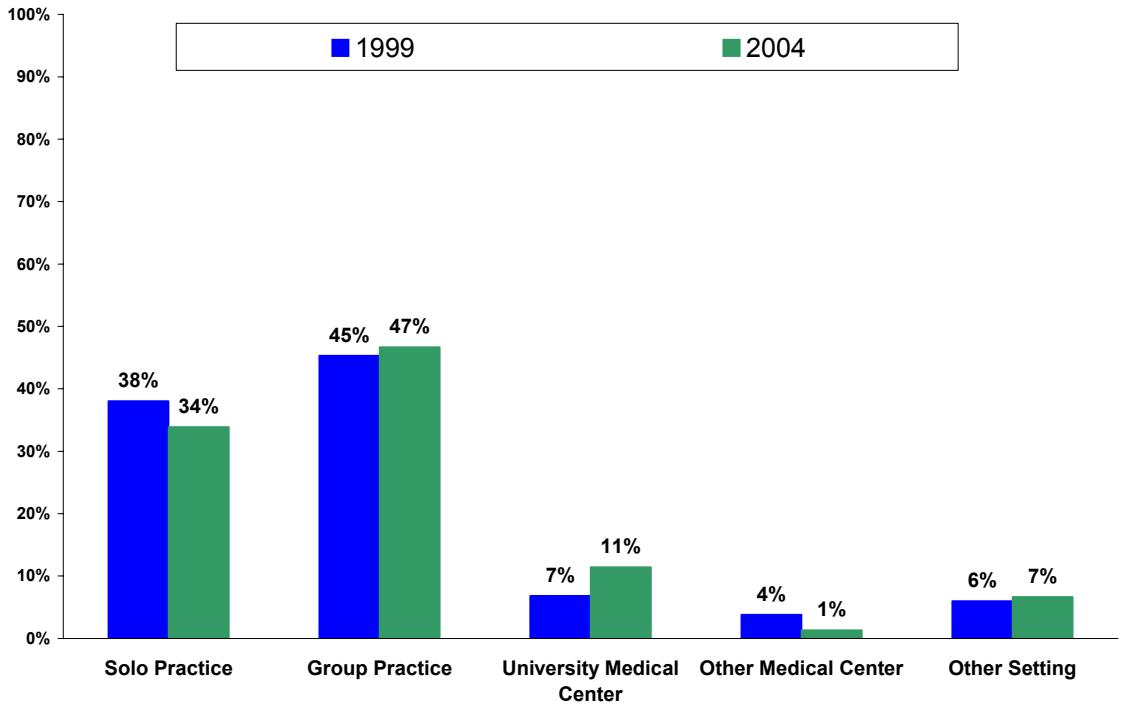
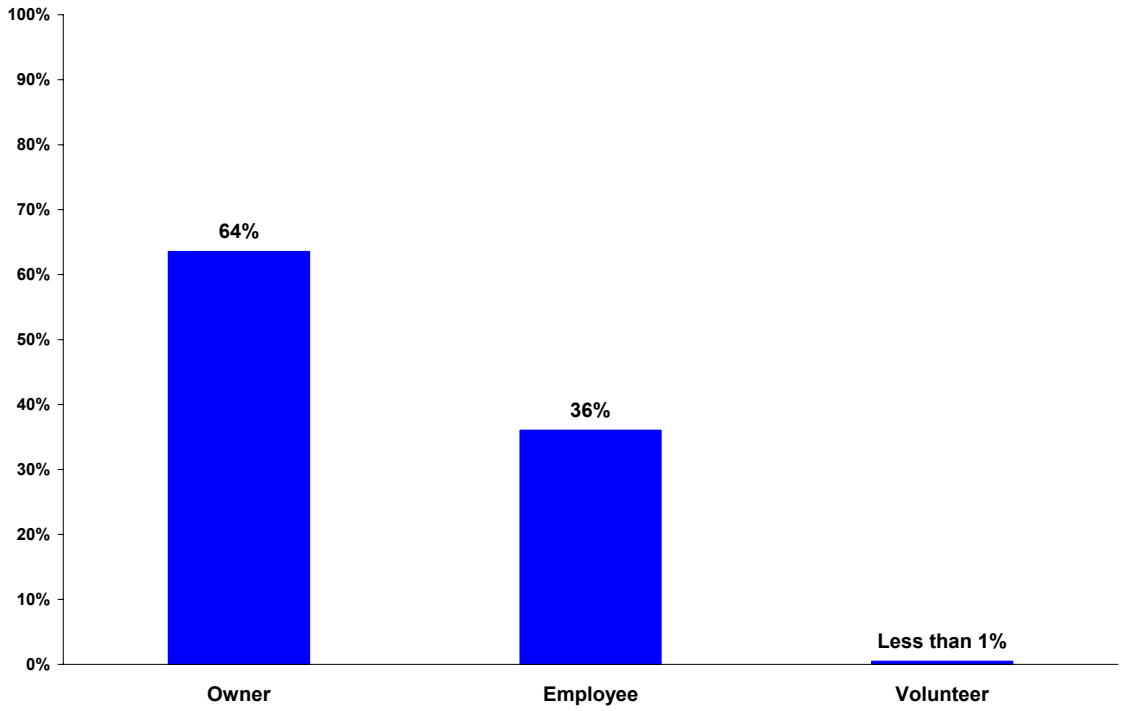


*Figure 20. Percentage of A/I Physicians in Solo and Group Practice Settings by Age, 1999 and 2004*

| | 1999 | | 2004 | |
|---|---|---|---|---|
| | Solo Practice | Group Practice | Solo Practice | Group Practice |
| Under Age 45 | 36% | 64% | 25% | 75% |
| 45 to 54 Years of Age | 50% | 50% | 44% | 56% |
| 55 to 64 Years of Age | 56% | 44% | 48% | 52% |
| 65 Years of Age and Older | 67% | 33% | 50% | 50% |

*Figure 21. Principal Practice Ownership Status of A/I Physicians, 2004*




One of the new questions included on the survey in 2004 solicited information about respondents' ownership status of the practices in which they work. Figure 21 shows the responses in relation to A/I physicians' principal practices. Sixty-four percent (64 percent) of the A/I physicians reported that they own (or have an ownership interest) in their principal practice. A very small percentage (less than 1 percent) reported volunteering at their principal practice. The remainder (36 percent) were employees. With the trend toward group practice and away from solo practice, it is likely that more A/I physicians will become employees in the future.

*Figure 22. Median Number of Professionals Working in Principal Practices of A/I Physicians, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| A/I Physicians | 2.1 | 2.8 |
| Physician Assistants | 0.3 | 0.3 |
| Nurse Practitioners | 0.3 | 0.4 |
| Registered Nurses | N/A | 1.6 |
| Licensed Practice/Vocation Nurses | N/A | 0.8 |
| Medical Assistants | N/A | 1.5 |

The number of professionals working in an A/I physician's practice is also an important characteristic to examine. Data from 1999 and 2004 are presented in Figure 22. In 2004, on average there were slightly fewer than 3 A/I physicians per practice. This represents an increase since 1999. In 2004 A/I physicians reported an average of 0.3 and 0.4 physician assistants and nurse practitioners, about the same as in 1999. In addition, in 2004, on average, an A/I practice also employed 1.6 registered nurses, 0.8 licensed practical nurses/licensed vocational nurses, and 1.5 medical assistants.

*Figure 23. Frequency of Use of Electronic Resources in Medical Practice Among A/I Physicians, 2004*

| | Never | Once a Month | Once a Week | Once Daily | More than Once Daily |
|---|---|---|---|---|---|
| Email | 23% | 8% | 13% | 19% | 38% |
| Internet (web-based resources) | 15% | 11% | 23% | 19% | 32% |
| Personal Digital Assistant | 61% | 3% | 5% | 9% | 21% |
| Clinical Applications | 43% | 6% | 9% | 12% | 30% |
| Medical Decision Support Software | 63% | 11% | 13% | 6% | 7% |

The use of electronic resources in medical practices is becoming more common generally. In the 2004 survey, a battery of items was included to tap the frequency of use of some of these new resources in medical practice. Figure 23 presents the responses from A/I physicians. In general, A/I physicians reported using all of the resources included on the survey. Close to 40 percent of the A/I physicians reported using email more than once daily in their medical practice. Close to

one-third also reported using the internet more than once a daily as well. Personal digital assistants were less commonly used, with 21 percent of A/I physicians reporting more than once daily use, but 61 percent reporting never using these devices in their practice. Clinical applications were either used often (30 percent reported more than once daily) or not at all (43 percent reported never using them). Medical decision support software has also not been implemented to a wide extent in A/I practices, as almost two thirds (63 percent) reported never using this resource in their practices.

Implementation of these new resources was related to the age of the physician (Figure 24). As is evident in the figure, younger physicians were more likely to have reported that they use electronic resources in their practices. The differences between age groups, however, were not always great; for example, for Clinical Applications, 64 percent of the A/I physicians under age 45 reported using them, 61 percent of those between ages 45 and 54 reported using them, 56 percent of those between ages 55 and 64, and 51 percent of those 65 years of age and older reported using them. On the other hand, personal digital assistants were much more common among the youngest age cohort of A/I physicians. Since personal digital assistants were one of the resources least implemented in A/I practice, this suggests that the younger physicians might have been the "first adopters" of these new resources. A similar phenomenon could also have occurred with relation to medical decision support software.

*Figure 24. Use of Electronic Resources in Medical Practice by Age of A/I Physician, 2004*

| | Less than 45 Years of Age | 45-54 Years of Age | 55-64 Years of Age | 65 Years of Age and Older |
|---|---|---|---|---|
| Email | 80% | 82% | 80% | 65% |
| Internet (web-based resources) | 92% | 92% | 88% | 72% |
| Personal Digital Assistant | 54% | 41% | 38% | 25% |
| Clinical Applications | 64% | 61% | 56% | 51% |
| Medical Decision Support Software | 42% | 40% | 38% | 28% |

*Percentage who use selected electronic resources.*

*Figure 25. Frequency of Referral from Selected Sources, 2004*

| | (1) Never | (2) | (3) Sometimes | (4) | (5) Very Often |
|---|---|---|---|---|---|
| A/I Physicians | 38% | 36% | 22% | 3% | 1% |
| Otolaryngologists | 6% | 15% | 38% | 28% | 13% |
| Pulmonologists | 16% | 31% | 38% | 12% | 3% |
| Dermatologists | 10% | 27% | 42% | 18% | 4% |
| Pediatricians | 6% | 13% | 21% | 28% | 32% |
| Internists | 4% | 14% | 31% | 33% | 19% |
| Family Physicians | 2% | 9% | 21% | 38% | 29% |
| Patient Self-Referral | 1% | 3% | 11% | 31% | 55% |

Finally, the 2004 survey also included a battery of items on the sources of referrals to A/I physicians (Figure 25). The pattern of referrals evident in the figure seems reasonable in that A/I physicians were most likely to report that they very often receive referrals from primary care physicians (pediatricians, internists, and family practitioners). Moreover, A/I physicians were least likely to receive referrals from physicians in "overlapping" or competing specialties like otolaryngology, pulmonology, and dermatology. Other A/I physicians were also an unlikely source of referral. As will be shown later in this report (see Figures 109-112), these specialties as well as other A/I physicians were the main competitors of A/I physicians, so it is not surprising that few referrals were reported from those specialties. Finally, important sources of referrals for A/I physicians were patients themselves.

*c) Medical Aspects of Practice*

A/I physicians reported that they spend the vast majority of their time (89 percent) in allergy and asthma-related conditions and issues (Figure 26). On average, only about 7 percent of their practice time was spent in clinical immunology. As was related above, a relatively small proportion of the A/I physician workforce is engaged in clinical immunology, it is not surprising that the average amount of time spent in the area was small. The remainder (4 percent) of A/I physicians' practice time was spent in other specialty areas (e.g., Dermatology, Rheumatology, Pediatrics, etc.).

*Figure 26. Percentage of Time Spent in Selected Medical Specialty Areas Among A/I Physicians, 2004*

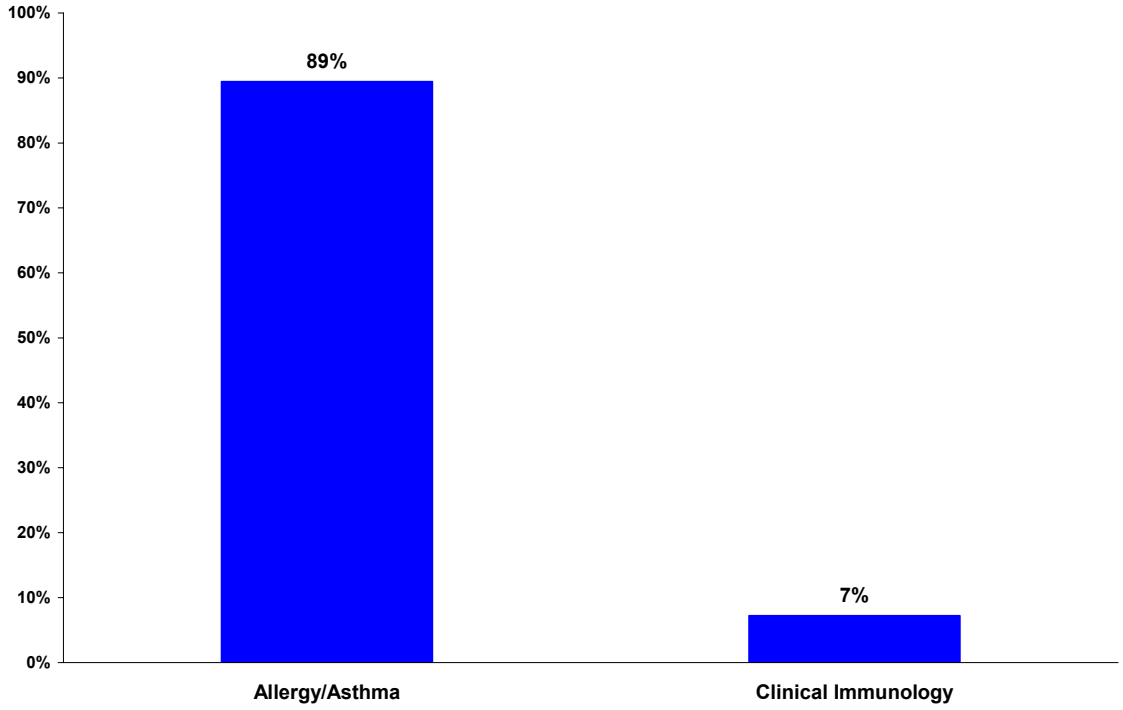
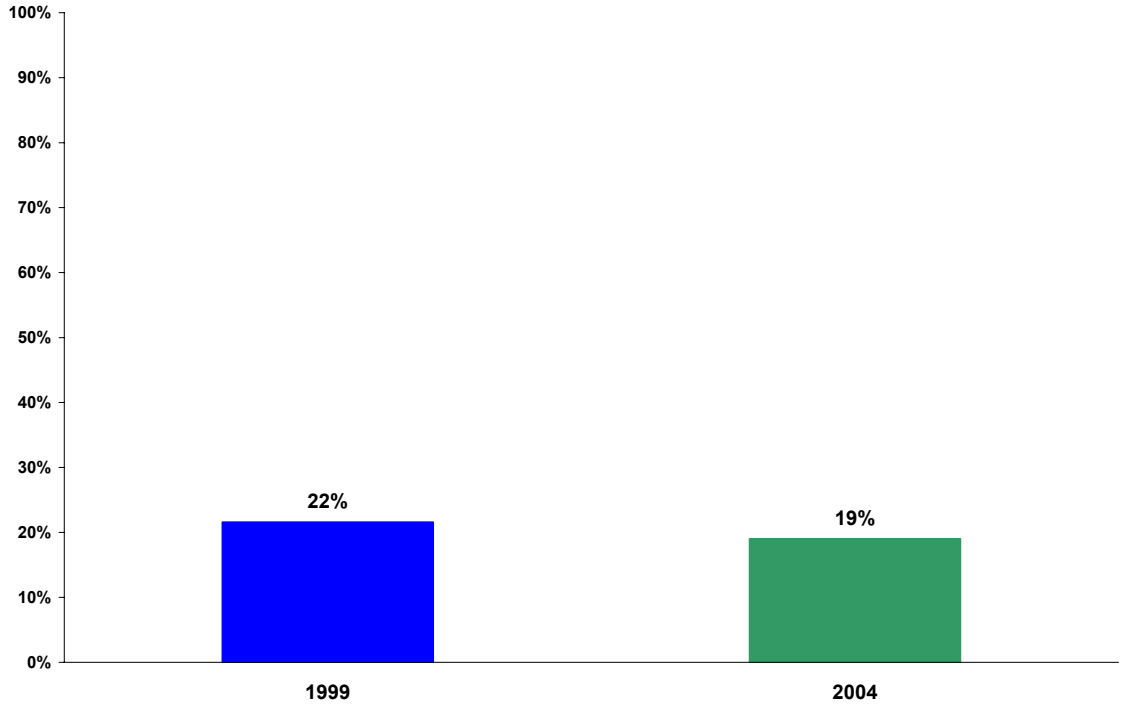



*Figure 27. Percentage of Patients Treated with Allergy Shots/Immunotherapy Among A/I Physicians, 1999 and 2004*



The use of allergy shots/immunotherapy is common among A/I physicians, with nearly all A/I physicians treating at least some of their patients with this technique. In 2004, on average, A/I physicians treated about 19 percent of their patients with allergy shots/immunotherapy (Figure 27). This represents a slight decrease since 1999 when A/I physicians treated about 22 percent of their patients with allergy shots/immunotherapy. In 2004, more than one-third (35 percent) of A/I physicians reported that they treated between a fifth and one half of their patients with allergy shots/immunotherapy. This represents a decline from 40 percent in 1999. Moreover, only 10 percent of A/I physicians reported treating more than half of their patients with allergy shots/immunotherapy in 2004 compared to 16 percent in 1999.

Examining the use of allergy shots/immunotherapy more closely (Figure 28), there is a clear relationship between age of the A/I physician and the percentage of patients treated with allergy shots/immunotherapy. Older A/I physicians reported higher percentages of their patients being treated with allergy shots/immunotherapy than younger A/I physicians. The pattern is evident in the 1999 survey responses as well as the 2004 survey responses.

*Figure 28. Percentage of Patients Treated with Allergy Shots/Immunotherapy by Age of A/I Physicians, 1999 and 2004*

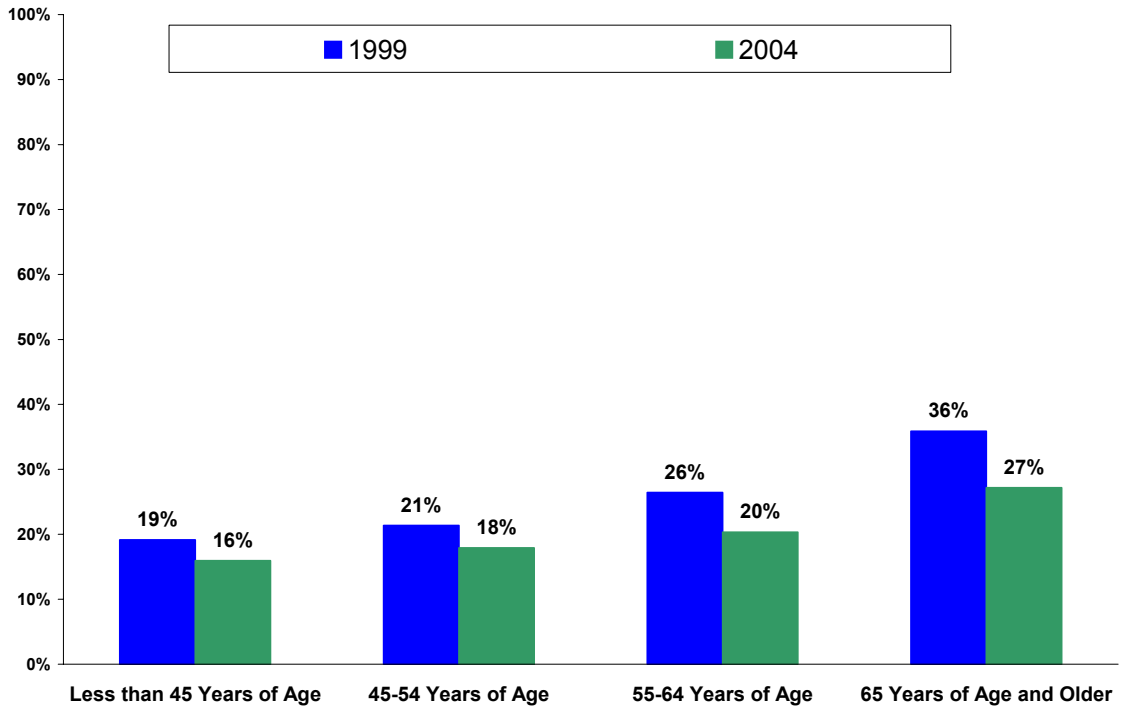
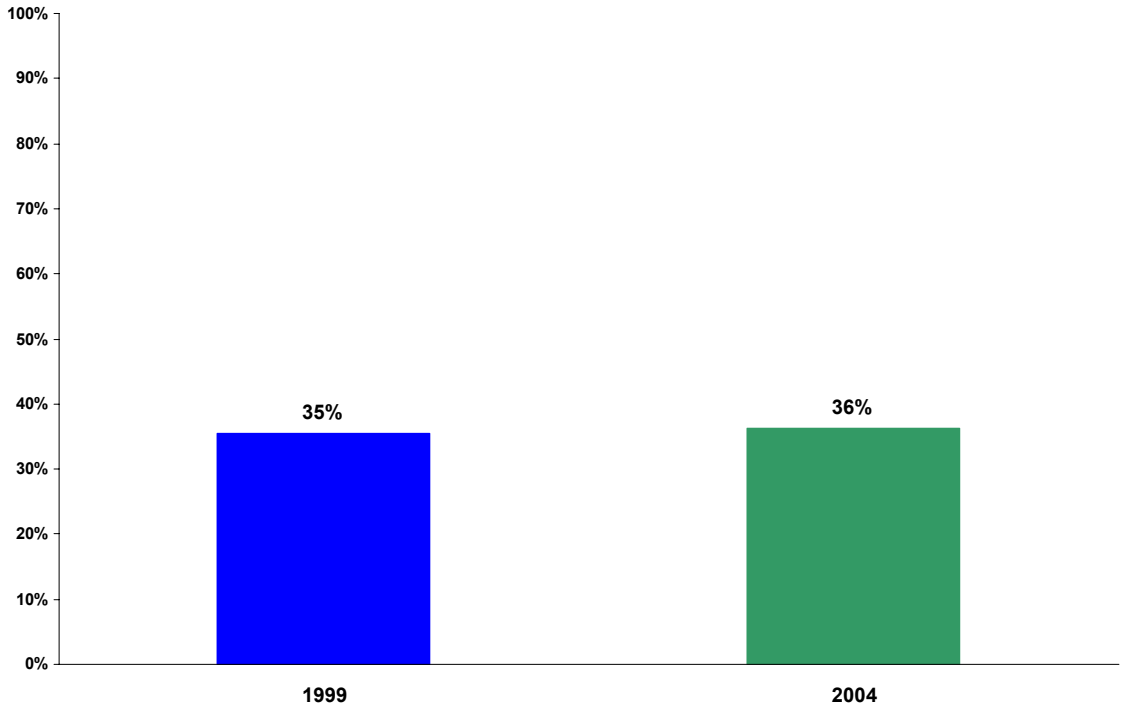
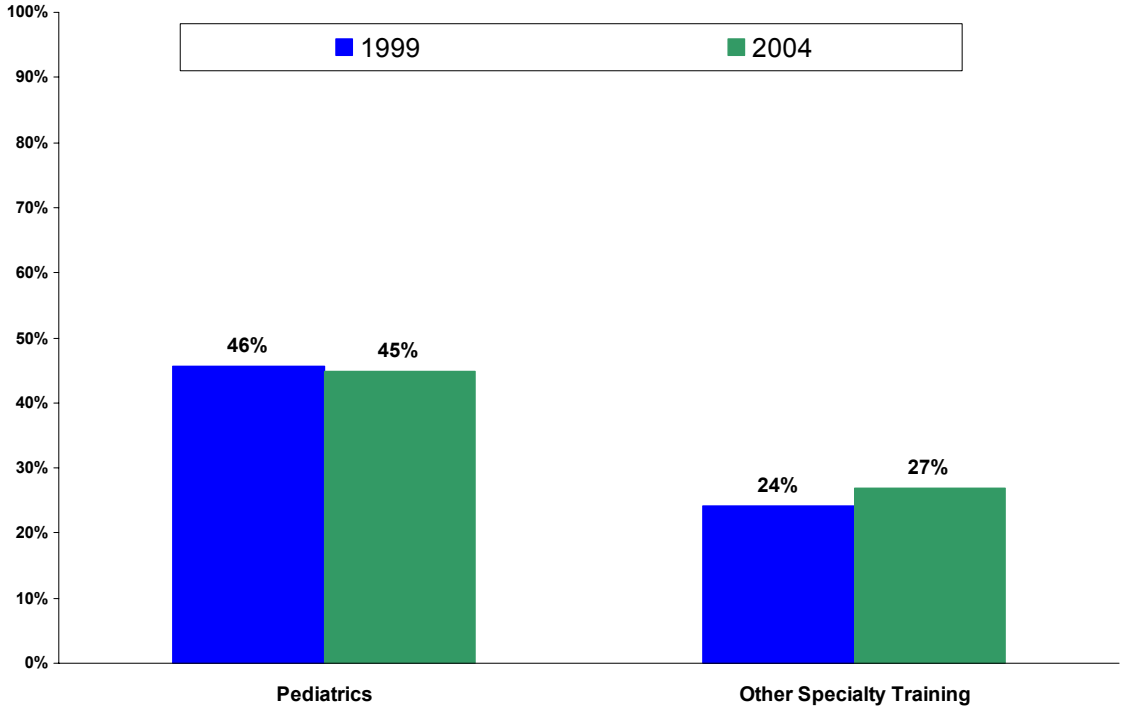


*Figure 29. Median Percentage of Patients Under Age 16 of A/I Physicians, 1999 and 2004*




In terms of the demographics of the patients treated by A/I physicians, the median percentage of patients under age 16 reported in the 2004 survey was 36 percent (Figure 29). This figure remains largely unchanged since 1999, where A/I physicians reported that 35 percent of their patients were under age 16. Figure 30 shows that this percentage varies greatly by the type of initial residency training an A/I physician has had. A/I physicians who reported having completed a pediatrics residency program also reported that 45 percent of their patients were under age 16. For A/I physicians who completed a residency program other than pediatrics, the median percentage of patients treated under age 16 was 27 percent. This variation has remained relatively constant since 1999.

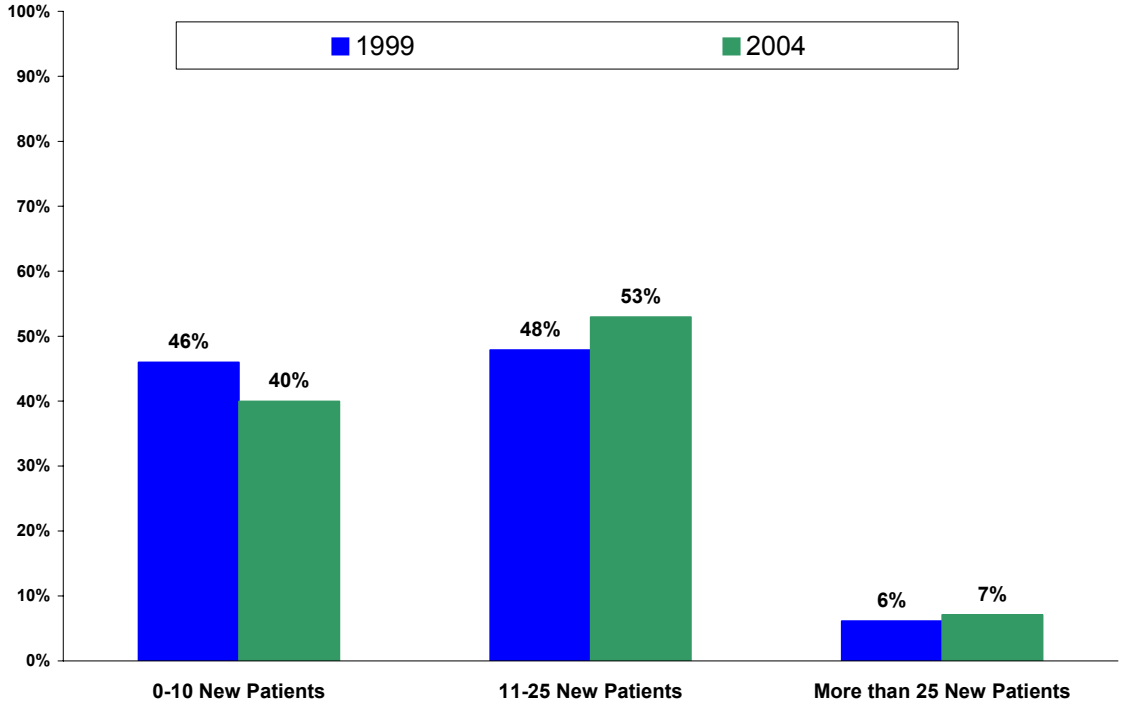
*Figure 30. Median Percentage of Patients Under Age 16 by Training of A/I Physicians, 1999 and 2004*




*d) Current Practice Activity, Productivity, and Capacity*

The volume of new A/I patients that are seen on average per week is an indicator of practice differences as well as demand for A/I services. A/I physicians reported seeing an average of 13 new A/I patients per week, up from 12 in 1999. Figure 31 presents the distribution of new A/I patient volume for A/I physicians in 1999 and 2004. The majority of A/I physicians reported seeing between 11 and 25 new patients per week. Comparing 2004 with 1999, more A/I physicians reported seeing 11-25 and more than 25 new patients a week than they did in 1999, and fewer reported seeing 0-10 new patients in 2004 than in 1999.

*Figure 31. Average Number of New Allergy and Immunology Patient Visits per Week Among A/I Physicians, 1999 and 2004*




Examining average new A/I patient visits per week by age of the A/I physician yields little variation in the 2004 data (Figure 32). A/I physicians under age 65 reported seeing 13 to 14 new patients per week. A/I physicians age 65 years and older reported seeing 8 new A/I patients per week. A similar pattern is found in the 1999 data, except that the decline in the number of new patients seen per week was more gradual, starting at a younger age. This is another piece of evidence that A/I physician careers may be lengthening.

*Figure 32. Average Number of New Allergy and Immunology Patient Visits per Week by Age of A/I Physician, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Under Age 45 | 14 | 14 |
| 45 to 54 Years of Age | 13 | 14 |
| 55 to 64 Years of Age | 10 | 13 |
| 65 Years of Age and Older | 6 | 8 |

*Figure 33. Average Patient Visits per Hour by Age of A/I Physician, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Under Age 45 | 1.6 | 1.4 |
| 45 to 54 Years of Age | 1.7 | 1.7 |
| 55 to 64 Years of Age | 1.6 | 1.7 |
| 65 Years of Age and Older | 1.9 | 1.6 |

Another way to describe the practice environment of A/I physicians is to focus on productivity indicators. Combining total A/I patient visit data with those on hour spent in A/I patient care, it is possible to calculate patient per hour ratios. In 2004, A/I physicians saw an average of 1.6 patients per hour. This figure represents a very small decline from 1.7 patients per hour in 1999. In terms of age, the youngest A/I physicians were the least productive, seeing 1.4 patients per hour on average in 2004, down from 1.6 in 1999 (Figure 33). The peak productivity age groups were the 45 to 54 years of age and the 55 to 64 years of age group. It should be noted that the variation between groups while small, if extrapolated to a larger time period becomes more meaningful – e.g., there are approximately 2,000 hours in a typical work year, so a 0.1 patient per hour difference translates into 200 patients over the course of a year.

Other indicators of practice activity/capacity on the survey included a number of items on average waiting times for appointments for two types of patients: 1) non-emergent, existing patients (Figures 34-36); and 2) new patients (Figures 37-39). Overall, non-emergent, existing patients had to wait about 10 days for an appointment with an A/I physician, about the same number of days reported by A/I physicians in 1999. In 2004, a majority (55 percent) of A/I physicians reported that waiting times were less than one week. Few (10 percent) reported waiting times of over 1 month. There is little variation in waiting times by age of the A/I physician, although, there is some evidence of a decrease in the number of days to get an appointment as the age of the A/I physician increases. Moreover, there was not any substantial change in waiting times between 1999 and 2004, although more A/I physicians reported that waiting times had decreased (22 percent) than reported they had increased (14 percent) over the past three years (Figure 36).

*Figure 34. Average Wait for Appointment, Non-Emergent/Existing Patient, 1999 and 2004*

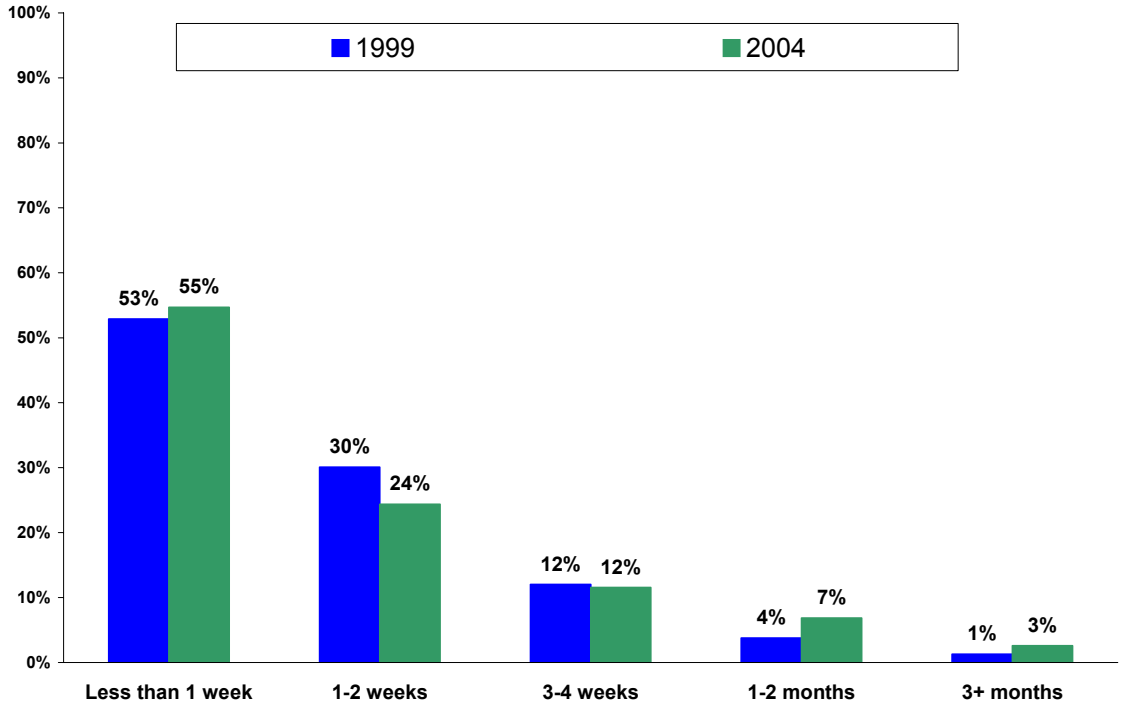
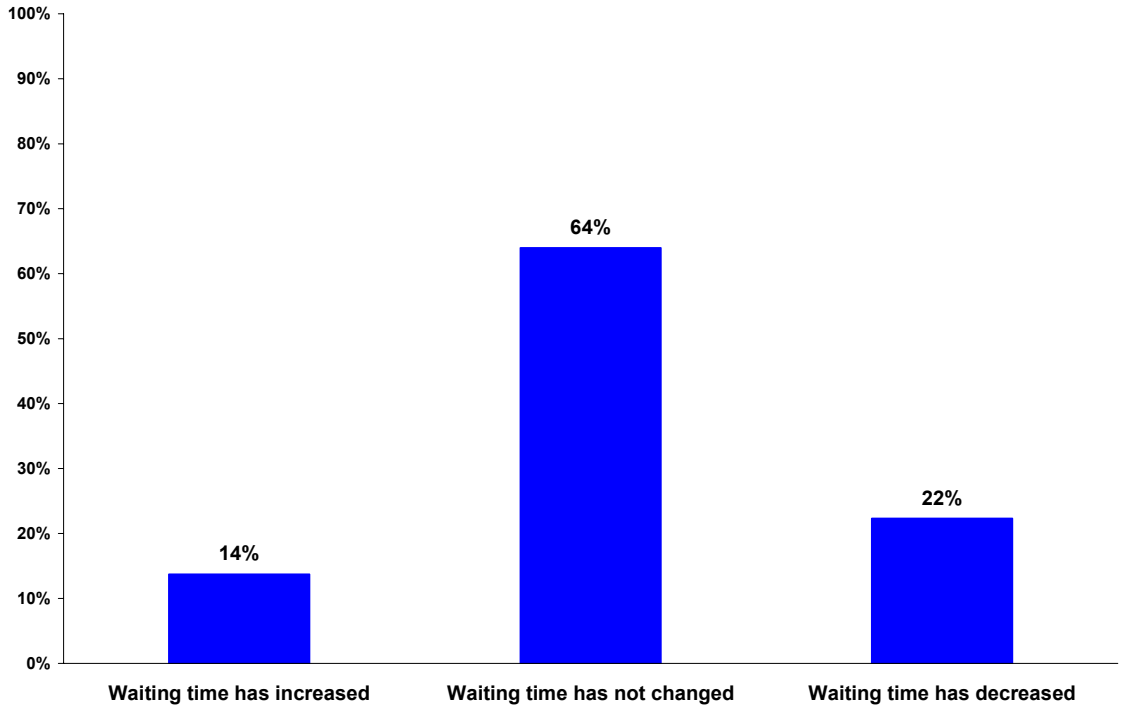



*Figure 35. Average Wait for Appointment (in Days), Non-Emergent/Existing Patient by Age of A/I Physician, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Under Age 45 | 10 | 11 |
| 45 to 54 Years of Age | 12 | 11 |
| 55 to 64 Years of Age | 11 | 10 |
| 65 Years of Age and Older | 9 | 9 |

*Figure 36. Change in Wait for Appointment, Non-Emergent/Existing Patient, 2004*




Waiting times for new patients were somewhat different than those for existing patients. In 2004, A/I physicians reported that new patients had to wait almost 12 days to get an appointment, about 1 day less than was reported in 1999. Just over a third (38 percent) of the A/I physicians reported that a new patient could get an appointment in less than a week, with a majority of A/I physicians reporting waits of one to four weeks, similar to the responses in 1999 (Figure 37). The 2004 responses showed very little variation in waiting times by the age of the A/I physician (Figure 38). Finally, as with waiting times for non-emergent, existing patients, more A/I physicians perceived that waiting times had decreased (28 percent) rather than increased (15 percent) over the prior three years (Figure 39).

*Figure 37. Average Wait for Appointment, New Patient, 1999 and 2004*

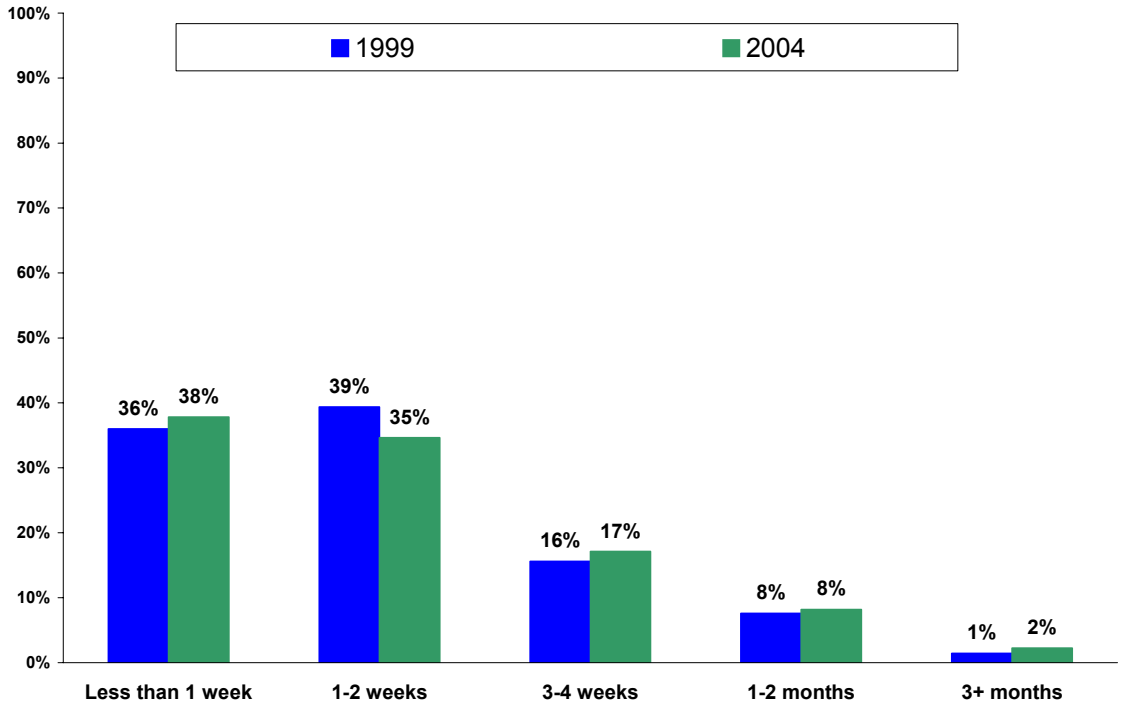
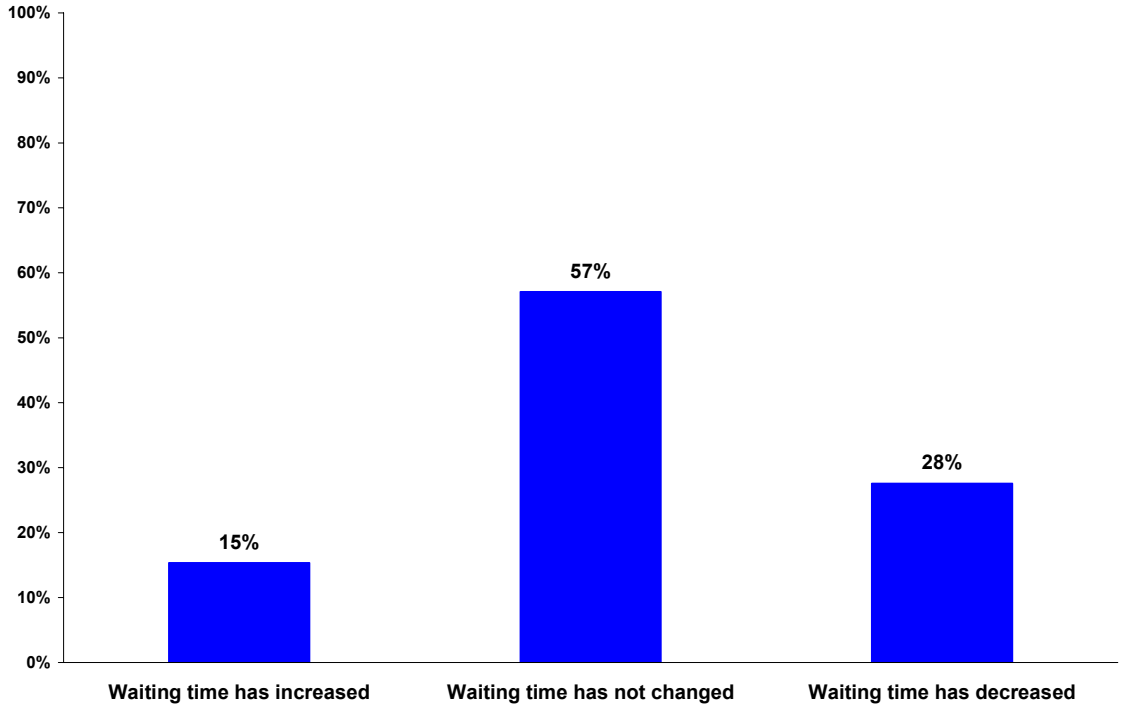



*Figure 38. Average Wait for Appointment (in Days), New Patient by Age of A/I Physician, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| Under Age 45 | 12 | 12 |
| 45 to 54 Years of Age | 14 | 12 |
| 55 to 64 Years of Age | 13 | 11 |
| 65 Years of Age and Older | 12 | 12 |

*Figure 39. Change in Wait for Appointment, New Patient, 2004*




Having examined objective measures of practice capacity/activity, A/I physicians' perceptions of their practice capacity (Figure 40 and 41) can be indicative of their ability to take on additional patients. Almost two thirds (62 percent) of A/I physicians reported that their practices were far from full and they could take on many additional patients in 2004. More than a third (37 percent) reported that they could take on a few new patients. Only 1 percent reported that their practices were full. Compared to 1999, the A/I physicians in 2004 were more likely to report excess practice capacity.

Examining practice capacity perceptions by age reveals a telling pattern (Figure 41). As A/I physicians grow older, fewer perceive that that they can take on additional patients. While 78 percent of those under age 45 reported being able to take on many additional patients, 62 percent of those aged 45 to 54, 56 percent of those aged 55 to 64, and only 48 percent of those aged 65 and older reported similarly. Most likely, as A/I physicians grow older, their practices mature, having built reputations with the residents of the communities they serve. As this occurs, an A/I physician builds a patient base that he/she treats on a regular basis such that the taking on of

additional new patients begins to become more difficult (without the hiring of additional staff or some other organizational change).

*Figure 40. Perceptions of Practice Capacity Among A/I Physicians, 1999 and 2004*

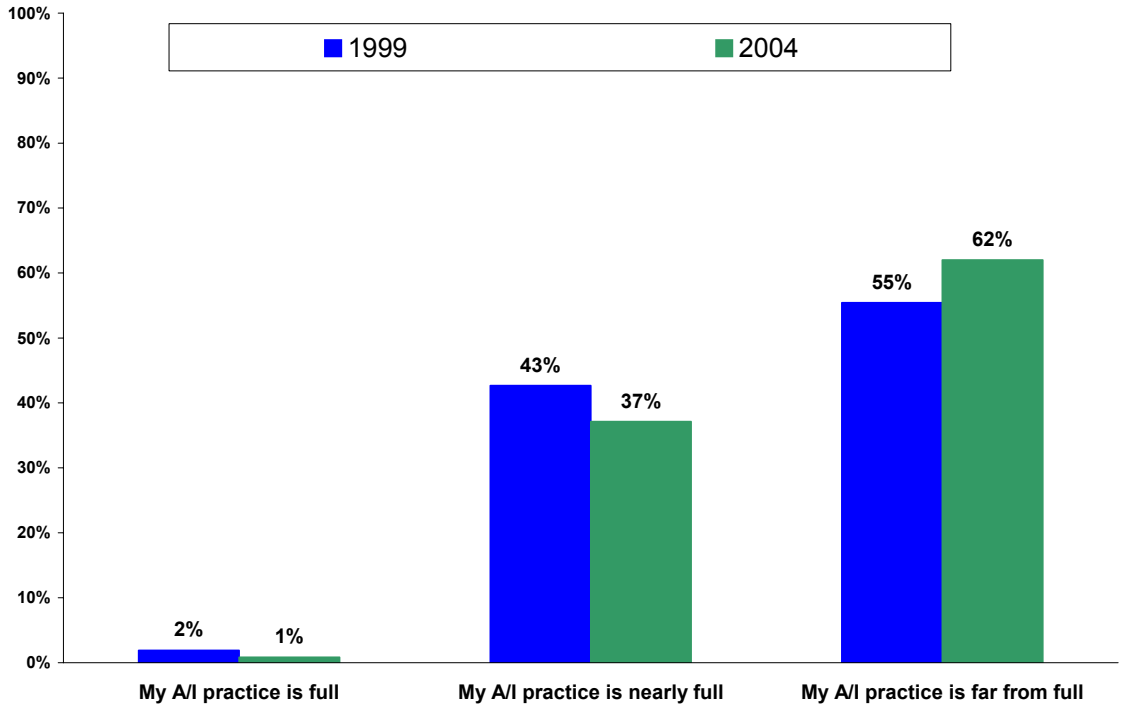



*Figure 41. Perceptions of Practice Capacity Among A/I Physicians by Age, 1999 and 2004*

| | My A/I Practice is Full | | My A/I Practice is Nearly Full | | My A/I Practice is Far from Full | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 1% | 0% | 33% | 22% | 66% | 78% |
| 45 to 54 Years of Age | 2% | 1% | 45% | 37% | 54% | 62% |
| 55 to 64 Years of Age | 3% | 1% | 47% | 43% | 50% | 56% |
| 65 Years of Age and Older | 4% | 2% | 54% | 50% | 41% | 48% |

Considering all of the data on practice capacity/activity presented above, A/I physicians, while busy, are not uncomfortably busy. Providing less than 40 hours of A/I patient care and at the same time being able to schedule a majority of their patients for appointments within 2 weeks suggests that there was still some excess capacity in the A/I physician workforce in 2004. A/I physicians' perceptions of their own capacity also supported these statements. Relative to 5 years prior, A/I practice appeared to be very consistent.

*e) Practice Satisfaction*

The final data on current practice characteristics of A/I physicians focus on levels of satisfaction with A/I practice. The survey included items on professional (Figures 42 and 43) and economic (Figures 44 and 45) satisfaction. In 2004, nearly four-fifths (78 percent) of A/I physicians reported being professionally satisfied with their A/I practice, with 30 percent being very satisfied. Fewer than 10 percent reported any sort of dissatisfaction. These levels were consistent with the data from 1999 and were slightly more positive.

*Figure 42. Professional Satisfaction of A/I Physicians, 1999 and 2004*

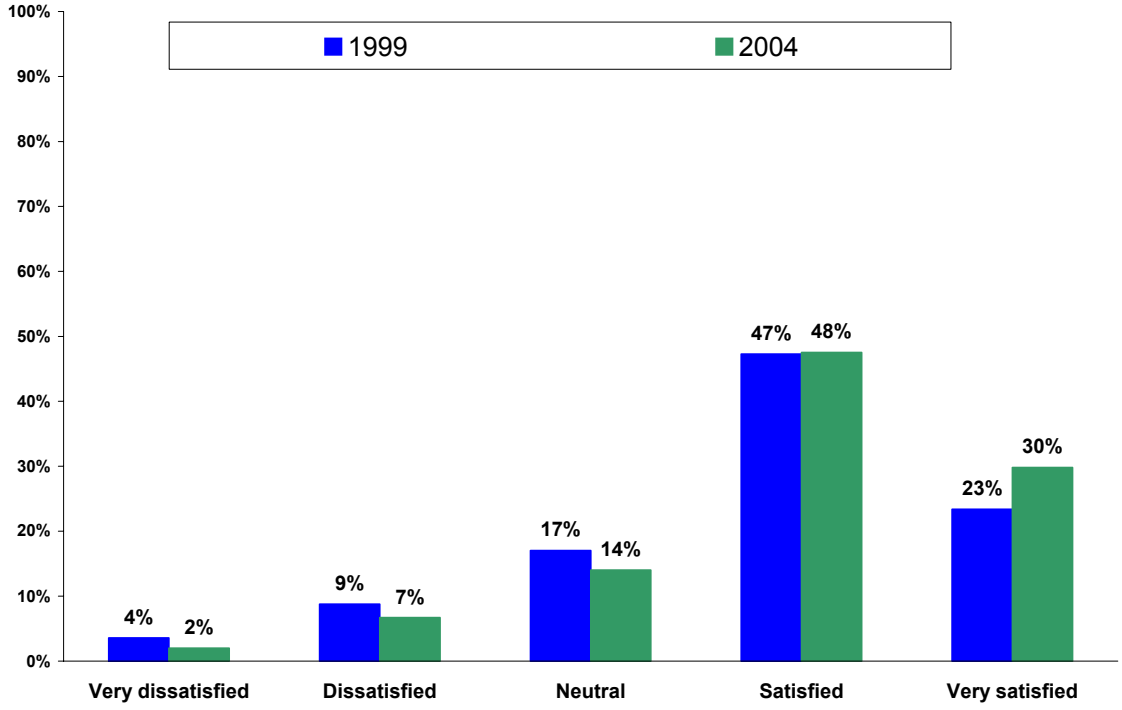



*Figure 43. Professional Satisfaction of A/I Physicians by Age, 1999 and 2004*

| | Very Dissatisfied | | Dissatisfied | | Neutral | | Satisfied | | Very Satisfied | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 2% | 2% | 7% | 5% | 16% | 15% | 50% | 46% | 25% | 32% |
| 45 to 54 Years of Age | 5% | 2% | 10% | 8% | 18% | 16% | 46% | 47% | 22% | 28% |
| 55 to 64 Years of Age | 4% | 3% | 11% | 7% | 15% | 12% | 46% | 50% | 23% | 27% |
| 65 Years of Age and Older | 5% | 2% | 5% | 4% | 21% | 12% | 47% | 46% | 23% | 35% |

In terms of age, levels of professional satisfaction did not vary substantially. The oldest group was the most likely to be satisfied, but in all age groups, at least 75 percent of the A/I physicians reported being satisfied or very satisfied. Again, compared to the 1999 data, there appears to be a slightly higher level of professional satisfaction across all age groups.

*Figure 44. Economic Satisfaction of A/I Physicians, 1999 and 2004*

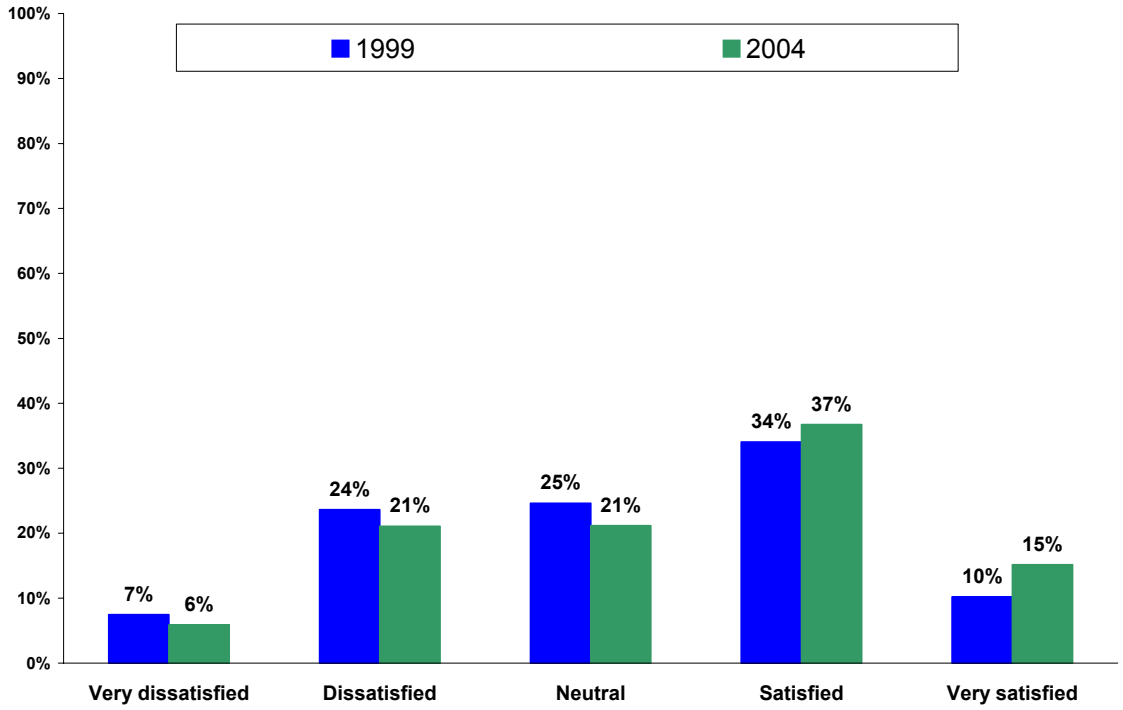



*Figure 45. Economic Satisfaction of A/I Physicians by Age, 1999 and 2004*

| | Very Dissatisfied | | Dissatisfied | | Neutral | | Satisfied | | Very Satisfied | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 5% | 3% | 22% | 21% | 26% | 23% | 36% | 40% | 11% | 13% |
| 45 to 54 Years of Age | 8% | 7% | 26% | 22% | 24% | 20% | 32% | 37% | 10% | 14% |
| 55 to 64 Years of Age | 10% | 7% | 24% | 20% | 21% | 21% | 34% | 35% | 11% | 16% |
| 65 Years of Age and Older | 9% | 6% | 21% | 20% | 27% | 21% | 34% | 34% | 9% | 19% |

Economic satisfaction levels were lower among A/I physicians than professional satisfaction levels. A slim majority (52 percent) reported that they were satisfied economically with their A/I practice. However, compared to 1999, levels of economic satisfaction were higher in 2004. There were more A/I physicians who reported being economically satisfied in 2004 (52 percent) than in 1999 (44 percent), and fewer who reported being dissatisfied in 2004 (27 percent) than in

1999 (31 percent). In terms of age, the middle age groups (45 to 54 years of age and 55 to 64 years of age) were slightly more likely than the others to report being dissatisfied in 2004, but the differences were very small. It is unclear what might be causing this change to occur – e.g., it could be that A/I practices are more lucrative in 2004 than they were in 1999; or it could be that A/I physician expectations about the economic aspects of their practices have changed.

## 5. Recent Changes in A/I Practice

This section begins with an examination of the change in case volume for a selected number of common A/I diagnoses and conditions, moves into data on changes in patient volume, patient care hours, types of referrals, case complexity, practice growth, and income, and ends with an examination of changes in medical liability insurance premiums.

*a) Types of Cases*

An important factor to consider in assessing trends in A/I practice and possible changes in future demand is the mix of diagnoses in a typical allergist practice. Figures 46 through 56 present the reported changes in 11 selected A/I diagnoses/conditions over two years prior to the survey. Asthma cases were reported as having increased over the two years, but not as greatly as they had been reported to have increased in 1999. The same was reported about Sinusitis and Rhinitis. Food allergy and Atopic dermatitis cases were reported to have increased in the 2004 survey, while they had been reported unchanged in 1999. Chronic cough and Urticaria/angioedema were reported as increasing in 2004, perhaps at an even greater rate than in 1999. Adverse drug reaction cases were reported to be remaining steady, similarly to how they were described in 1999. Insect sting reaction cases continued to decrease in the 2004 survey, but not as precipitously as in 1999. The two new conditions added in 2004, Contact dermatitis and Environmental intolerance syndrome, were reported as being relatively unchanged in the past two years.

*Figure 46. Change in Volume of Asthma Cases in the Past 2 Years, 1999 and 2004*

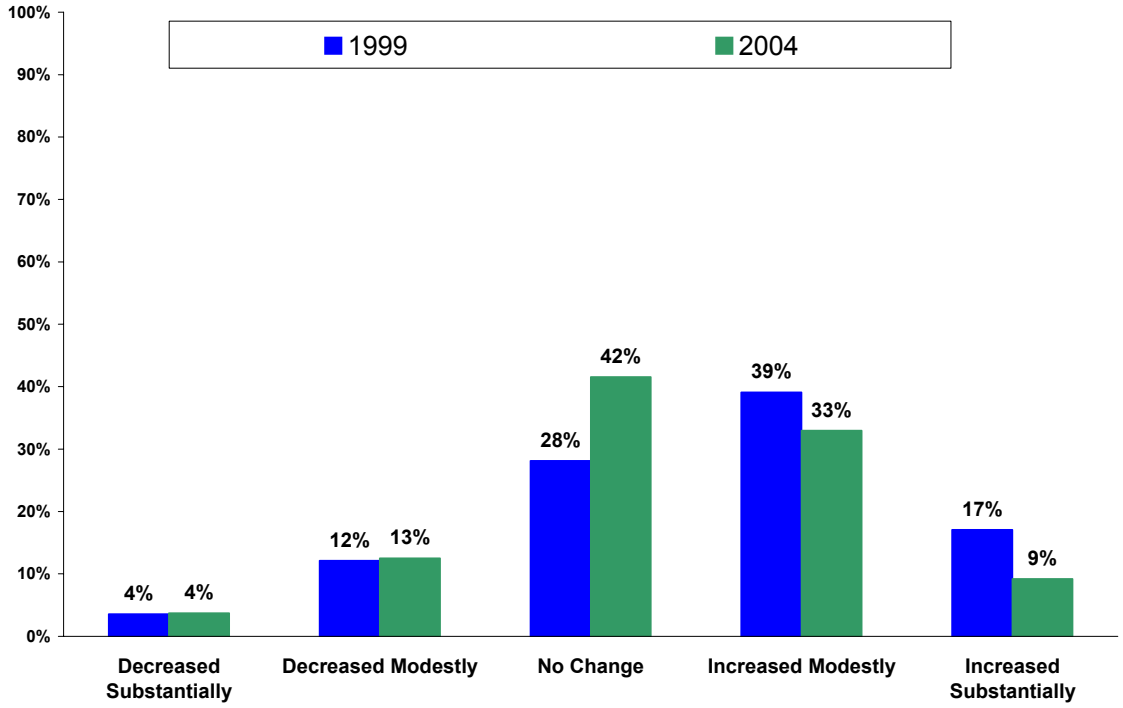



*Figure 47. Change in Volume of Sinusitis Cases in the Past 2 Years, 1999 and 2004*

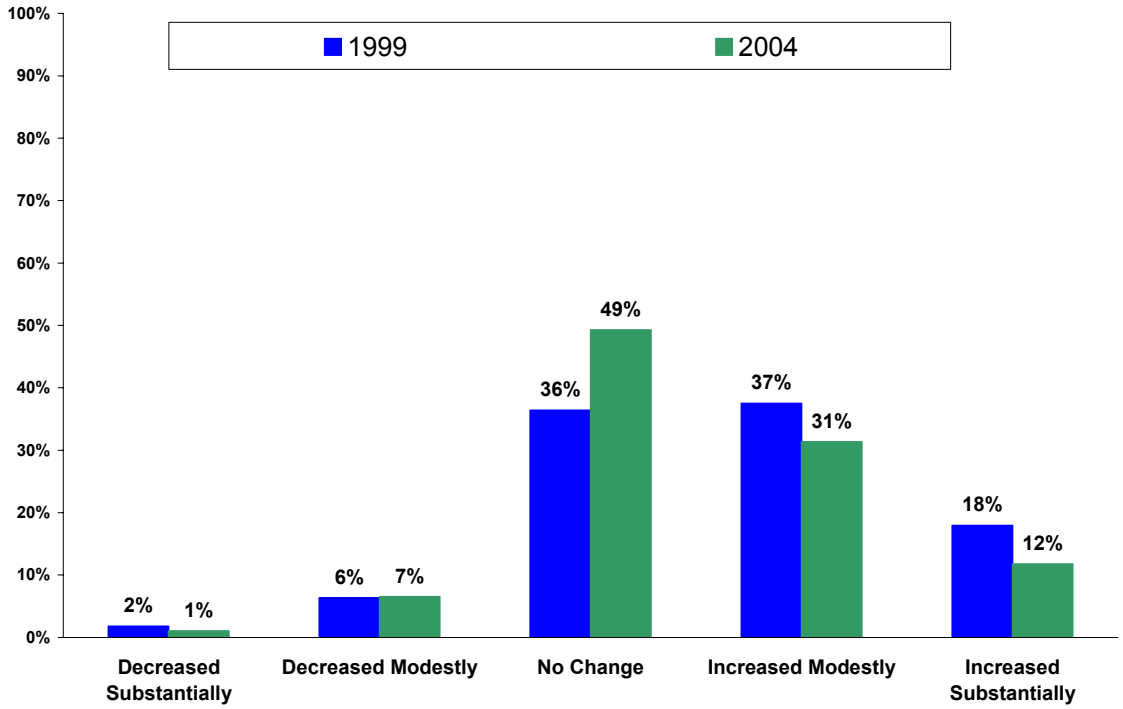


*Figure 48. Change in Volume of Rhinitis Cases in the Past 2 Years, 1999 and 2004*

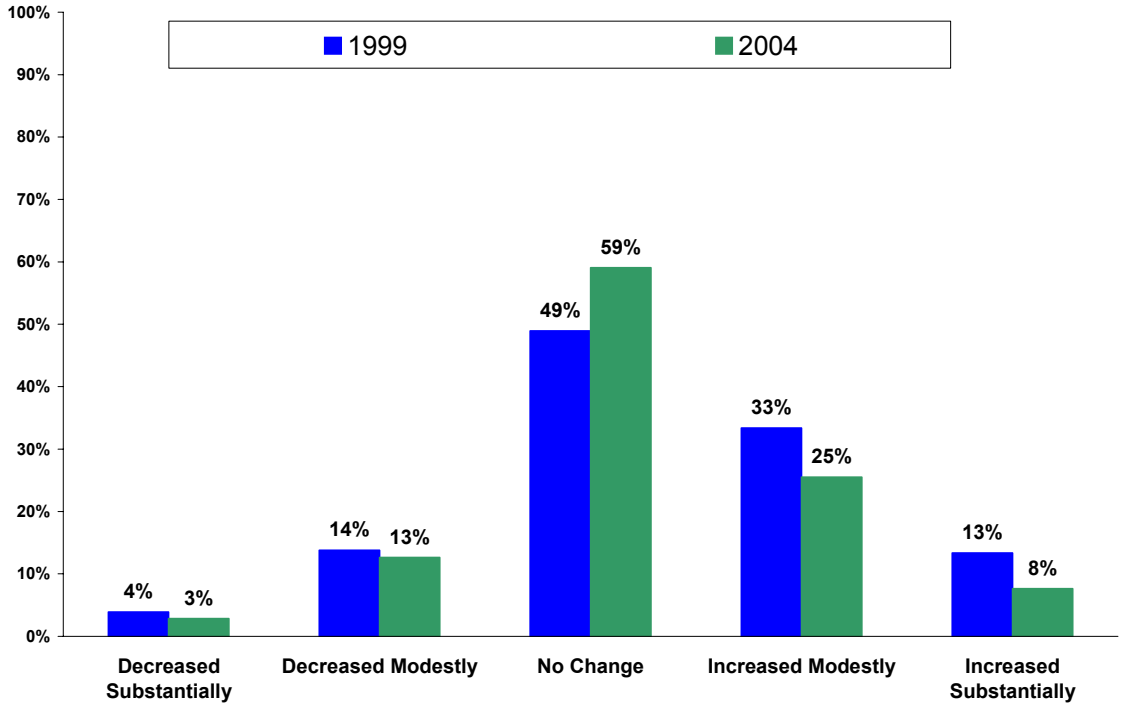



*Figure 49. Change in Volume of Food Allergy Cases in the Past 2 Years, 1999 and 2004*

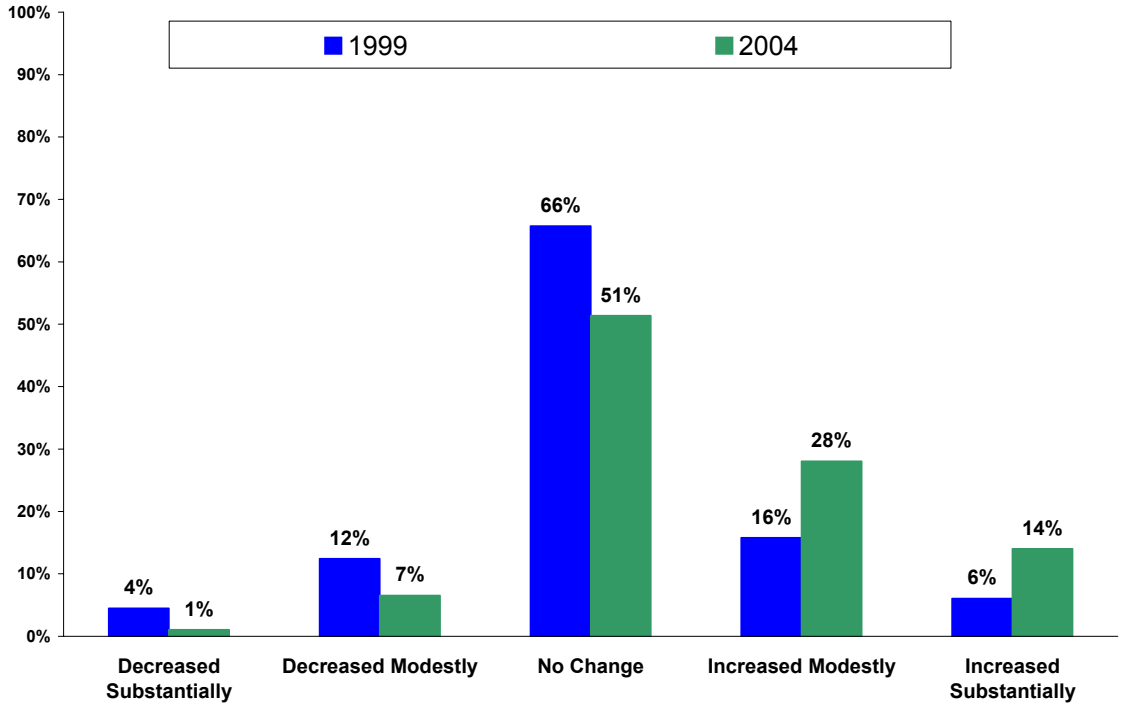


*Figure 50. Change in Volume of Atopic Dermatitis Cases in the Past 2 Years, 1999 and 2004*

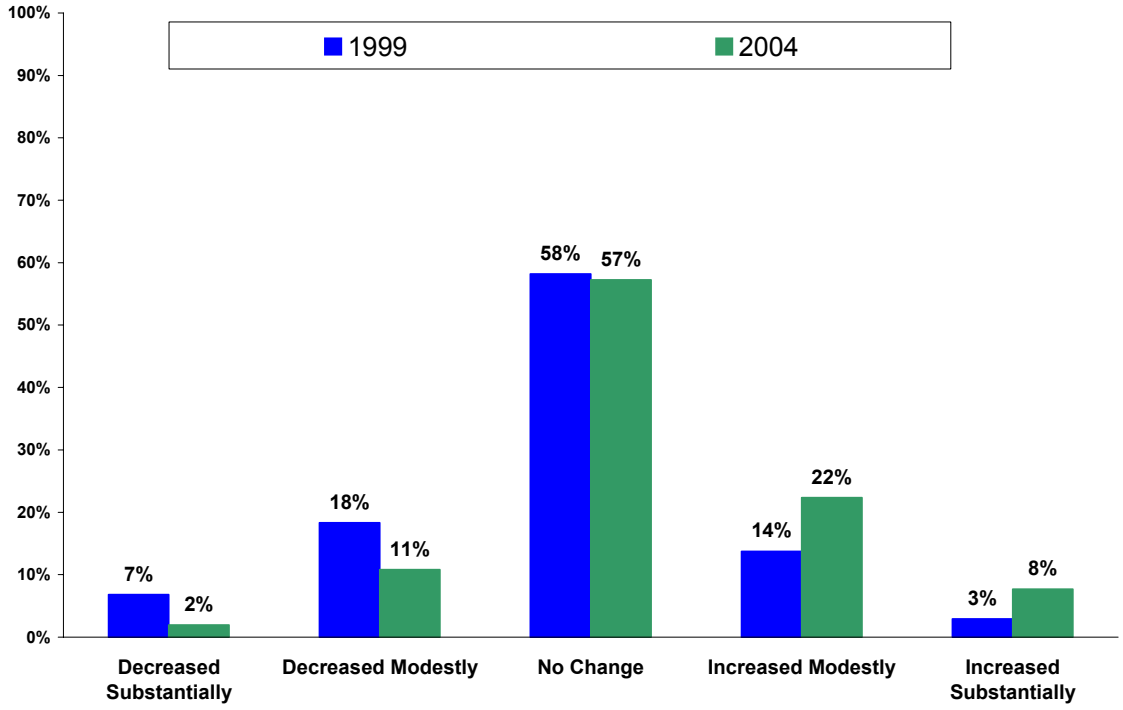



*Figure 51. Change in Volume of Contact Dermatitis Cases in the Past 2 Years, 2004*

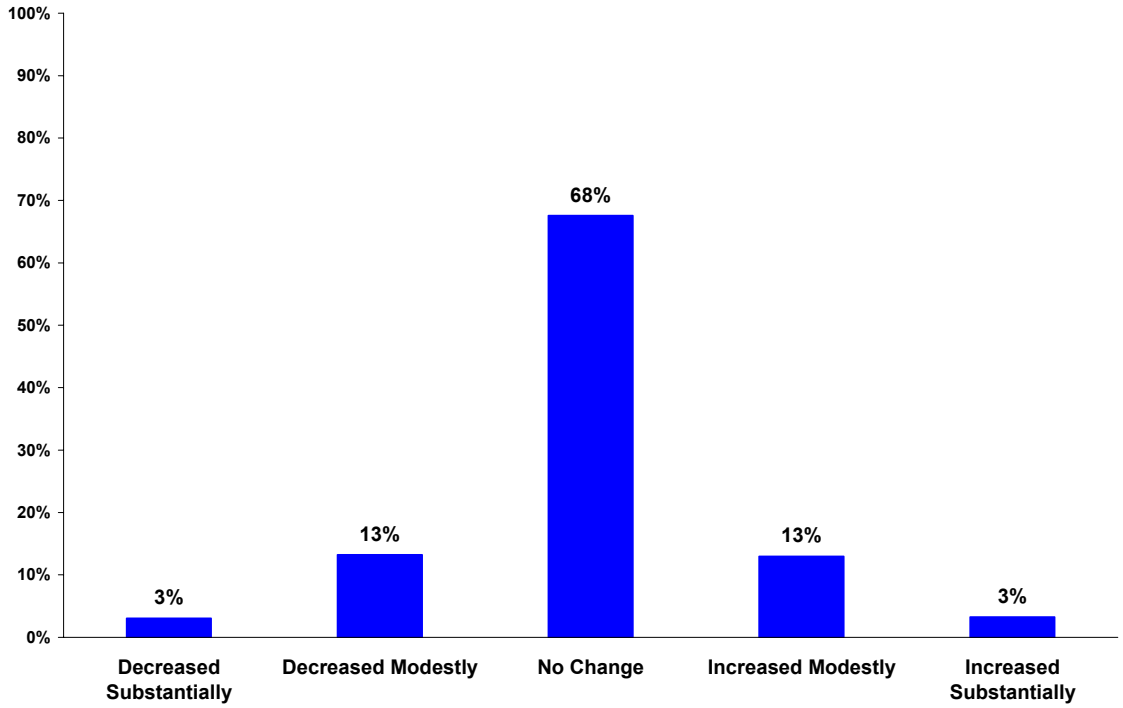


*Figure 52. Change in Volume of Chronic Cough Cases in the Past 2 Years, 1999 and 2004*

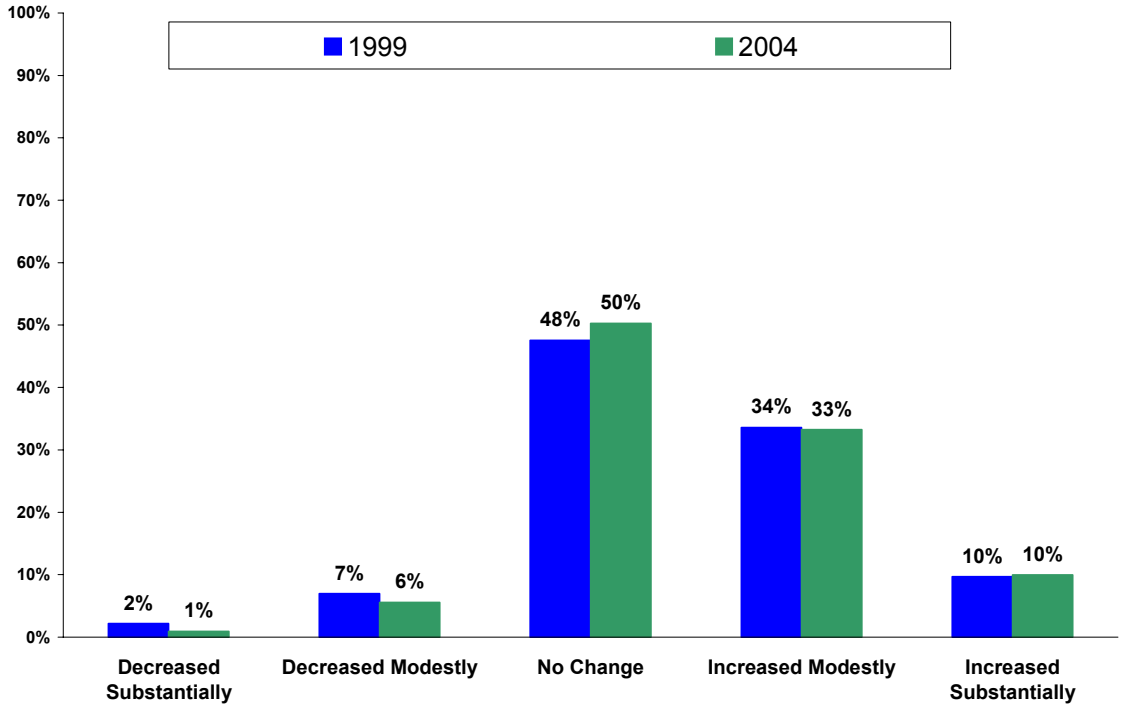



*Figure 53. Change in Volume of Adverse Drug Reaction Cases in the Past 2 Years, 1999 and 2004*

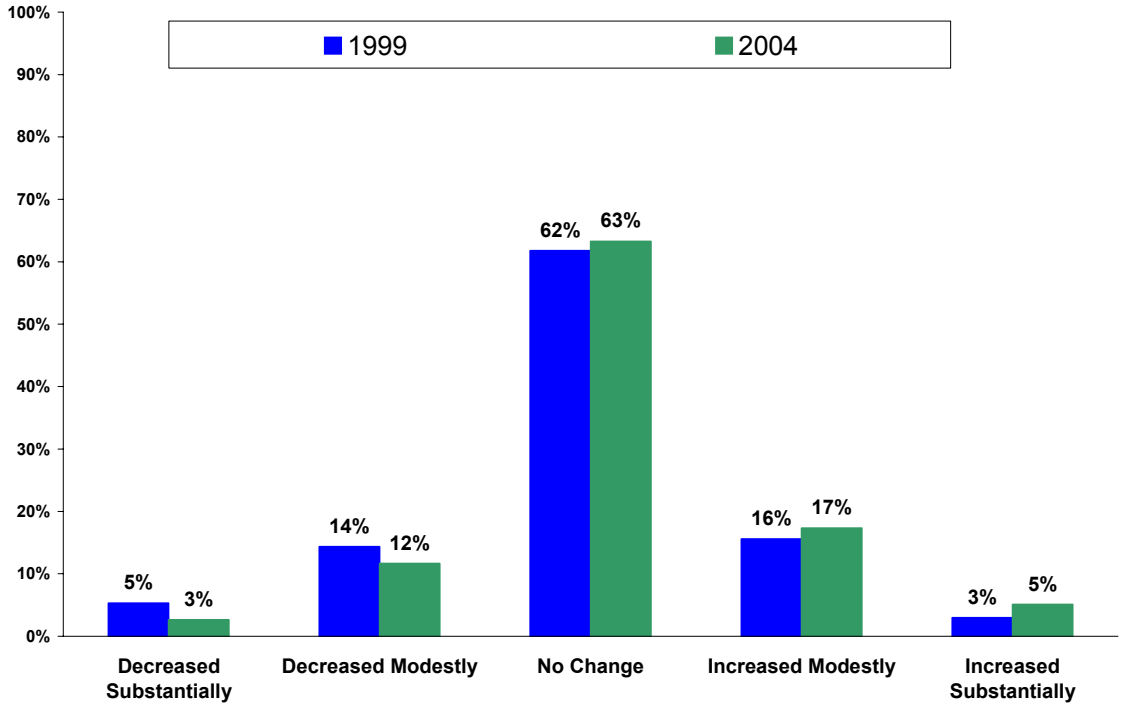


*Figure 54. Change in Volume of Urticaria/Angioedema Cases in the Past 2 Years, 1999 and 2004*

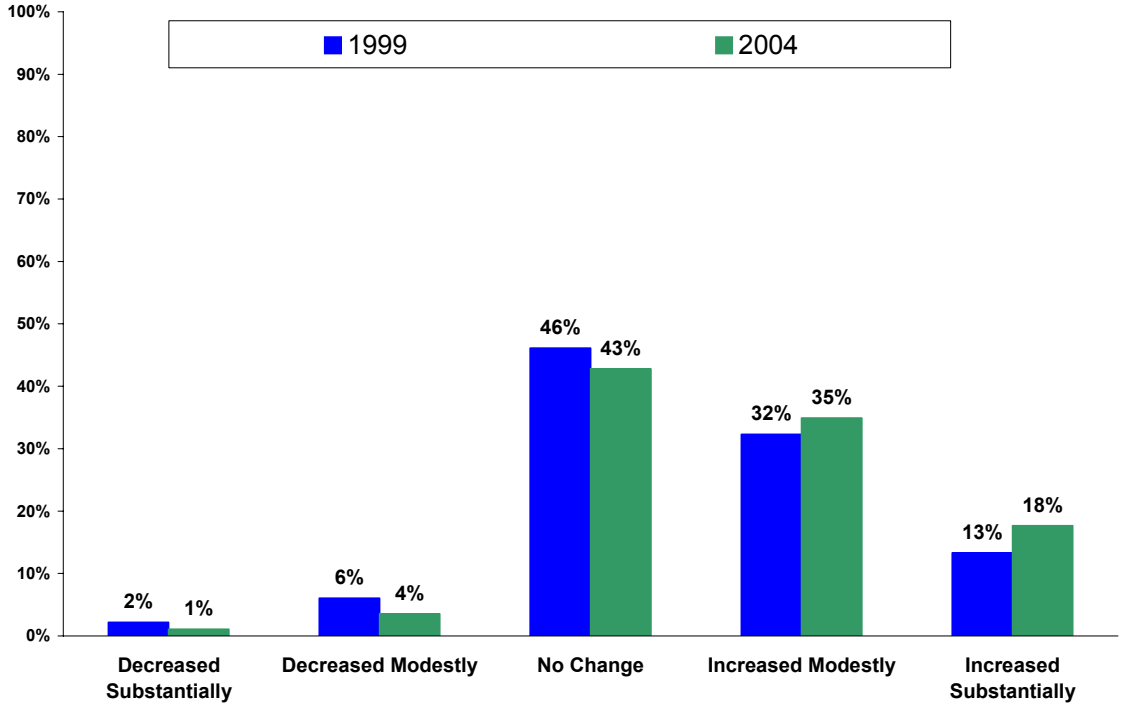



*Figure 55. Change in Volume of Insect Sting Reaction Cases in the Past 2 Years, 1999 and 2004*

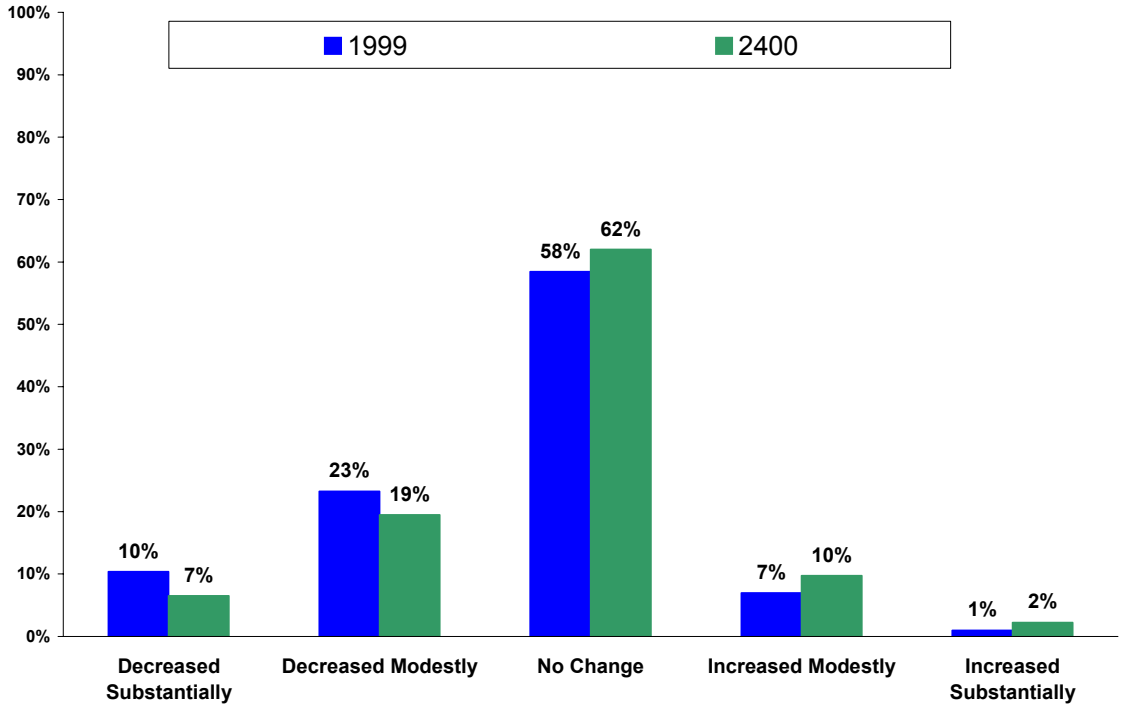
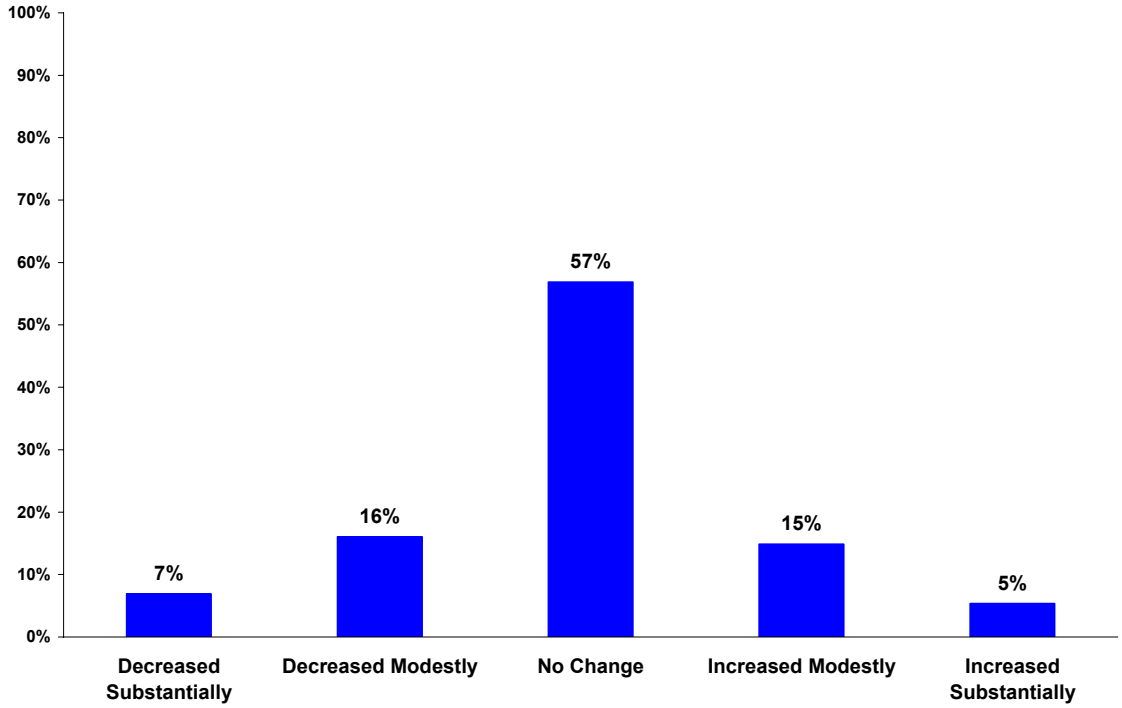


*Figure 56. Change in Volume of Environmental Intolerance Syndrome Cases in the Past 2 Years, 2004*




*b) Case Complexity*

Another aspect of A/I practice that should be considered are changes in case complexity; that is, whether A/I physicians continue to see more complex cases and how that might have changed since 1999. One of the most striking and important findings in the 1999 survey was the growing complexity of the cases A/I physicians reported. The A/I physicians in 2004 continued to report a higher level of complexity in the patients they treat (Figure 57). The responses in 2004 were nearly identical to those in 1999.

Changes in case complexity vary very slightly by age (Figure 58). As was observed in 1999, changes in case complexity increased in the younger age groups, then began to decrease in the 55 to 64 years of age group. In the oldest age group, more than half of the A/I physicians reported no change in complexity. There are several explanations for these variations (e.g., maturity of practice, practice capacity issues, willingness to take on more complex patients, etc.), but more data would be necessary to fully examine them.

*Figure 57. Change in Case Complexity Among A/I Physicians in the Past 2 Years, 1999 and 2004*

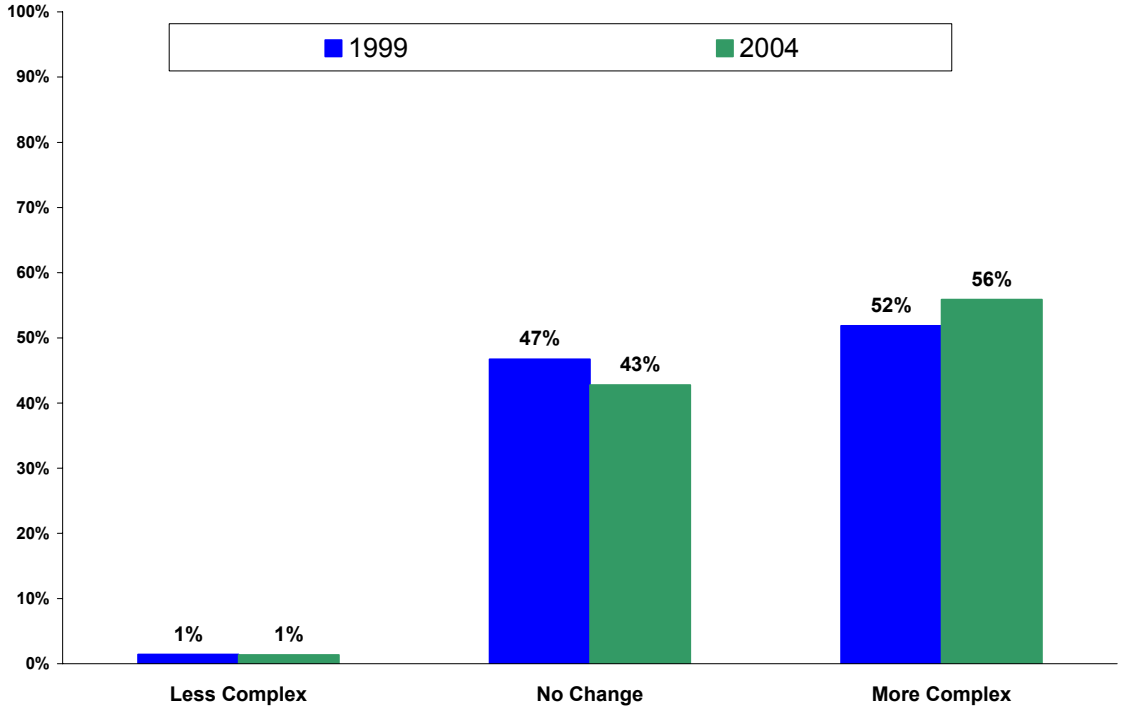



*Figure 58. Change in Case Complexity by Age of A/I Physician in the Past 2 Years, 1999 and 2004*

| | Less Complex | | No Change | | More Complex | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 1% | 2% | 44% | 43% | 55% | 55% |
| 45 to 54 Years of Age | 2% | 1% | 43% | 39% | 56% | 60% |
| 55 to 64 Years of Age | 2% | 1% | 50% | 43% | 48% | 56% |
| 65 Years of Age and Older | 1% | 1% | 57% | 51% | 42% | 48% |

*Figure 59. Recent A/I Practice Growth Among A/I Physicians, 1999 and 2004*

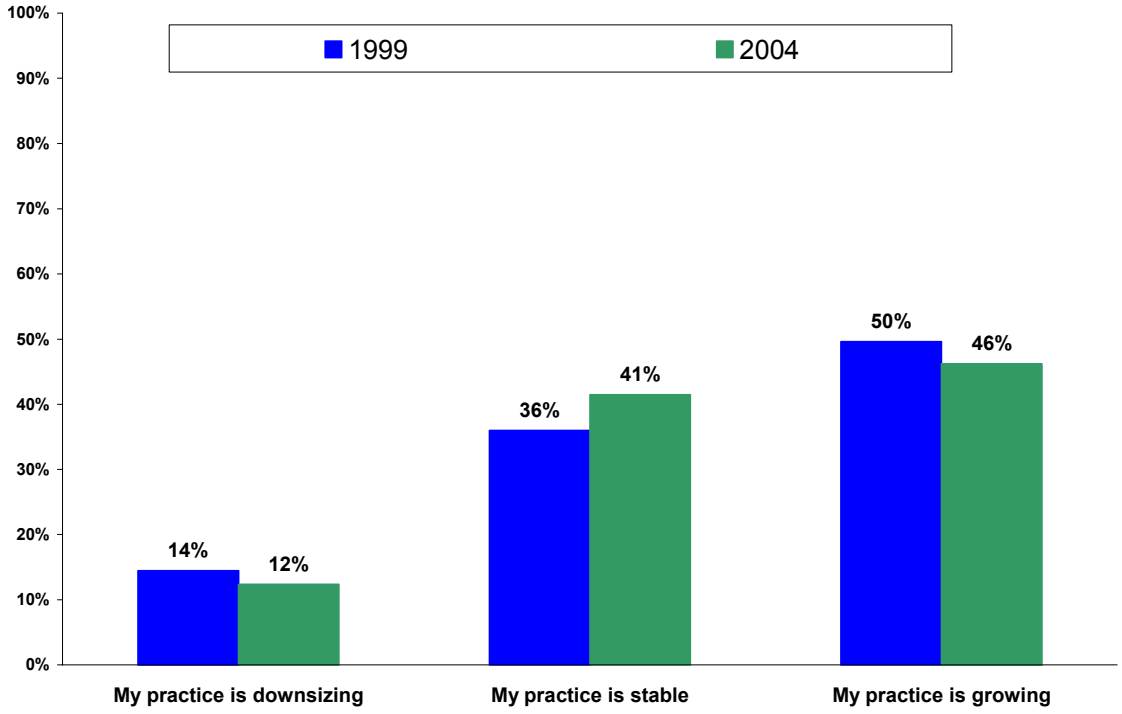



*Figure 60. Recent A/I Practice Growth by Age of A/I Physician, 1999 and 2004*

| | Practice is Downsizing | | Practice is Stable | | Practice is Growing | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 5% | 4% | 21% | 23% | 74% | 73% |
| 45 to 54 Years of Age | 12% | 11% | 40% | 37% | 48% | 52% |
| 55 to 64 Years of Age | 20% | 15% | 44% | 55% | 36% | 30% |
| 65 Years of Age and Older | 34% | 25% | 48% | 50% | 18% | 24% |

*c) Practice Growth*

Nearly half of A/I physicians reported that their practices were growing in 2004, down slightly from 50 in 1999 (Figure 59). At the same time, about 12 percent of A/I physicians reported that they were downsizing their practices. Age, not surprisingly, plays a role here, with the youngest A/I physicians most likely to report growing practices. However, in all but the oldest group, the percentage of A/I physicians who reported that their practices were growing was higher than those who reported they were downsizing (Figure 60).

*Figure 61. Change in Personal Practice Income Among A/I Physicians, 1999 and 2004*

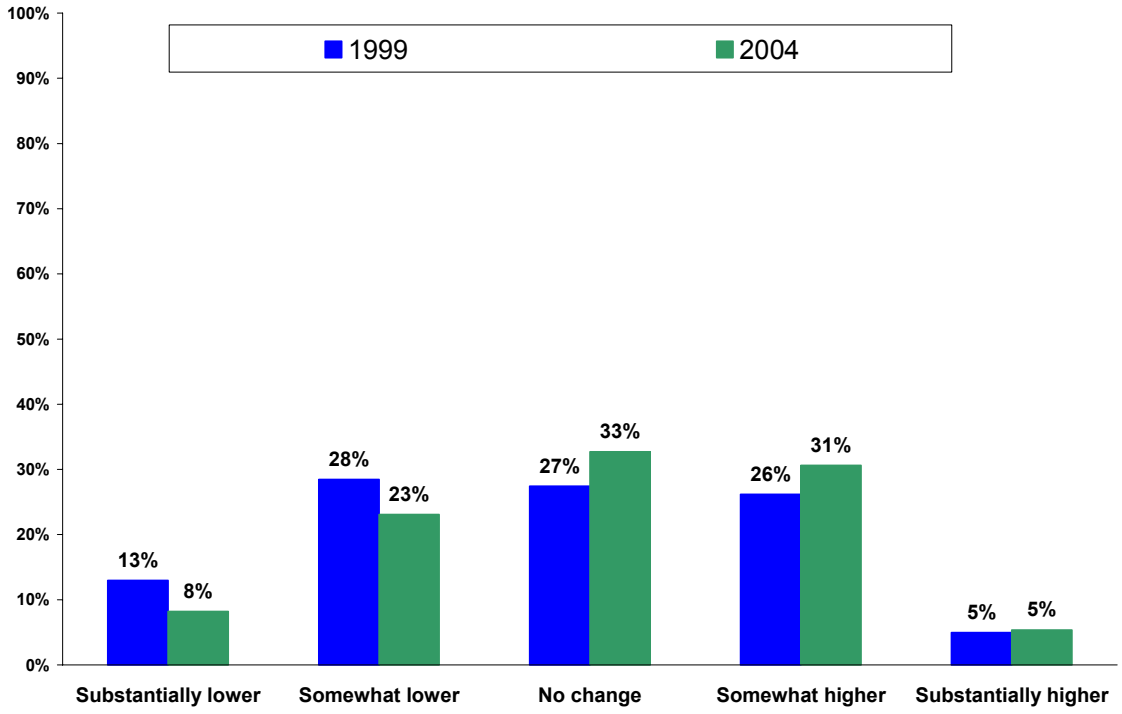



*Figure 62. Change in Personal Practice Income by Age of A/I Physician, 1999 and 2004*

| | Substantially Lower | | Somewhat Lower | | No Change | | Somewhat Higher | | Substantially Higher | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 7% | 4% | 20% | 12% | 26% | 33% | 37% | 41% | 10% | 11% |
| 45 to 54 Years of Age | 11% | 7% | 32% | 23% | 27% | 28% | 27% | 35% | 3% | 6% |
| 55 to 64 Years of Age | 19% | 12% | 30% | 26% | 29% | 36% | 18% | 24% | 4% | 2% |
| 65 Years of Age and Older | 22% | 11% | 36% | 33% | 28% | 35% | 13% | 18% | 1% | 2% |

*d) Practice Income*

Perhaps due to the reported growth in their practice, a good number (36 percent) of A/I physicians also reported growth in their practice income over the past two years (Figure 61). This figure is higher than the 31 percent who reported growing incomes in 1999. The increased incomes might also explain the positive change in economic satisfaction observed in the 2004 survey responses as well. In terms of age (Figure 62), the younger A/I physicians were most likely to report increased income, while the older A/I physicians were most likely to report decreased income. Whether the decline in income in the older age groups is voluntary (e.g., slowing down practice in preparation for retirement) or involuntary is beyond the scope of the survey data.

*Figure 63. Change in the Number of A/I Patients in A/I Practice in the Past Two Years, 1999 and 2004*

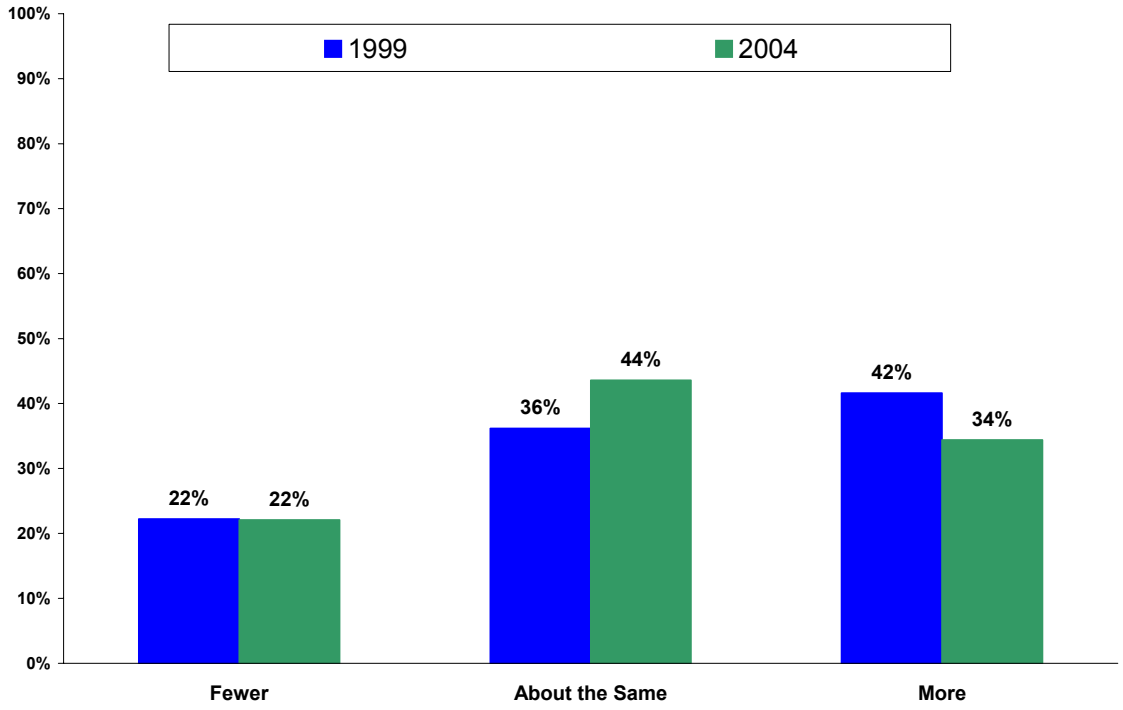



*Figure 64. Change in the Number of A/I Patients in the Past Two Years by Age of A/I Physician, 1999 and 2004*

| | Fewer | | About the Same | | More | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 13% | 11% | 28% | 36% | 59% | 53% |
| 45 to 54 Years of Age | 20% | 21% | 40% | 43% | 39% | 37% |
| 55 to 64 Years of Age | 28% | 27% | 38% | 48% | 34% | 25% |
| 65 Years of Age and Older | 39% | 31% | 42% | 48% | 19% | 21% |

*e) Patient Volume*

A/I physicians continued to report seeing more A/I patients over the past two years, but not at the same pace as they did in 1999 (Figure 63). In 2004, a third (34 percent) of the A/I physicians reported seeing more A/I patients compared to 42 percent in 1999. In terms of age, as with many of the other practice characteristics presented, the younger physicians were more likely to report seeing more A/I patients than older physicians (Figure 64).

*Figure 65. Change in the Number of Non-A/I Patients in A/I Practice in the Past Two Years, 1999 and 2004*

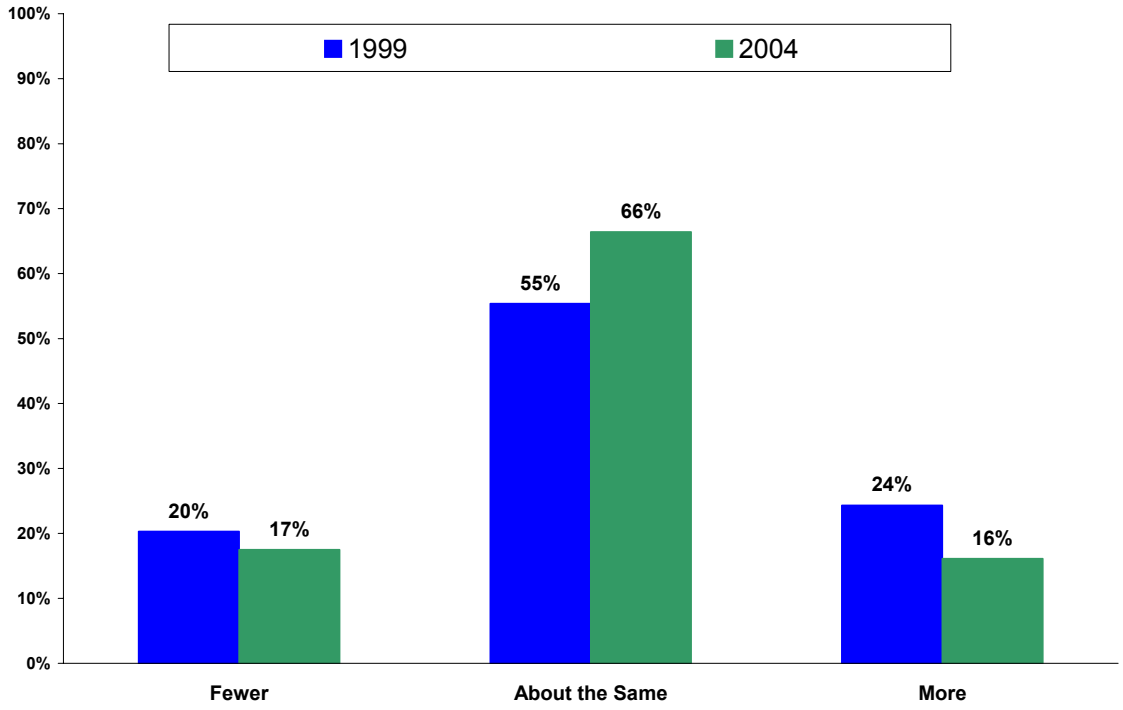



*Figure 66. Change in the Number of Non-A/I Patients in the Past Two Years by Age of A/I Physician, 1999 and 2004*

| | Fewer | | About the Same | | More | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 16% | 11% | 57% | 65% | 27% | 24% |
| 45 to 54 Years of Age | 16% | 16% | 59% | 68% | 25% | 16% |
| 55 to 64 Years of Age | 23% | 19% | 52% | 67% | 25% | 14% |
| 65 Years of Age and Older | 36% | 25% | 50% | 64% | 14% | 11% |

Few (16 percent) A/I physicians reported seeing more non-A/I patients over the past two years in 2004 (Figure 65). Few (17 percent) reported seeing fewer non-A/I patients. The overall pattern of responses in 2004 was similar to that in 1999; however, a lower percentage of A/I physicians reported more and fewer non-A/I patients, and a larger percentage reported about the same number of non-A/I patients. Younger physicians were most likely to see more non-A/I patients (Figure 66).

*Figure 67. Change in the Number of Hours Spent in A/I Patient Care per Week in the Past Two Years, 1999 and 2004*

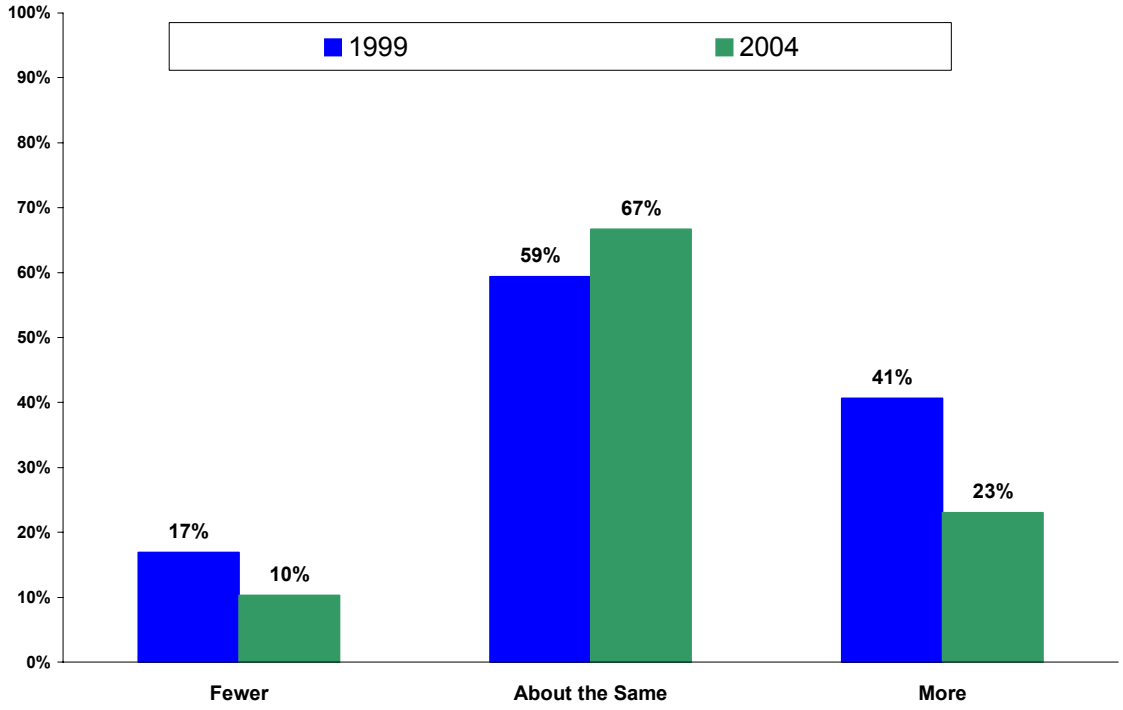



*Figure 68. Change in the Number of Hours Spent in A/I Patient Care per Week in the Past Two Years by Age of A/I Physician, 1999 and 2004*

| | Fewer | | About the Same | | More | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 7% | 5% | 47% | 60% | 46% | 35% |
| 45 to 54 Years of Age | 11% | 6% | 51% | 66% | 37% | 27% |
| 55 to 64 Years of Age | 19% | 14% | 52% | 71% | 29% | 16% |
| 65 Years of Age and Older | 34% | 21% | 56% | 69% | 10% | 10% |

*f) Hours Spent in Patient Care*

Less than a quarter (23 percent) of A/I physicians reported spending more hours in A/I patient care per week over the past two years in 2004 (Figure 67). Only 10 percent reported spending fewer hours in A/I patient care. Compared to 1999, fewer A/I physicians reported changes in the number of hours spent in A/I patient care per week. A clear negative linear association between age and spending more hours in A/I patient care is evident, as the percentage who reported more hours in A/I patient care decreased in each successive age group (Figure 68).

*Figure 69. Change in the Number of Hours Spent in Non-A/I Patient Care per Week in the Past Two Years, 1999 and 2004*

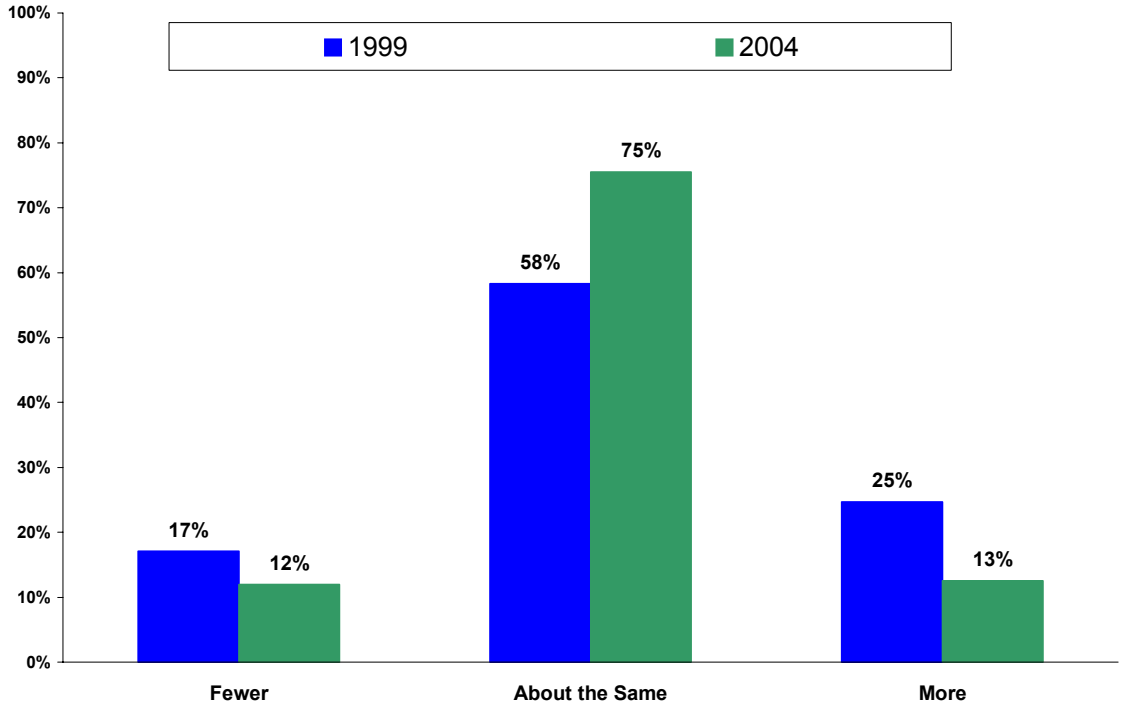



*Figure 70. Change in the Number of Hours Spent in Non-A/I Patient Care per Week in the Past Two Years by Age of A/I Physician, 1999 and 2004*

| | Fewer | | About the Same | | More | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 15% | 12% | 60% | 74% | 25% | 14% |
| 45 to 54 Years of Age | 13% | 9% | 57% | 77% | 30% | 14% |
| 55 to 64 Years of Age | 16% | 13% | 58% | 76% | 26% | 10% |
| 65 Years of Age and Older | 33% | 17% | 58% | 72% | 9% | 11% |

In terms of non-A/I patient care hours per week, three-quarters (75 percent) of A/I physicians reported no change in the past two years (Figure 69). In 1999, one quarter (25 percent) of A/I physicians reported spending more hours in non-A/I patient care per week, almost twice the percentage who reported similarly in 2004. There were small differences in the percentages of A/I physicians reporting changes in non-A/I patient care hours per week, with slightly more younger physicians reporting more hours and slightly more of the oldest A/I physicians reporting fewer hours (Figure 70).

*Figure 71. Change in the Number of Referrals from HMOs in the Past Two Years, 2004*

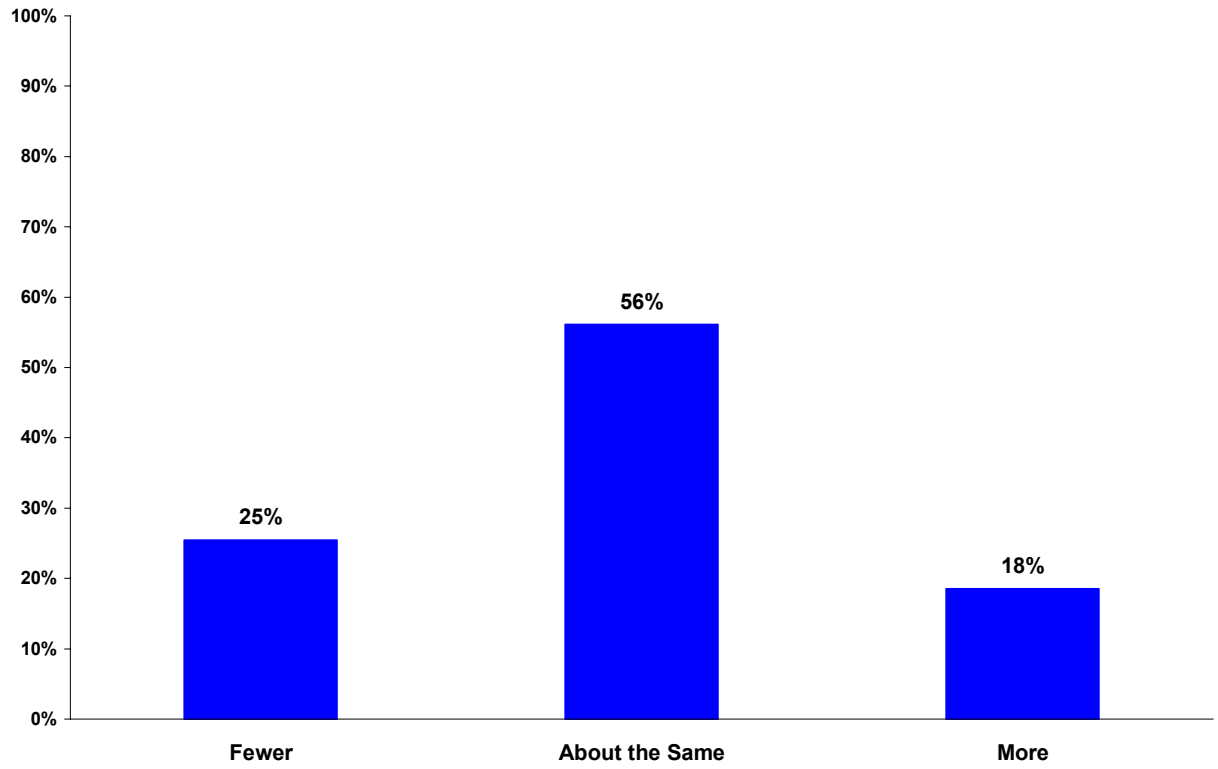



*Figure 72. Change in the Number of Referrals from HMOs in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 15% | 60% | 25% |
| 45 to 54 Years of Age | 26% | 51% | 23% |
| 55 to 64 Years of Age | 32% | 56% | 13% |
| 65 Years of Age and Older | 28% | 62% | 10% |

*g) Volume of Referrals*

While a majority (56 percent) of A/I physicians reported no change in the number of referrals they received from health maintenance organizations (HMOs) in the past two years, one quarter (25 percent) reported receiving fewer over that time period (Figure 71). The remainder (18 percent) reported receiving more referrals from HMOs. A general trend of older physicians reporting fewer HMO referrals and younger physicians reporting more HMO referrals was evident in the survey responses (Figure 72).

*Figure 73. Change in the Number of Referrals from PPOs in the Past Two Years, 2004*

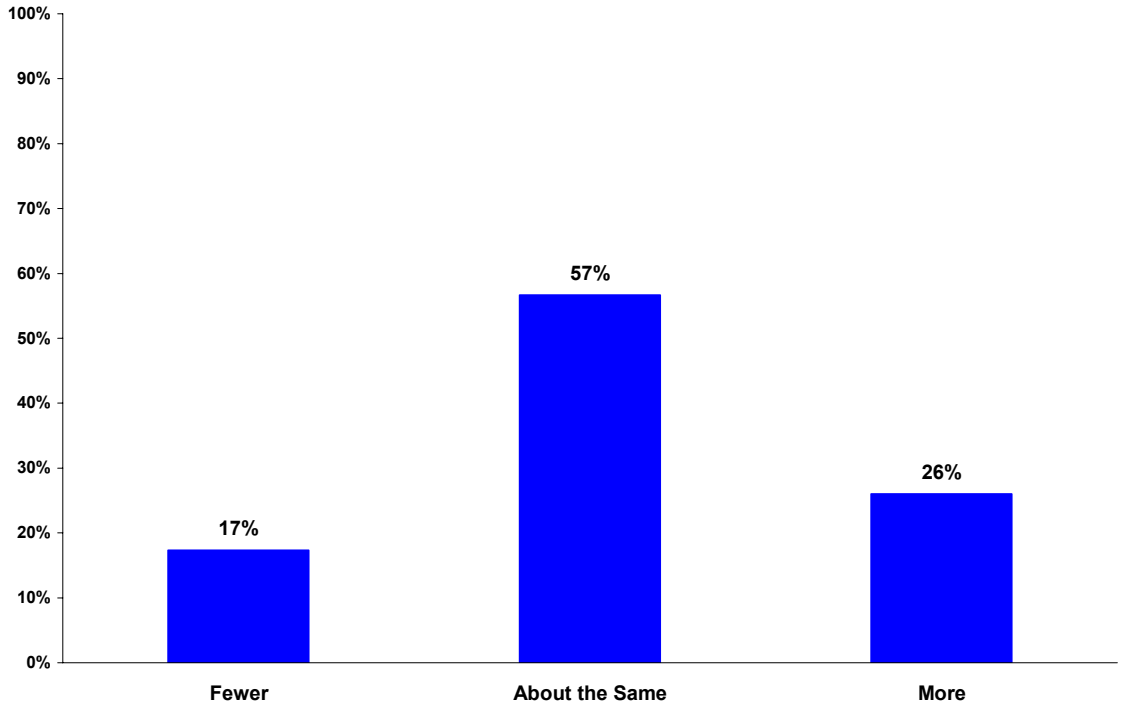



*Figure 74. Change in the Number of Referrals from PPOs in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 8% | 55% | 37% |
| 45 to 54 Years of Age | 19% | 53% | 28% |
| 55 to 64 Years of Age | 20% | 58% | 21% |
| 65 Years of Age and Older | 20% | 63% | 17% |

As with HMO referrals, a majority of A/I physicians reported that preferred provider organization (PPO) referrals had not changed in the past two years (Figure 73). However, more than a quarter (26 percent) reported that referrals from this source had increased. PPO referrals were more likely reported to be greater in the recent past for younger A/I physicians and were more likely reported to be fewer by older A/I physicians (Figure 74).

*Figure 75. Change in the Number of Non-Managed Care Referrals in the Past Two Years, 2004*

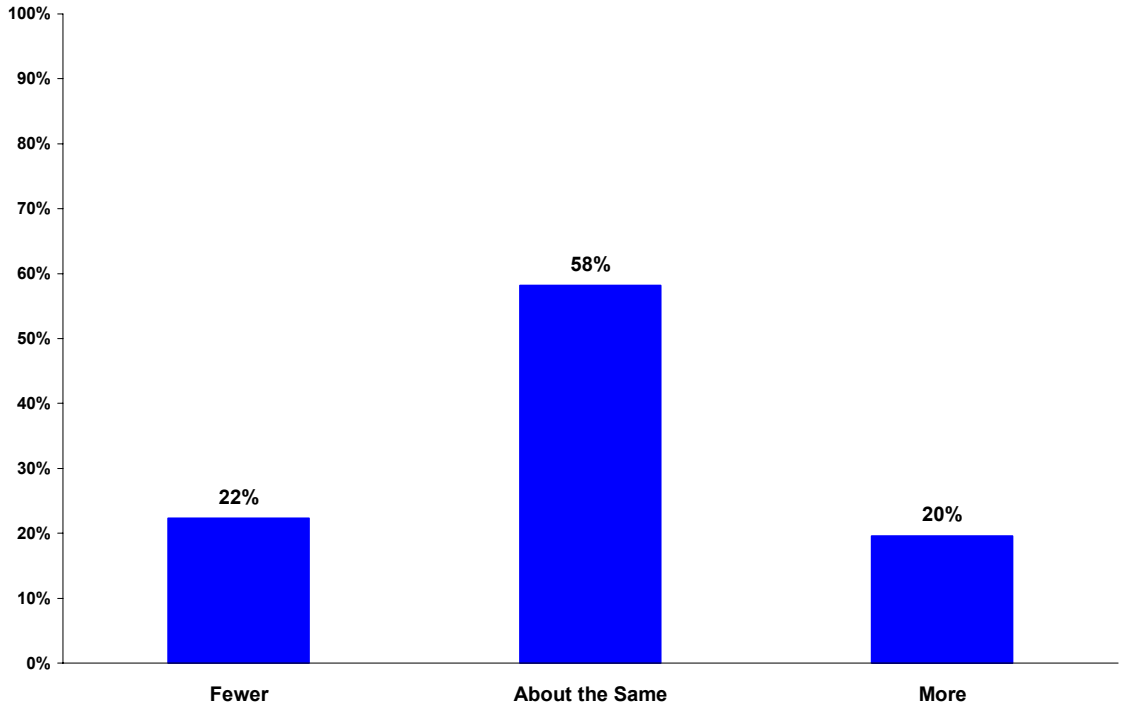



*Figure 76. Change in the Number of Non-Managed Care Referrals in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 14% | 61% | 25% |
| 45 to 54 Years of Age | 25% | 51% | 23% |
| 55 to 64 Years of Age | 26% | 59% | 14% |
| 65 Years of Age and Older | 22% | 64% | 14% |

As with the other referrals types, a majority (58 percent) of A/I physicians reported that non-managed care referrals had not changed in the past two years (Figure 75). A slightly larger portion of A/I physicians reported fewer rather than more non-managed care referrals (22 percent compared to 20 percent). Younger physicians were more likely to report more non-managed care referrals, and older A/I physicians were more likely to report fewer non-managed care referrals over the specified time period (Figure 76).

*Figure 77. Change in the Number of Patients Covered by Medicaid in the Past Two Years, 2004*

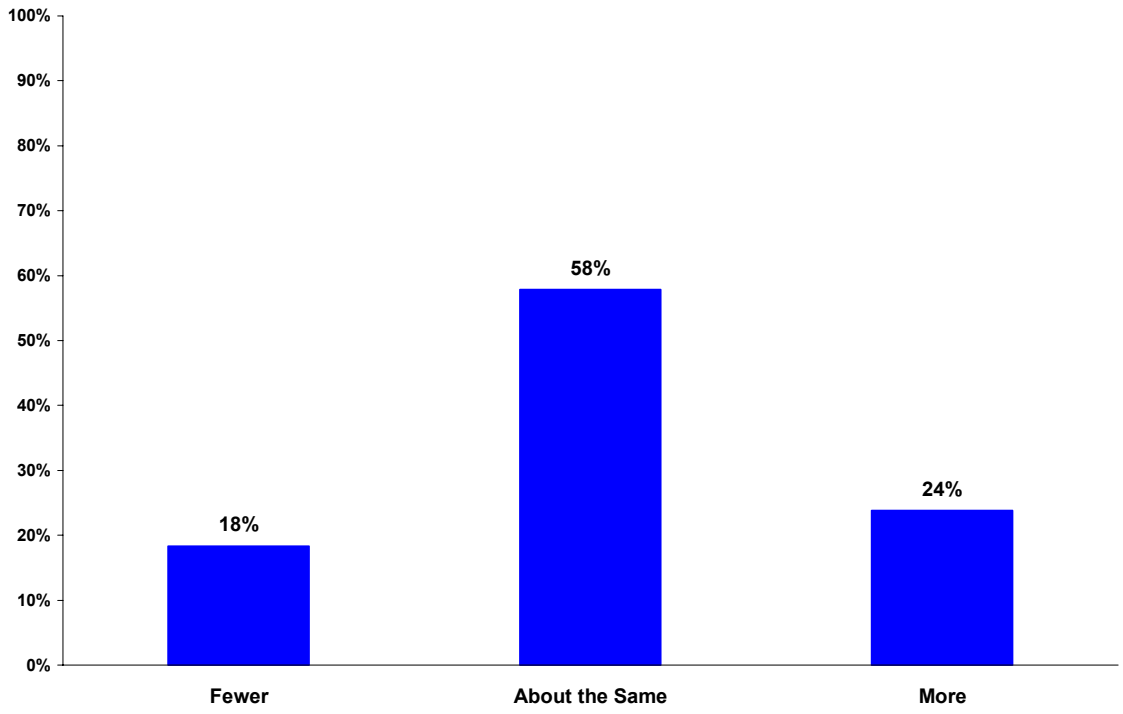



*Figure 78. Change in the Number of Patients Covered by Medicaid in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 16% | 56% | 28% |
| 45 to 54 Years of Age | 15% | 56% | 29% |
| 55 to 64 Years of Age | 19% | 60% | 21% |
| 65 Years of Age and Older | 27% | 60% | 13% |

*h) Types of Insurance*

Nearly one quarter (24 percent) of A/I physicians reported that the number of patients they serve who are covered by Medicaid increased in the past two years (Figure 77). Only 18 percent reported that the number of Medicaid patients they serve had decreased during the time period. The remainder (58 percent) reported no change. Younger A/I physicians were more likely than older A/I physicians to have reported that the number of patients covered by Medicaid had increased over the past two years (Figure 78).

*Figure 79. Change in the Number of Patients Covered by Medicare in the Past Two Years, 2004*

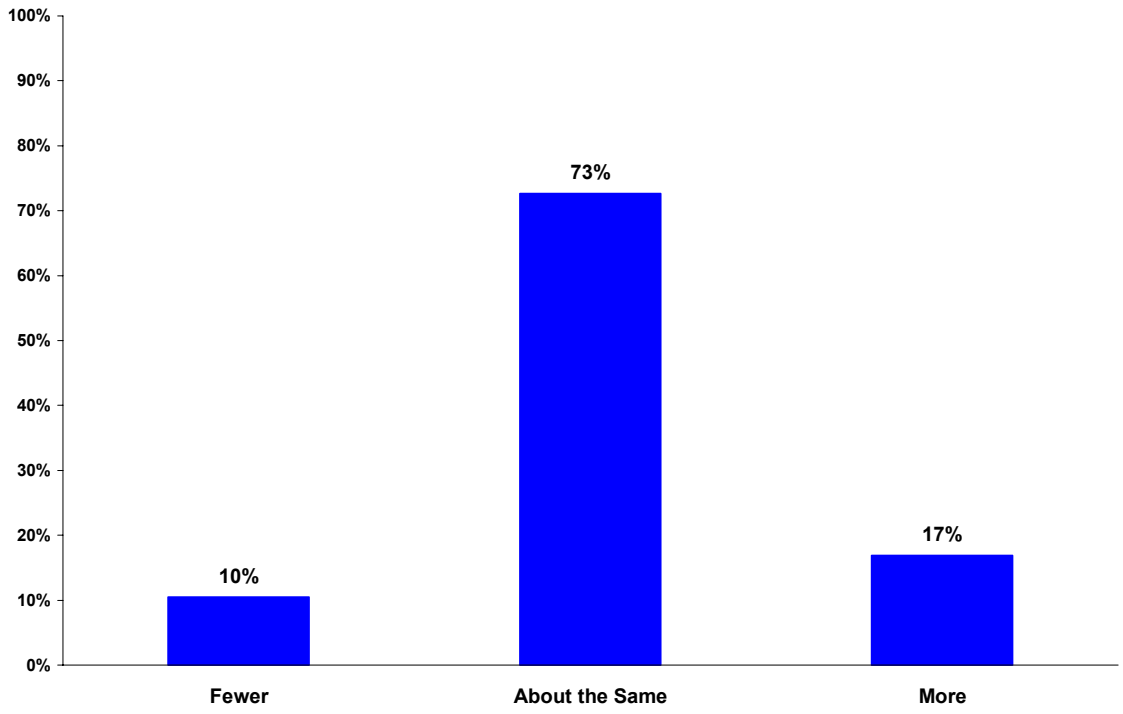



*Figure 80. Change in the Number of Patients Covered by Medicare in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 9% | 70% | 21% |
| 45 to 54 Years of Age | 11% | 73% | 16% |
| 55 to 64 Years of Age | 12% | 71% | 17% |
| 65 Years of Age and Older | 10% | 76% | 14% |

A/I physicians reported less change in the number of Medicare patients (Figure 79) they serve than in the number of Medicaid patients over the past two years. Almost three quarters (73 percent) of A/I physicians reported that the number of Medicare patients they serve remained about the same over the past two years. This observation is not surprising given the large proportion that patients under age 16 make up of the patients A/I physicians serve (see Figures 29 and 30). Older A/I physicians were the most likely to report not experiencing a change in the number Medicare patients over the past two years (Figure 80).

*Figure 81. Change in the Number of Patients with Private Insurance in the Past Two Years, 2004*

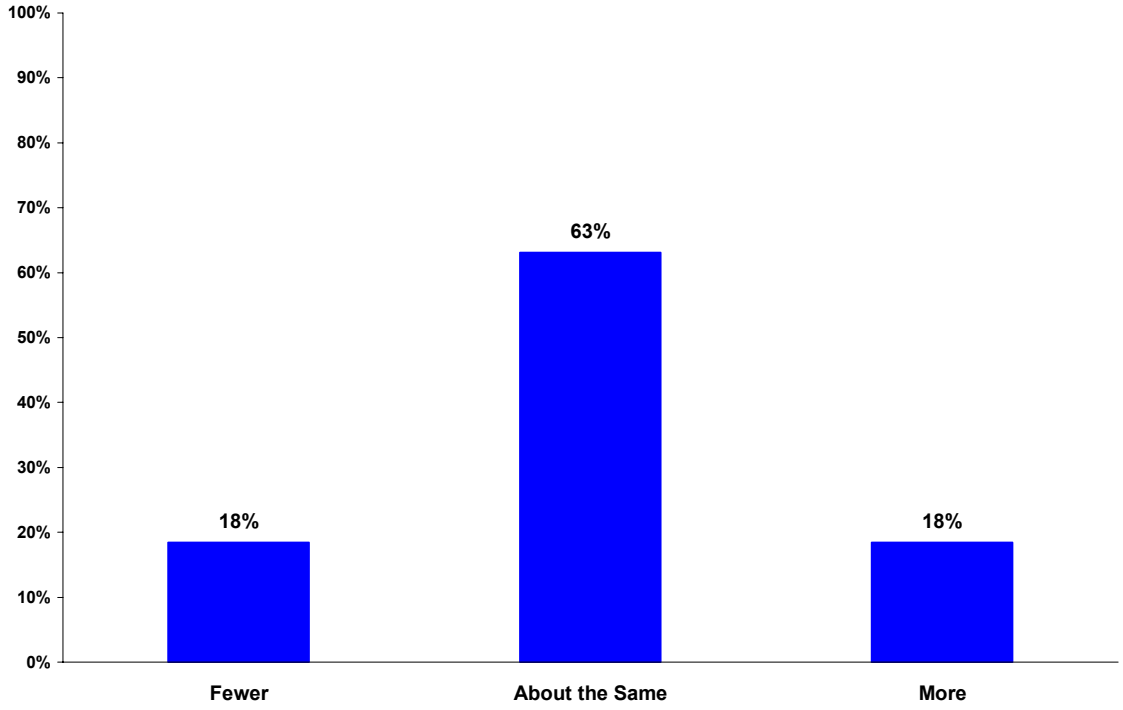



*Figure 82. Change in the Number of Patients with Private Insurance in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 14% | 59% | 28% |
| 45 to 54 Years of Age | 21% | 60% | 18% |
| 55 to 64 Years of Age | 20% | 66% | 14% |
| 65 Years of Age and Older | 18% | 69% | 13% |

As many A/I physicians (18 percent) reported that the number of patients with private insurance in the past two years had increased as reported that the number had decreased (Figure 81). Almost two-thirds (63 percent) reported that the number of patients with private insurance had remained about the same during the time period. The youngest group of A/I physicians was more likely to report that the number of private insurance patients had increased (Figure 82). A/I physicians age 45 years and above were about equally as likely to report fewer private insurance patients over the past two years.

*Figure 83. Change in the Number of Uninsured Patients in the Past Two Years, 2004*

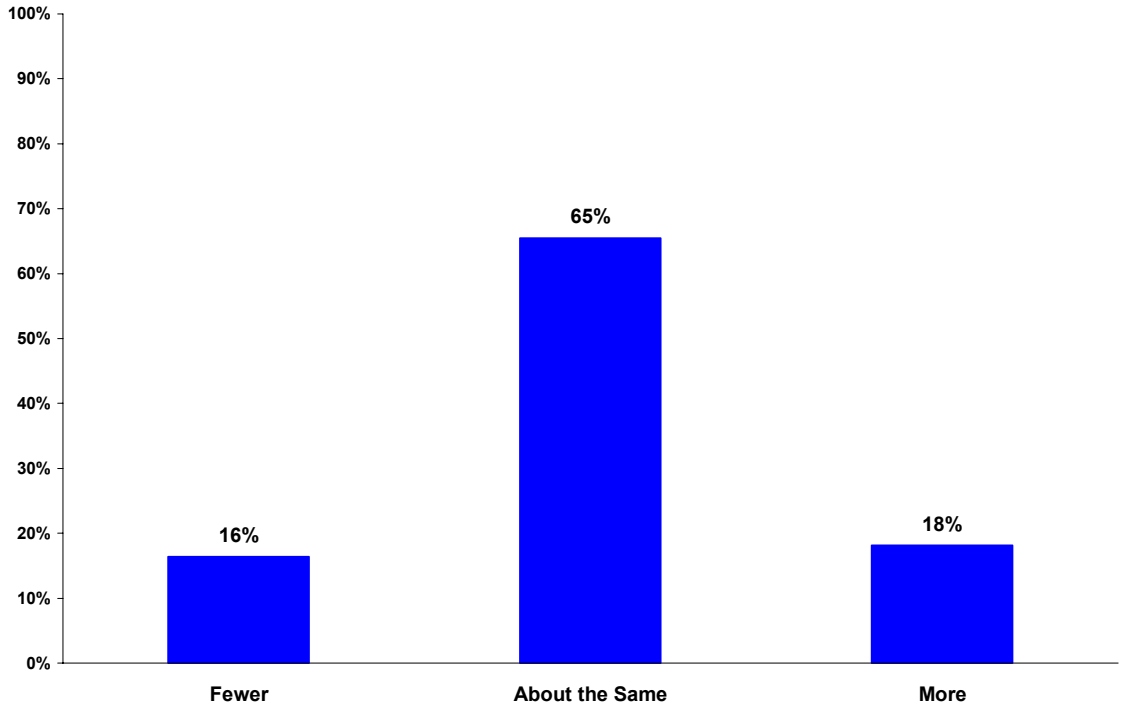



*Figure 84. Change in the Number of Uninsured Patients in the Past Two Years by Age of A/I Physician, 2004*

| | Fewer | Aboute the same | More |
|---|---|---|---|
| Under Age 45 | 17% | 64% | 19% |
| 45 to 54 Years of Age | 15% | 64% | 21% |
| 55 to 64 Years of Age | 16% | 66% | 18% |
| 65 Years of Age and Older | 21% | 69% | 10% |

As with the reported changes in the number of privately insured patients, two-thirds (65 percent) of A/I physicians reported that the number of uninsured patients they serve had remained the same over the past two years (Figure 83). Slightly more A/I physicians reported more uninsured patients than less uninsured patients (18 percent compared to 16 percent). Older A/I physicians were most likely to report fewer uninsured patients over the time period (Figure 84).

*Figure 85. Change in Medical Liability Insurance Premiums in the Past Two Years, 2004*

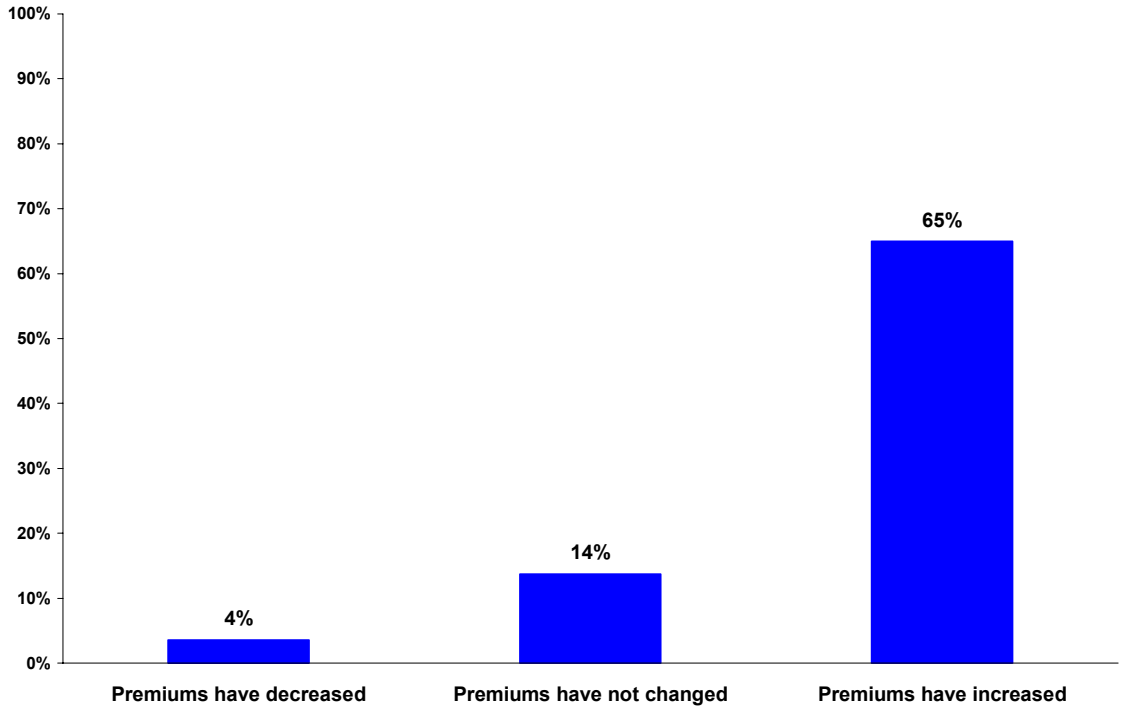



*Figure 86. Change in Medical Liability Insurance Premiums in the Past Two Years by Age of A/I Physicians, 2004*

| | Premiums Have Decreased | Premiums Have Not Changed | Premiums Have Increased |
|---|---|---|---|
| Under Age 45 | 2% | 14% | 84% |
| 45 to 54 Years of Age | 5% | 14% | 81% |
| 55 to 64 Years of Age | 4% | 16% | 80% |
| 65 Years of Age and Older | 7% | 26% | 67% |

*i) Medical Liability Insurance Trends*

The final recent practice change that was included on the survey covered medical liability insurance. When asked how medical liability premiums have changed in the past two years, two-thirds (65 percent) of the A/I physicians reported that they had increased (Figure 85). Fourteen percent (14 percent) reported that they had not changed, while 4 percent reported decreases. The youngest A/I physicians were most likely to report premium increases, while the oldest were most likely to report no change or decreases (Figure 86).

The more important questions regarding medical liability insurance, however, are the ramifications of increasing premiums. Among those who reported premiums had increased: 1 percent reported that they had decreased the number of patients seen per week because of the increases; 1 percent reported that they had decreased the number of hours they spend in patient care per week; 7 percent reported that they increased the number of tests ordered per patient; 8 percent reported that the likelihood that they would refer patients to other physicians increased; and less than 1 percent relocated their practice to another state (Figure 87).

*Figure 87. Result of Increase in Medical Liability Insurance Premiums in the Past Two Years, 2004*

| | |
|---|---|
| Decreased number of patients seen per week | 1% |
| Decreased number of hours spent in patient care per week | 1% |
| Increased the number of tests ordered per patient | 7% |
| Increased likelihood of referring patients to other physicians | 8% |
| Relocated practice to another state | Less than 1% |

**6. Future Changes in Practice**

There is always uncertainty in any prediction of how specific factors will impact medical practice in any specialty. However, one way to assess the potential impact of specific factors is to ask practitioners how their practices might be affected. In this section data on several survey items that assess the impact of new medications and treatments, the incidence/prevalence of allergy/asthma and immunologic conditions, and new A/I practice parameters on demand for A/I services will be examined.

*a) Future Demand for A/I Services*

First, in 2004, nearly half (49 percent) of A/I physicians reported that new treatments and medications will increase demand for A/I services (Figure 88). About 26 percent reported that they would not change demand and 25 percent reported that the new treatments and medications would reduce demand. This response pattern is different than in 1999, where A/I physicians were more likely to think that new treatments and medications would not affect demand. Younger physicians were more likely to think that new treatments and medication would

increase demand for A/I services (Figure 89). In 1999, age was much less of a factor, but even then, younger physicians responded similarly.

*Figure 88. Perception of the Future Impact of New Treatments and Medications on Demand for A/I Services Over the Next 5 Years Among A/I Physicians, 1999 and 2004*

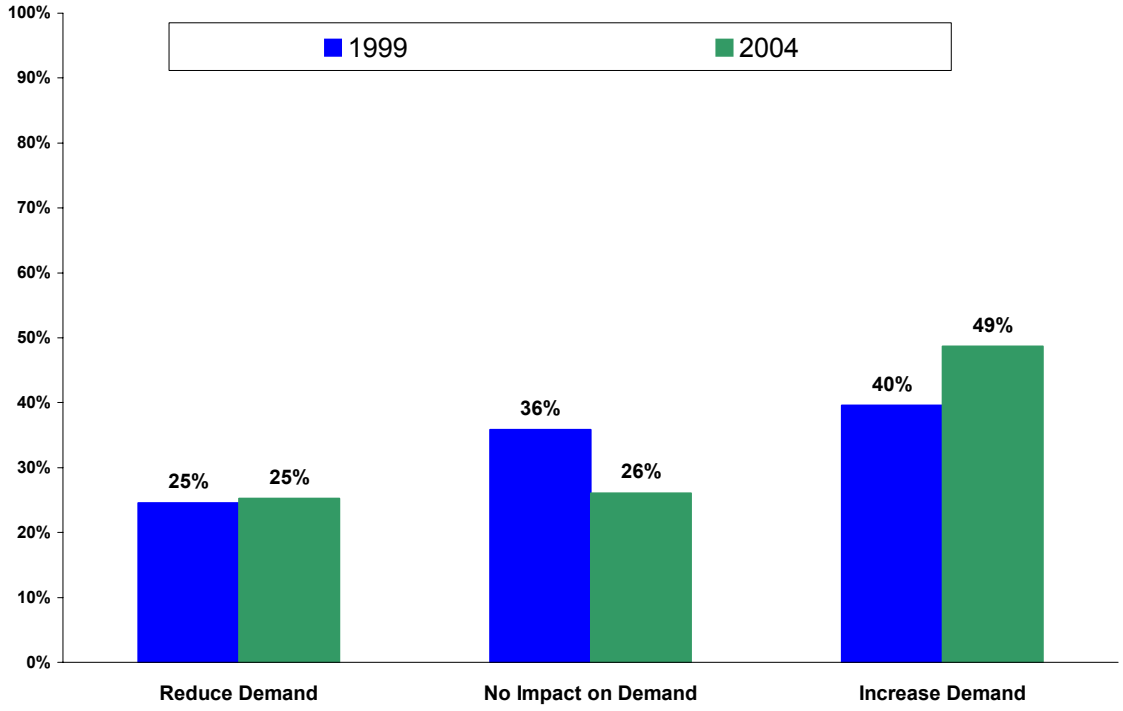



*Figure 89. Perception of the Future Impact of New Treatments and Medications on Demand for A/I Services Over the Next 5 Years by Age of A/I Physician, 1999 and 2004*

| | Reduce Demand | | No Impact on Demand | | Increase Demand | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 24% | 17% | 29% | 17% | 46% | 65% |
| 45 to 54 Years of Age | 24% | 27% | 35% | 25% | 40% | 48% |
| 55 to 64 Years of Age | 26% | 31% | 40% | 27% | 34% | 43% |
| 65 Years of Age and Older | 23% | 22% | 47% | 43% | 29% | 35% |

*Figure 90. Perception of the Future Impact of the Incidence/Prevalence of Allergy/Asthma Conditions on Demand for A/I Services Over the Next 5 Years Among A/I Physicians, 1999 and 2004*

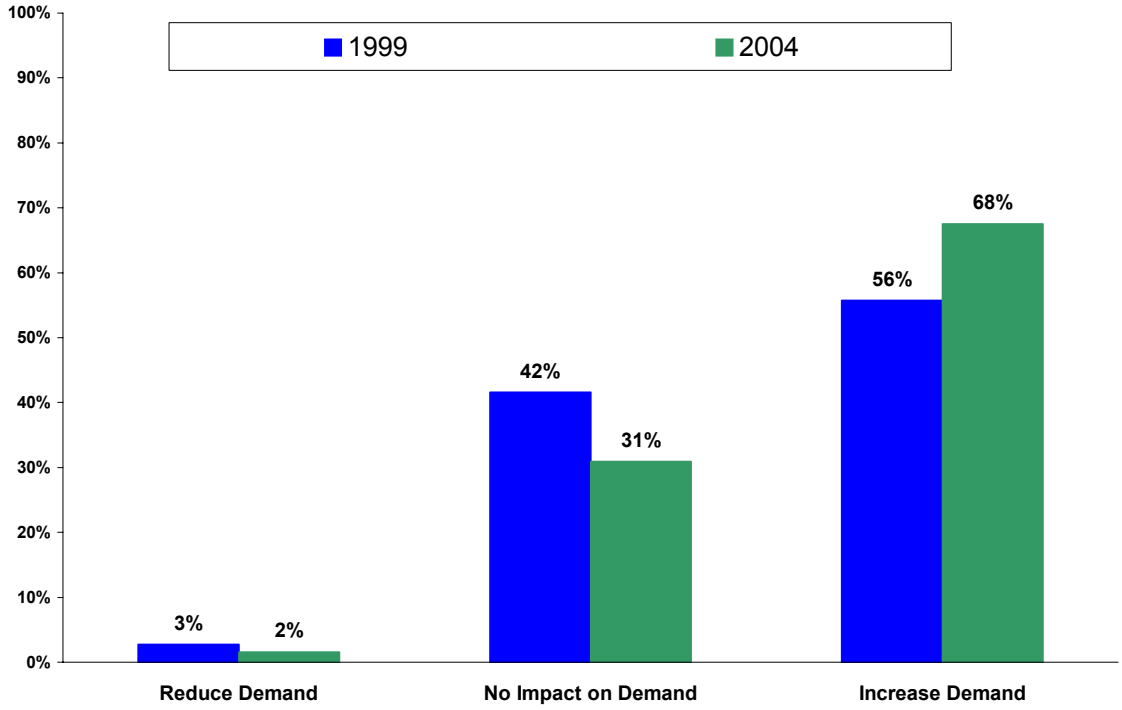


*Figure 91. Perception of the Future Impact of the Incidence/Prevalence of Immunologic Conditions on Demand for A/I Services Over the Next 5 Years Among A/I Physicians, 1999 and 2004*

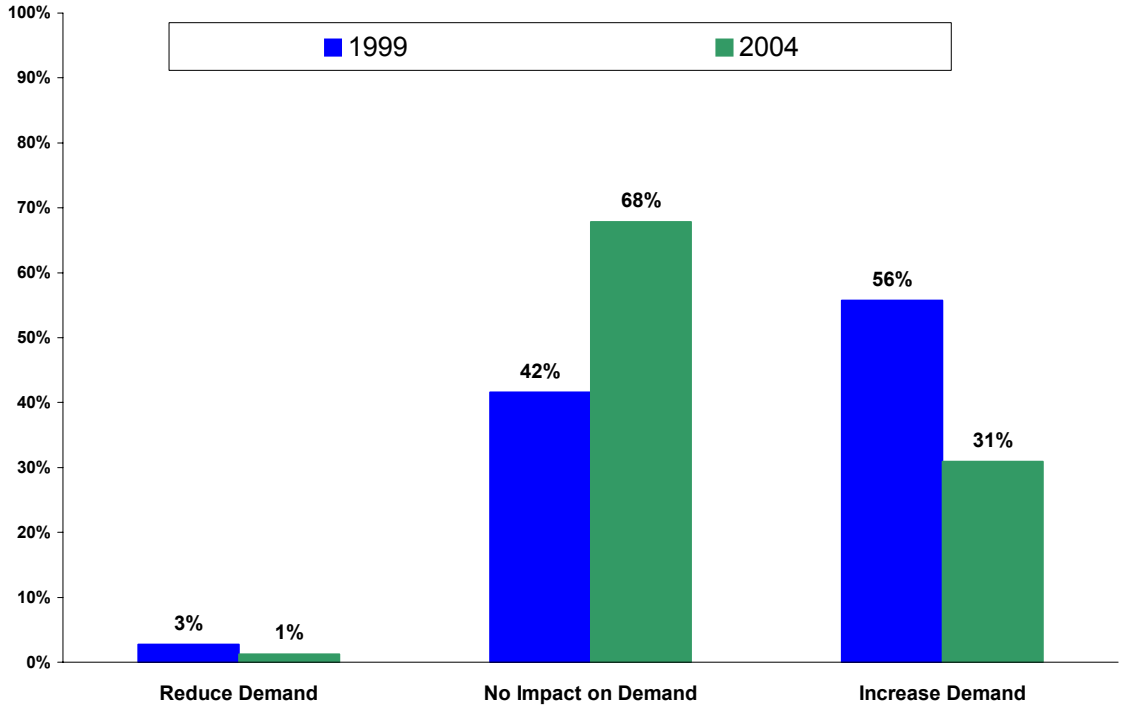



*Figure 92. Perception of the Future Impact of the Incidence/Prevalence of Allergy/Asthma and Immunologic Conditions on Demand for A/I Services Over the Next 5 Years by Age of A/I Physician, 1999 and 2004*

| | Reduce Demand | | | No Impact on Demand | | | Increase Demand | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Allergy/ Asthma | Immun-ology | | Allergy/ Asthma | Immun-ology | | Allergy/ Asthma | Immun-ology |
| | 1999 | 2004 | 2004 | 1999 | 2004 | 2004 | 1999 | 2004 | 2004 |
| Under Age 45 | 1% | 1% | 1% | 30% | 14% | 59% | 69% | 85% | 40% |
| 45 to 54 Years of Age | 2% | 1% | 0% | 43% | 28% | 68% | 55% | 71% | 32% |
| 55 to 64 Years of Age | 5% | 1% | 1% | 46% | 40% | 72% | 49% | 59% | 27% |
| 65 Years of Age and Older | 5% | 3% | 4% | 60% | 49% | 73% | 35% | 48% | 23% |

*Note: In 1999, Allergy, Asthma and Immunology were combined in one question. In 2004, they were separated.*

The anticipated impact of the incidence/prevalence of allergy/asthma and immunologic conditions on demand shows an interesting pattern. More than two-thirds (68 percent) of A/I physicians reported that the incidence/prevalence of allergy/asthma conditions would increase demand for A/I services (Figure 90). On the other hand, 68 percent of the A/I physicians

reported that the incidence/prevalence of immunologic conditions would have no impact on demand for A/I services (Figure 91). Moreover, when the patterns are examined by age, the data suggest that length of time in practice influences how the impact of immunologic conditions versus allergy/asthma conditions is perceived (Figure 92). A/I physicians think that the drivers of demand for A/I services are allergy/asthma conditions, not immunologic conditions. This opinion becomes more ingrained as the A/I physician ages.

*Figure 93. Perception of the Future Impact of New Practice Parameters on Demand for A/I Services Over the Next 5 Years Among A/I Physicians, 1999 and 2004*

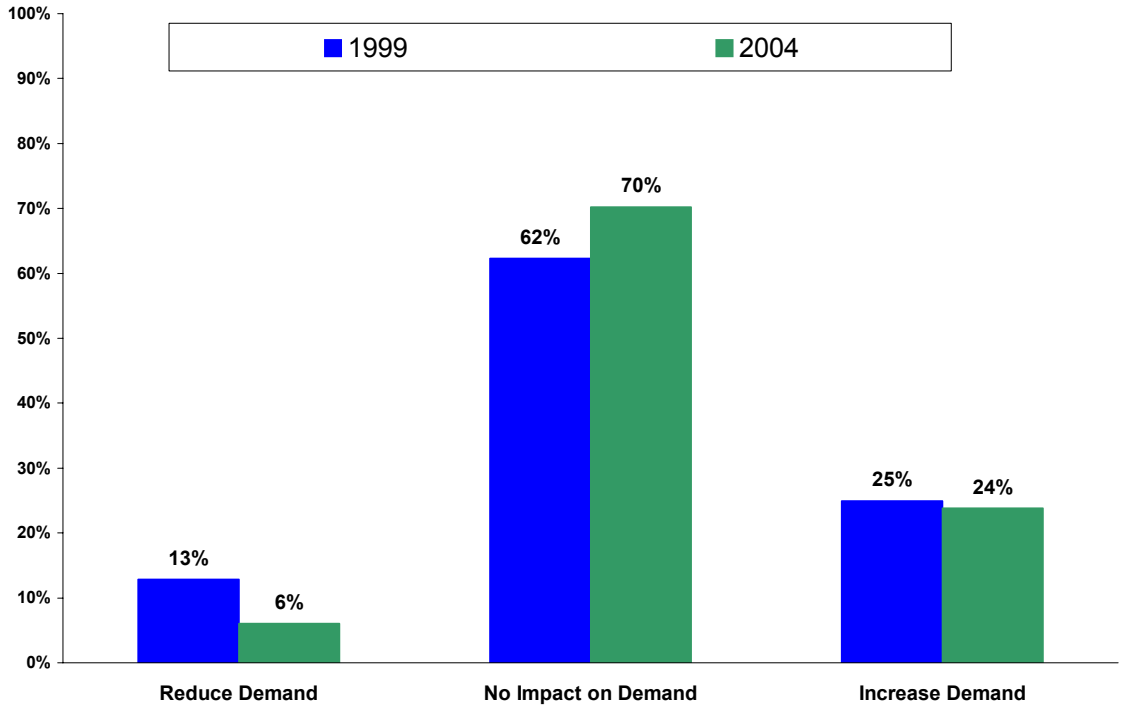



*Figure 94. Perception of the Future Impact of New Practice Parameters on Demand for A/I Services Over the Next 5 Years by Age of A/I Physician, 1999 and 2004*

| | Reduce Demand | | No Impact on Demand | | Increase Demand | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Under Age 45 | 11% | 5% | 60% | 64% | 29% | 31% |
| 45 to 54 Years of Age | 12% | 6% | 63% | 71% | 25% | 23% |
| 55 to 64 Years of Age | 15% | 7% | 61% | 73% | 24% | 20% |
| 65 Years of Age and Older | 16% | 7% | 67% | 74% | 17% | 19% |

Finally, A/I physicians (70 percent) reported that they believe new practice parameters would have little effect on demand for A/I services (Figure 93). Twenty-four percent (24 percent)

reported that new parameters would increase demand, while only 6 percent reported that they would decrease demand. The 2004 responses were very similar to those in 1999. There was little variation in terms of age, with the exception that the oldest group of physicians were least likely to report that new parameters would increase demand for A/I services (Figure 94).

*Figure 95. Near Future Work Plans Among A/I Physicians, 2004*

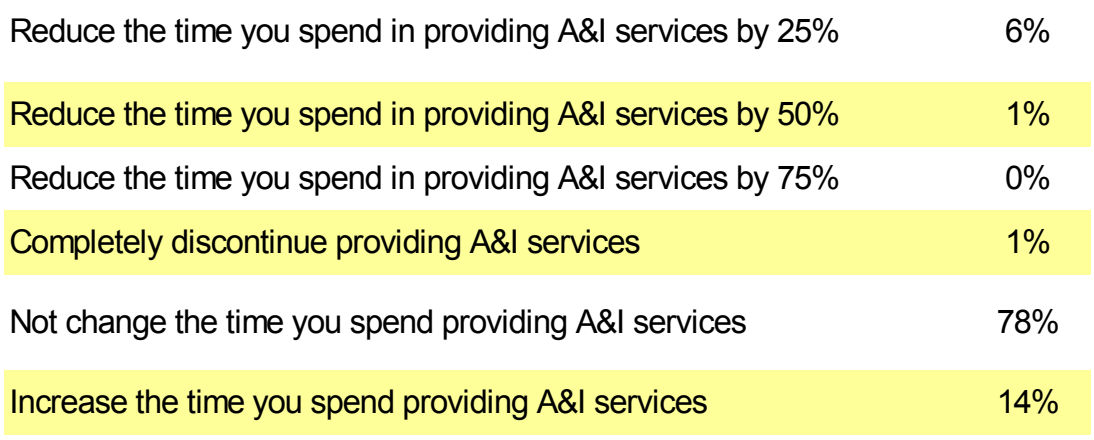



*Figure 96. Near Future Work Plans by Age of A/I Physician, 2004*

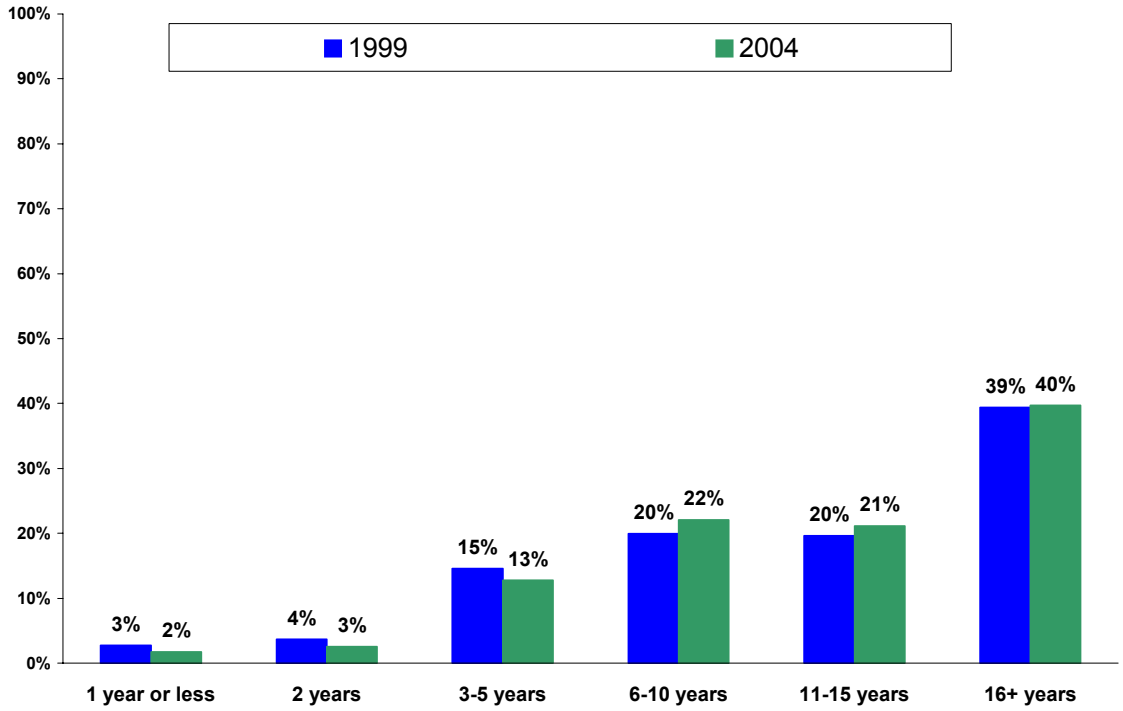
| | Less than 45 Years of Age | 45-54 Years of Age | 55-64 Years of Age | 65 Years of Age and Older |
|---|---|---|---|---|
| Reduce the time you spend in providing A&I services by 25% | 2% | 3% | 9% | 10% |
| Reduce the time you spend in providing A&I services by 50% | 0% | 1% | 1% | 2% |
| Reduce the time you spend in providing A&I services by 75% | 0% | 0% | 0% | 1% |
| Completely discontinue providing A&I services | 1% | 0% | 0% | 6% |
| Not change the time you spend providing A&I services | 72% | 82% | 81% | 75% |
| Increase the time you spend providing A&I services | 25% | 14% | 9% | 5% |

*b) Changes in Work Effort*

When asked to anticipate specific work-effort changes in the next 12 months, the vast majority (78 percent) of A/I physicians reported no plans to change work effort. Fourteen percent (14 percent) reported that they planned to increase the amount of time they spend providing A/I services. Only 1 percent reported plans to completely discontinue providing A/I services (Figure 95). As might be expected, the youngest A/I physicians were the most likely to report plans to

increase the amount of time they spend providing A/I services, and the oldest A/I physicians were the most likely to report plans to discontinue providing A/I services (Figure 96).

*Figure 97. Years Until Expected Retirement from A/I Practices, 1999 and 2004*




Examining anticipated retirement from practice is a key component in understanding the changes occurring in a medical specialty. In 2004, almost two-thirds (61 percent) of A/I physicians reported that they do not anticipate retiring for more than a decade (Figure 97). At the same time, almost 40 percent of the A/I physicians reported that they planned to retire within the next ten years. These figures did not change dramatically between 1999 and 2004, although there was a slight shift upward in the 6 to 15-year retirement horizon and downward in the 1 to 5-year retirement horizon.

Examining these data more closely by census division can give an indication of where the future practice opportunities might be located. In the next section, current and future practice opportunities will be examined more closely. Figure 98 presents the average (median) years until retirement for the A/I physicians practicing in each census division. Overall each region's average is relatively close to the others, i.e., there is not a great deal of variation in the average

years to retirement. The shortest time until retirement is in the Pacific division with an average of 10.6 years until retirement for the physicians practicing there. The West South Central and Mountain divisions have the next shortest times until retirement.

*Figure 98. Median Years Until Expected Retirement from A/I Practice by Census Division, 1999 and 2004*

| | 1999 | 2004 |
|---|---|---|
| New England | 12.0 | 13.1 |
| Middle Atlantic | 13.6 | 13.5 |
| East North Central | 13.0 | 14.2 |
| West North Central | 13.3 | 13.9 |
| South Atlantic | 14.6 | 14.6 |
| East South Central | 14.2 | 14.7 |
| West South Central | 12.4 | 11.2 |
| Mountain | 10.4 | 12.0 |
| Pacific | 11.3 | 10.6 |

**7. Current and Future A/I Physician Practice Opportunities**

In this section data will be presented describing A/I physicians perceptions of the current and future practice opportunities for A/I physicians locally, at the state level and nationally.

Respondents were afforded the choice of four responses to describe the current A/I practice opportunities at the local level (defined as within 50 miles of respondent's practice), the state level (defined as within the respondent's state of practice), and the national level. Overall, A/I physicians assessed current practice opportunities negatively at the local level (Figure 99). Two-thirds (66 percent) of A/I physicians reported that there were few or no available practice opportunities within 50 miles of their practices. Moreover, only 5 percent reported many available practice opportunities for A/I physicians locally. These assessments were very similar to those made in 1999. A/I physicians reported more positively concerning current practice opportunities at the state level. Almost two-thirds (63 percent) of A/I physicians reported that there were some or many available practice opportunities in their practice states. Compared to 1999, A/I physicians more positively assessed the state level practice opportunities in 2004. While not observed in 1999, A/I physicians also reported positive current practice opportunities

for the specialty nationally. The vast majority (87 percent) reported some of many current practice opportunities in A/I nationally.

*Figure 99. Assessment of Current Practice Opportunities for 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) | 23% | 24% | 45% | 42% | 29% | 29% | 4% | 5% |
| Within State | 5% | 4% | 38% | 33% | 48% | 51% | 9% | 12% |
| National | N/A | 1% | N/A | 12% | N/A | 49% | N/A | 38% |

*Figure 100. Assessment of Current Local Practice Opportunities for A/I Physicians by Census Division, 1999 and 2004*

| | No Available Opportunities | | Few Available Opportunities | | Some Available Opportunities | | Many Available Opportunities | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 22% | 20% | 45% | 44% | 30% | 32% | 2% | 3% |
| Middle Atlantic | 17% | 14% | 51% | 44% | 28% | 33% | 3% | 8% |
| East North Central | 18% | 29% | 41% | 43% | 36% | 24% | 6% | 4% |
| West North Central | 26% | 35% | 42% | 46% | 30% | 17% | 2% | 2% |
| South Atlantic | 22% | 23% | 44% | 39% | 30% | 32% | 4% | 6% |
| East South Central | 31% | 28% | 40% | 38% | 26% | 34% | 3% | 0% |
| West South Central | 17% | 20% | 42% | 38% | 36% | 37% | 4% | 5% |
| Mountain | 36% | 32% | 42% | 34% | 19% | 29% | 3% | 5% |
| Pacific | 32% | 22% | 47% | 49% | 19% | 26% | 2% | 3% |

Regionally, current local level practice opportunities for A/I physicians showed some variation (Figure 100). A/I physicians in the Middle Atlantic and West South Central Census divisions assessed the current local practice opportunities relatively positively with about 42 percent reporting some or many available local A/I practice opportunities. On the other hand, in the West North Central, the East North Central, and the Pacific Census divisions, the outlook was much worse, with more than 70 percent of the A/I physicians in those regions reporting few or no available practice opportunities at the time of the survey. Compared with the assessments of current local practice opportunities made in 1999 by A/I physicians, local practice opportunities in the Middle Atlantic, Mountain, Pacific and East South Central Census divisions were assessed

more positively in 2004, while those in the East North Central and West North Central Census divisions were assessed more negatively.

*Figure 101. Assessment of Current Within State Practice Opportunities for A/I Physicians by Census Division, 1999 and 2004*

| | No Available Opportunities | | Few Available Opportunities | | Some Available Opportunities | | Many Available Opportunities | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 11% | 8% | 46% | 41% | 38% | 40% | 5% | 11% |
| Middle Atlantic | 4% | 3% | 36% | 28% | 53% | 57% | 8% | 12% |
| East North Central | 2% | 4% | 32% | 40% | 52% | 47% | 13% | 9% |
| West North Central | 5% | 4% | 31% | 39% | 57% | 52% | 7% | 4% |
| South Atlantic | 4% | 2% | 37% | 32% | 47% | 49% | 11% | 17% |
| East South Central | 6% | 1% | 33% | 33% | 50% | 48% | 12% | 17% |
| West South Central | 5% | 3% | 31% | 22% | 50% | 60% | 15% | 16% |
| Mountain | 11% | 10% | 48% | 32% | 37% | 48% | 4% | 10% |
| Pacific | 5% | 3% | 47% | 37% | 42% | 50% | 6% | 9% |

The same pattern of more positive assessments of state level practice opportunities by A/I physicians was also observed regionally (Figure 101). A/I physicians in every region were more positive in their assessment of state level practice opportunities than of local level practice opportunities. A/I physicians in the West South Central, the Middle Atlantic, the South Atlantic, and the East South Central Census divisions assessed state level practice opportunities the most positively, with two-thirds or more of physicians in those regions reporting some or many available practice opportunities. A/I physicians in the New England Census division were the least positive about state level practice opportunities, with just about half (49 percent) reporting few or no state level practice opportunities currently, although their assessments did show some of the greatest improvement since 1999. Other regions that showed marked improvement in state level practice assessments were the West South Central, Mountain, Pacific, and Middle Atlantic Census divisions.

Assessments of national practice opportunities for A/I physicians also varied by region (Figure 102). For negative assessment regions, the pattern of variation followed patterns observed in the local and state level practice opportunities assessments. That is, in regions where A/I physicians

reported more negative assessments of current local and state practice opportunities, they also reported more negative assessments of national practice opportunities. A/I physicians in the East North Central and the West North Central Census divisions reported the most negative assessments of the practice opportunities for A/I physicians locally, at the state level, and at the national level. At the same time, A/I physicians in the other regions were similarly likely to report positive assessments, ranging from 87 percent reporting some or many current practice opportunities nationally among physicians in the Middle Atlantic Census division to 91 percent in the West South Central Census division.

*Figure 102. Assessment of Current National Practice Opportunities for A/I Physicians by Census Division, 2004*

| | No Available Opportunities | Few Available Opportunities | Some Available Opportunities | Many Available Opportunities |
|---|---|---|---|---|
| | 2004 | 2004 | 2004 | 2004 |
| New England | 0% | 12% | 55% | 34% |
| Middle Atlantic | 1% | 12% | 51% | 36% |
| East North Central | 1% | 20% | 49% | 30% |
| West North Central | 2% | 17% | 48% | 33% |
| South Atlantic | 0% | 10% | 48% | 42% |
| East South Central | 0% | 10% | 49% | 40% |
| West South Central | 1% | 7% | 48% | 43% |
| Mountain | 2% | 9% | 37% | 52% |
| Pacific | 1% | 11% | 50% | 39% |

Respondents were also afforded the choice of four responses to predict future (defined as over the next five years) A/I practice opportunities at the local level (defined as within 50 miles of respondent's practice), the state level (defined as within the respondent's state of practice), and the national level. Overall, A/I physicians assessed future practice opportunities in the specialty more positively than current practice opportunities (Figure 103). As was the case with current practice opportunities in the specialty, A/I physicians assessed local level future opportunities less positively than state level future opportunities, and state level future opportunities less positively than national level future opportunities. At the local level, slightly less than half (48 percent) of A/I physicians predicted some or many practice opportunities in the future. Compared to the survey responses of A/I physicians in 1999, the anticipated local practice

opportunities in 2004 were predicted to be more numerous in the future. At the state level, more than two-thirds (68 percent) of A/I physicians predicted some or many practice opportunities in the specialty in the future. These state level predictions by A/I physicians were somewhat more positive than those made in 1999. The vast majority (84 percent) of A/I physicians reported expecting some or many jobs at the national level over the next five years.

*Figure 103. Assessment of Future Practice Opportunities for 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) | 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% |

*Figure 104. Assessment of Future Local Practice Opportunities for A/I Physicians by Census Division, 1999 and 2004*

| | No Available Opportunities | | Few Available Opportunities | | Some Available Opportunities | | Many Available Opportunities | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 17% | 16% | 47% | 35% | 31% | 41% | 5% | 9% |
| Middle Atlantic | 12% | 15% | 54% | 37% | 33% | 40% | 2% | 9% |
| East North Central | 12% | 20% | 42% | 41% | 40% | 35% | 6% | 4% |
| West North Central | 16% | 19% | 45% | 44% | 37% | 33% | 3% | 4% |
| South Atlantic | 13% | 14% | 41% | 36% | 41% | 43% | 6% | 7% |
| East South Central | 14% | 19% | 41% | 30% | 39% | 47% | 5% | 5% |
| West South Central | 14% | 10% | 38% | 32% | 44% | 51% | 4% | 8% |
| Mountain | 23% | 15% | 46% | 33% | 28% | 42% | 2% | 11% |
| Pacific | 19% | 9% | 49% | 44% | 28% | 40% | 3% | 6% |

Regionally, predicted future local practice opportunities for A/I physicians varied (Figure 104). A/I physicians in the West South Central, Mountain, and East South Central Census divisions provided the most positive predictions for future local practice opportunities, with 59 percent, 53 percent and 52 percent of A/I physicians, respectively, reporting some or many future local practice opportunities. The predictions were more negative in the West North Central and East

North Central Census divisions, with more than 60 percent of A/I physicians predicting few or no future local practice opportunities in the specialty. With the exception of the East North Central and the West North Central Census divisions, A/I physicians in all regions predicted more numerous local practice opportunities in 2004 than A/I physicians predicted in 1999.

*Figure 105. Assessment of Future Within State Practice Opportunities for A/I Physicians by Census Division, 1999 and 2004*

| | No Available Opportunities | | Few Available Opportunities | | Some Available Opportunities | | Many Available Opportunities | |
|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 10% | 9% | 47% | 29% | 36% | 50% | 6% | 13% |
| Middle Atlantic | 4% | 5% | 43% | 25% | 48% | 55% | 4% | 14% |
| East North Central | 5% | 6% | 33% | 32% | 51% | 51% | 11% | 11% |
| West North Central | 6% | 2% | 30% | 37% | 58% | 51% | 6% | 10% |
| South Atlantic | 6% | 2% | 29% | 23% | 55% | 58% | 10% | 17% |
| East South Central | 3% | 2% | 35% | 28% | 51% | 48% | 11% | 21% |
| West South Central | 6% | 3% | 30% | 18% | 52% | 62% | 12% | 17% |
| Mountain | 10% | 8% | 44% | 25% | 41% | 48% | 5% | 19% |
| Pacific | 8% | 4% | 43% | 29% | 43% | 56% | 5% | 11% |

As observed with the current state level practice opportunities, across all regions, future state level practice opportunities for A/I physicians were predicted to be more numerous than local practice opportunities over the next five years (Figure 105). A/I physicians in the West South Central, the South Atlantic, and the East South Central Census divisions provided the most positive predictions of future practice opportunities in the specialty, with 70 percent or more reporting some or many available practice opportunities in the future. The least positive future state level practice opportunity predictions were observed by A/I physicians in the West North Central, East North Central, and New England Census divisions. With the exception of the East North Central Census division, A/I physicians in all regions reported anticipating a greater number of available state-level practice opportunities in the specialty over the next five years. The Pacific, Mountain, and New England Census divisions showed the greatest improvement in anticipated future state-level practice opportunities in the specialty, growing by over 20 percent between 1999 and 2004.

*Figure 106. Assessment of Future National Practice Opportunities for A/I Physicians by Census Division, 2004*

| | No Available Opportunities | Few Available Opportunities | Some Available Opportunities | Many Available Opportunities |
|---|---|---|---|---|
| | 2004 | 2004 | 2004 | 2004 |
| New England | 1% | 14% | 54% | 31% |
| Middle Atlantic | 2% | 16% | 49% | 32% |
| East North Central | 2% | 21% | 50% | 27% |
| West North Central | 4% | 13% | 50% | 33% |
| South Atlantic | 2% | 12% | 48% | 39% |
| East South Central | 0% | 17% | 44% | 39% |
| West South Central | 3% | 9% | 51% | 37% |
| Mountain | 3% | 7% | 45% | 45% |
| Pacific | 3% | 12% | 51% | 34% |

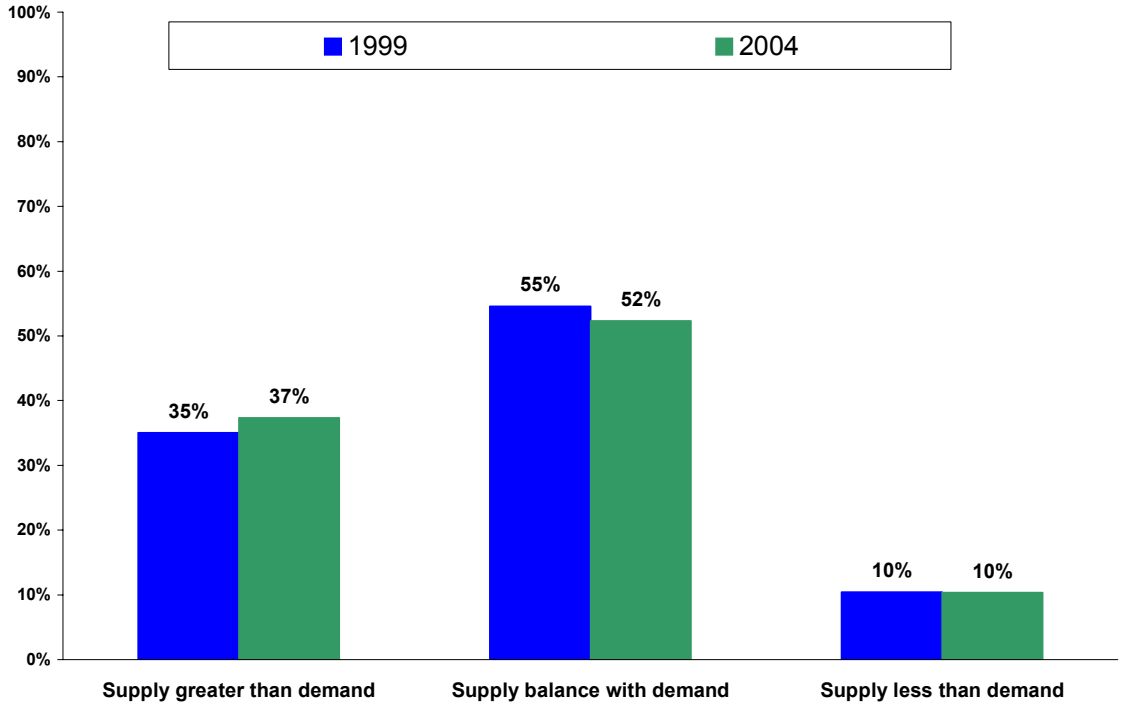
Predictions of national practice opportunities for A/I physicians also varied somewhat by region (Figure 106). The most positive predictions about future national level practice opportunities in the specialty were made by physicians in the Mountain, West South Central and South Atlantic Census divisions. The least positive predictions about future national level practice opportunities were made by physicians in the East North Central Census division, with close to one-quarter (23 percent) of the A/I physicians reporting few or no available future practice opportunities at the national level. The next least positive predictions were made by A/I physicians in the Middle Atlantic Census division.

In sum, while we observed great variation in A/I physicians' assessments of both current and future practice opportunities in the specialty at the local, state, and national level, several clear patterns were evident. First, A/I physicians were decidedly more positive in their assessment of practice opportunities at higher levels of aggregation (i.e., state and national levels) than at the local level. Second, A/I physicians were more positive in their assessments of practice opportunities at all levels in the future than they were at the time of the survey. Third, with few exceptions, A/I physicians were more positive in their assessments of practice opportunities currently and in the future on the 2004 survey than they were on the 1999 survey. Finally, two regions of the country stood out as places where A/I physicians were most positive about current and future practice opportunities. Those regions were the Mountain and West South Central

Census divisions. At the same time, two regions also stood out as places where A/I physicians were the most pessimistic about current and future practice opportunities. Those regions were the East North Central and the West North Central Census divisions.

An issue closely related to the availability of practice opportunities for A/I physicians is the relationship between the A/I physician supply and the demand for A/I services. The survey instrument queried respondents directly as to their perceptions of A/I physician supply and demand for A/I services in their local practice communities. Most A/I physicians (52 percent) reported that the A/I supply and demand for A/I services were balanced in their communities (Figure 107). At the same time, about three and a half times as many A/I physicians perceived supply to outstrip demand (37 percent) as perceived demand to exceed supply (10 percent). These observations were consistent with the observations made in 1999.

*Figure 107. Perceptions of Supply and Demand Among A/I Physicians, 1999 and 2004*




Perceptions of the relationship between A/I physician supply and demand for A/I services varied regionally (Figure 108). The percentage of A/I physicians who reported perceiving demand for A/I services to exceed A/I physician supply in their practice communities ranged from 4 percent

to 19 percent, while the percentage of A/I physicians who reported perceiving supply to exceed demand ranged from 26 percent to 50 percent.

A/I physicians in the East North Central and West North Central Census divisions were the most likely (50 percent and 44 percent, respectively) to perceive that the A/I physician supply in their communities exceeded the demand for A/I services. For both of these regions, those perceptions represented a significant change relative to the 1999 survey. At the same time, A/I physicians in the West North Central Census division were also among the highest ranked in perceiving that local A/I physician supply was lower than demand for A/I services. This observation suggests that there are localized pockets of shortage and surplus within the West North Central Census division. These observations were also consistent with A/I physicians' assessment of current and future local practice opportunities. It should also be noted that both of these regions either experienced no change or some growth in the FTE A/I physician supply between 1999 and 2004.

*Figure 108. Perceptions of Supply and Demand Among A/I Physicians by Census Division, 1999 and 2004*

| | Supply Greater than Demand | | Supply Balanced with Demand | | Supply Less than Demand | |
|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| New England | 29% | 26% | 58% | 62% | 13% | 12% |
| Middle Atlantic | 43% | 41% | 50% | 49% | 6% | 10% |
| East North Central | 30% | 50% | 56% | 46% | 14% | 4% |
| West North Central | 27% | 44% | 62% | 43% | 12% | 13% |
| South Atlantic | 34% | 31% | 55% | 57% | 11% | 12% |
| East South Central | 25% | 30% | 62% | 59% | 13% | 10% |
| West South Central | 27% | 36% | 59% | 53% | 14% | 11% |
| Mountain | 45% | 31% | 48% | 50% | 7% | 19% |
| Pacific | 43% | 32% | 50% | 57% | 8% | 11% |

A/I physicians in the Mountain and Pacific Census divisions showed the greatest decline in the percentage of physicians perceiving A/I physician supply exceeding demand, moving from 45 percent and 43 percent to 31 percent and 32 percent, respectively. Both also experienced significant swings upward in the percentage of physicians who perceive that demand for A/I

services was outstripping the supply of A/I physicians. These observations were consistent with A/I physicians' assessments of current and future practice opportunities in the specialty, especially in the Mountain Census division.

### 8. Local Competition with Other Physicians

Another factor related to both perceptions of the relationship between A/I physician supply and demand for A/I services and practice opportunity assessments is competition between A/I physicians and physicians in other specialties that can potentially provide overlapping services. Respondents were asked a battery of questions relating to the level competition and cooperation between themselves and other selected physician specialties in their practice locals. The specialties were selected to represent 1) selected specialists (Otolaryngologists, Pulmonologists, and Dermatologists) who could potentially provide similar services as A/I physicians and 2) primary care practitioners (Family Practitioners, Internists, and Pediatricians). Respondents were asked to describe the level of cooperation/competition with each selected specialty on a scale of 1 (Strong competition/Little cooperation) to 5 (Strong cooperation/Little competition). Figures 109 through 112 present the responses from the 2004 survey as well as the 1999 survey.

*Figure 109. Local Competition Levels between A/I Physicians and Physicians in Selected Specialties, 1999 and 2004*

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 23% | 12% | 24% | 17% | 35% | 40% | 13% | 19% | 6% | 12% |
| Otolaryngologists | 17% | 14% | 30% | 23% | 29% | 28% | 15% | 22% | 7% | 13% |
| Pulmonologists | 16% | 11% | 29% | 21% | 37% | 37% | 13% | 20% | 5% | 11% |
| Dermatologists | 4% | 4% | 13% | 9% | 57% | 46% | 20% | 26% | 6% | 16% |

*Figure 110. Local Competition Levels between A/I Physicians and Physicians in Primary Care Specialties, 1999 and 2004*

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 11% | 7% | 26% | 18% | 36% | 31% | 18% | 25% | 8% | 18% |
| Internists | 7% | 4% | 22% | 15% | 45% | 41% | 21% | 26% | 6% | 14% |
| Family Practitioners | 9% | 4% | 23% | 12% | 36% | 35% | 24% | 31% | 8% | 18% |

Overall, A/I physicians were more likely to report that they cooperate to some extent with other physicians (Figures 109 and 110). On the cooperative side, A/I physicians were most likely to report cooperation with Family Practitioners (49 percent), Pediatricians (43 percent), Dermatologists (42 percent), and Internists (40 percent). These four groups of specialists were also reported in 1999 as cooperative by relatively large portions of the A/I physician workforce, albeit at lower levels. The large percentages of A/I physicians reporting cooperation with primary care providers is likely due to primary care providers' role as referral sources for specialists like A/I physicians.

On the competitive side, A/I physicians were most likely to report competition with Otolaryngologists (37 percent), Pulmonologists (32 percent), and other A/I physicians (29 percent). These observations were also consistent with those made in 1999; however, the percentages of A/I physicians reporting competition with each of the specialty groups declined substantially in the five years between surveys. While the perceived competition declined, these observation make it clear that Otolaryngologists and Pulmonologists remain the main competitors of A/I physicians. One of the interesting changes observed among the responses to the earlier survey and the current survey was the move away from competition with other A/I physicians, accompanied by an increase in the cooperation with other A/I physicians. In 1999, nearly half (47 percent) of A/I physicians reported competing with other A/I physicians. By 2004, only 31 percent reported competition with other A/I physicians.

Reported levels of cooperation/competition with other physicians did vary across regions (Figures 111 and 112). With the exceptions of the Pacific Census division where other A/I physicians were reported most often as competitors and the West North Central Census division

where Pediatricians were reported most often as competitors, A/I physicians were most likely to report Otolaryngologists as competitors in all regions. Half (50 percent) of the A/I physicians in the East North Central Census division reported Otolaryngologists as competitors, with 29 percent reporting strong competition between themselves and Otolaryngologists. In all regions, except for the West North Central Census division, fewer A/I physicians reported competing with other physicians in 2004 than in 1999. In the West North Central Census division, a greater percentage of A/I physicians reported competition with Pediatricians (44 percent in 2004 compared with 34 percent in 1999) and Internists (28 percent in 2004 compared with 26 percent in 1999) in 2004 than had in 1999.

*Figure 111. Local Competition Levels between A/I Physicians and Physicians in Selected Specialties by Census Division, 1999 and 2004*

**New England**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 15% | 12% | 18% | 15% | 43% | 31% | 15% | 26% | 9% | 16% |
| Otolaryngologists | 14% | 18% | 34% | 21% | 30% | 25% | 18% | 19% | 4% | 16% |
| Pulmonologists | 19% | 16% | 30% | 17% | 30% | 35% | 13% | 18% | 8% | 14% |
| Dermatologists | 2% | 3% | 12% | 6% | 57% | 46% | 23% | 27% | 6% | 17% |

**Middle Atlantic**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 24% | 11% | 30% | 17% | 31% | 43% | 11% | 18% | 4% | 12% |
| Otolaryngologists | 18% | 13% | 32% | 27% | 32% | 30% | 12% | 20% | 5% | 11% |
| Pulmonologists | 22% | 11% | 36% | 29% | 30% | 33% | 9% | 19% | 2% | 7% |
| Dermatologists | 4% | 4% | 17% | 12% | 59% | 48% | 15% | 24% | 5% | 11% |

**East North Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 21% | 14% | 25% | 19% | 35% | 43% | 14% | 15% | 4% | 9% |
| Otolaryngologists | 14% | 14% | 32% | 25% | 29% | 30% | 18% | 22% | 7% | 10% |
| Pulmonologists | 14% | 14% | 33% | 23% | 35% | 39% | 15% | 19% | 3% | 6% |
| Dermatologists | 4% | 5% | 15% | 9% | 58% | 48% | 19% | 27% | 5% | 11% |

**West North Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 17% | 8% | 24% | 20% | 36% | 39% | 12% | 23% | 10% | 10% |
| Otolaryngologists | 14% | 15% | 27% | 21% | 30% | 32% | 17% | 16% | 12% | 16% |
| Pulmonologists | 14% | 13% | 25% | 17% | 40% | 44% | 11% | 20% | 9% | 7% |
| Dermatologists | 4% | 3% | 9% | 11% | 52% | 47% | 25% | 23% | 9% | 14% |

*Figure 111. Local Competition Levels between A/I Physicians and Physicians in Selected Specialties by Census Division, 1999 and 2004 (Continued)*

**South Atlantic**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 26% | 15% | 28% | 20% | 31% | 40% | 12% | 13% | 4% | 12% |
| Otolaryngologists | 18% | 15% | 34% | 24% | 24% | 26% | 15% | 21% | 9% | 15% |
| Pulmonologists | 15% | 10% | 26% | 22% | 37% | 31% | 16% | 22% | 6% | 15% |
| Dermatologists | 4% | 3% | 11% | 7% | 52% | 45% | 23% | 27% | 10% | 18% |

**East South Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 20% | 11% | 21% | 17% | 37% | 38% | 15% | 23% | 7% | 10% |
| Otolaryngologists | 29% | 27% | 29% | 23% | 23% | 16% | 14% | 29% | 5% | 4% |
| Pulmonologists | 12% | 12% | 23% | 15% | 41% | 38% | 17% | 23% | 7% | 12% |
| Dermatologists | 3% | 2% | 8% | 4% | 60% | 46% | 25% | 29% | 6% | 20% |

**West South Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 18% | 12% | 27% | 17% | 36% | 40% | 14% | 21% | 5% | 10% |
| Otolaryngologists | 17% | 14% | 32% | 22% | 26% | 25% | 18% | 27% | 7% | 12% |
| Pulmonologists | 11% | 7% | 27% | 17% | 38% | 40% | 20% | 26% | 4% | 10% |
| Dermatologists | 4% | 4% | 12% | 7% | 56% | 40% | 23% | 29% | 5% | 20% |

**Mountain**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 29% | 14% | 19% | 16% | 24% | 25% | 15% | 30% | 12% | 15% |
| Otolaryngologists | 22% | 21% | 28% | 16% | 34% | 24% | 9% | 29% | 7% | 10% |
| Pulmonologists | 15% | 10% | 26% | 18% | 38% | 44% | 13% | 19% | 8% | 9% |
| Dermatologists | 5% | 2% | 16% | 8% | 52% | 45% | 19% | 35% | 8% | 10% |

*Figure 111. Local Competition Levels between A/I Physicians and Physicians in Selected Specialties by Census Division, 1999 and 2004 (Continued)*

**Pacific**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Other A/I Physicians | 26% | 13% | 17% | 14% | 39% | 37% | 12% | 19% | 5% | 17% |
| Otolaryngologists | 15% | 6% | 25% | 17% | 36% | 34% | 16% | 20% | 8% | 24% |
| Pulmonologists | 15% | 6% | 27% | 17% | 44% | 44% | 11% | 17% | 3% | 16% |
| Dermatologists | 4% | 2% | 14% | 9% | 61% | 42% | 16% | 26% | 5% | 20% |

*Figure 112. Local Competition Levels between A/I Physicians and Physicians in Primary Specialties by Census Division, 1999 and 2004*

**New England**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 10% | 8% | 27% | 19% | 34% | 25% | 20% | 24% | 10% | 24% |
| Internists | 7% | 5% | 26% | 10% | 42% | 29% | 18% | 32% | 7% | 24% |
| Family Practitioners | 11% | 2% | 23% | 8% | 38% | 37% | 21% | 32% | 8% | 21% |

**Middle Atlantic**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 14% | 8% | 27% | 16% | 36% | 33% | 16% | 26% | 7% | 16% |
| Internists | 10% | 4% | 22% | 15% | 42% | 37% | 20% | 32% | 6% | 13% |
| Family Practitioners | 11% | 5% | 22% | 10% | 39% | 37% | 21% | 32% | 7% | 15% |

**East North Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 11% | 8% | 31% | 20% | 36% | 34% | 14% | 24% | 8% | 14% |
| Internists | 7% | 5% | 24% | 18% | 48% | 43% | 16% | 23% | 5% | 11% |
| Family Practitioners | 9% | 5% | 31% | 15% | 31% | 36% | 20% | 29% | 8% | 16% |

**West North Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 7% | 13% | 27% | 31% | 41% | 24% | 17% | 22% | 8% | 10% |
| Internists | 3% | 5% | 23% | 23% | 48% | 51% | 21% | 15% | 6% | 7% |
| Family Practitioners | 8% | 5% | 19% | 19% | 31% | 37% | 29% | 23% | 13% | 16% |

*Figure 112. Local Competition Levels between A/I Physicians and Physicians in Primary Specialties by Census Division, 1999 and 2004 (Continued)*

**South Atlantic**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 10% | 9% | 21% | 12% | 36% | 28% | 22% | 28% | 11% | 24% |
| Internists | 5% | 5% | 17% | 12% | 47% | 36% | 23% | 30% | 9% | 17% |
| Family Practitioners | 6% | 4% | 21% | 8% | 36% | 32% | 26% | 37% | 11% | 20% |

**East South Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 10% | 3% | 18% | 19% | 31% | 27% | 32% | 29% | 9% | 22% |
| Internists | 4% | 4% | 17% | 15% | 41% | 44% | 33% | 18% | 5% | 18% |
| Family Practitioners | 3% | 2% | 15% | 21% | 37% | 27% | 34% | 32% | 11% | 18% |

**West South Central**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 13% | 5% | 28% | 23% | 34% | 37% | 18% | 18% | 7% | 16% |
| Internists | 4% | 3% | 21% | 16% | 49% | 51% | 21% | 20% | 5% | 10% |
| Family Practitioners | 9% | 4% | 21% | 12% | 32% | 38% | 28% | 26% | 10% | 20% |

**Mountain**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 8% | 10% | 28% | 18% | 37% | 29% | 16% | 27% | 11% | 17% |
| Internists | 5% | 5% | 26% | 18% | 42% | 37% | 21% | 33% | 7% | 7% |
| Family Practitioners | 7% | 5% | 30% | 16% | 31% | 26% | 22% | 40% | 11% | 13% |

*Figure 112. Local Competition Levels between A/I Physicians and Physicians in Primary Specialties by Census Division, 1999 and 2004 (Continued)*

**Pacific**

| | (1) Strong competition/ Little cooperation | | (2) | | (3) Neutral | | (4) | | (5) Strong cooperation/ Little competition | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 | 1999 | 2004 |
| Pediatricians | 12% | 4% | 29% | 18% | 37% | 30% | 16% | 28% | 6% | 21% |
| Internists | 9% | 3% | 21% | 12% | 44% | 42% | 22% | 27% | 4% | 16% |
| Family Practitioners | 11% | 2% | 25% | 12% | 39% | 36% | 21% | 30% | 5% | 20% |

In sum, the perceptions of cooperation/competition with other physicians reported by A/I physicians were consistent with previous observations presented above on the relationship between A/I physician supply and demand for A/I services and on A/I physicians' perceptions of current and future practice opportunities. In general, fewer A/I physicians reported competing with other physicians in 2004 than had in 1999, consistent with the more positive perceptions of current and future practice opportunities reported by respondents in 2004. At the same time, regional differences in perceptions were observed, with two regions (East North Central and West North Central Census divisions) where A/I physicians reported more negative assessments of the current and future practice opportunities in the specialty, were most likely to report A/I physician supply exceeding demand for A/I services, and were most likely to report competition with other physicians in their local community. On a more upbeat note, the practice market in western and southern regions of the country (especially the Mountain and West South Central Census divisions) were perceived much more positively compared to other regions in terms of current and future practice opportunities, the relationship between A/I physician supply, and cooperation/competition levels with other physicians.

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## Appendix A: Survey Methodology

### 1. Background

In September 2003, the Center for Health Workforce Studies began a collaboration with the American Academy of Allergy Asthma and Immunology (AAAAI) to conduct a follow-up survey of physicians providing allergy and immunology services (A/I services) in the United States in 2004. The Center and AAAAI had earlier collaborated on a similar survey in 1999. The purpose of the 2004 survey was to update the data elements collected 5 years previously, as well as to assess A/I physicians' perspectives on several additional issues (e.g., medical liability premiums), in order to better understand the forces affecting A/I practice around the country.

The Center worked closely with the AAAAI Workforce Committee to edit and enhance the 1999 survey instrument from September 2003 through March 2004. A final survey instrument was approved in May 2004. The survey was conducted between September 2004 and February 2005.

### 2. Definition of the Population

The Center defined the study population as all physicians providing A/I services in the United States in 2004. For the purposes of examining this population, the Center included all United States-based physician fellows and members of the AAAAI and all United States-based physicians who self-declare a primary specialty in allergy, allergy/immunology, clinical laboratory immunology, or immunology in the American Medical Association's (AMA) Masterfile of Physicians.

The use of a comprehensive definition of the population ensures that no major segment of the population providing A/I services is overlooked. Defining the population as only physicians certified by the American Board of Allergy and Immunology (ABAI) or only fellows/members of AAAAI ignores the realities of the physician marketplace and the increased competition among physicians of various specialties who may feel pressure to expand the range of services they provide.

An overly-narrow definition also ignores the possibility that rapidly developing treatment breakthroughs for A/I diagnoses and conditions continue to allow physicians from other

specialties to provide allergy and immunology services. In addition, given the voluntary nature of membership in professional organizations, it is likely that not all physicians providing A/I services are members of AAAAI.[a]

Finally, the relatively young age of the specialty (the ABAI was established in 1971) allows for the existence of older physicians who have and continue to provide A/I services, but who are not board-certified in the specialty and many not be members of AAAAI.

### 3. Mailing List Sources

The elements of the population of physicians providing A/I services were drawn from two separate sources: the membership database of AAAAI and the AMA's Masterfile of Physicians.

From the AAAAI membership database, the Center excluded the following groups: International fellows and members; all fellows and members with addresses outside the United States; and all non-physician fellows and members. After these exclusions, the list of potential respondents was 4,066.

From the AMA's Masterfile of Physicians, all active physicians with self-declared specialty of allergy, allergy/immunology, clinical laboratory immunology, or immunology were selected. This selection generated a list of 4,273 physicians.

To correct for redundancy across lists, the AAAAI database and the AMA database were merged on physician name and location. A matching algorithm identified 2,773 physicians who were members of both databases. After excluding redundant physician records, the final list of potential respondents included 4,066 physicians from the AAAAI database, and 1,500 physicians from the AMA database.

[a] It should be noted that in the 1999 survey of physicians providing A/I services in the United States, the Center also considered physicians who were members of the Joint Council of Allergy Asthma and Immunology (JCAAI) and the American College of Allergy Asthma and Immunology (ACAAI). The consideration of the other organizations resulted in the inclusion of 225 physicians who were not members of the AAAAI, about 4 percent of the potential respondents for that survey. The Center found that these 225 physicians did not differ substantially from the other non-AAAAI physicians. Thus, the selection process was simplified for the 2004 survey, as the previous inclusion did not provide any additional information.

To create the final mailing list, the Center included the entire list of physicians from the AAAAI database and a random sample of 805 physicians from the AMA database. The random sample was stratified by Gender, Age (Under 53 Years of Age; 53 Years of Age and Older – median age of the group was slightly less than 53 years), and Geographic Location (Census Regions: Northeast, Midwest, South, West, and Territories). Thus the total number of potential respondents was 4,871 physicians.

**4. Survey Distribution Details**

On September 3, 2004, the survey was distributed to the 4,871 physicians on the final mailing list. Each physician was sent a package with the following contents: a 6-page survey booklet, a cover letter and a business reply envelope. The cover letter was printed on AAAAI stationary under Michael Schatz's, President of AAAAI, and Gailen Marshall's, Chair of the AAAAI Workforce Committee, signatures. Completed surveys were returned to the Center in business reply envelopes provided in each survey package.

A follow-up mailing to non-respondents was conducted on October 22, 2004. The follow-up mailing consisted of the distribution of 3,111 survey packages identical to the first, save for a slightly different cover letter (again printed on AAAAI stationary under the President's and Workforce Committee Chair's signatures).

A second follow-up mailing to non-respondents was conducted between December 10 and 12, 2004. The second follow-up mailing consisted of the distribution of 2,367 survey packages identical to the first, save for a slightly different cover letter (again printed on AAAAI stationary under the President's and Workforce Committee Chair's signatures).

Data collection remained open through February 7, 2005. The completed surveys were processed by Center staff and scanned into an electronic database using an NCS OpScan 5 Optical Mark Read (OMR) scanner. The data were cleaned as necessary (e.g., mutilated survey forms, incomplete scans, etc.). Survey forms with written comments were separated for data entry.

## 5. Response Rate Analysis

In all 2,721 responses were collected from the 4,871 potential respondents, for a response rate of 55.9 percent. This level of response does not vary significantly from the response rate (56.3 percent) of the 1999 survey (*t -0.497; p < 0.624*). To determine whether certain substantively relevant groups were adequately represented in among the respondents, the Center conducted an analysis of response rates from a variety of groups, including those defined by the source of the mailing list, geographic location, and for the AMA sample exclusively, age and gender. The following tables present the findings of this analysis.[b]

Physicians included on the AAAAI database responded to the survey at a rate of 60.1 percent. Physicians identified through the AMA database responded to the survey at a rate of 34.3 percent. The difference between the two groups was statistically significant (*F = 189.062; p< 0.001*). As such, members of AAAAI were over-represented among the survey respondents, while non-members were under-represented. This finding was expected as AAAAI members had greater incentive to participate in the study (they belong to the organization sponsoring the survey, the request for participation came from the president of the organization, etc.).

*Appendix A Table 1. Survey Response by Source List*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| AAAAI | 60.1% | 4,066 | 2445 | *189.062* | *< 0.001* |
| AMA | 34.3% | 805 | 276 | | |

In terms of geographic location, response levels in the 5 regions observed (4 Census Regions and US Territories) varied statistically (*F = 2.533; p < 0.038*). Physicians in US territories were the least likely to respond to the survey. However, response rate differences among regions remained statistically significant even after US territories were excluded in the analysis (not shown).

[b] The level of response for the 2004 survey is also on par with other surveys of its size (greater than 1,000 potential respondents) and target (physicians).[16]

*Appendix A Table 2. Survey Response by Geographic Location*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| Northeast | 56.1% | 1,162 | 652 | | |
| Midwest | 58.1% | 1,022 | 594 | | |
| South | 53.3% | 1,653 | 881 | *2.533* | *< 0.038* |
| West | 57.9% | 1,002 | 580 | | |
| Territories | 43.8% | 32 | 14 | | |

Geographic location was the only a priori variable available for both source mailing lists. Disaggregated response rates were examined to determine whether the geographic location response rate differences varied by source mailing list. Among those on the AAAAI mailing list, response rates varied statistically by region ($F = 2.548; p < 0.037$). For those on the AMA mailing list, response rates did not vary statistically by region ($F = 1.426; p < 0.223$).

*Appendix A Table 3. Disaggregated Survey Response by Geographic Location*

**Geographic Location (AAAAI source only)**

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| Northeast | 60.9% | 967 | 589 | | |
| Midwest | 61.2% | 873 | 534 | | |
| South | 57.0% | 1,384 | 789 | *2.548* | *< 0.037* |
| West | 63.2% | 825 | 521 | | |
| Territories | 70.6% | 17 | 12 | | |

**Geographic Location (AMA source only)**

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| Northeast | 32.3% | 195 | 63 | | |
| Midwest | 40.3% | 149 | 60 | | |
| South | 34.2% | 269 | 92 | *1.426* | *< 0.223* |
| West | 33.3% | 177 | 59 | | |
| Territories | 13.3% | 15 | 2 | | |

The AMA database included the demographic variables of gender and age for each physician. With this known information, it is possible to determine if response rates varied significantly by gender and age. Among those in the AMA database, in terms of gender, female physicians were more likely (39.3 percent) to respond to the survey than were males (32.2 percent). The response rate differences between the groups approached statistical significance ($F = 3.713; p < 0.054$).

*Appendix A Table 4. Survey Response by Gender, AMA Source Only*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| Female | 39.3% | 234 | 92 | *3.713* | *< 0.054* |
| Male | 32.2% | 571 | 184 | | |

In terms of age, among those in the AMA database, physicians under age 53 were more likely (37.9 percent) to respond to the survey than physicians 53 years of age and older (30.8 percent; $F = 4.480; p < 0.035$).

*Appendix A Table 5. Survey Response by Age, AMA Source Only*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| Below 53 years of age | 37.9% | 396 | 150 | *4.480* | *< 0.035* |
| 53 years of age and older | 30.8% | 409 | 126 | | |

Examining gender and age simultaneously, response rates did vary significantly ($F = 3.143; p < 0.025$) across the constructed groups. Ad hoc analysis (not shown) determined that female physicians under age 53 were more likely than male physicians age 53 years and older ($p < 0.028$).

*Appendix A Table 6. Survey Response by Age and Gender, AMA Source Only*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| F / U53 | 43.8% | 169 | 74 | *3.143* | *< 0.025* |
| F / 53+ | 27.7% | 65 | 18 | | |
| M / U53 | 33.5% | 227 | 76 | | |
| M / 53+ | 31.4% | 344 | 108 | | |

To round out this comprehensive review of potential response rate biases, geographic location was considered simultaneously with gender and age. When geographic location was added to the analysis, the response rate differences were no longer statistically significant ($F = 1.044; p < 0.407$). This was not altogether unexpected for two reasons. First, in the bivariate case shown above, response rates among the physicians from the AMA database did not vary significantly by geographic location. Second, the complexity of the classification caused the group sizes to become very small which limits the analysis as it is more difficult to uncover differences as the number of observations decreases.

*Appendix A Table 7. Survey Response by Age, Gender, and Geographic Location, AMA Source Only*

| | *Rate* | *N* | *Responses* | *F* | *p* |
|---|---|---|---|---|---|
| F / U53 / NE | 35.6% | 45 | 16 | | |
| F / U53 / MW | 50.0% | 42 | 21 | | |
| F / U53 / S | 48.1% | 54 | 26 | | |
| F / U53 / W | 42.3% | 26 | 11 | | |
| F / U53 / T | 0.0% | 2 | 0 | | |
| F / 53+ / NE | 30.0% | 20 | 6 | | |
| F / 53+ / MW | 33.3% | 12 | 4 | | |
| F / 53+ / S | 17.6% | 17 | 3 | | |
| F / 53+ / W | 33.3% | 15 | 5 | | |
| F / 53+ / T | 0.0% | 1 | 0 | | |
| M / U53 / NE | 33.3% | 54 | 18 | *1.044* | *< 0.407* |
| M / U53 / MW | 34.9% | 43 | 15 | | |
| M / U53 / S | 35.6% | 87 | 31 | | |
| M / U53 / W | 27.9% | 43 | 12 | | |
| M / U53 / T | N/A | -- | -- | | |
| M / 53+ / NE | 30.3% | 76 | 23 | | |
| M / 53+ / MW | 38.5% | 52 | 20 | | |
| M / 53+ / S | 28.8% | 111 | 32 | | |
| M / 53+ / W | 33.3% | 93 | 31 | | |
| M / 53+ / T | 16.7% | 12 | 2 | | |

In conclusion, a number of factors conditioned response rates among physicians providing A/I services. These included the source of the mailing list, the geographic location, and the demographics of the potential respondents. These factors will be taken into consideration in the weighting process to ensure that the results of the survey accurately represent the responses of the population of physicians providing A/I services in the United States.

## Appendix B: Survey Response Weighting Procedures

In order to ensure that the results of the 2004 survey accurately reflect the responses of the population of A/I physicians, the survey responses were weighted as per the findings of the response rate analysis.

The weighting process consisted of two types of weights. The first set of weights were generated and applied to correct for differences in rates of response among the respondents. The second weights were generated and applied to adjust for the sample selection employed for those physicians on the AMA Masterfile mailing list.

The first set of weights applied were simply the reciprocal of the response rate for members of each response group. For physicians on the AAAAI mailing list, the groups were based on geographic location. For physicians on the AMA Masterfile mailing list, the groups were based on geographic location, gender, and age. The specific weights used are presented in the tables below.

*Appendix B Table 1. AAAAI Database Weights*

**AAAAI Database Weights**

| Region | Response Rate | Weight |
|---|---|---|
| Northeast | 60.9% | 1.64177 |
| Midwest | 61.2% | 1.63483 |
| South | 57.0% | 1.75412 |
| West | 63.2% | 1.58349 |
| Territories | 70.6% | 1.41667 |

*Appendix B Table 2. AMA Masterfile Weights: Set 1*

**AMA Masterfile Weights**

| Gender | Age | Region | Response Rate | Weight |
|---|---|---|---|---|
| Female | Under 53 | Northeast | 35.6% | 2.81250 |
| | | Midwest | 50.0% | 2.00000 |
| | | South | 48.1% | 2.07692 |
| | | West | 42.3% | 2.36364 |
| | | Territories | 0.0% | * |
| Female | 53 + | Northeast | 30.0% | 3.33333 |
| | | Midwest | 33.3% | 3.00000 |
| | | South | 17.6% | 5.66667 |
| | | West | 33.3% | 3.00000 |
| | | Territories | 0.0% | * |
| Male | Under 53 | Northeast | 33.3% | 3.00000 |
| | | Midwest | 34.9% | 2.86667 |
| | | South | 35.6% | 2.80645 |
| | | West | 27.9% | 3.58333 |
| | | Territories | ** | |
| Male | 53 + | Northeast | 30.3% | 3.30435 |
| | | Midwest | 38.5% | 2.60000 |
| | | South | 28.8% | 3.46875 |
| | | West | 33.3% | 3.00000 |
| | | Territories | 16.7% | 6.00000 |

* We received no responses from female physicians in US Territories. Thus a weight could not be calculated. They account for 3 phyisicians in the population.
** There were no male physicians under age 53 in US Territories in the population.

As noted above, the second set of weights applied were to adjust the responses for the sampling procedures we had implemented for the AMA Masterfile mailing list. These weights were calculated by taking the reciprocal of the sampling fraction for each response group. It should be noted that a second set of weights was not generated for the responses from physicians in the AAAAI database. They were not sampled; rather, all of them were selected. The specific values for the second set of weights are presented in the table below.

*Appendix B Table 3. AMA Masterfile Weights: Set 2*

**AMA Masterfile Weights**

| Gender | Age | Region | Sample Fraction | Weight |
|---|---|---|---|---|
| Female | Under 53 | Northeast | 0.51724 | 1.93333 |
| | | Midwest | 0.53846 | 1.85714 |
| | | South | 0.53465 | 1.87037 |
| | | West | 0.53061 | 1.88462 |
| | | Territories | 1.00000 | 1.00000 |
| Female | 53 + | Northeast | 0.54054 | 1.85000 |
| | | Midwest | 0.52174 | 1.91667 |
| | | South | 0.53125 | 1.88235 |
| | | West | 0.51724 | 1.93333 |
| | | Territories | 1.00000 | 1.00000 |
| Male | Under 53 | Northeast | 0.53465 | 1.87037 |
| | | Midwest | 0.53750 | 1.86047 |
| | | South | 0.53374 | 1.87356 |
| | | West | 0.53086 | 1.88372 |
| | | Territories | * | |
| Male | 53 + | Northeast | 30.3% | 1.86842 |
| | | Midwest | 38.5% | 1.88462 |
| | | South | 28.8% | 1.87387 |
| | | West | 33.3% | 1.87097 |
| | | Territories | 16.7% | 1.00000 |

* There were no male physicians under age 53 in US Territories in the population.

**Appendix C: Survey of Physicians Providing Allergy and Immunology Services in the United States in 2004**

# Survey of Physicians Providing Allergy and Immunology Services in the United States in 2004

*Center for Health Workforce Studies*
*School of Public Health,*
*University at Albany*
*and*
*American Academy of Allergy Asthma and Immunology*

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MARKING INSTRUCTIONS

- Use a No. 2 pencil or blue or black ink pen only.
- Do not use pens with ink that soaks through the paper.
- Make solid marks that fill the oval completely.
- Make no stray marks on this form.
- Do not fold, tear, or mutilate this form.

CORRECT

INCORRECT

# Survey of Physicians Providing Allergy and Immunology Services in the United States in 2004

Center for Health Workforce Studies
School of Public Health, University at Albany
and
American Academy of Allergy Asthma and Immunology

This questionnaire is designed to obtain information on the supply and demand and job market, practice characteristics and activities, demographic characteristics, and education and training of physicians providing allergy and immunology services in the U.S. Your response will be kept confidential and will be reported only in national and regional tabulations and summaries.

***Please mark only one answer for each question unless otherwise directed.***
***Note: A&I refers to all allergy and immunology services.***
***Please return the completed questionnaire in the enclosed business reply envelope.***

## A. CURRENT STATUS

How would you describe your current medical practice status?

- ○ Active in Allergy and Immunology
- ○ Active in Medicine, but Inactive in Allergy and Immunology
- ○ Still in Residency/Fellowship Training as of 4-30-2004
- ○ Retired from Medicine

→ ***If you marked either of these responses, please stop here and return survey.***

## B. DEMOGRAPHIC CHARACTERISTICS

**1.** Year of Birth: → ☐☐☐☐ (0 1 2 3 4 5 6 7 8 9)

**2.** Race/Ethnic Background:

- ○ Native American/Alaskan
- ○ Asian or Pacific Islander
- ○ Indian Subcontinent
- ○ Middle Easterner
- ○ Black/African American (non-Hispanic)
- ○ Hispanic/Latino(a)
- ○ White (non-Hispanic)

**3.** Gender: ○ Female ○ Male

## C. EDUCATION AND TRAINING

**1.** A) Professional Degrees: *(Please mark all that apply)*

○ M.D. ○ D.O. ○ Ph.D

B) Location of Medical School:

○ United States ○ Canada ○ Other Country

**2.** Initial Residency Training Completed: *(Please mark all that apply)*

| Specialty | | | |
|---|---|---|---|
| Int Med | Peds | ENT | Other, specify: |
| ○ | ○ | ○ | ○ _____ |

**3.** Please identify the source of your **formal** A&I training: *(Please mark all that apply)*

- ○ A&I Fellowship/Residency
- ○ ENT Fellowship/Residency
- ○ Other Fellowship/Residency
- ○ Short Courses
- ○ None

**4.** Board Certifications: *(Please mark all that apply)*

| | Allergy/ Immun | Specialty: Int Med | Peds | ENT | Other, specify: |
|---|---|---|---|---|---|
| Board Certified | ○ | ○ | ○ | ○ | ○ |
| Training Completed | ○ | ○ | ○ | ○ | ○ |

**5.** Year completed A&I fellowship training:

☐☐☐☐ ○ Not Applicable

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**6.** Professional Memberships: *(Mark all that apply)*

- ○ American Academy of Allergy, Asthma and Immunology (AAAAI)
- ○ American College of Allergy, Asthma and Immunology (ACAAI)
- ○ Joint Council of Allergy, Asthma and Immunology (JCAAI)
- ○ Clinical Immunology Society (CIS)
- ○ Regional/State/Local Allergy and Immunology Society
- ○ Other, specify: _____

## D. PRACTICE CHARACTERISTICS AND ACTIVITIES

**1.** Please indicate the hours spent in a **typical week** in each of the following professional activities:

*A. A&I Patient Care*

| | None | 1-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|---|
| A&I Patient Care | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

*B. Other A&I Activities*

| | None | 1-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|---|
| A&I Pharmaceutical Trials | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| A&I Investigator-Initiated Clinical Research | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| A&I Bench Research | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| A&I Diagnostic Lab Research | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| A&I Teaching | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| A&I Administration | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

*C. Other Non-A&I Medical Activities*

| | None | 1-9 | 10-19 | 20-29 | 30-39 | 40-49 | 50-59 | 60+ |
|---|---|---|---|---|---|---|---|---|
| Non-A&I Patient Care | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Other Non-A&I Activities | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

**2.** Total Hours in the above Professional Activities in a **typical week:**

| | |
|---|---|
| | |
| 0 | 0 |
| 1 | 1 |
| 2 | 2 |
| 3 | 3 |
| 4 | 4 |
| 5 | 5 |
| 6 | 6 |
| 7 | 7 |
| 8 | 8 |
| 9 | 9 |

**IF NOT CURRENTLY ACTIVE IN A&I, PLEASE PROCEED TO SECTION G, PAGE 5.**

**3.** Location of your principal A&I practice (i.e., where you spend the most time per week):

Zip Code

| | | | | |
|---|---|---|---|---|
| | | | | |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 1 |
| 2 | 2 | 2 | 2 | 2 |
| 3 | 3 | 3 | 3 | 3 |
| 4 | 4 | 4 | 4 | 4 |
| 5 | 5 | 5 | 5 | 5 |
| 6 | 6 | 6 | 6 | 6 |
| 7 | 7 | 7 | 7 | 7 |
| 8 | 8 | 8 | 8 | 8 |
| 9 | 9 | 9 | 9 | 9 |

**4.** A. Please identify your principal and secondary (if applicable) practice organization(s):

| Principal | Secondary | |
|---|---|---|
| ○ | ○ | Solo Practice |
| ○ | ○ | Partnership |
| ○ | ○ | A&I Group Practice |
| ○ | ○ | Multi-Specialty Group Practice |
| ○ | ○ | University Medical Center (inpatient/outpatient) |
| ○ | ○ | Other Medical Center (inpatient/outpatient) |
| ○ | ○ | Managed Care Organization/HMO |
| ○ | ○ | Pharmaceutical company |
| ○ | ○ | Govt. Agency (military, NIH, VA, etc.) |
| ○ | ○ | Other: _____ |

B. How would you describe your position(s) in the organization(s):

| Principal | Secondary | |
|---|---|---|
| ○ | ○ | Owner |
| ○ | ○ | Employee |
| ○ | ○ | Volunteer |



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## 5. Please describe the number of the following health professionals in your **principal organization**.

| *Professionals* | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11+ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Physicians (do not include self) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Physician Assistants (PAs) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Nurse Practitioners (NPs) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Registered Nurses (RNs) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Licensed Practical/Vocational Nurses (LPNs/LVNs) | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Medical Assistants | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

## 6. Please indicate the amount of your clinical practice time you spend in the following medical specialty areas:

| *Specialties* | 0% | 1-10% | 11-20% | 21-30% | 31-40% | 41-50% | 51-60% | 61-70% | 71-80% | 81-90% | 91-100% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Allergy/Asthma | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Clinical Immunology | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Internal medicine | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Pediatrics | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Dermatology | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Otolaryngology | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Pulmonology | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Family Practice | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Rheumatology | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Other: _____ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

## 7. Please indicate the percentage of your A&I patients that are children *(age 16 and younger)*:

- ○ 0%
- ○ 1–10%
- ○ 11–20%
- ○ 21–30%
- ○ 31–40%
- ○ 41–50%
- ○ 51–60%
- ○ 61–70%
- ○ 71–80%
- ○ 81–90%
- ○ 91–100%

## 8. A) Indicate the **number of visits** of different types in your personal A&I practice **in a typical week:**

**New A&I Patients**

- ○ 0
- ○ 1–5
- ○ 6–10
- ○ 11–15
- ○ 16–20
- ○ 21–25
- ○ 26–30
- ○ 30+

**All A&I Patients**

- ○ 0
- ○ 1–10
- ○ 11–20
- ○ 21–30
- ○ 31–40
- ○ 41–50
- ○ 51–60
- ○ 61–70
- ○ 71–80
- ○ 81–90
- ○ 91–100
- ○ 101+

B) What percentage of your A&I patients do you treat with allergy shots/immunotherapy?

- ○ 0%
- ○ 1–10%
- ○ 11–20%
- ○ 21–30%
- ○ 31–40%
- ○ 41–50%
- ○ 51–60%
- ○ 61–70%
- ○ 71–80%
- ○ 81–90%
- ○ 91–100%

## 9. A) What is the typical waiting time to obtain an appointment in your A&I practice for the following?

| New patient | Non-emergency/ existing patient |
|---|---|
| ___ ___ ___ Business Days | ___ ___ ___ Business Days |
| ⓪ ⓪ ⓪ | ⓪ ⓪ ⓪ |
| ① ① ① | ① ① ① |
| ② ② ② | ② ② ② |
| ③ ③ ③ | ③ ③ ③ |
| ④ ④ ④ | ④ ④ ④ |
| ⑤ ⑤ ⑤ | ⑤ ⑤ ⑤ |
| ⑥ ⑥ ⑥ | ⑥ ⑥ ⑥ |
| ⑦ ⑦ ⑦ | ⑦ ⑦ ⑦ |
| ⑧ ⑧ ⑧ | ⑧ ⑧ ⑧ |
| ⑨ ⑨ ⑨ | ⑨ ⑨ ⑨ |

B) Compared to last year at this time, how has the waiting time to obtain an appointment changed in your A&I practice?

| New patient | Non-emergency/ existing patient |
|---|---|
| Waiting time has: | Waiting time has: |
| ○ increased | ○ increased |
| ○ not changed | ○ not changed |
| ○ decreased | ○ decreased |

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**10.** Without making substantial changes to your current practice patterns, which response best describes your current A&I practice?

- ○ I cannot accept any new A&I patients; my A&I practice is full
- ○ I can accept some more A&I patients; my A&I practice is nearly full
- ○ I can accept many more A&I patients; my A&I practice is far from full

**11.** What percentage of your share of practice income is derived from A&I services?

| | | |
|---|---|---|
| ○ 0% | ○ 31–40% | ○ 71–80% |
| ○ 1–10% | ○ 41–50% | ○ 81–90% |
| ○ 11–20% | ○ 51–60% | ○ 91–99% |
| ○ 21–30% | ○ 61–70% | ○ 100% |

**12.** Indicate how frequently you use the following electronic resources in your A&I practice:

| | Never | Once a Month | Once a Week | Once Daily | More than Once Daily |
|---|---|---|---|---|---|
| Email | ○ | ○ | ○ | ○ | ○ |
| Internet (web-based resources) | ○ | ○ | ○ | ○ | ○ |
| Personal Digital Assistant (Palm Pilot, Handspring) | ○ | ○ | ○ | ○ | ○ |
| Clinical applications (patient care or laboratory; e.g., electronic medical records, reports) | ○ | ○ | ○ | ○ | ○ |
| Medical decision support software (patient diagnosis, patient management, informational resource) | ○ | ○ | ○ | ○ | ○ |
| Other: _____ | ○ | ○ | ○ | ○ | ○ |

## E. RECENT CHANGES IN PRACTICE

**1.** Please describe how the volumes of the following have changed in your A&I practice **over the past two years:**

| | Fewer | About the Same | More |
|---|---|---|---|
| A) **Number of Patients** | | | |
| A&I Patients | ○ | ○ | ○ |
| Other Patients | ○ | ○ | ○ |
| B) **Hours Worked per Week** | | | |
| A&I practice | ○ | ○ | ○ |
| Other practice | ○ | ○ | ○ |
| C) **Referrals from** | | | |
| Managed Care: HMO | ○ | ○ | ○ |
| Managed Care: PPO | ○ | ○ | ○ |
| Non-Managed Care | ○ | ○ | ○ |
| D) **Patients Insured through** | | | |
| Medicaid | ○ | ○ | ○ |
| Medicare | ○ | ○ | ○ |
| Private Insurance | ○ | ○ | ○ |
| Uninsured | ○ | ○ | ○ |

**2.** Please indicate how the volume of the following types of cases have changed **over the past two years:**

| | Decreased Substantially | Decreased Modestly | No Change | Increased Modestly | Increased Substantially | I Do Not See These Cases |
|---|---|---|---|---|---|---|
| a) Asthma | ○ | ○ | ○ | ○ | ○ | ○ |
| b) Sinusitis (chronic and acute) | ○ | ○ | ○ | ○ | ○ | ○ |
| c) Rhinitis | ○ | ○ | ○ | ○ | ○ | ○ |
| d) Food allergy | ○ | ○ | ○ | ○ | ○ | ○ |
| e) Atopic dermatitis | ○ | ○ | ○ | ○ | ○ | ○ |
| f) Contact dermatitis | ○ | ○ | ○ | ○ | ○ | ○ |
| g) Chronic cough | ○ | ○ | ○ | ○ | ○ | ○ |
| h) Adverse drug reactions | ○ | ○ | ○ | ○ | ○ | ○ |
| i) Urticaria/ angioedema | ○ | ○ | ○ | ○ | ○ | ○ |
| j) Insect sting reactions | ○ | ○ | ○ | ○ | ○ | ○ |
| k) Environmental intolerance syndromes | ○ | ○ | ○ | ○ | ○ | ○ |

**3.** Indicate how the complexity of A&I cases you treat has changed **in the past two years:**

- ○ More complex
- ○ No change
- ○ Less complex

**4.** Mark the most appropriate description of your A&I practice:

- ○ My practice is growing.
- ○ My practice is stable.
- ○ My practice is downsizing.

**5.** Indicate how managed care has affected your practice **in the past two years:**

| | Increased | No Change | Decreased | Not Applicable |
|---|---|---|---|---|
| Patient volume | ○ | ○ | ○ | ○ |
| Case complexity | ○ | ○ | ○ | ○ |

**6.** Indicate how your personal practice income has changed **over the past two years:**

- ○ Substantially higher
- ○ Somewhat higher
- ○ No change
- ○ Somewhat lower
- ○ Substantially lower

**7.** A) Which best describes the change in your medical liability premiums **over the past two years?**

- ○ Premiums have decreased
- ○ Premiums have not changed
- ○ Premiums have increased
- ○ I don't know

B) Have you made changes in your medical practice due to changes in your medical liability premiums **over the past two years?**

- ○ Yes (continue to part C below)
- ○ No (skip part C, go to section F)

C) As a result of the changes in your medical liability premiums **over the past two years,** how has your practice changed?

| *i) Practice Patterns* | Increased | Stayed the Same | Decreased |
|---|---|---|---|
| Number of patients treated per week | ○ | ○ | ○ |
| Number of hours I spend in patient care per week | ○ | ○ | ○ |
| Number of tests performed per patient | ○ | ○ | ○ |
| Likelihood that I will refer patients to other physicians | ○ | ○ | ○ |

| *ii) Location of Practice* | Yes | No |
|---|---|---|
| I have relocated my practice to another state. | ○ | ○ |

*iii) Other Changes*

- ○ Other change, specify: _____
- ○ Other change, specify: _____

## F. PLANS AND EXPECTATIONS FOR FUTURE

**1.** Over the next 12 months, do you expect to:

- ○ Reduce the time you spend in providing A&I services by 25%?
- ○ Reduce the time you spend in providing A&I services by 50%?
- ○ Reduce the time you spend in providing A&I services by 75%?
- ○ Completely discontinue providing A&I services?
- ○ Not change the time you spend providing A&I services?
- ○ Increase the time you spend providing A&I services?

**2.** In how many years do you expect to stop providing A&I services?

- ○ Less than 1
- ○ 1
- ○ 2
- ○ 3–5
- ○ 6–10
- ○ 11–15
- ○ 16+



**3.** Please indicate the impact you expect the following factors will have on demand for A&I services in your practice over the next 5 years.

| | Reduce Demand | No Impact | Increase Demand |
|---|---|---|---|
| a) New treatments and medications | ○ | ○ | ○ |
| b) Incidence/prevalence of Allergy/Asthma conditions | ○ | ○ | ○ |
| c) Incidence/prevalence of Immunologic conditions | ○ | ○ | ○ |
| d) New A&I practice parameters | ○ | ○ | ○ |
| e) Other, specify: | ○ | ○ | ○ |

## G. ALLERGY & IMMUNOLOGY PRACTICE MARKET

**1.** What is your assessment of the **current** employment/practice opportunities for physicians providing allergy and immunology services?

| | Many Available Opportunities | Some Available Opportunities | Few Available Opportunities | No Available Opportunities |
|---|---|---|---|---|
| a) Local (within 50 miles) | ○ | ○ | ○ | ○ |
| b) Within state | ○ | ○ | ○ | ○ |
| c) Nationally | ○ | ○ | ○ | ○ |

**2.** What is your assessment of **future** job prospects for physicians providing allergy and immunology services over the **next 5 years**?

| | Many Opportunities for Growth/ Expansion | Some Opportunities for Growth/ Expansion | Few Opportunities for Growth/ Expansion | No Opportunities for Growth/ Expansion |
|---|---|---|---|---|
| a) Local (within 50 miles) | ○ | ○ | ○ | ○ |
| b) Within state | ○ | ○ | ○ | ○ |
| c) Nationally | ○ | ○ | ○ | ○ |

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**3.** Please assess the level of cooperation/ competition you experience with the following specialists in your locale:

| Specialty | Strong Competition/ Little Cooperation 1 | 2 | Neutral 3 | 4 | Strong Cooperation/ Little Competition 5 |
|---|---|---|---|---|---|
| a) Allergists & Immunologists | ○ | ○ | ○ | ○ | ○ |
| b) Otolaryngologists | ○ | ○ | ○ | ○ | ○ |
| c) Pulmonologists | ○ | ○ | ○ | ○ | ○ |
| d) Dermatologists | ○ | ○ | ○ | ○ | ○ |
| e) Pediatricians | ○ | ○ | ○ | ○ | ○ |
| f) Internists | ○ | ○ | ○ | ○ | ○ |
| g) Family physicians | ○ | ○ | ○ | ○ | ○ |
| h) Other, specify: _____ | ○ | ○ | ○ | ○ | ○ |

**4.** How frequently are your patients referred to you by the following specialists?

| Specialty | Never 1 | 2 | Sometimes 3 | 4 | Very Often 5 |
|---|---|---|---|---|---|
| a) Allergists & Immunologists | ○ | ○ | ○ | ○ | ○ |
| b) Otolaryngologists | ○ | ○ | ○ | ○ | ○ |
| c) Pulmonologists | ○ | ○ | ○ | ○ | ○ |
| d) Dermatologists | ○ | ○ | ○ | ○ | ○ |
| e) Pediatricians | ○ | ○ | ○ | ○ | ○ |
| f) Internists | ○ | ○ | ○ | ○ | ○ |
| g) Family physicians | ○ | ○ | ○ | ○ | ○ |
| h) Patient self-referral | ○ | ○ | ○ | ○ | ○ |
| i) Other, specify: _____ | ○ | ○ | ○ | ○ | ○ |

**5.** How satisfied are you with your current A&I practice?

| | Very Dissatisfied 1 | Dissatisfied 2 ▼ | Neutral 3 | Satisfied 4 ▼ | Very Satisfied 5 |
|---|---|---|---|---|---|
| a) Professionally | ○ | ○ | ○ | ○ | ○ |
| b) Economically | ○ | ○ | ○ | ○ | ○ |

**6.** The supply of physicians providing allergy and immunology services in your community is:

- ○ Greater than demand.
- ○ Balanced with demand.
- ○ Less than demand.

**7.** Please provide any additional comments or observations you may have about the A&I workforce and/or the job market for physicians providing allergy and immunology services.

## THANK YOU FOR TAKING THE TIME TO HELP IN THIS STUDY!

Please return the completed questionnaire in the enclosed business reply envelope to:

**Center for Health Workforce Studies**
**University at Albany, School of Public Health**
**One University Place, B334**
**Rensselaer, NY 12144**

If you have questions about the questionnaire or the study, please call the Center at 518-402-0250 or email to chws@health.state.ny.us



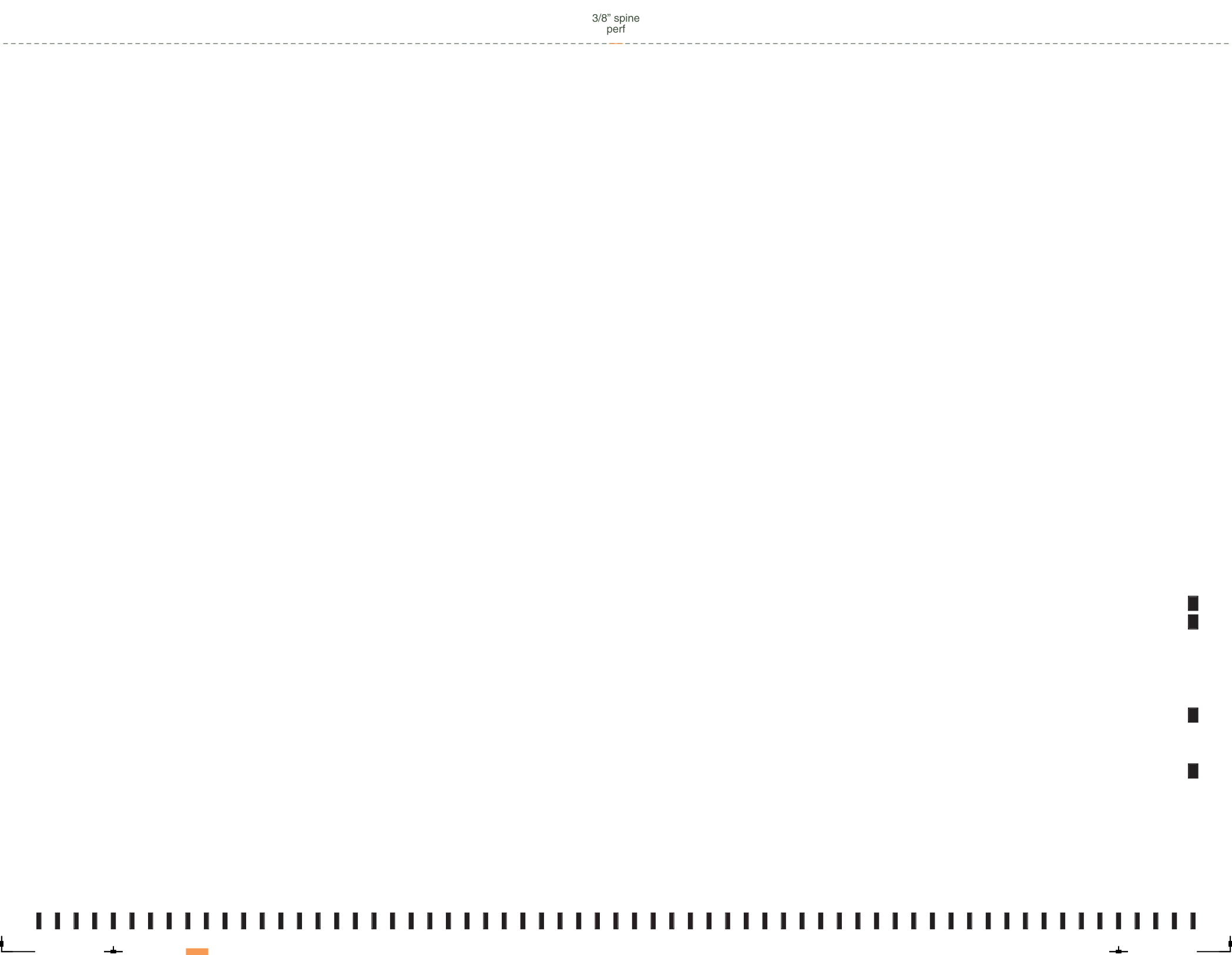


PLEASE DO NOT WRITE IN THIS AREA

SERIAL #

3/8" spine perf

3/8” spine
perf



## Appendix D: Components of Regions Used in Analysis

In a number of cases, the report presents data analysis at a two aggregate levels: Census Division and Census Region. Table 1 shows the state components of each type of aggregate.

*Appendix D Table 1. Regional Analysis Components*

| Region | Division | State |
|---|---|---|
| **Northeast** | | |
| | *New England* | |
| | | Connecticut |
| | | Maine |
| | | Massachusetts |
| | | New Hampshire |
| | | Rhode Island |
| | | Vermont |
| | *Middle Atlantic* | |
| | | New Jersey |
| | | New York |
| | | Pennsylvania |
| **Midwest** | | |
| | *East North Central* | |
| | | Illinois |
| | | Indiana |
| | | Michigan |
| | | Ohio |
| | | Wisconsin |
| | *West North Central* | |
| | | Iowa |
| | | Kansas |
| | | Minnesota |
| | | Missouri |
| | | Nebraska |
| | | North Dakota |
| | | South Dakota |
| **South** | | |
| | *South Atlantic* | |
| | | Delaware |
| | | District of Columbia |
| | | Florida |
| | | Georgia |
| | | Maryland |
| | | North Carolina |
| | | South Carolina |
| | | Virginia |
| | | West Virginia |
| | *East South Central* | |
| | | Alabama |
| | | Kentucky |
| | | Mississippi |
| | | Tennessee |
| | *West South Central* | |
| | | Arkansas |
| | | Louisiana |
| | | Oklahoma |
| | | Texas |
| **Pacific** | | |
| | *Mountain* | |
| | | Arizona |
| | | Colorado |
| | | Idaho |
| | | Montana |
| | | Nevada |
| | | New Mexico |
| | | Utah |
| | | Wyoming |
| | *Pacific* | |
| | | Alaska |
| | | California |
| | | Hawaii |
| | | Oregon |
| | | Washington |
| **Territories** | | |
| | | Puerto Rico |
| | | Virgin Islands |
| | | Pacific Islands |