

The Allergy and Immunology Physician Workforce 2000

The Center for Health Workforce Studies

School of Public Health

University at Albany

State University of New York

One University Place

Rensselaer, NY 12144-3456

Phone: (518)-402-0250

Fax: (518) 402-0252

Web: <http://chws.albany.edu>

PREFACE

The prevalence of asthma and allergy related illness in America is increasing. Over twenty-five percent of the total United States population are affected by allergic diseases or asthma [1; 2; 3]. The prevalence of asthma increased 75% from 1980 to 1994 [3]. Allergic diseases are the sixth leading cause of chronic disease in the U. S. and affect more than 20% of the population [2]. It is also estimated that absenteeism and reduced productivity due to allergies cost companies in the U.S. more than \$250 million per year [4].

Despite this dramatic rise in asthma and allergies and the development of increasingly complex treatment options, the number of physicians being formally trained in the specialty dedicated to the diagnosis and treatment of these conditions has dropped precipitously over the past decade.

Physicians who specialize in “*allergy and immunology*” are trained in the prevention, diagnosis and treatment of problems involving the immune system. These can include reactions to food, drugs, chemicals, insect stings and pollens, and allergic conditions such as hay fever, asthma, hives, dermatitis, and eczema. Patient treatment includes examining patients’ backgrounds; performing tests to identify the cause of the allergic or immunologic problem; advising the avoidance of certain substances or environments; prescribing medications; and administering immunizing injections. To become board certified in the specialty of allergy and immunology, a physician must generally complete 3 years of residency training in internal medicine or pediatrics *and* complete a 2 year fellowship in allergy and immunology.

Although the total number of physicians in the U.S. has increased steadily for the past 40 years, including those with formal training in allergy and immunology, between 1990 and 1998 the number of physicians enrolled in an allergy and immunology fellowship program dropped from 322 to 214, a decrease of 34%. This recent decrease in production comes at a time of growing public concern and initiatives to prevent and treat asthma.

In order to better understand the trends, dynamics, and future of the specialty, the American Academy of Allergy, Asthma and Immunology contracted with the Center for Health Workforce Studies at the University at Albany, SUNY to conduct a comprehensive assessment of the supply, demand, and distribution of physicians providing allergy and immunology services in the United States.

An initial report, “*The Supply, Demand and Distribution of Allergists and Immunologists in the United States: A Descriptive Analysis*,” [6] (May 1999) presented historical data on the characteristics of the allergy and immunology workforce, including demographics, training, and regional distribution. A second report, “*Physicians Providing Allergy and Immunology Services in the United States: Results of the 1999 Survey of Physicians Providing Allergy and Immunology Services*,” [7] (March 2000) presented the results of a national survey of practicing allergists as to their current practice, recent changes, and their expectations for the future.

Preface

This report synthesizes the previous two reports as well as the results of two additional national surveys, one of fellowship program directors and the other of fellows completing training in 1999. Further, this report includes forecasts of the supply of allergists through 2014 based on several scenarios informed by recent discussions surrounding forecasting techniques [5]. Finally, the report reviews the implications of the findings and recommends steps to balance the future supply with anticipated demand and need for physicians with training in allergy and immunology.

The Center for Health Workforce Studies at the School of Public Health, University at Albany, State University of New York is dedicated to the collection and analysis of health workforce data to assist health, professional and education organizations, policy makers, and the public understand issues related to the supply, demand, and use of health workers. This report was prepared by Gaetano J. Forte, Edward Salsberg, Paul Wing, Mark Beaulieu, and Vicki Myers.

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 School of Public Health, University at Albany, the State University of New York, or the American Academy of Allergy, Asthma, and Immunology.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

Background

Nationally, the incidence and prevalence of allergic diseases and asthma have been on the rise and are expected to continue to rise in the foreseeable future. At the same time, the number of physicians completing fellowship programs in allergy and immunology, the specialty most focused on diagnosing and treating individuals with asthma and allergies and related conditions, has been dropping sharply for the past decade. In order to assess whether the nation needs more or less physicians trained in the specialty, the American Academy for Allergy, Asthma and Immunology (AAAAI) commissioned a study by the Center for Health Workforce Studies at the University at Albany.

To better understand the dynamics affecting the supply and demand of physicians trained in allergy and immunology, the Center analyzed available data and conducted several surveys.

- ✓ **Analysis of existing data on physicians providing allergy and immunology related services:** The center analyzed AAAAI and AMA Masterfile data on physicians formally trained in allergy and immunology and AMA Masterfile data on physicians listing an allergy/immunology related specialty as a primary or secondary specialty regardless of whether they had formal allergy and immunology (AI) training.¹
- ✓ **Survey of the physicians in the United States providing allergy and immunology related services:** Using the AAAAI membership list and the AMA Masterfile all physicians with formal AI training and physicians listing allergy or immunology as a primary or secondary specialty were surveyed as to their current practice activities, recent changes in their practices and their perspective on the supply and demand of allergists.² Almost 3,500 of the 6,197 physicians providing allergy and immunology related services responded to the survey for a response rate of 56%.
- ✓ **Survey of allergy and immunology fellowship program directors:** The Center surveyed all of the fellowship program directors to gather information on trends in applications and graduations as well as the directors perceptions of the job market for their graduates. Seventy-one of the 77 program directors (92%) responded to the survey.
- ✓ **Survey of allergy and immunology fellows completing training in 1999:** The Center surveyed the physicians completing an accredited AI fellowship program to obtain information on their post training plans and their experience in the job market.

¹ The results of this analysis are summarized in *“The Supply, Demand and Distribution of Allergists and Immunologists in the United States: A Descriptive Analysis”* (May, 1999) prepared for AAAAI.

² The results of the survey of practicing allergists are presented in *“Physicians Providing Allergy and Immunology Services in the United States”* (March, 2000) prepared for AAAAI.

Key Findings

- 1. Over the past decade, the number of physicians providing allergy and immunology services has increased substantially. As of 1999, there were 4,763 physicians providing allergy and immunology services in the United States.***

The supply of allergists in the U.S. has been growing for many years, reflecting the relative newness of the specialty (the current conjoint board was established in 1971). Because some of the physicians providing allergy and immunology services work part time and/or provide some non-allergy related services, it is estimated that the 4,763 physicians providing allergy and immunology services is equal to 3,768 full-time equivalent (FTE) physicians.

- 2. Today's allergists are more likely to be board-certified in allergy and immunology than in the past. Overall, the nation has greater access to board-certified allergists than ever before.***

With the growth of formal AI training programs, there has been a steady, long-term growth in the number of 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. Currently, 79% of the allergist workforce has completed a formal allergy and immunology fellowship program and 76% of the workforce is board-certified in the specialty. Among the younger allergists, these figures are even higher. All in all, the nation has the greatest access to physicians providing allergy and immunology services than it ever has in the past.

- 3. There are two distinct groups of physicians providing allergy related services: those whose practice is devoted exclusively or almost exclusively dedicated to providing allergy and asthma related services; and physicians who provide these services on a part time basis and/or provide non-allergy related services as well.***

Core Allergists (defined as physicians providing 30 or more hours per week in allergy and immunology patient care or 20 – 29 hours per week if those hours represent a majority of a physician's patient care time per week) account for 88% (3,335) of the current allergist FTEs and 86% of the estimated patient visits to allergists. These physicians are the backbone of the allergist workforce.

4. *Currently, the national supply and demand for allergists are roughly in balance with a slight surplus of allergists in some parts of the country.*

Physicians' survey responses do not suggest either a significant shortage or a surplus of allergists presently. There are some indications of a modest surplus. For example, while a majority (54%) of core allergists perceive that supply and demand are balanced in their practice communities, a majority (70%) also report that there are few or no practice opportunities in their local communities for additional allergists. Reports by allergists on patient waiting times for appointments are generally reasonable and allergists generally perceive that their practices have adequate capacity to provide patient care for additional patients. Allergists also report little change in practice incomes over the past two years. Finally many allergists are feeling competition with other allergists and non-allergists providing similar services with nearly half reporting competition with other allergists, otolaryngologists, and pulmonologists.

Despite significant variations in the supply of allergists across the country, there are no areas of obvious significant shortages or surpluses. This may reflect regional variations in demand and/or practice patterns. This is not to imply that all communities in the country have an adequate supply of allergists, as there are likely to be pockets of shortages. Identifying the location of such pockets was beyond the scope of this study.

5. *It appears that the demand for allergists is likely to rise over the next several years driven in part by the increasing prevalence of allergy and asthma related conditions and the increasing complexity of treatment interventions. The expansion of managed care is unlikely to reduce demand for services by formally trained allergists.*

Although the demand for allergy and immunology services in the future is difficult to predict, the signals pointing to increased demand appear stronger than those pointing to a decrease in demand. Allergists report patient volumes have been increasing over the past two years. For example, 59% of allergists report an increase in the volume of sinusitis cases, 58% report an increase in the volume of asthma cases, and 51% report an increase in the volume of urticaria cases they treat. Allergists also report that they expect that the incidence of these and other allergy and immunology conditions will drive demand higher over the next five years. While new medications and treatments are likely to

influence demand, most allergists expect these interventions will lead to an increase demand for their services over the next five years.

When asked about the impact of managed care on their practices over the last two years, a similar percentage of allergists report increased patient volume as report decreased patient volume. While managed care could moderate demand for allergists in the future, a very high percentage of core allergists report that the increase in managed care has led to an increase in the complexity of the cases that they are seeing. Fifty three percent (53%) of allergists report managed care has led to a more complex case load compared with only 3% believing it has led to a less complex case mix. The remainder report no impact on case mix. Encouraging the less complex cases to be treated by the primary care physician and the more complex cases to be treated by the allergists, would appear to be the role played by managed care plans.

Thus, while allergists report an increasing percent of their patients are in managed care plans, this is likely to have less of a negative impact on demand than might have been expected in the past.

- 6. The number of allergy and immunology fellows has dropped precipitously over the past several years. Between 1990 and 1998, the number of fellows declined from 322 to 214 (34%). In 1999, it is estimated that only 84 physicians completed an allergy and immunology fellowship program.***

Forty-one percent (41%) of the AI program directors reported reducing the number of fellows in their programs over the prior 3 years. The most common reasons for reducing program size were reduced financial support for the program and difficulty attracting qualified applicants.

- 7. The number of United States medical graduates (USMG) entering allergy and immunology fellowship programs declined drastically from 1990 through 1998, decreasing from 246 to 112 (54%).***

This decrease in USMGs entering the specialty has a number of implications for the specialty. As the proportion of USMG fellows decreases, the proportion of international medical graduate (IMG) fellows increases. Since 1990, the proportion of IMG fellows

has increased from 24% to 48%. In the short run, because many of the fellows that are IMGs have visas that require them to return to their native country, this further reduces the inflow of new allergists. According to the survey of graduates, it is estimated that the 84 graduates in 1999 will yield only 54 allergist FTEs with the drop off due primarily to the IMG graduates leaving the country.

As many as 25% of the current allergy and immunology trainees will leave the United States upon completing training, thus lowering the overall effective production. There have also been a number of calls by national organizations to reduce the number of IMG residents and fellows, particularly those with temporary visas. If this were to occur in the short term, it could disrupt allergy and immunology fellowship programs.

- 8. In light of the decrease in the number of new graduates of allergy and immunology fellowship programs over the past decade and the aging of the current supply of allergists, it is expected that the absolute number of allergists practicing in the U.S. and the per capita ratio of allergists, will begin to decrease within the next few years, leading to a decrease in access for Americans to physicians with formal training in allergy and immunology.***

Fifty-four new allergist FTEs added to the supply each year is not enough to keep up with the retirement of currently practicing allergists. The Center's projection model which incorporates the current effective production rate, age distribution, proportion completing a formal allergy and immunology training program, retirement and death rates projects that there will be a significant decline in the supply of allergists if current trends continue. This downward trend that is already underway.

Under the assumptions that demand stays constant and current supply is slightly higher than demand, the conclusion drawn from the model is that there will be a shortage of allergists within the next ten years. Because current effective production cannot keep up with the current retirement rate of practicing allergists, the supply of allergists will begin to drop below demand for allergy and immunology services in the near future. Figures ES-1 and ES-2 show this likely scenario in terms of the number of physicians providing allergy and immunology services (Figure ES-1) and the allergist FTE to 100,000

population ratio (Figure ES-2). If demand increases, as is likely, the shortage is likely to occur even sooner.

Figure ES-1.
Projected Supply of FTE Physicians Providing Allergy and Immunology Patient Care Services, 1999-2014

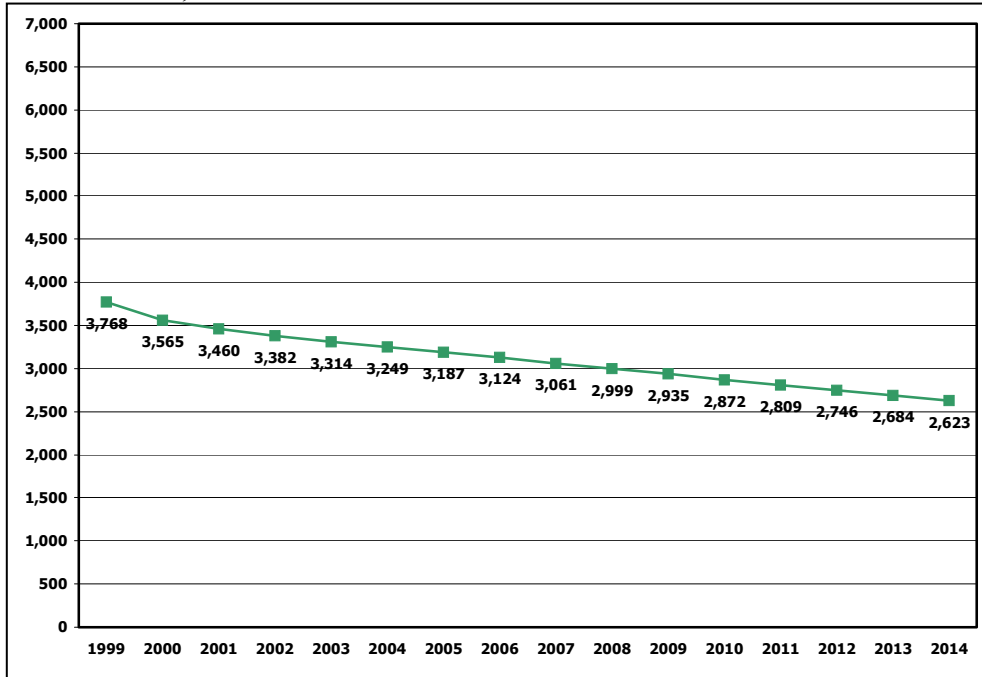
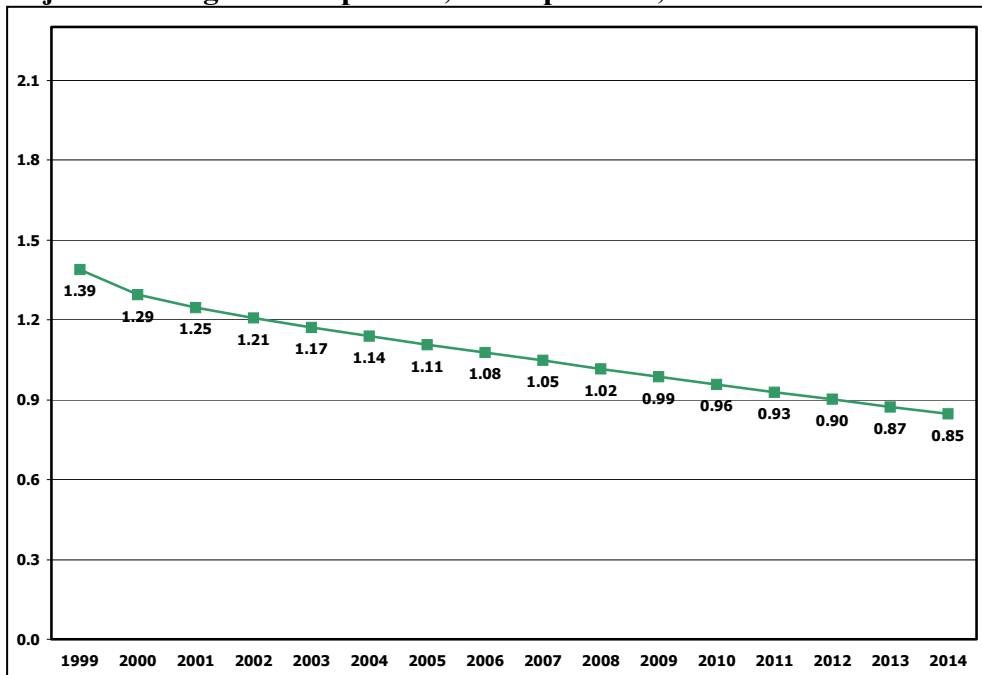


Figure ES-2.
Projected Allergist FTEs per 100,000 Population, 1999-2014



9. *There are some encouraging signs that the interest in allergy and immunology fellowship programs by USMGs may be increasing and that the number of allergy and immunology fellows may have bottomed out.*

There have been a number of signs that interest in the specialty by USMGs may be increasing. Many training program directors report that pediatric and internal medicine residents hold positive views about the specialty and that these views have become better in recent years. There have also been a number of anecdotal reports of improved job prospects for physicians completing allergy and immunology training programs. This could further spur interest in the specialty in the future.

While some program directors (22%) report that their graduates had some difficulties finding practice positions, many (41%) of fellowship program directors report that there will be more opportunities and fewer difficulties finding full-time positions for new graduates in the future. Recent graduates, on the other hand, do not report many difficulties finding positions. Of those that do report difficulties, more than half (62%) report that they could not find a position in their desired location.

10. *The supply of allergists is undergoing demographic changes that have a number of significant implications for the future of the specialty. This includes an increase in the number of women in the specialty and an increase in the average age of allergists.*

There are significantly more women in the specialty now than in the past. Since 1990, the proportion of practicing allergists that are female has increased from 10% to 18%; the percent of fellows that were female in 1999 was 47%, indicating that the percent of women in the specialty will continue to rise in the coming years. This is consistent with the increased representation of women in medicine over the past 30 years. While the increase in the proportion of allergists that are women is a positive development reflecting increased equity and opportunities for women and a greater choice for patients, the increase could also lead to a decline in the availability of services. Female physicians, on average, work fewer hours over the course of their professional lives. Previous research has shown that women may work 10% to 20% fewer hours than their male counterparts over their careers. Thus, as the percentage of allergists that are women

continues to grow over the coming years, there could be a decline in the availability of allergy and immunology services.

In terms of age, the allergy workforce is already older, on average, than the general physician population in the United States. Because the production of new allergists is at a very low level, the age of the allergist workforce becomes an important issue. An older average age indicates that a larger proportion of the allergist workforce will retire over the next decade or two. In fact, 37% of core allergists report that they plan to stop providing allergy and immunology services (effectively retiring) within the next 10 years. (Non-core allergists will retire at an even quicker pace). The current level of production cannot keep up with this rate of retirement.

11. Unlike older age cohorts of allergists, a majority (54%) of the youngest allergists are internists, indicating a major shift from the historical dominance of pediatricians in the specialty.

Another significant evolution in the allergy workforce is a shift toward initial residency training in internal medicine rather than pediatrics. This finding may imply that allergy and immunology may be drawing fellows from a different pool of candidates now than in the past.

12. The practice patterns of allergists are changing and there are significant differences in the practice patterns of older and younger allergists.

Traditionally, allergists, like other physicians, were solo practitioners. While solo practitioners still make up a large proportion of the allergist workforce, like the general physician population, group practice settings are becoming more common amongst allergists. This is especially true among younger allergists who are much more likely to be in group practice than older allergists.

Another place where changes in allergy practice can be seen is in the use of immunotherapy. Older allergists are more likely to report that higher percentages of their patients are treated with allergy shots. Moreover, allergists who have not completed a formal allergy and immunology fellowship program (especially those who training

derives solely from an otolaryngology fellowship or short courses in allergy and immunology) are much more likely to employ this treatment option than those who have completed a formal allergy and immunology training program. As the number of non-formally trained allergists decreases, it is likely that the use of immunotherapy may also decrease. Determining whether this development is positive or negative in terms of patient outcomes is beyond the scope of this study.

13. Allergists are generally satisfied with their professional practice and see the future as having more opportunities for allergists.

Currently, opportunities for practice for allergists are limited. A majority (70%) of core allergists report few or no practice opportunities available in their local communities. Allergists, however, are more optimistic about practice opportunities outside their local areas and future practice opportunities. That allergists report more opportunities outside their local area is indicative of the slight pressure they reportedly feel from competition with other physicians and suggests that they are not concerned greatly that demand will shrink below supply levels or that supply will swell above demand levels.

Recommendations

1. The community of health professionals involved in care for individuals with allergic and asthmatic conditions should take steps to maintain and to encourage an increase in the number of physicians formally trained in accredited allergy and immunology fellowship programs.

The rising incident of allergic and asthmatic conditions as well as the increasing sophistication of medical interventions to treat these conditions, requires a well-trained medical workforce. Physicians with formal training in allergy and immunology are critical to efforts to expand and treat patients with allergies and asthma. Therefore, in light of the finding that the supply of allergists will be decreasing and is likely to fall below demand within the next few years, it is strongly recommended that steps be taken to encourage internists and pediatricians to consider sub-specializing in allergy and immunology.

A program of ***active recruitment*** of pediatric and internal medicine 2nd year residents (who are making decisions about whether to subspecialize) needs to be implemented to

ensure that all positions in all programs are filled by qualified candidates. Allergy and immunology fellowship program directors report that allergy and immunology is looked upon favorably by these residents, so actively recruiting them should be possible.

Moreover, it is recommended that any program of active recruitment should be ***focused on USMGs and permanent resident IMG medical residents***. IMGs with temporary visas have a greater likelihood of leaving the country after training for a variety of reasons, including lack of job opportunities and visa restrictions. Thus, in order to maximize the likelihood of successfully increasing the effective production of FTE allergists, temporary visa holding IMGs should be excluded as targets of active recruitment.

It has been documented that loss in the production of allergist in the United States has been driven by the drop in USMGs entering the specialty. This trend must be reversed if the supply of allergists is to remain roughly balanced with demand for allergy and immunology services.

However, the specialty should be cautious not to overshoot and produce too many additional allergists. Because the marketplace for physician production can be very sensitive and the shortage of allergists represents a relatively small total number of physicians (i.e., there are over 100,000 physicians in training), the goal should be a modest increase in production to perhaps, from the current 84 to 125 allergists per year with the vast majority being USMGs or permanent residents.

2. *The American Academy of Allergy, Asthma, and Immunology and others involved in the field should explore enhanced public support for allergy and immunology fellowship programs.*

Over the past decade, the federal government through the Medicare program and several state governments through the Medicaid program have provided incentives for teaching hospitals and residency programs to increase their production of primary care physicians. This reflected a national consensus that there was a need for additional primary care physicians. Given the documentation provided in this report, as well as the growing number of federal and state initiatives to diagnosis and treat asthma, a case should be made to federal and state policy makers to provide incentives to increase the production

of allergists. The most common factor reported by training program directors for reducing the size of their programs is reduced financial support for the program.

AAAAI and program directors should also work together to lobby the appropriate institutions to ensure that financial support for allergy and immunology fellowship programs is maintained, at the very least, and increased in the very near future.

- 3. The American Academy of Allergy, Asthma, and Immunology should take steps to publicly circulate the likelihood of a potential shortfall in the supply of allergists over the next 15+ years.***

The American Academy of Allergy, Asthma, and Immunology is dedicated to the advancement of the knowledge and practice of allergy, asthma and immunology. As such, it is imperative that the Academy share the findings of this report with interested allergy and immunology stakeholders and the general medical community. This publicity and information circulation may also support efforts to increase production of new allergists as news about potential shortages of allergists filters down to internal medicine and pediatric residents.

It is imperative that *efforts aimed at reversing the trends reported here begin immediately*. The *decline* in the supply of allergists has *already begun*. The effects, while they have not been seen as yet, will come shortly, as the slight surplus of allergists declines to a shortage within the next 10 years. There is the potential, if the supply of allergists declines too far, that the specialty will lose viability. Signs of a potential viability problem can be seen in the recent sharp decline in total fellows in training and fellows completing training. This becomes particularly problematic if demand for allergy and immunology services increases over the next 10 years, accelerating any potential viability issues.

- 4. The American Academy of Allergy, Asthma, and Immunology should develop a workforce tracking system to monitor the important trends identified in this series of reports.***

In light of the uncertainties around supply and demand, the Center for Health Workforce Studies recommends that better monitoring of the issues identified over the course of this

project in order to better assure access to needed allergy and immunology services for Americans as well as ensure the viability of the specialty. The specialty of allergy and immunology, like the whole field of medicine and the health care delivery system, is changing rapidly. There are some ominous signs that the supply of allergists is beginning a long-term decline that could lead to reduced access to needed allergy and immunology services. An ongoing monitoring system is needed to assess developments and trends impacting on both supply and demand and this information needs to reach not only the allergy and immunology community, but also the general medical education and training community.

The workforce tracking system should include: a periodic workforce survey of practicing allergists (especially on issues of retirement plans, hours in patient care, case volume, allergists' experiences with managed care, and perceptions of competition); an annual exit survey of graduating fellows; and an annual survey of fellowship program directors. In an effort to reduce cost and collect data in a timely manner, the Center suggests using the Internet as a data gathering tool. Allergists report high levels of willingness to participate in Internet-based workforce surveys.

Introduction: PROJECT GOALS

Introduction: PROJECT GOALS

In order to better understand the trends and dynamics affecting the supply, demand, and distribution of physicians providing allergy and immunology services in the United States, the American Academy of Allergy, Asthma and Immunology contracted with the Center for Health Workforce Studies to conduct a comprehensive assessment of allergy and immunology in 1998. The project began in September 1998 and was completed in May 2000.

For the better part of the previous two years the Center for Health Workforce Studies was engaged in collecting and analyzing data on the historical trends, current characteristics, and potential futures of the allergy and immunology workforce. The ultimate goals of these efforts were as follows:

1. To examine historical trends in the workforce of physicians providing allergy and immunology services;
2. To compile a comprehensive, up-to-date profile of physicians providing allergy and immunology services in the United States;
3. To compile a comprehensive, up-to-date profile of the graduate medical education system of allergy and immunology;
4. Using these profiles, as well as the data on historical trends, together with general United States population data, to forecast the supply and demand of physicians providing allergy and immunology services through 2014; and
5. To advise stakeholders in allergy and immunology, as well as individual physicians and the general medical education community, on steps to take to avoid a shortage of physicians providing allergy and immunology services in the United States.

The results of the Center's efforts to achieve these goals make up the remainder of this report. The report has been organized into chapters as follows:

- Chapter 1.** A brief review of the literature on the supply and demand for physicians providing allergy and immunology services.
- Chapter 2.** An examination of the data and data collection efforts employed in this study.

- Chapter 3.** A description of the historical trends in graduate medical training of physicians providing allergy and immunology services.
- Chapter 4.** A report on the results of the 1999 survey of physicians providing allergy and immunology services.
- Chapter 5.** A report on the results of the 1999 survey of allergy and immunology fellowship training program directors.
- Chapter 6.** A report on the results of the 1999 exit survey of fellows completing allergy and immunology graduate medical training.
- Chapter 7.** A forecast of supply and demand for physicians providing allergy and immunology services through 2014 under a number of scenarios. Also included in this chapter is a discussion of the implications of these findings for the overall allergy and immunology workforce project.
- Chapter 8.** A presentation of a set of recommendations to Allergy and Immunology stakeholders and others in the general medical education community on steps to take to avoid a shortage of physicians providing allergy and immunology services in the future.

Chapter 1: PREVIOUS RESEARCH

Chapter 1: PREVIOUS RESEARCH

There is little current, up-to-date information or data to guide the medical community as to the current and future need for more or less physicians in allergy and immunology.

However, previous studies of the allergy and immunology workforce can serve as background pieces within which to understand the current and future situation in the allergy and immunology workforce.

One of the earliest efforts to examine the allergy and immunology workforce, “Physician Manpower in Allergy and Immunology,” [8] found in 1978 that there was an undersupply of physicians providing allergy and immunology services. The report was based on extensive interviews with members of the American board of Allergy and Immunology, distinguished academic and practicing allergists who held leadership positions within national allergy and immunology professional societies, and allergy and immunology fellowship program directors. Specifically, the report concluded: the demand for practicing allergists was greater than the supply; there was a shortage of newly trained allergists to take on this demand; this was true for all areas of the country, not just under-served areas; and that comparisons of the percentage of patients with allergic conditions (17% of the general population at the time of the study) and the number of physicians providing allergy and immunology services (2,677) indicated a shortage.

Several years later (although the committee was formed several years prior), the Graduate Medical Education Advisory Committee (GMENAC) concluded that there would be a significant surplus of physicians by the year 1990 [9]. Allergy and immunology was predicted to be in oversupply by 50% by 1990. A later update (see below) [10] of the GMENAC predictions contradicted these findings and more than doubled the estimated need for physicians providing allergy and immunology care.

In the mid-1980s, the American Academy of Allergy and Immunology established another Ad Hoc Committee on Manpower to develop a workforce tracking system for the specialty. The committee’s efforts generated “The National Allergy and Immunology Manpower Study” [11] concluded in 1989. This report was based on the responses of a sample of 268 physicians selected at random who were members of the Joint Council of Allergy and

Immunology who were either actively practicing medicine, holding an administrative position, or had an academic appointment. The results of this study suggested that there was some evidence of a balance between supply and demand or a mild oversupply for physicians providing allergy and immunology services. This report also included a demographic and practice characteristics profile of the allergy workforce.

Just one year later, another report [10] was released that revised and updated the estimates developed by GMENAC some years before. “Preparation of Needs-Based Requirements for Allergy and Clinical Immunology for the Year 2010: Final Requirements Report” estimates requirements for subspecialist allergists, pediatric allergists, and clinical immunologists for 1990, 2000, and 2010. In each case, requirements are derived by using a model based on population parameters, the incidence and prevalence of allergy and immunology conditions, and the health services that ought to be provided to treat a particular disease burden.

Consensus panels were convened to refine GMENAC projections by calculating total visit requirements, then, using the AMA’s Socioeconomic Monitoring System and the National Ambulatory Medical Care Survey data on average visit duration and physician productivity, to convert total visit requirements into FTE physician requirements. The estimates generated in the report more than double those generated by GMENAC some ten years prior. Among the many drawbacks to this study, no estimates of supply were attempted which precluded any conclusion of a shortage or oversupply of physicians providing allergy and immunology services. However, it was concluded that these requirements suggested a substantial (38%) shortage of physicians [12].

The most recent report on the supply and demand for physicians providing allergy and immunology services was completed in 1994 [13]. The authors found that under status quo conditions (that is, if the production of new allergists remains constant), the supply of allergists will continue to fall below the projected need for these physicians through the year 2020. Moreover, the authors suggested that any reduction of the number of physicians completing allergy and immunology training would widen the gap between the supply of physicians providing allergy and immunology services and national need.

The discrepancies among the various attempts to assess the balance of supply and demand in the allergy and immunology physician workforce are troubling. Definitional changes, narrow scopes of consideration, and unacknowledged assumptions in the previous work appear to create vastly different conclusions as to whether there is a shortage or an oversupply of physicians providing allergy and immunology services currently (at the time of any one particular study) or in the future. The current project attempts to learn from the previous work to construct a comprehensive assessment of the allergy and immunology workforce now and in the future.

Other workforce reports in allergy and immunology focus on slightly different issues. For example, it was found that in the early 1990s, net salaries of allergists decreased slightly, although gross income had increased [14]. This may have been due to high overhead rates. Research suggests that allergy and immunology practices have among the highest overhead rates (mean expenses net of professional liability premium as a percent of mean total revenue) in medical practice [15].

As is evident, there is a need to continue investigating the allergy and immunology workforce. Surprisingly, given the important role they play in the treatment of the seemingly ever-increasing conditions of asthma and allergies, there are no up-to-date data or analyses on this group. The health care delivery system continues to evolve in ways that researchers could not have predicted just 5 short years ago. The challenge for health services researchers, then, is to keep up with the overall changes and attempt to draw out the implications for the actors within the system.

Chapter 2: STUDY DATA

Chapter 2: STUDY DATA

The data used in this report were obtained from several sources. First, historical data on trends in graduate medical education were derived from the American Medical Association's Graduate Medical Education database. The AMA collects these data each fall directly from all graduate medical programs accredited by the Accreditation Council for Graduate Medical Education [16] and one year later issues summary data in the early fall Medical Education theme issue of the *Journal of the American Medical Association*.

Second, data on currently practicing physicians who provide allergy and immunology services were obtained from the *Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999* (henceforth, practitioner survey – Appendix A, p. 180) conducted by the Center in the spring/summer of 1999. The survey was mailed to 6,570 physicians who were believed to provide allergy and immunology services. The overall response rate for the practitioner survey was 56.3%. Responses were found to be representative of the population of physicians who provide allergy and immunology services. Complete details of the survey mailing, response rate analysis, and representativeness tests can be found in Appendix B (p. 185).

The practitioner survey consisted of a detailed battery of 75 unique questionnaire items. These items were designed to collect information on a host of physician characteristics, attitudes, and experiences, including: demographics, practice activities, characteristics, and recent change, as well as thoughts about future changes in allergy practice.

Third, 1998-1999 data on allergy and immunology fellowship training programs and their directors were obtained from the *1999 Survey of Directors of Allergy and Immunology Fellowship Programs* (henceforth, program director survey – Appendix C, p. 196) conducted by the Center from the spring through the fall of 1999. The survey was mailed to the directors of 85 fellowship programs believed to currently train physicians in the practice of allergy and immunology.³ Through correspondence with several programs and AAAAI, it was determined that there existed only 77 at the time of the survey. The overall response rate

³ Only programs that train in the specialty of allergy and immunology were included in the survey. Clinical laboratory immunology programs were not included.

to the survey was 92%. Responses were found to be representative of the universe of allergy and immunology fellowship training programs. Complete details of the survey mailing, response rate analysis, and representativeness tests can be found in Appendix D (p. 200).

The program director survey consisted of a series of questions ranging from objective items about the number of positions, applicants, fellows, and fellows completing the program, to more subjective items on the job market for recent program completers and general sentiment about allergy and immunology in the medical community as a whole.

Fourth, data on physicians who recently completed their fellowship training were obtained from the *1999 Survey of Allergy and Immunology Fellows Completing Training* (henceforth, the exit survey – Appendix E, p. 204) conducted by the Center in the late spring/summer of 1999. The survey was initially distributed through the allergy and immunology program directors, but eventually was handled completely by the Center. Some 53 of the estimated 84 fellowship program completers responded to the survey, generating a 63% response rate. Complete details of the technical aspects of this survey can be found in Appendix F (p. 211).

The exit survey consisted of a battery of questions intended to collect information on demographics, the plans of fellows completing training, and their assessments of their experiences in searching for a practice position. The exit survey was designed to help the Center better understand the current supply and demand for physicians practicing allergy and immunology, as well as develop a profile of the newest members of the allergist supply.

Finally, data on the general United States population were obtained from the U.S. Bureau of the Census. Specifically, state, regional, and national estimates and projections of resident populations were taken from a variety of sources to use in the calculations of physician to population and population to physician ratios.

**Chapter 3: HISTORICAL TRENDS IN ALLERGY AND IMMUNOLOGY
GRADUATE MEDICAL TRAINING**

Chapter 3: HISTORICAL TRENDS IN ALLERGY AND IMMUNOLOGY GRADUATE MEDICAL TRAINING

Summary

The number of allergy and immunology fellows has been dropping precipitously over the past several years, driven by a sharp drop in U.S. medical school graduates (USMGs) choosing to train in the specialty. Between 1990 and 1998, the number of USMGs training in the specialty dropped from 246 to 112. With the decline in the number of USMGs choosing the specialty, there has been a sharp increase in the percentage of fellows who are international medical graduates (IMGs). Close to 50% of the fellows training in allergy and immunology were IMGs in 1998. This is nearly twice the percentage of IMGs (26%) in training in all specialties in the U.S. [16].

While the analysis of the data found that the increase in the percentage of IMGs in training was primarily driven by the decrease in USMGs rather than an increase in the absolute number of IMGs in training, the high percentage of fellows who are IMGs is of concern in that it may discourage USMGs from selecting the specialty. In addition, a majority of the IMGs have temporary visas that require their return to their country of origin after training. This will further reduce the number of new allergists entering practice over the next few years. There have also been a number of calls by national organizations to reduce the number of IMG residents and fellows, particularly those with temporary visas [17; 18; 19]. If this were to occur in the short run, it could disrupt some specialties, like allergy and immunology, that have a significant number of these physicians in training.

Key Findings

- ❖ As of August 1, 1998, there were 214 allergy and immunology fellows-in-training in U.S. graduate medical education programs. Between 1993 and 1998, the number of fellows-in-training decreased by 102 (32%). Since 1990, the number of USMG fellows dropped from 246 to 112 (54%); during the same period, the number of IMG fellows increased from 76 to 102 (34%).
- ❖ The number of allergy and immunology graduate medical education programs in the U.S. is also decreasing. Between 1985 and 1999, ACGME-accredited allergy and immunology programs decreased from 87 to 73 (16%) in the U.S.

Allergy and Immunology GME: General Trends

Allergy and immunology is a relatively new specialty area having been formed some 30 years ago. As of March 2000, there were 73 graduate medical education programs in allergy and immunology in the United States (note: this does not include clinical laboratory immunology programs). That figure is down (16%) from a high of 87 programs in 1985. Table 1 presents comparisons of changes in the number of graduate training programs in allergy and immunology with other overlapping specialties, as well as with all graduate medical programs in the United States.

**Table 3-1.
 Historical Trends in the Number of Allergy and Immunology Graduate Medical Education Programs and Selected Overlapping Specialties, 1985-1998**

	Allergy and Immun.		Otolaryngology		Dermatology		Pulmonary Disease		All GME Programs	
	Programs	Annual Percent Change	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	--	6,332	--
1987	85	-2.3%	106	-0.9%	98	-2.0%	177	4.1%	6,319	-0.2%
1988	87	2.4%	106	0.0%	99	1.0%	180	1.7%	6,443	2.0%
1989	86	-1.1%	106	0.0%	100	1.0%	183	1.7%	6,591	2.3%
1990	86	0.0%	107	0.9%	100	0.0%	176	-3.8%	6,938	5.3%
1991	86	0.0%	106	-0.9%	101	1.0%	177	0.6%	7,189	3.6%
1992	85	-1.2%	105	-0.9%	101	0.0%	177	0.0%	7,065	-1.7%
1993	85	0.0%	105	0.0%	101	0.0%	176	-0.6%	7,117	0.7%
1994	85	0.0%	106	1.0%	103	2.0%	169	-4.0%	7,347	3.2%
1995	84	-1.2%	108	1.9%	105	1.9%	170	0.6%	7,657	4.2%
1996	80	-4.8%	105	-2.8%	101	-3.8%	177	4.1%	7,787	1.7%
1997	79	-1.3%	105	0.0%	101	0.0%	162	-8.5%	7,861	1.0%
1998	77	-2.5%	104	-1.0%	102	1.0%	159	-1.9%	7,892	0.4%
Total Change										
1985-1998	-10	-11.5%	-3	-2.8%	+5	5.2%	-11	-6.5%	+1,560	24.6%

Source: Medical Education Theme Issues of JAMA, 1986-1999.

The overlapping specialties are remarkably stable over the period 1985 through 1998, with a increase (5.2%) in the number of dermatology programs, and decreases in the numbers of otolaryngology (2.8%) and pulmonary disease (6.5%) programs.

The primary care specialties (Table 2) are somewhat different. Pediatrics and internal medicine experienced declines in the number of residency programs (11.4% and 7.2%,

respectively) during the period, while the number of family practitioner programs increased greatly (31.1%). Overall, the number of graduate medical education programs increased greatly (24.6%) during the period. The overall increase is particularly disturbing for allergy and immunology in that it occurred during a period when the number of allergy and immunology programs was declining.

Table 3-2.
Historical Trends in the Number of Allergy and Immunology Graduate Medical Education Programs and Primary Care Specialties, 1985-1999

	Allergy and Immun.		Pediatrics		Internal Medicine		Family Practice		All GME Programs	
	Programs	Annual Percent Change	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%	6,332	--
1987	85	-2.3%	234	0.0%	442	0.0%	382	-0.3%	6,319	-0.2%
1988	87	2.4%	230	-1.7%	441	-0.2%	383	0.3%	6,443	2.0%
1989	86	-1.1%	226	-1.7%	440	-0.2%	383	0.0%	6,591	2.3%
1990	86	0.0%	215	-4.9%	426	-3.2%	383	0.0%	6,938	5.3%
1991	86	0.0%	217	0.9%	427	0.2%	393	2.6%	7,189	3.6%
1992	85	-1.2%	214	-1.4%	418	-2.1%	395	0.5%	7,065	-1.7%
1993	85	0.0%	215	0.5%	416	-0.5%	407	3.0%	7,117	0.7%
1994	85	0.0%	215	0.0%	415	-0.2%	430	5.7%	7,347	3.2%
1995	84	-1.2%	215	0.0%	416	0.2%	455	5.8%	7,657	4.2%
1996	80	-4.8%	216	0.5%	417	0.2%	474	4.2%	7,787	1.7%
1997	79	-1.3%	216	0.0%	415	-0.5%	489	3.2%	7,861	1.0%
1998	77	-2.5%	209	-3.2%	410	-1.2%	502	2.7%	7,892	0.4%
Total Change										
1985-1998	-10	-11.5%	-27	-11.4%	-32	-7.2%	+117	31.1%	+1,560	24.6%

Source: Medical Education Theme Issues of JAMA, 1986-1999.

An examination of the trends in the number of residents in training in these specialties may offer some insight into this phenomenon. Table 3 presents these trends for allergy and immunology and the overlapping specialties. In 1998, there were 214 fellows in training in accredited allergy and immunology programs in the United States. Allergy and immunology experienced a sharp reduction in the number of fellows in training during the period 1985-1998, losing 62 fellows (22.5%). The reduction since 1993 has been even more dramatic: allergy and immunology has lost 102 residents (32.2%). At the same time, the overlapping specialties are holding their own, showing moderate to heavy increases (5.0% in otolaryngology, 12.8% in dermatology, and 190.3% in pulmonary disease – it should be

noted that pulmonary disease is a very new specialty area which accounts for its huge upswing in residents in training in the mid to late 1980s) in the number of residents in training.

Table 3-3.
Historical Trends in the Number of Trainees in Allergy and Immunology and Selected Overlapping Specialties, 1985-1998

	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%
Total Change								
1985-1998	-62	-22.5%	+ 55	5.0%	+ 95	12.8%	+ 645	190.3%

Source: Medical Education Theme Issues of JAMA, 1986-1999.

Primary care specialties have also shown strong increases in the number of residents in training between 1985 and 1998 (Table 4). Pediatrics increased by 1,640 residents (26.9%), internal medicine by 3,298 (18.5%), and family practice by 3,331 (45.8%) during the period. The increases in pediatrics and internal medicine should have made it easier for allergy and immunology fellowship programs to recruit fellows since all trainees who wish to pursue training in allergy and immunology must first complete an initial residency in one of these specialties. As such, the ratio of physicians completing an allergy and immunology fellowship program to those completing an internal medicine or pediatrics residency program moved from 1:55 in 1993 to 1:94 in 1998, a 41% decline over 5 years. That these specialties

experienced strong growth during a period of sharp decline in the number allergy and immunology graduate medical fellows is indicative of a loss of attractiveness of allergy and immunology.

Table 3-4.
Historical Trends in the Number of Trainees in Allergy and Immunology and Primary Care Specialties, 1985-1998

	Allergy and Immunology		Pediatrics		Internal Medicine		Family Practice	
	Residents	Annual Percent Change	Residents	Annual Percent Change	Residents	Annual Percent Change	Residents	Annual Percent Change
1985	276	--	6,088	--	17,832	--	7,276	--
1986	244	-11.6%	5,817	-4.5%	18,116	1.6%	7,238	-0.5%
1987	271	11.1%	6,262	7.6%	18,153	0.2%	7,346	1.5%
1988	281	3.7%	6,321	0.9%	18,074	-0.4%	7,175	-2.3%
1989	249	-11.4%	6,395	1.2%	18,731	3.6%	7,089	-1.2%
1990	322	29.3%	6,115	-4.4%	18,734	0.0%	6,680	-5.8%
1991	298	-7.5%	6,233	1.9%	18,662	-0.4%	6,610	-1.0%
1992	281	-5.7%	6,680	7.2%	19,191	2.8%	6,976	5.5%
1993	316	12.5%	7,460	11.7%	20,603	7.4%	7,976	14.3%
1994	297	-6.0%	7,394	-0.9%	20,693	0.4%	8,587	7.7%
1995	254	-14.5%	7,354	-0.5%	21,081	1.9%	9,261	7.8%
1996	214	-15.7%	7,618	3.6%	21,298	1.0%	10,049	8.5%
1997	205	-4.2%	7,613	-0.1%	21,714	2.0%	10,501	4.5%
1998	214	4.4%	7,728	1.5%	21,130	-2.7%	10,607	1.0%
Total Change								
1985-1998	-62	-22.5%	+ 1,640	26.9%	+ 3,298	18.5%	+ 3,331	45.8%

Source: Medical Education Theme Issues of JAMA, 1986-1999.

Allergy and Immunology GME: IMG Trends

Of the 214 fellows-in-training as of August 1, 1998, 102 (47.7%) were international medical graduates (IMGs). The large percentage of IMG fellows in allergy and immunology programs is a relatively recent trend (Figure 3-1). Overall the percentage of IMG allergy and immunology fellows has increased from 18.5% in 1985 to 47.7% in 1998. This is a much greater increase than for all U.S. residents (from 16.8% to 26.1%) during the same period.

Interestingly, the number of IMG fellows in allergy and immunology increased only slightly during the period. In fact, since 1993, the number of IMG allergy and immunology fellows has only increased from 100 to 102 (2.0%). Figure 3-2 presents the trends in the numbers of

USMG and IMG fellows in allergy and immunology programs in the United States since 1985. As is clearly indicated, the sharp increase in the percentage of IMG fellows-in-training is due to a sharp reduction in the number of USMGs in allergy and immunology fellowships. Since 1985, the number USMGs in allergy and immunology training has decreased from 225 to 112 (a 50.2% decrease), with most of the reduction occurring since 1993. These trends suggest that USMG residents finishing their initial residency training in pediatrics and/or internal medicine may not find allergy and immunology as attractive as they once did. However, this also coincides with a period of increased promotion and interest in primary care specialties and a sharp drop in the rate of subspecialization by USMGs completing training in internal medicine.

Figure 3-1.
Trends in IMG Distribution for Allergy and Immunology Fellows and All U.S. Residents, 1985-1998

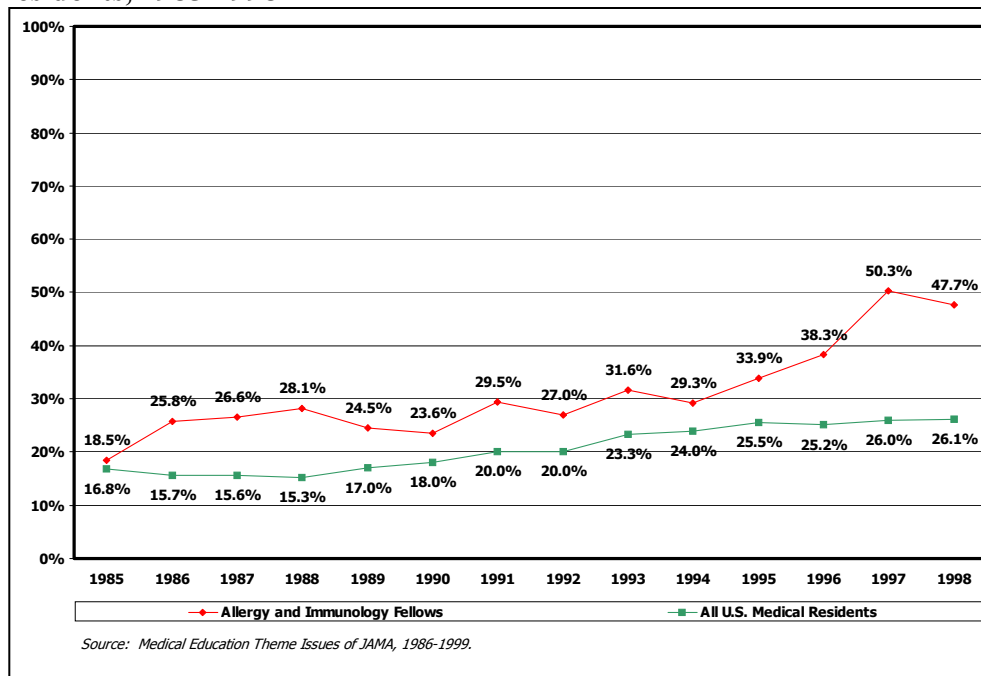
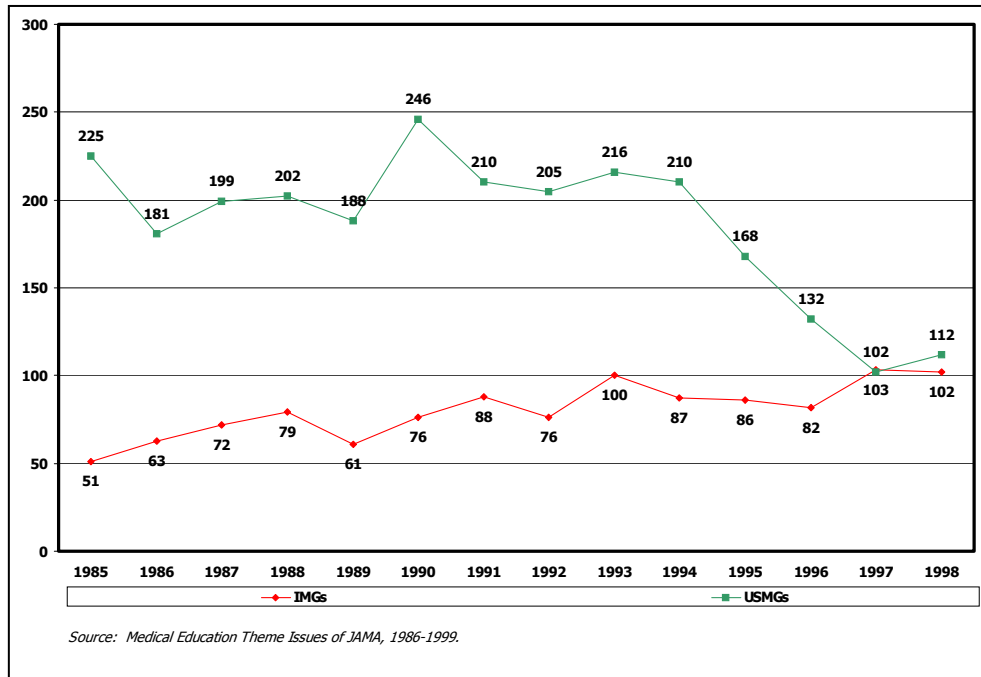


Figure 3-2.
Trends in USMG and IMG Allergy and Immunology Fellows-in-Training, 1985-1998



A closer look at the IMG allergy and immunology fellows reveals another possible concern. In 1998 and 1999, more than half of the IMG allergy and immunology fellows-in-training were J-1, J-2 exchange visitors [6]. These physicians have to return to their countries of citizenship when their training is complete. Since exchange visitors are the most likely group of fellows to leave the country after their training is completed, the reductions in the number of allergy and immunology fellows and the recent decreased participation of USMGs (and associated increase in exchange visitor IMGs) in allergy and immunology fellowships point to an even greater chance of reduction in the number of new allergists entering practice in the coming years. Although some exchange visa physicians can get a temporary waiver of the requirement to return to their country of origin if they practice in an underserved area, this waiver is generally targeted to primary care physicians, and does not guarantee an ability to stay in the United States permanently.

Conclusions

In this section, several alarming trends have been identified with respect to the graduate medical training of physicians who provide allergy and immunology services. First, the absolute number of physicians training in the specialty has declined greatly in recent years.

Second, the number of training programs has been consolidated as well. Third, the effective production of physicians providing allergy and immunology services (that is, the patient care physicians generated by the allergy and immunology graduate training system relative to the number of physicians input) is threatened by the decreasing numbers of USMG physicians training in the specialty. As will be shown in Chapter 7 (pp. 155 – 170), these trends are forecasted to have serious ramifications for the national supply of physicians providing allergy and immunology services in the future. It should be noted that the data from 1998 do show some indications of a reversal in these trends; however, it remains to be seen if, indeed, this is the case. Continued monitoring of the graduate medical education system in allergy and immunology is key in addressing these issues.

Chapter 4: Results of the 1999 Survey of Physicians Providing Allergy and Immunology Services in the United States

Chapter 4: Results of the 1999 Survey of Physicians Providing Allergy and Immunology Services in the United States

Summary

This section presents the findings and results of the *Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999*. The survey focused on physicians providing allergy and immunology clinical patient care services and their experiences and perceptions of the current and future marketplace in allergy and immunology. The survey was sent to nearly 6,200 physicians who were members of the American Academy of Allergy, Asthma and Immunology (AAAAI), members of the American College of Allergy, Asthma and Immunology (ACAAI) or listed one of several allergy related specialties as their specialty in the AMA Masterfile. The survey achieved an overall response rate of greater than 56%; and nearly 70% of the AAAAI members responded. Using baseline data from the AMA Masterfile, the AAAAI database and a brief follow-up survey for selected non-respondents, the survey responses have been weighted to reflect the universe of physicians providing allergy related services.

A. Current and Historical Supply of Allergists

Currently, the national supply and demand for allergists is roughly in balance with a slight surplus of allergists in parts of the country. Over the past decade, the number of physicians providing allergy and immunology services has increased substantially. There are currently 4,763 physicians providing allergy and immunology services. These physicians make up 3,768 FTE allergists. Today's allergists are more likely to be board-certified in allergy and immunology than in the past. Overall, the nation has greater access to board-certified allergists than ever before.

There is a telling distinction among allergists derived from the number of allergy patient care hours they work per week and what proportion of their total patient care time is spent in allergy and immunology. Those considered *Core Allergists* (30 or more hours per week in allergy and immunology patient care or 20 – 29 hours per week in allergy and immunology patient care and those hours representing a majority of a physician's patient care time per

week) account for 88% (3,335) of the current allergist FTEs and 86% of the estimated patient visits to allergists. These physicians are the backbone of the allergist workforce.

B. Current and Future Demand for Allergists

Physicians' survey responses do not suggest either a significant shortage or a surplus presently. These are some indications of a modest surplus. For example, many allergists are feeling competition with other allergists and non-allergists providing similar services: 49% report competition with other allergists, 49% report competition with otolaryngologists, and 46% report competition with pulmonologists. Allergists report little change in practice incomes over the past two years. Reports by allergists on patient waiting times for appointments are generally reasonable. Allergists perceive that their practices have an adequate amount of capacity to provide patient care for additional patients. A majority (70%) of allergists report that there are few or no practice opportunities in their local communities for additional allergists. Finally, a majority (54%) of allergists perceive that supply and demand are balanced in their practice communities.

Although there are significant variations in the supply of allergists among the regions of the country, there are no areas where there are more obvious shortages or surpluses. This may reflect regional variations in demand and/or practice patterns. This is not to imply that all communities in the country have an adequate supply of allergists, as there are likely to be pockets of shortages. Where such pockets exist is beyond this scope of this study.

Demand for allergy and immunology services in the future is difficult to predict. There are mixed signals: some pointing to increased demand and some to decreased demand. For example, 59% of allergists report an increase in the volume of sinusitis cases, 58% report an increase in the volume of asthma cases, and 51% report an increase in the volume of urticaria cases they treat. Allergists also report that they expect that the incidence of these and other allergy and immunology conditions will drive demand higher over the next five years. In addition, allergists report patient volumes have been increasing over the past two years. Another factor expected to increase demand for allergists' services in the next five years is the development of new medications and treatments.

At the same time, there are findings which suggest that demand may decrease in the future. For example, many allergists report that their involvement with managed care has increased over the past two years with both managed care referrals and associated case complexity increasing. Half of practicing allergists expect that continued expansion of managed care will lead to a decrease in demand for their services. Younger allergists are more likely to report increased involvement with managed care, so the expected decrease in demand for their services due to managed care is more likely to affect younger allergists the greatest.

These findings suggest that while increases in allergy and immunology conditions and the development of new treatment options will drive demand higher, the expansion of managed care will moderate demand, particularly for less complex cases. Overall, it appears that while demand may increase or decrease slightly, a major shift over the next decade is not anticipated.

C. Evolving Allergist Demographics

The supply of allergists is undergoing demographic changes which may have implications in the future. There are significantly more women in the specialty now than there has been in the past. Since 1990, the proportion of female allergists has increased from 10% to 18%. This is in accordance with the increased representation of women in medicine in general over the past 30 years. While the increase in the proportion of allergists that are women is a positive development reflecting increased equity and opportunities for women and a greater choice for patients, the increase could also lead to a decline in the availability of services. Female physicians, on average, work fewer hours over the course of their professional lives. While exact figures are not available, women may work 10% to 20% fewer hours than their male counterparts over their careers [24; 25; 26; 27]. Thus, as women grow from 18% of the current allergist workforce to 47% (the current percentage of fellows in training that are female), there could be a decline in the availability of allergy and immunology services.

In terms of age, the allergy workforce is somewhat older, on average, than the general physician population. Because production levels are at very low levels, the age of the allergist workforce becomes an important issue. The age of the allergist workforce is of concern because it implies that a larger proportion of the workforce will retire at an earlier

time in the future. Thirty-seven percent of core allergists, in fact, report that they plan to stop providing allergy and immunology services (effectively retiring) within the next 10 years.

The current level of production cannot keep up with this level of retirement.

Another significant evolution in the allergy workforce is a shift toward initial residency training in internal medicine rather than pediatrics. Unlike the older age cohorts, a majority (54%) of the youngest allergists are internists, indicating a major shift from the historical dominance of pediatricians in the specialty. This finding also implies that allergy and immunology may be drawing fellows from a different pool of candidates now than in the past.

D. Changing Allergist Practice Patterns

In general, the allergist workforce is more likely to have completed a formal allergy and immunology fellowship program and be board-certified in allergy and immunology than ever before. Currently, 79% of the allergist workforce has completed a formal allergy and immunology fellowship program and 76% of the workforce is board-certified in the specialty. Among the younger allergists, these figures are even higher. All in all, the nation has the greatest access to physicians providing allergy and immunology services than it ever has in the past.

Another place where changes in allergy practice can be seen is in the use of immunotherapy (or allergy shots). Older allergists are more likely to report that higher percentages of their patients are treated with allergy shots. Moreover, allergists who have not completed a formal allergy and immunology fellowship program (especially those whose training derives solely from an otolaryngology fellowship or short courses in allergy and immunology) are much more likely to employ this treatment option than those who have completed a formal allergy and immunology training program. As the number of non-formally trained allergists decreases, it is likely that the use of immunotherapy may also decrease. Whether this development is positive or negative in terms of patient outcomes is well beyond the scope of this study.

Traditionally, allergists, like other physicians, were solo practitioners. While solo practitioners still make up a large proportion of the allergist workforce, like the general

physician population, group practice settings are becoming more common amongst allergists. This is especially true among younger allergists who are much more likely to be in group practice than older allergists.

E. Managed Care's Impact on Allergists

Over the past several years, there has been a good deal of concern among specialist physicians that the expansion of managed care would limit access to specialists. This reflected the policies among many managed care plans designed to increase the use of primary care physicians and to decrease access to specialists in an effort to cut health care costs. Although an increasing percent of allergists' patients are now enrolled in managed care plans, this does not appear to have led to a major decline in the volume of services provided by allergists. Thus, when asked what they expect the impact of managed care to be on their practices over the last two years, a similar percentage of allergists report increased patient volume as report decreased patient volume.

Managed care does appear to be impacting on the case mix of allergists with 53% reporting managed care has led to a more complex case load compared with only 3% believing it has led to a less complex case mix. (The remainder report no impact on case mix.) Encouraging the less complex cases to be treated by the primary care physician and the more complex cases to be treated by the allergists, would appear to be an appropriate role for managed care plans.

F. Current and Future Physician Marketplace for Allergists

Currently, the marketplace (defined as opportunities for practice) for allergists is limited. A majority (70%) of core allergists report few or no practice opportunities available in their local communities. Allergists, however, are more optimistic about practice opportunities outside their local areas and future practice opportunities. That allergists report more opportunities outside their local area is indicative of the pressure they reportedly feel from competition with other physicians. That allergists see the future as having more abundant opportunities for allergists suggests that they are not concerned greatly that demand will shrink below supply levels or that supply will swell above demand levels.

Key Findings

❖ Number of Practicing Allergists

There were 4,763 physicians providing allergy and immunology services as a major part of their practice in the U.S. in 1999. This includes 3,342 physicians defined as core allergists and 1,421 non-core allergists. Core allergists are defined as: 1) allergists who spend 30 or more hours per week on average providing allergy and immunology patient care services; and 2) physicians who spend 20 – 29 hours per week providing allergy and immunology patient care services and those hours comprise a majority of their clinical practice time. All other allergists are classified as non-core allergists. The core allergists, while representing 70% of all of the physicians providing allergy services, provide 86% of the estimated total patient visits per week to allergists.

❖ Comparison of Core and Non-core Allergists

Core and non-core allergists differ in a number of significant respects:

- ◆ Core allergists are more likely to have completed a formal allergy and immunology fellowship program (91%) than non-core allergists (50%);
- ◆ Core allergists are more likely to be board certified in allergy and immunology (87%) than non-core allergists (48%);
- ◆ Non-core allergists are far more likely to have formal training in otolaryngology (25%) than core allergists (3%);
- ◆ Non-core allergists are, on average, older than core allergists, with 24% of the non-core allergists being 65 and older compared to 10% for core allergists; and
- ◆ Core allergists average 38.4 hours of direct allergy and immunology patient care per week compared with 11.9 hours per week for non-core allergists.

❖ Comparison of Core Allergists and all Practicing Physicians in the U.S.

Compared to practicing physicians in the U.S., core allergists are:

- ◆ less likely to be female (19% vs. 23%);
- ◆ older (only 34% under age 45 vs. 43% for all U.S. physicians);
- ◆ less likely to be Black/African American, Hispanic/Latino or Native American; and
- ◆ less likely to be international medical school graduates (IMG; 22% vs. 25%).

❖ **The Demographic Characteristics of Core Allergists**

The demographic characteristics of core allergists are changing with younger allergists more likely to be:

- ◆ women (31% of the core allergists under age 40 compared to only 8% of core allergists over age 65);
- ◆ Asian, Pacific Islander or other non-white, non-under-represented minority (24% of the core allergists under age 40 and 8% of the core allergists over age 65); and
- ◆ under-represented minority (7% of the core allergists under age 40 compared to 4% of the core allergists over age 60).

❖ **Prior Training of Allergists**

In a major shift, for allergists under age 40, prior training in internal medicine is more common (54%) than prior training in pediatrics (47%). For all other age groups, prior training in pediatrics is much more prevalent than internal medicine training. For example, among allergists 50 to 59 years old, 62% have prior pediatric training compared to 32% in internal medicine.

❖ **Geographical Distribution of Allergists**

Allergists are not spread evenly across the country with the ratio of core allergists to 100,000 population ranging from 1.69 in the Middle Atlantic Region and 1.58 in New England to 1.0 in the Mountain Region and 1.04 in the East South Central Region.

❖ **Current Allergy Practice Characteristics**

- ◆ Core allergists' current practices are more likely to be solo practices or partnerships (51%) than group practices (39%). However, this is changing, with core allergists in group practice more likely to be under 49 years of age (62%) than those allergists in solo practice or partnership arrangements (43%).
- ◆ Core allergists spend an average of 49 hours per week in professional activities, of which 38 hours are spent providing allergy and immunology related patient care services.
- ◆ Overall, core allergists see slightly more than 67 allergy and immunology patients per week for an average of 1.8 allergy patients per hour.
- ◆ The use of immunotherapy (allergy shots), while pervasive, varies with the age of the allergist. Older core allergists (60 years and older), on average, treat 42% of

their patients with this technique compared with 24% among allergists under 50 years of age.

❖ **Recent Changes in Diagnoses Treated by Allergists**

Over the previous 2 years, the diagnoses treated by core allergists have undergone some changes:

- ◆ 59% of core allergists report increases in sinusitis cases;
- ◆ 58% of core allergists report increases in asthma cases;
- ◆ 51% of core allergists also report increases in urticaria; and
- ◆ On the other hand, core allergists report decreases in insect sting cases (33%), immune deficiency (27%) and hypersensitivity lung disease (27%) cases.

❖ **Complexity of Cases**

A majority (56%) of core allergists report that the cases they see in their practices have become more complex over the past 2 years, while only 1% report that their caseloads are less complex than in the past.

❖ **Indicators of the Balance Between the Supply and Demand for Allergists**

Based on the perceptions of allergists, it appears that the supply of allergists is adequate to meet current demand and may slightly exceed demand in some communities. The data, however, do not preclude the possibility that there are some communities with shortages of allergists.

- ◆ Core allergists are more likely (56%) to perceive that their practices are “far from full” and that they could take on many additional patients than perceive that their practices are “nearly full” and that they could only take a few new patients (43%). Only 1% of core allergists report that their practices are full.
- ◆ Although more than half (54%) of core allergists believe that the supply and demand for allergists are balanced in their local communities, 36% believe supply is greater than demand and only 10% believe demand is greater than supply. There are some differences by region, with higher percentages of allergists reporting the Mountain, Middle Atlantic and Pacific regions a perception that supply exceeds demand (46%, 45%, and 43%, respectively), compared to lower percentages in the West North Central, East South Central and West South Central regions (27%, 28%, and 29%, respectively).

- ◆ Core allergists' perceptions of job opportunities within 50 miles of their current practice are generally bleak. Twenty-five percent (25%) believe there are no available opportunities, 45% believe there are few opportunities, 28% believe there are some, and only 3% believe there are many opportunities. Their perceptions of opportunities in their states are a little better, but still not very positive.
- ◆ Almost half (49%) of core allergists report local competition with other allergists, as well as otolaryngologists (49%) and pulmonologists (46%). This is particularly evident in the Middle Atlantic and Pacific regions, where levels of perceived competition with other allergists are highest.
- ◆ The average wait for appointments appears to be reasonable, with 53% of the core allergists reporting that they can schedule an existing patient for an appointment within 1 week. For new patients, the average wait is a little longer but still appears reasonable.

❖ **The Impact of Managed Care on the Practice of Allergy and Immunology**

Core allergists perceive that the expansion of managed care is having an impact on their practices. This impact is mixed and varies by age.

- ◆ More than half (55%) of core allergists report that managed care referrals have increased in the past two years. This appears to reflect the general growth of managed care in the U.S.
- ◆ On the other hand, in terms of the impact of managed care on patient volume in the past two years, 35% of core allergists believe managed care has increased volume, 36% believe it has not affected volume, and 29% believe it has decreased volume. (Figure 63) Older core physicians were far more likely to perceive a decrease in volume.
- ◆ Managed care has clearly led to an increase in case complexity, as 53% believe it has led to an increase in case complexity, 45% reported no effect and only 3% reported a decrease in case complexity. It appears that managed care may be encouraging patients with more complex needs to be treated by formally trained allergists.
- ◆ Over the next five years, allergists generally expect that managed care will lead to a decrease in demand for allergists. Almost half (49%) of the core allergists expect that managed care will reduce demand over the next five years; 31% expect no change; and 20% expect an increase.

❖ **General Satisfaction and Perceptions of Their Own Practice**

Despite the perception of growing competition, a crowded market place and the recent expansion of managed care, a majority of core allergists report that their practices are

growing and they are generally satisfied professionally. However, there are some significant differences by age, with younger physicians generally more satisfied.

- ◆ Core allergists indicate high levels of professional satisfaction. Seventy-four percent (74%) report being either very satisfied or satisfied; only 11% report being dissatisfied or very dissatisfied; and 15% are neutral. High levels of professional satisfaction are reported for all age groups.
- ◆ While a plurality (47%) of core allergists are economically satisfied with their practice, a significant percent (31%) indicate that they are not satisfied, while 22% are neutral.
- ◆ A majority of core allergists report that their practices are growing (54%), while only 12% report that their practice is downsizing, and 34% report stable practice volume. There are major differences by age, with younger allergists far more likely to report growth than older allergists. Over 80% of core allergists under age 40 reporting growing practices.
- ◆ In terms of income, the picture is very mixed with a slightly higher percent reporting decreases compared to increases over the prior 2 years. Again, older allergists were more likely to report decreases than younger allergists.

❖ **Future Changes in Allergy Practice**

Allergists expect several important changes in allergy practice in the near future:

- ◆ A majority (58%) of core allergists report that the incidence/prevalence of allergy and immunology conditions will increase demand for their services. A plurality (39%) of core allergists also report that new medications and treatments will increase this demand. Both of these factors, incidence/prevalence of allergy and immunology conditions and the development of new medications and treatments, are expected to increase in the near future.
- ◆ Changes in practice parameters are not perceived as a major detriment to the demand for allergy and immunology services.
- ◆ Thirty-nine percent of core allergists expect some or more local practice opportunities in the next five years. At the state level, more than half (57%) report similarly. In the South Atlantic, West South Central, and East North Central regions core allergists are particularly likely to anticipate some or many future practices opportunities.
- ◆ More than a third of the core allergists expect to retire within the next 10 years (37%). Given the recent drop in the number of residents in allergy and immunology programs, the allergist to population ratio is expected to decrease in the coming years and replacements will be necessary for many of the allergists planning to retire.
- ◆ Women comprise a larger proportion of allergists: 31% of the youngest core allergists are women compared to 8% of the oldest cohort. In previous studies of

the general physician workforce, it has been found that women work fewer hours over the course of their professional lives. As women grow from 19% of the current core allergists to 47% (the percentage of 1998 fellows that are female), a greater number of allergists may be needed in order to supply the same volume of allergy and immunology services.

❖ **Future Workforce Surveys**

Allergists show both an interest in and an ability to participate in future internet-based allergist workforce surveys. In order to more accurately track the development of the specialty, allergists were asked whether they would be willing to participate in an annual workforce survey on the internet for AAAAI. Almost half (48%) of the core allergists report both an interest and the ability to participate. The data also show that certain groups within the population of allergists (females, older physicians, etc) may be less likely to participate in such a survey. Selection of an appropriate sample that can guarantee the representativeness of the survey results will be important in any implementation of an internet-based workforce survey strategy.

Survey of Physicians Providing A/I Services

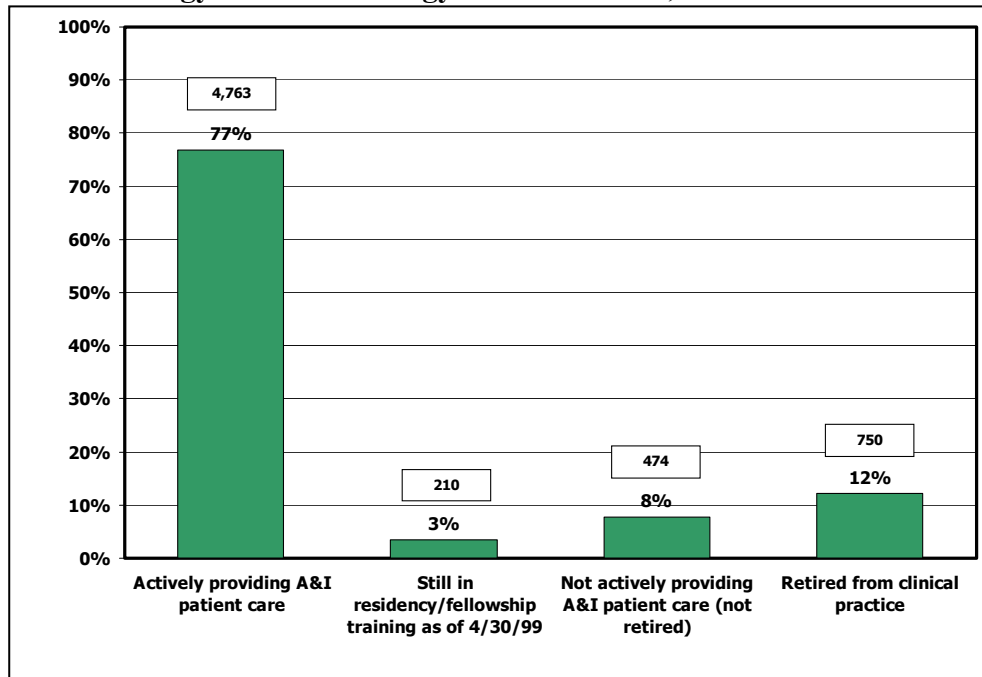
This section is organized around a number of key issues in physician population profiling, including: current service provision status, demographics, training experiences, practice characteristics, competition with other physicians, employment opportunities, and plans for retirement. All results have been adjusted for non-response and organizational membership. See Appendices A (p. 180) and B (p. 185) for complete technical details regarding this survey.

1. Overview of Respondents

As Figure 4-1 indicates, the vast majority (77%) of the population of physicians surveyed are actively providing allergy and immunology services. A significant percentage (12%) are retired, while 3% are engaged in graduate medical training in allergy and immunology (as of 4/30/99) and 8% are no longer providing allergy and immunology patient care services. In terms of absolute values, of the 6,197 physicians in the population, 4,763 physicians currently provide allergy and immunology patient care services in the United States, 750 are

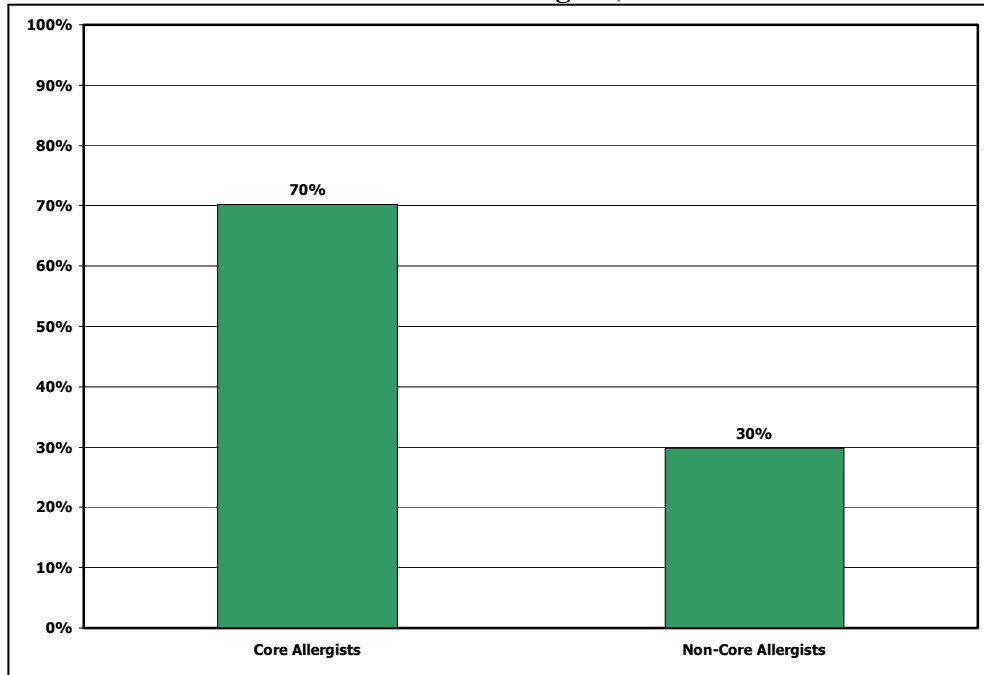
retired, 210 are currently training, and 474 are no longer providing these services. The remainder of this chapter presents results for the 77% (4,763) who are currently providing allergy and immunology patient care services. These physicians make up the allergist workforce.

Figure 4-1.
Current Allergy and Immunology Practice Status, 1999



Instead of making the traditional full-time/part-time distinction, for the purposes of this analysis, the allergist workforce is separated into two groups: *core allergists* and *non-core allergists*. **Core allergists** are defined as 1) allergists who spend 30 or more hours per week on average providing allergy and immunology patient care, and 2) those who spend 20-29 hours per week providing allergy and immunology services and those hours comprise a majority of their clinical practice time. All other physicians providing allergy and immunology patient care services are classified as non-core allergists. Figure 4-2 presents the distribution of core and non-core allergists.

Figure 4-2.
Distribution of Core and Non-Core Allergists, 1999



As is indicated, 70% of the physicians providing allergy and immunology services in the United States fall into the core category, while 30% can be considered non-core allergists. Moreover, as indicated in Figure 4-3, the core allergists make up 88% of the total FTE allergists⁴ in the United States currently, while the non-core allergists make up 12%. Further, 86% of the estimated total patient visits per week to allergists in the survey are to core allergists, while 14% are to non-core allergists. There are significant differences between these two groups of allergists in terms of demographics, practice, and training.

⁴ One FTE allergist is equivalent to the average number of hours a core allergist spends in allergy and immunology patient care per week (38.4 hours).

Figure 4-3.
FTE Distribution of Core and Non-Core Allergists, 1999

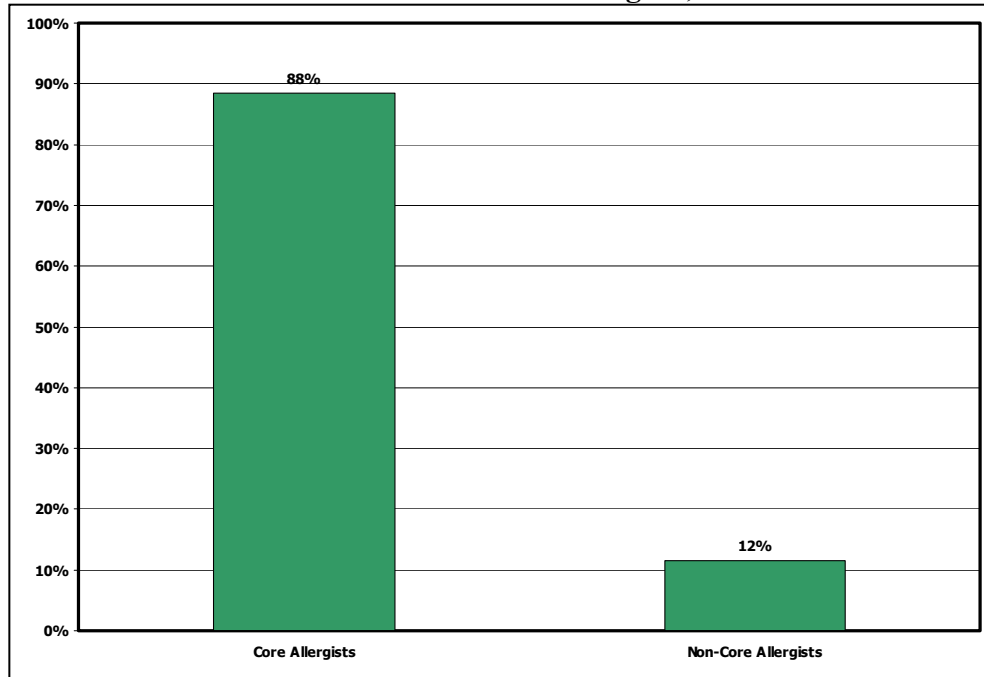
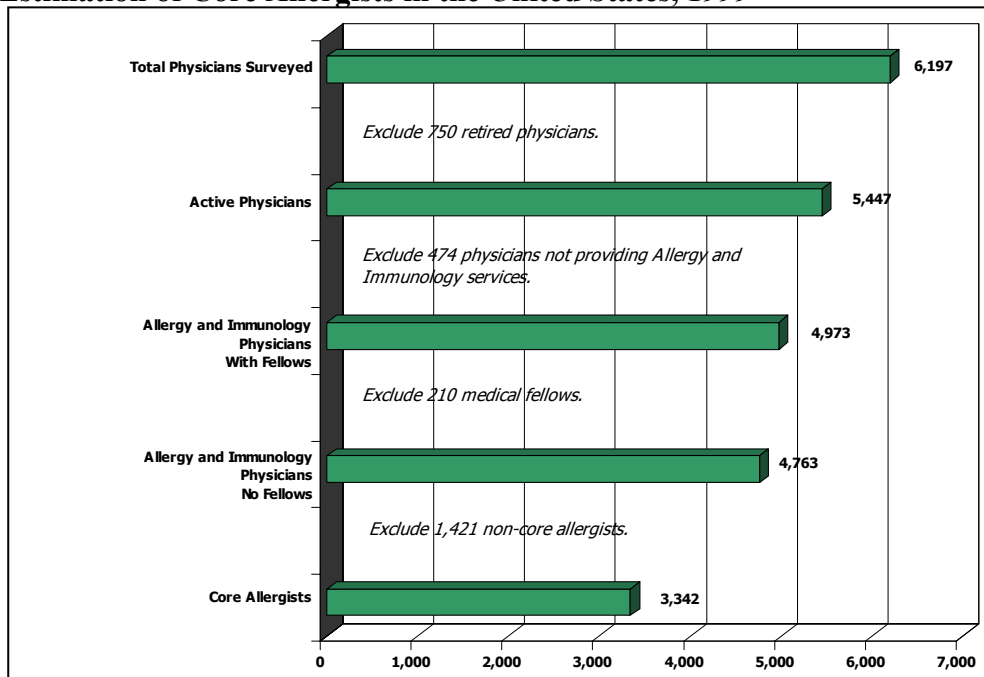


Figure 4-4.
Estimation of Core Allergists in the United States, 1999

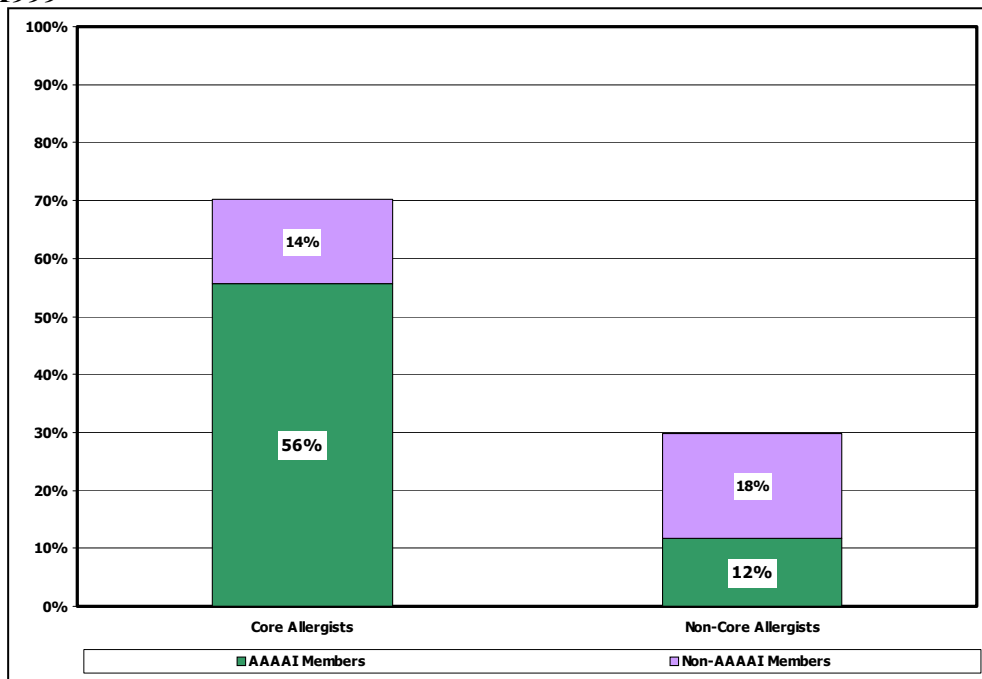


In summary (Figure 4-4), of the nearly 6,200 physicians initially considered for inclusion in the study, it was determined that 750 of them are retired and 474 are no longer providing allergy and immunology services because they have left allergy practice. Of the

approximately 5,000 remaining physicians, 210 were found to still be in training as fellows. The remaining 4,763 physicians providing allergy and immunology services make up the allergist workforce. Of those, it was determined that 1,421 were non-core allergists and 3,342 core allergists. The core allergists will be the primary focus of the in-depth analyses to come in this report. For the sake of comparison and background information, non-core allergists are included in the initial, descriptive portions of this report.

Finally, Figure 4-5 presents the distribution of allergists by organizational membership and core/non-core classification. The majority (56%) of the physicians providing allergy and immunology services in the United States are core allergists who belong to AAAAI, while only 12% of these physicians are core allergists who are not AAAAI members. The remainder (32%) of the allergists, consist of equal percentages of non-core AAAAI and Non-AAAI allergists (14% and 18% respectively). Another way of looking at this data is that 79% of core allergists are members of AAAAI.

Figure 4-5.
Distribution of Core and Non-Core Allergists by Organizational Membership, 1999



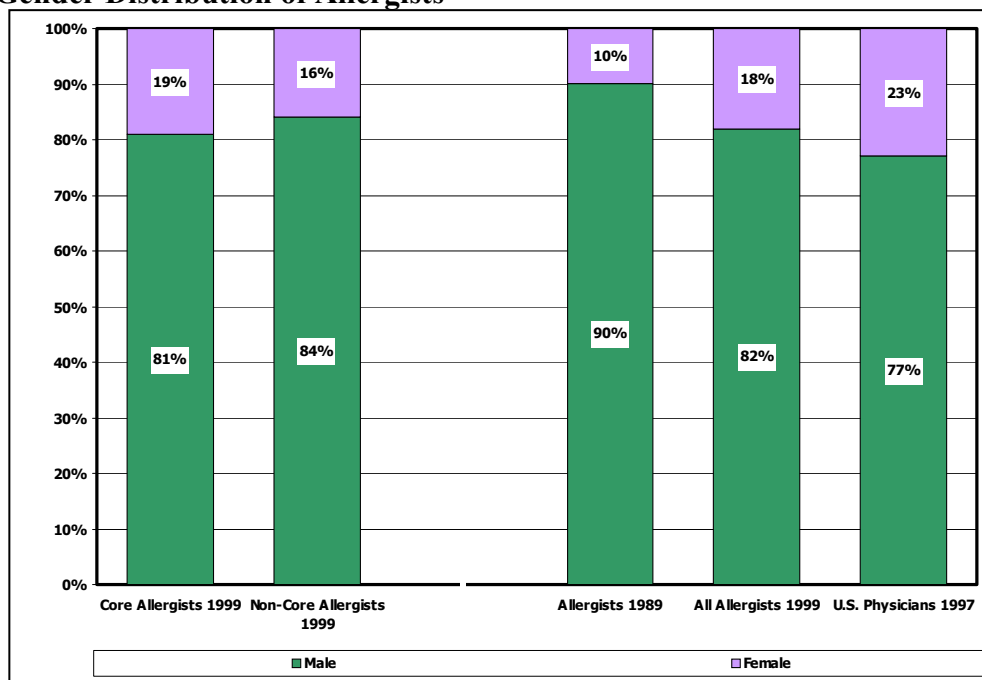
The following sections of this report will analyze the physicians currently providing allergy and immunology services in the United States in terms of demographics, regional location,

practice characteristics and patterns, perspectives on the specialty and job market for physicians like themselves, as well as issues of competition with physicians from other specialties who are able to provide similar services. Where possible, the survey results will be compared with a previous survey of allergist,⁵ as well as all physicians practicing in the United States.

2. Demographic Characteristics of Allergists

In 1999, 82% of all allergists were male. A slightly higher percentage of non-core allergists were male (84%) than core allergists (81%). As is indicated in Figure 4-6, the relative proportion of females in the supply of allergists has grown over the past 10 years from 10% in 1989 to its current level of 18%. The growth of female physicians in the United States is not limited to allergists alone. Among all practicing physicians since 1990, the proportion of female patient care physicians has risen from 17% to 23%.⁶

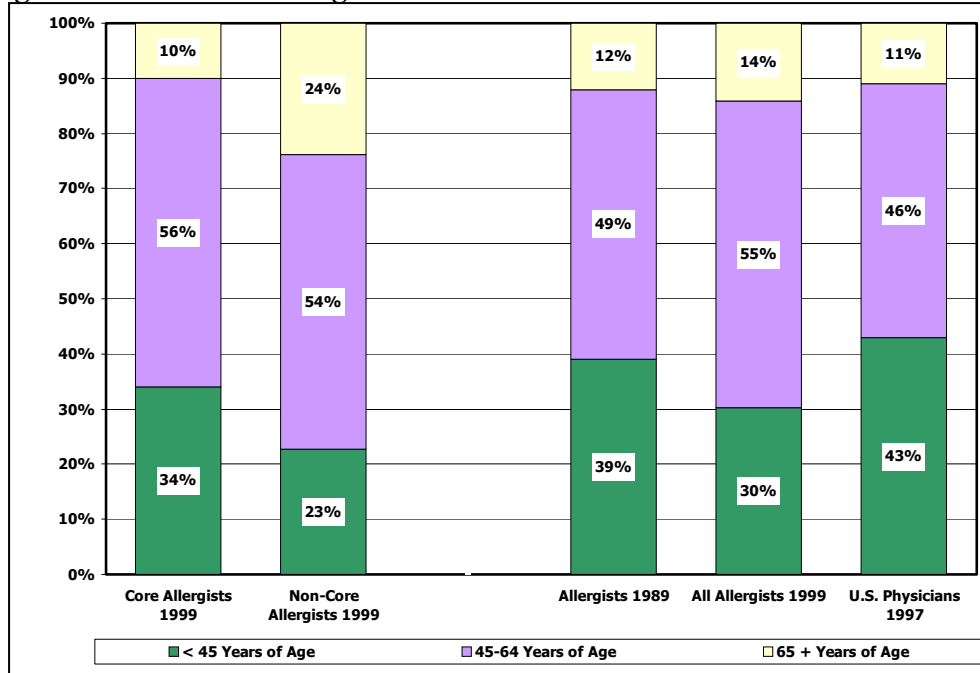
Figure 4-6.
Gender Distribution of Allergists



⁵ Data for 1989 are taken from a previous survey of allergists in the United States [11].

⁶ Data for all patient care physicians in the United States are taken from *Physician Characteristics and Distribution in the US 1999 Edition* [20].

Figure 4-7.
Age Distribution of Allergists



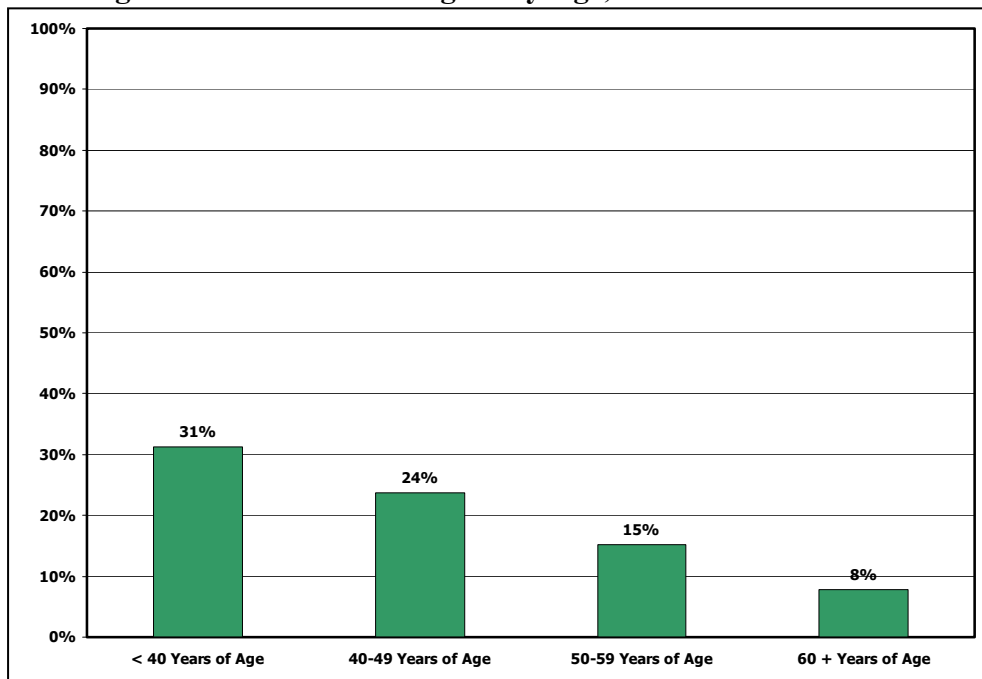
In comparing the current core allergists to all physicians in the United States (Figure 4-7), the percent under age 45 is relatively small for core allergists (34%) compared to 43% for all physicians. Currently, a far greater percentage of core allergists are between 45 and 64 years of age (56%) than all U.S. physicians (46%).

Core allergists are younger than non-core allergists, with only 10% of their number 65 years of age and above compared with 24% of non-core allergists. Congruently, a significant difference exists between the proportion of core allergists below age 45 (34%) and the proportion of non-core allergists (23%). Determining other characteristics of the non-core allergists, especially those describing practice characteristics and retirement plans, is especially important given their higher representation in the older age groups. Moreover, the average (mean) age of core allergists was 50, while the mean age of non-core allergists was 54. As is evident, allergists today seem to be more highly represented in the oldest age group (14%) than in the past (12%) and compared with all United States physicians currently (11%).

The varied age distributions and increases in the representation of female physicians within the ranks of allergists noted above come together clearly in Figure 4-8 which presents the

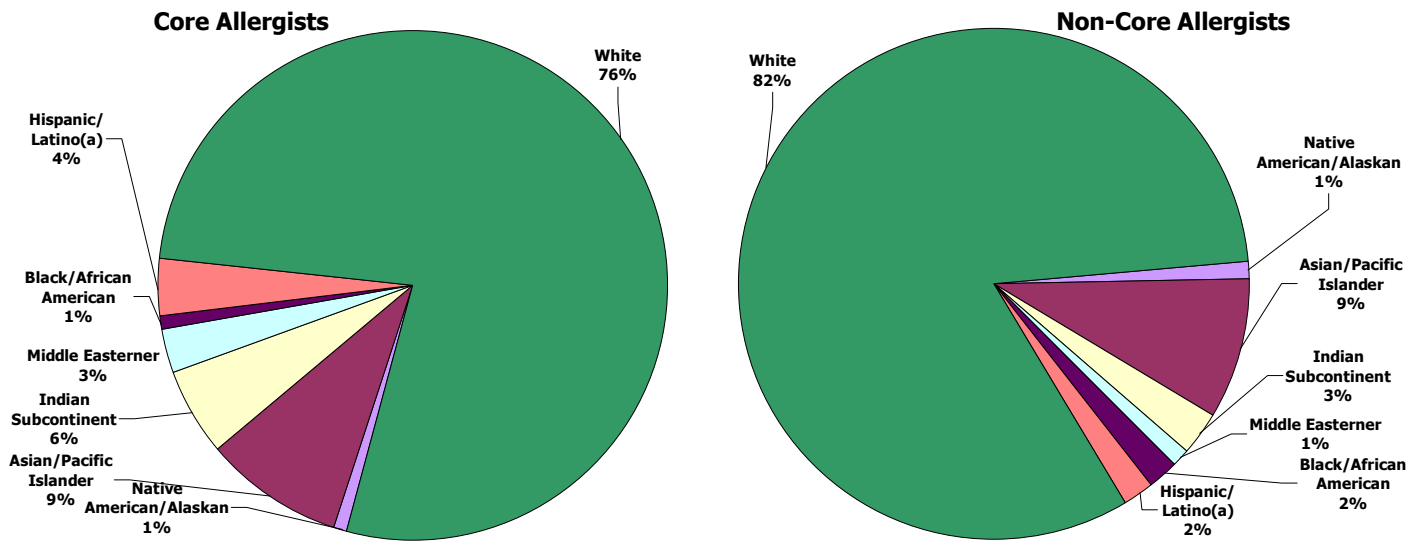
percentage female by age for core allergists. The younger age groups of core allergists have significantly greater proportions of females than the older age groups. The growth of female physicians among core allergists is most evident as one moves from the oldest age group at 8% female to the youngest at 31% female. This trend should continue well into the future as females come to make up a greater and greater proportion of all physicians. In previous studies of the general physician workforce [24; 25; 26; 27], it has been found that women work fewer hours over the course of their professional lives. As women grow from 19% of the current core allergists to 47% (the percentage of current fellows that are female), the supply of allergists could be negatively impacted.

Figure 4-8.
Percentage Female of Core Allergists by Age, 1999



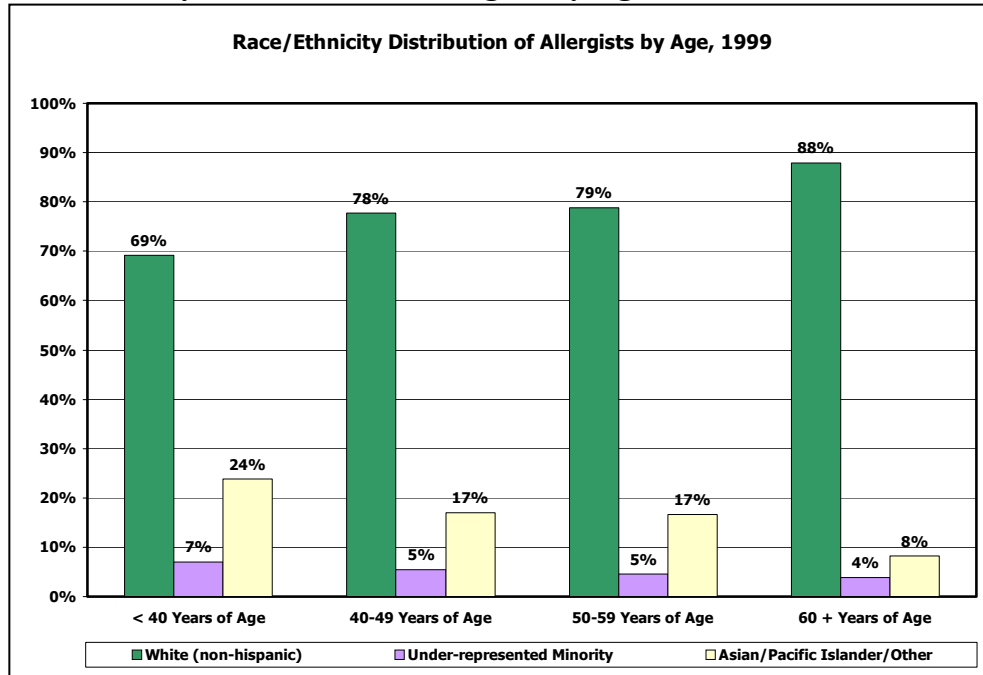
In terms of race/ethnicity (Figure 4-9), core and non-core again differ slightly. By far, the majority of allergists are white, but more than 20% of the core allergists are non-white with almost three-quarters of those being Asian/Pacific Islanders or from the Indian Subcontinent. There are few under-represented minorities (African Americans and Hispanics/Latino(a)s) among allergists.

Figure 4-9.
Race/Ethnicity Distribution of Allergists, 1999



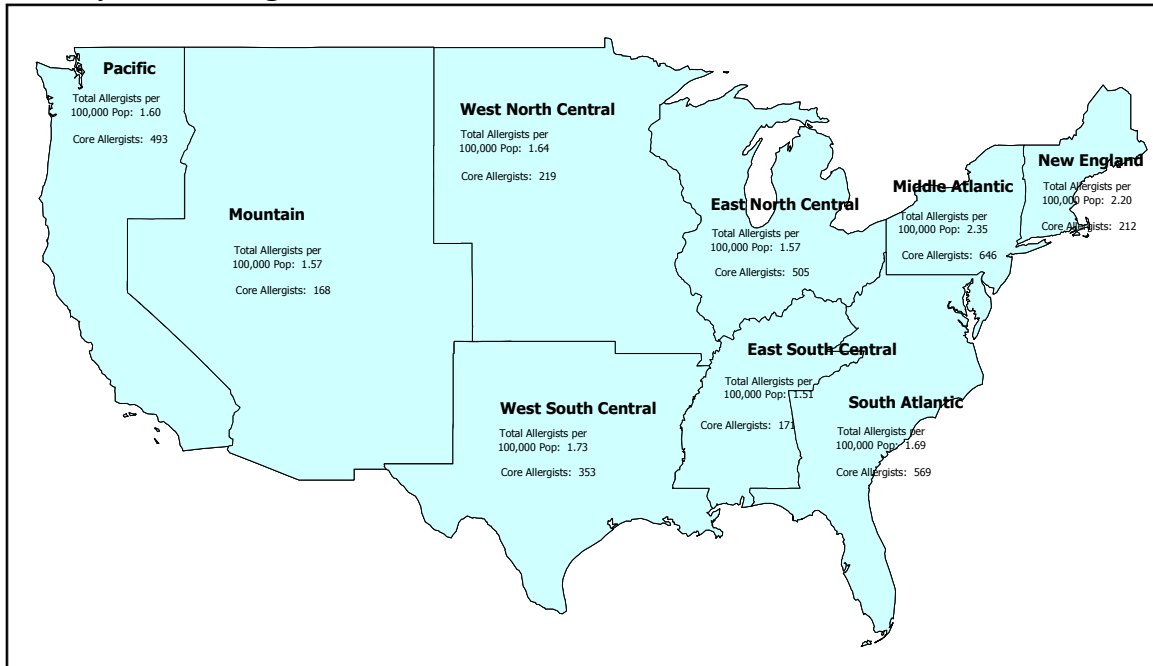
A closer look at the race/ethnicity distribution of allergists by age (Figure 4-10) shows that the decline in the percentage of white (non-hispanic) allergists is accompanied by a significant increase in the percentage of Asian/Pacific Islanders and Others along with a modest increase in under-represented minorities. Again, non-whites are much more prevalent among the younger age groups of allergists than among the older age groups. For example, 12% of the 60 years of age and older group are non-white, whereas 31% of the below 40 years of age group are non-white. As is the case with female representation among allergists, this trend of increasing representation of non-whites among allergists is part of a larger trend of increased representation among all physicians in the United States.

Figure 4-10.
Race/Ethnicity Distribution of Allergists by Age, 1999



While allergists practice in all parts of the United States, they are not distributed evenly. Table 4-1 presents the allergist to population ratios for the nation and the 9 Census divisions. As is evident, the northeastern part of the country (New England and Middle Atlantic) have higher ratios of both core and non-core allergists than the rest of the country. The other regions of the country do not vary exceedingly from the average of 1.76 allergists per 100k population (1.23 core and .52 non-core). Interestingly, the ratios of core and non-core allergists per population do not seem to be related other than in the northeast. For example, in the Mountain division, there are relatively few core allergists, but relatively many non-core allergists; however, in the West South Central division, there are relatively many core allergists as well as non-core allergists.

**Map 4-1.
 Geographical Distribution of Allergists and Core Allergists in the United States
 by Census Region, 1999**



**Table 4-1.
 Allergist to Population Ratios by Region, 1999**

	Population	Total Allergists per 100K Pop 1999	Core Allergists per 100k Pop 1999	Non-Core Allergists per 100k Pop 1999
New England	13,429,862	2.20	1.58	0.62
Middle Atlantic	38,291,763	2.35	1.69	0.66
East North Central	44,194,756	1.57	1.14	0.43
West North Central	18,694,626	1.64	1.17	0.46
South Atlantic	48,944,678	1.69	1.16	0.52
East South Central	16,471,211	1.51	1.04	0.47
West South Central	30,013,597	1.73	1.18	0.56
Mountain	16,813,233	1.57	1.00	0.57
Pacific	43,444,798	1.60	1.14	0.47
United States	270,298,524	1.76	1.23	0.52

Demographically, the regions vary as well. Table 4-2 presents the age, gender, and medical school location distributions for all allergists by region. Overall, as mentioned previously, 18% of allergists are female and 20% of allergists are international medical graduates. The mean age of an allergist is 51 years of age. As is evident, the regions display some telling variation. First, New England allergists tend to be older, are more likely to be male and have attended a medical school in the United States. At the same time, allergists in the Middle Atlantic states (New York, New Jersey, and Pennsylvania) are more likely to be female and

have attended a medical school outside of the United States. The East South Central division displays very low levels of international medical graduate penetration with just 10% of the allergists in the division attending medical school outside of the United States. The Middle Atlantic and West South Central display high levels of allergists who are 65 years of age and older.

**Table 4-2.
 Regional Demographics of All Allergists, 1999**

	Mean Age	% Female	% IMG	% 65 + Years of Age
New England	52	12%	14%	15%
Middle Atlantic	52	24%	28%	17%
East North Central	51	22%	26%	14%
West North Central	50	18%	15%	9%
South Atlantic	50	16%	19%	11%
East South Central	50	18%	10%	12%
West South Central	52	17%	17%	18%
Mountain	52	13%	15%	14%
Pacific	53	17%	16%	15%
United States	51	18%	20%	14%

3. Professional Training Characteristics of Allergists

Core and non-core have vastly different training experiences. This section will present these differences beginning with undergraduate medical education, touch on graduate medical education, and finish with board certification.

Overall, 80% of allergists went to medical school in the United States (Figure 4-11). Core allergists are somewhat more likely to have attended medical school outside of the United States/Canada (22%) than non-core allergists (18%). Since 1989, the proportion of all allergists who attended medical school outside the United States/Canada has increased just 2%, from 18% in 1989 to 20% currently. As reported in the Historical Report in May, this proportion is expected to grow substantially over the next decade since levels of IMG graduating Allergy and Immunology fellows have risen to more than 50% in recent years.⁷ Even though many of those physicians do return to their country of origin, more than half remain in the United States to practice. Nevertheless, practicing allergists continue

Figure 4-11.
Medical School Location of Allergists

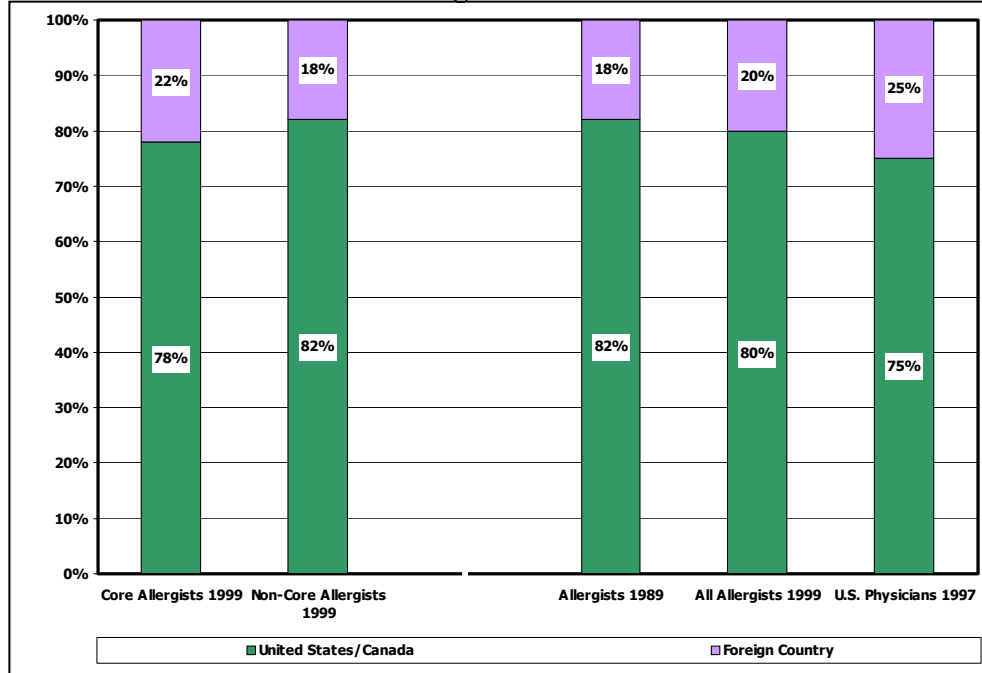
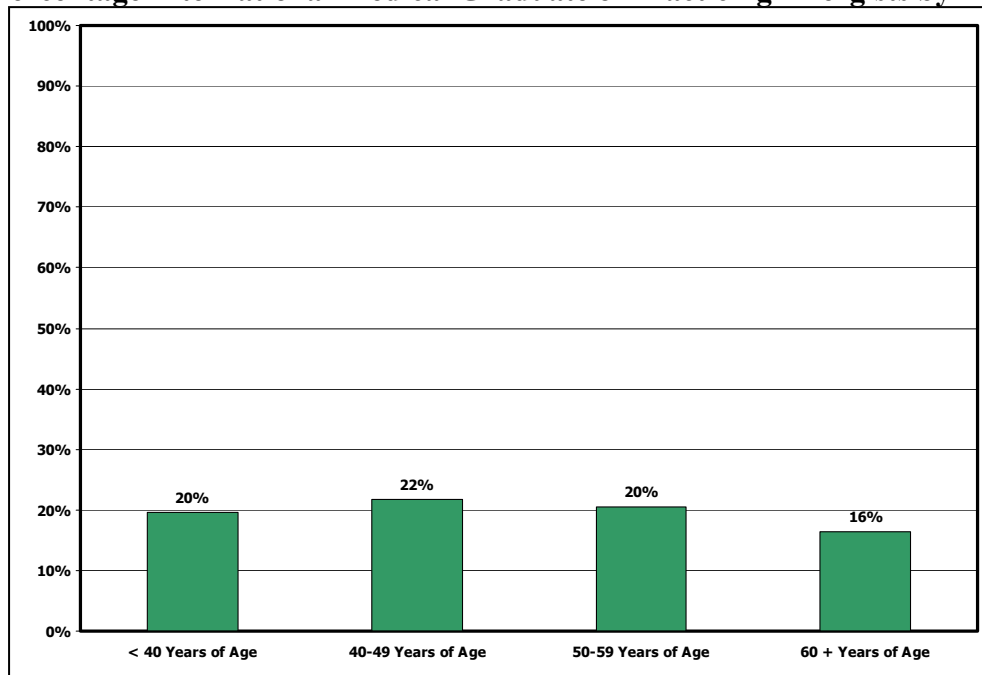


Figure 4-12.
Percentage International Medical Graduate of Practicing Allergists by Age, 1999



⁷ As noted in the Historical Report [6], however, this reflects a small increase in IMG graduates combined with a sharp decrease in the number of USMG graduates entering training in the specialty.

at least for the time being, to be more likely U.S. medical graduates (80%) than all physicians practicing in the United States (75%). A closer examination (Figure 4-12) shows that the proportion of international medical school graduates among allergists is relatively stable with slightly higher percentages of the younger age groups being IMG than the older age groups.

The vast majority of allergists entered the specialty after completing a pediatric or internal medicine residency program (Table 4-3). The single most frequent prior training is pediatrics. Forty-nine percent of all current allergists have completed at least one pediatric residency program. In 1989, 48% of allergists had completed pediatric residencies. The next most common residency program completed is internal medicine with 39% of allergists having completed at least one internal medicine residency program. In 1989, 43% of allergists had completed internal medicine residencies. The 4% difference between the current and past proportions probably reflects the fact that the current data, unlike the prior work, includes many otolaryngologists providing allergy and immunology services due to definitional differences. Currently, 10% of all allergists have completed an otolaryngology training program, while in 1989, only 2% had. The most certainly reflects the broader definition of the allergists population used in this report rather than an increase in otolaryngologists providing allergy and immunology services.

Table 4-3.
Initial Residency Training of Allergists

	Pediatrics	Internal Medicine	Otolaryngology	Other
Core Allergists 1999	54%	41%	3%	3%
Non-Core Allergists 1999	35%	32%	25%	10%
All Allergists 1999	49%	39%	10%	5%
Allergists 1989	48%	43%	2%	7%

Core and non-core allergists show interesting differences in their training experiences. More than half (54%) of the core allergists have completed pediatric residency training and 41% have completed internal medicine residency training. Only 3% of the core allergists have otolaryngology training. On the other hand, only 35% of the non-core allergists have completed pediatric training, 32% internal medicine training, and a full quarter (25%) of them have completed an otolaryngology training program. These differences suggest that a

number of otolaryngologists are providing allergy and immunology services as their second specialty.

These differences are borne out in examining the distribution of patients under 16 years of age (Figure 4-13). More than half (59%) of the core allergists report that 21 – 50% of their patients are under the age of 16, while only 29% of the non-core allergists report that figure to describe the age of their patients. Nearly half of the non-core allergists report that a fifth or less of their patients are under age 16. Interestingly, core and non-core allergists are almost equally likely to have a majority of their patients under the age of 16. This somewhat paradoxical finding suggests that the non-core allergist group consist of at least 2 groups of physicians, pediatricians and non-pediatricians. As Table 7 shows, indeed, that is the case.

Figure 4-13.
Percentage of Allergists' Patients Under Age 16, 1999

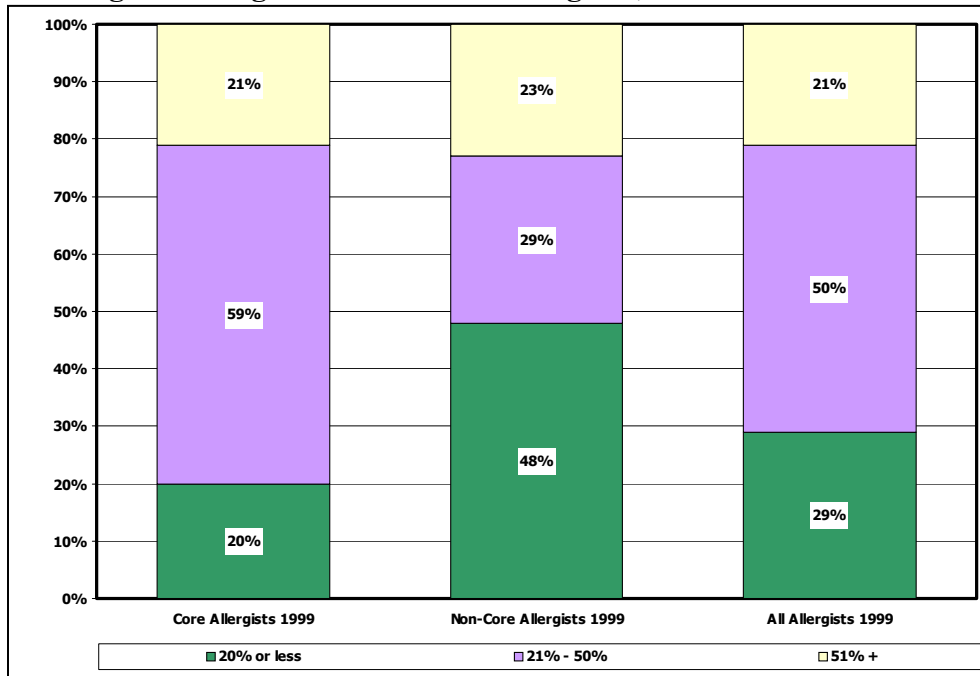
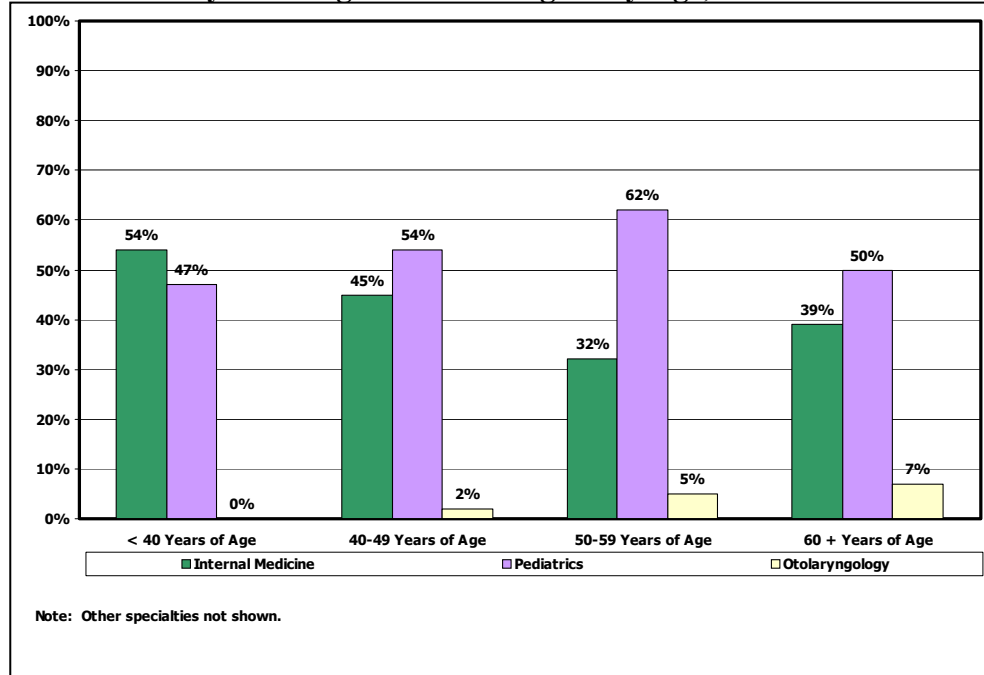


Figure 4-14.
Initial Residency Training of Core Allergists by Age, 1999



Examining the initial training of allergists more closely, Figure 4-14 presents the training experiences of core allergists by age in an attempt to determine whether there have been any changes in core allergists' training over time. In an important finding from the survey, it appears that for the first time in the past few years, the numbers of internists entering the specialty is exceeding the number of pediatricians. As is shown, the core allergists less than 40 years old are more likely to have completed an internal medicine residency (52%) than a pediatric residency (47%). This is a sharp reversal from earlier allergists. Among 40-49 year old core allergists 42% and 50% had completed an internal medicine residency and a pediatric residency, respectively. This difference is even greater for 50-59 year old core allergists.

Figure 4-15.
Source of Allergists' Formal Allergy and Immunology Training, 1999

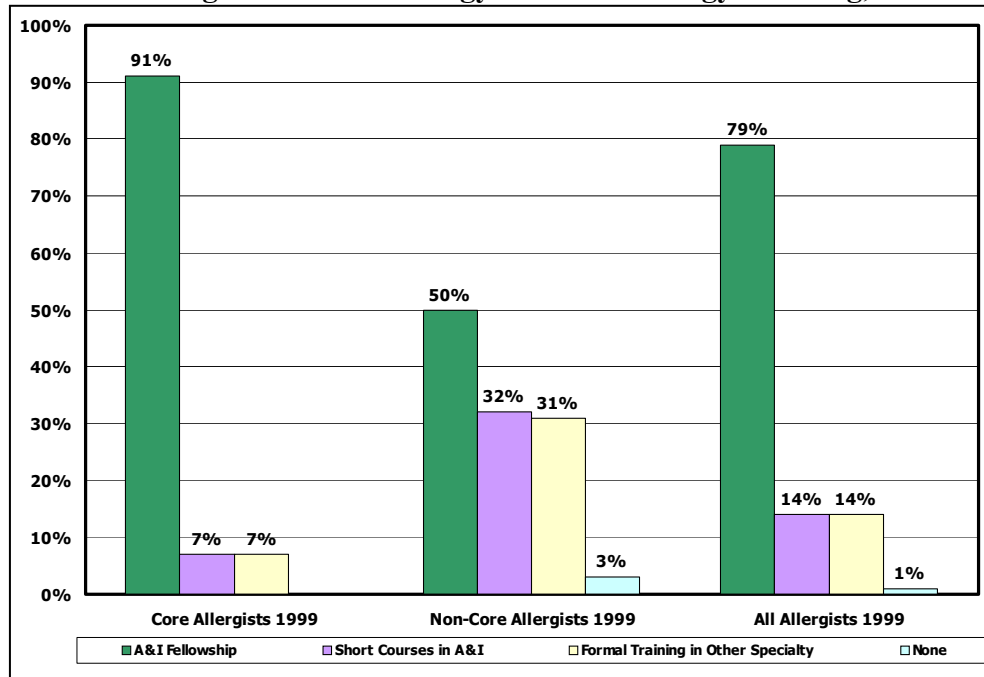
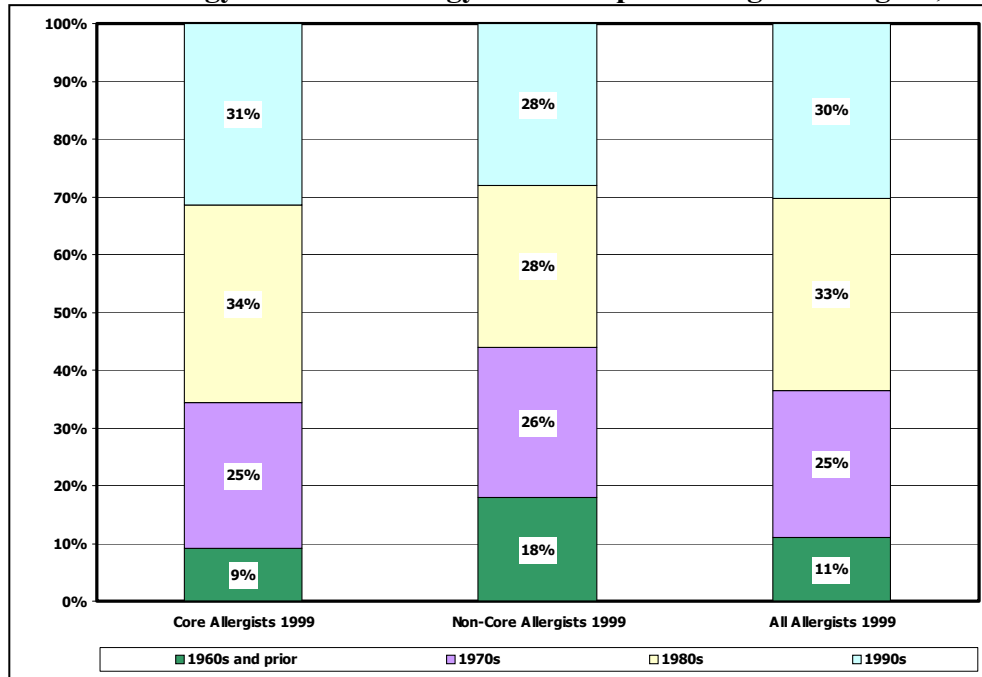


Figure 4-15 presents the distribution of the various sources of allergy and immunology training among current allergists. Overall, 79% of current practicing allergists have completed a formal allergy and immunology fellowship program. Fourteen percent have completed short courses in allergy and immunology, and another 14% have received formal allergy and immunology training while training in another specialty. Fortunately, there is only 1% (fewer than 50 physicians nationally) of allergists who have no training in allergy and immunology. Core allergists are overwhelmingly more likely (91%) to have completed a formal allergy and immunology fellowship program than non-core allergists, of whom just 50% have completed formal allergy and immunology training. Among non-core allergists, 32% have completed short courses in allergy and immunology, 31% have received allergy and immunology training in another specialty, and 3% do not have any formal allergy and immunology training.

Figure 4-16.
Decade of Allergy and Immunology Fellowship Training of Allergists, 1999



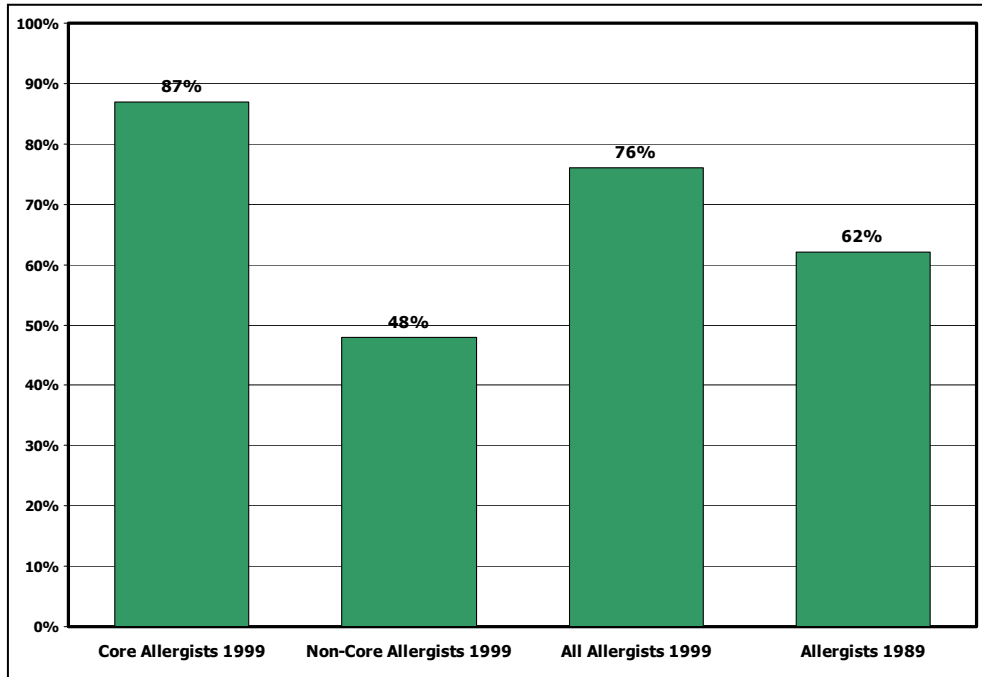
Of the allergists who have completed a formal allergy and immunology fellowship program, it is interesting to examine the distribution of when the program was completed. Figure 4-16 presents these data for core, non-core, and all allergists. As is evident, core allergists are more recently trained on average than the non-core group, with almost two-thirds (65%) completing training since 1980, while over half (56%) of the non-core allergists completed training since 1980. The relatively large proportion (18%) of non-core allergists who completed training in the 1960s and prior⁸ represent core allergists of the past who have chosen to reduce their time spent providing allergy and immunology services (and perhaps time spent providing any type of services as well).

Finally, Figure 4-17 presents data on the board certifications of current allergists. Currently, 76% of all allergists are board certified in allergy and immunology. This is up from 62% in 1989, and implies an overall increase in the quality of care provided by physicians who practice as allergists. Core allergists demonstrate the highest levels of board certification in

⁸ Allergists trained prior to 1960 were most likely trained in the specialty of Allergy, not Allergy and Immunology. For the purposes of this study, they are treated as equivalent specialties.

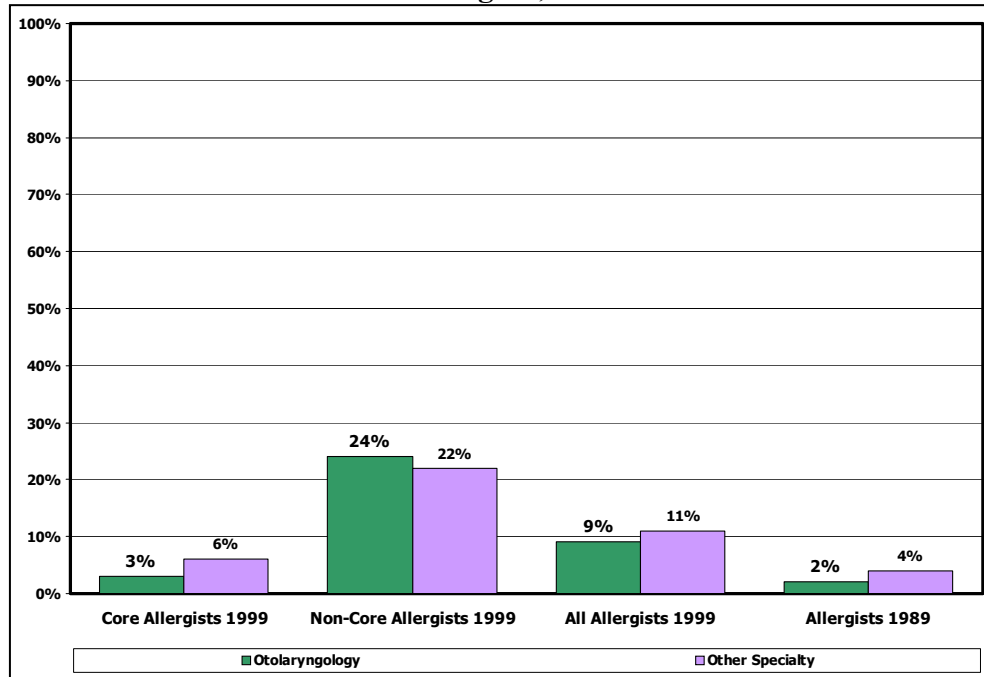
allergy and immunology at 87%, while only 48% of non-core allergists are board certified in the specialty.

Figure 4-17.
Board Certification in Allergy and Immunology of Allergists, 1999



On the other hand, non-core allergists are much more likely to be board certified in otolaryngology (24%) than are core allergists (3%) (Figure 4-18). If the skills and knowledge necessary for competent practice overlap greatly between the two specialties, then there is less concern about quality of care issues. At the same time, in terms of workforce issues, regardless of overlap, this suggests that demand for allergy and immunology services is being supplied by physicians who have not been trained in allergy and immunology, and thus are not (and cannot) be board certified in the specialty. This speculation is also given support by the growth in the proportion of allergists who are board certified in otolaryngology and other specialties: 6% in 1989 and 20% in 1999.

Figure 4-18.
Other Board Certifications of Allergists, 1999



In summary, this section presented data on training characteristics of current core and non-core allergists. Overall, it is clear that the two groups of physicians differ significantly in terms of the type training they have received, the source of their training, and the outcome (board certification) of that training.

While it is important to recognize that non-core allergists provide allergy and immunology services, they only make up 12% of the allergist FTE and account for 14% of the estimated total patient visits to allergists per week. Therefore, non-core allergists are less important to the description of the practice characteristics and perspectives of the main component of the allergist workforce. The remaining sections of this report will focus on core allergists' responses to survey items.

4. Current Practice Characteristics of Allergists

In the last section, differences among core and non-core allergists were quite apparent in regards to their training experiences. In this section, current practice characteristics are the focus. The section begins with an examination of how much time allergists spend per week

in a variety of professional activities, moves into issues of waiting times for appointments, and ends with physician satisfaction.

a. General Overview

The amount of time per week spent in various activities is shown in Table 4-4. On average, core allergists spend about 38 and a half hours in allergy and immunology patient care and 2.7 hours in other patient care for a total of just over 41 hours per week in patient care. Moreover, 80% of the core allergists report that they provide zero hours of non-allergy and immunology patient care per week. At the same time, all physicians in the United States spend just over 51 and a half hours per week in direct patient care.⁹ Allergists spend almost 84% of their total hours spent in direct patient care activities per week, while all physicians spend slightly more than 91% of their total hours in direct patient care. Thus, core allergists spend relatively more hours per week in other professional activities than all physicians.

Table 4-4.
Average Hours Per Week Spend in Selected Professional Activities of Core Allergists, 1999

	A&I Patient Care Hours	Other Patient Care Hours	Clinical Trials Hours	Research Hours	Teaching Hours	Admin Hours	Total Hours
Core Allergists	38.4	2.7	1.6	1.0	2.6	2.9	49.2

Given the distribution of average hours per week spent in the various professional activities presented above, an allergy and immunology patient care FTE (full time equivalent) can be determined (Table 4-5). Because the focus of their practice is so heavily skewed toward allergy and immunology patient care, core allergists' average hours per week spent in allergy and immunology patient care is used as the FTE standard. Including non-core allergists in the calculation of an FTE would lower the number of FTE unnecessarily, while at the same time deceptively increasing the overall number of allergist FTEs in the total supply. As mentioned earlier, core allergists account for 88% of the allergy and immunology patient care

⁹ Data on all US physicians taken from *Physician Socioeconomic Statistics 1999-2000 Edition* [21] and describe characteristics in 1998.

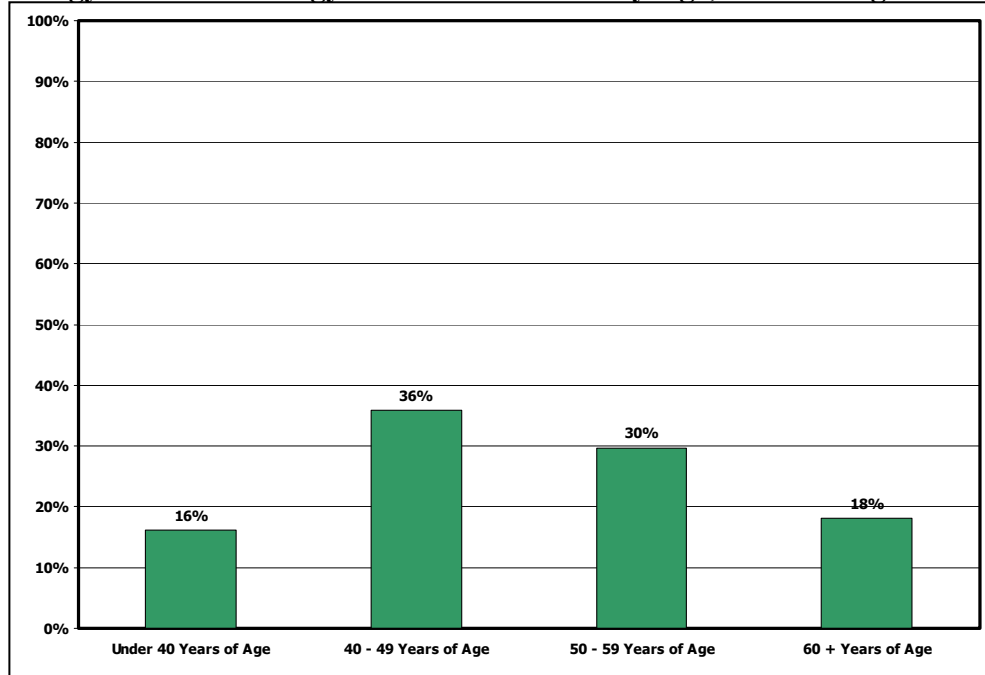
FTEs, while the remaining 12% is made up by non-core allergists. A total of 3,768 allergy and immunology patient care FTEs currently exist in the United States.

Table 4-5.
Allergy and Immunology Patient Care FTEs of Allergists, 1999

	FTEs	%	Average FTE per Physician
Core Allergists	3,335	88%	1.00
Non-Core Allergists	433	12%	0.30
All Allergists	3,768		0.79

Examining patient care FTEs in more detail shows an interesting trend. Figure 4-19 presents allergy and immunology patient care FTEs by age for core allergists. The youngest cohort of allergists (under 40 years of age) account for 16% of all patient care FTEs. Coupled with the eldest allergists (60 + years of age), they make up just over one-third. A plurality (36%) of the allergy and immunology patient care FTEs consist of physicians in the 40 – 49 years of age cohort. It is tempting to infer that the peak (in terms of time spent per week) of allergy and immunology patient care, then, occurs somewhere within this age cohort. However, further analysis shows that there is little variation by age in terms of FTEs per allergist. That is, individual allergists, regardless of their age, spend about the same amount of time in allergy and immunology patient care.

Figure 4-19.
Allergy and Immunology Patient Care FTEs by Age, Core Allergists 1999



Given the method used to calculate an allergist FTE, converting head-counts of core allergists to FTEs is almost equivalent to applying a 1:1 ratio. And so, regional FTE variation looks almost identical to regional core allergist variation (Table 4-1, p. 41). Table 4-6 shows this variation as well as total and core allergist FTEs by region. As is shown, core allergist FTEs make up the lion's share of the total allergist FTEs in all regions. More importantly, this figure shows that core allergists throughout the country are spending similar amounts of time in allergy and immunology patient care. That is, there is no substantial regional variation in the FTE per core allergist ratio.

Table 4-6.
Allergist to Population and Allergist FTE to Population Ratios by Region, 1999

	Population	Total Allergists per 100K Pop	Total Allergist FTEs per 100K Pop	Core Allergists per 100k Pop	Core Allergist FTEs per 100k Pop
New England	13,429,862	2.20	1.73	1.58	1.55
Middle Atlantic	38,291,763	2.35	1.87	1.69	1.65
East North Central	44,194,756	1.57	1.26	1.14	1.12
West North Central	18,694,626	1.64	1.18	1.17	1.06
South Atlantic	48,944,678	1.69	1.33	1.16	1.17
East South Central	16,471,211	1.51	1.18	1.04	1.05
West South Central	30,013,597	1.73	1.41	1.18	1.22
Mountain	16,813,233	1.57	1.22	1.00	1.06
Pacific	43,444,798	1.60	1.30	1.14	1.15
United States	270,298,524	1.76	1.39	1.23	1.23

Another measure of productivity and/or supply, in general or in a particular location, is average allergy and immunology patient visits per week. As mentioned above (p. 33), 86% of the estimated total patient visits per week are to core allergists. Overall, core allergists see slightly more than 67 allergy and immunology patients per week. Table 4-7 presents the average total allergy and immunology patients visits per week by age for core allergists. As is evident, the number of patients visits per week increases with age until the over age 60 cohort. This is not surprising as many physicians choose to slow their practices at this point in anticipation of retirement. The youngest group of core allergists see the fewest patients per week (62.3), while the 50 – 59 year old allergists see the greatest number of patients per week (70.5).

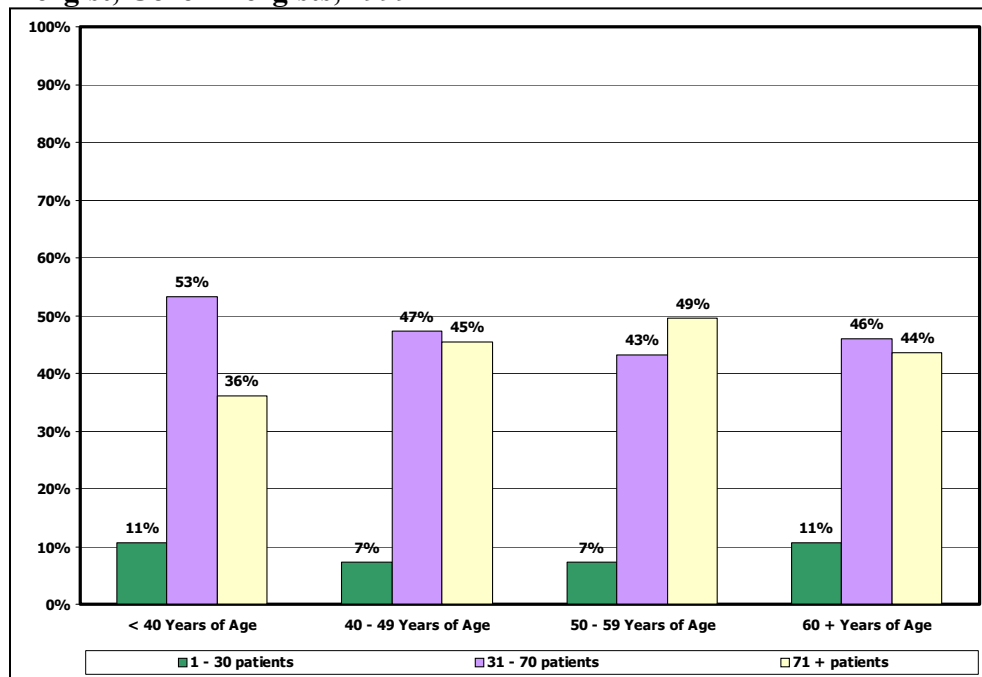
Table 4-7.
Average Total Allergy and Immunology Patient Visits per Week to Core Allergists by Age of Allergist, 1999

	Visits
Under 40 Years of Age	62.3
40 - 49 years of Age	67.7
50 - 59 Years of Age	70.5
60 + Years of Age	65.3

A closer examination of the distribution of allergy and immunology patient visits per week by age is also revealing (Figure 4-20). It is clear that the percentages of core allergists seeing 1 – 30 patients per week decreases in the 40 – 49 and 50 – 59 year old age group and

increases in the 60 and over age group. The middle patient visit group (31 – 70 patient visits) also shows a similar pattern. At the youngest age group, a majority (53%) of allergists report seeing this quantity of patients. This percentage decreases as age increases, then increases in the oldest age group. The pattern is “mirrored” in the 71 + patient category with the peak in the 50 – 59 years of age group. In sum, it is evident that the allergists increase the number of patients they see over time as their practices mature. The data point to 50 – 59 years of age as the “prime” of an allergist’s career. After that, allergists begin to slow down their practices, perhaps in anticipation of retirement.

Figure 4-20.
Average Total Allergy and Immunology Patient Visits per Week by Age of Allergist, Core Allergists, 1999



b. Organization of Practice

Currently, 41% of core allergists practice in solo arrangements and 10% in partnership practice arrangements (Figure 4-21). In addition, 39% of core allergists practice in group practice arrangements. Very few (20%) allergists practice outside these settings. The large proportion of allergists in solo practice does not follow the overall trend in the physician marketplace, where the percentage of physicians in group practice and/or other employed physician settings is growing. In 1998, only 26% of all physicians in the United States were

self-employed solo practitioners. Core allergists are far more likely than all physicians to be in solo practice.

Figure 4-21.
Primary Practice Setting Distribution of Core Allergists, 1999

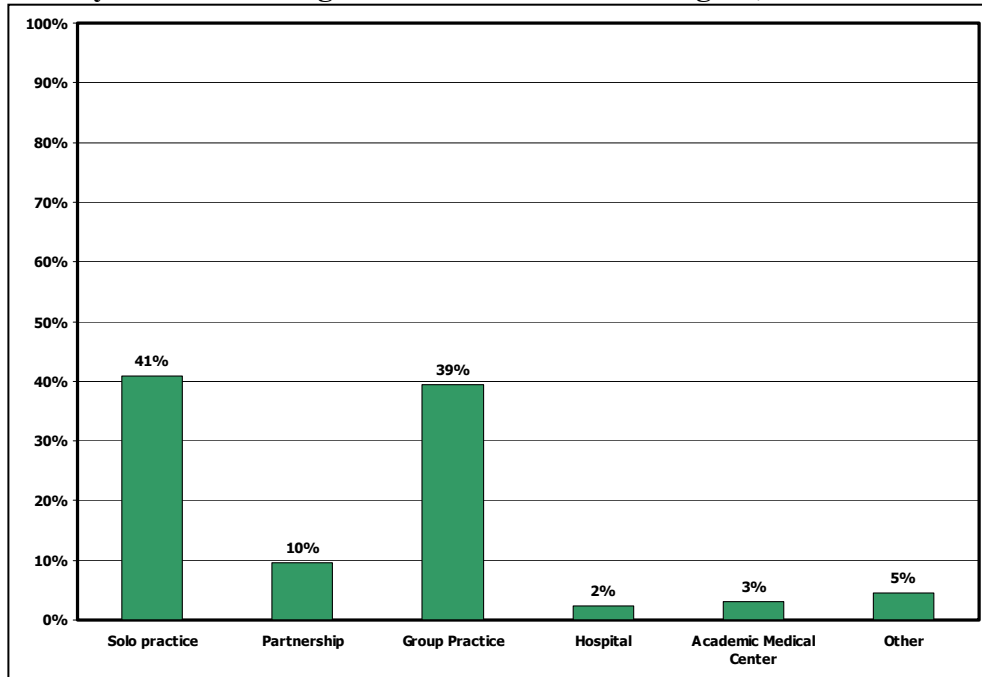
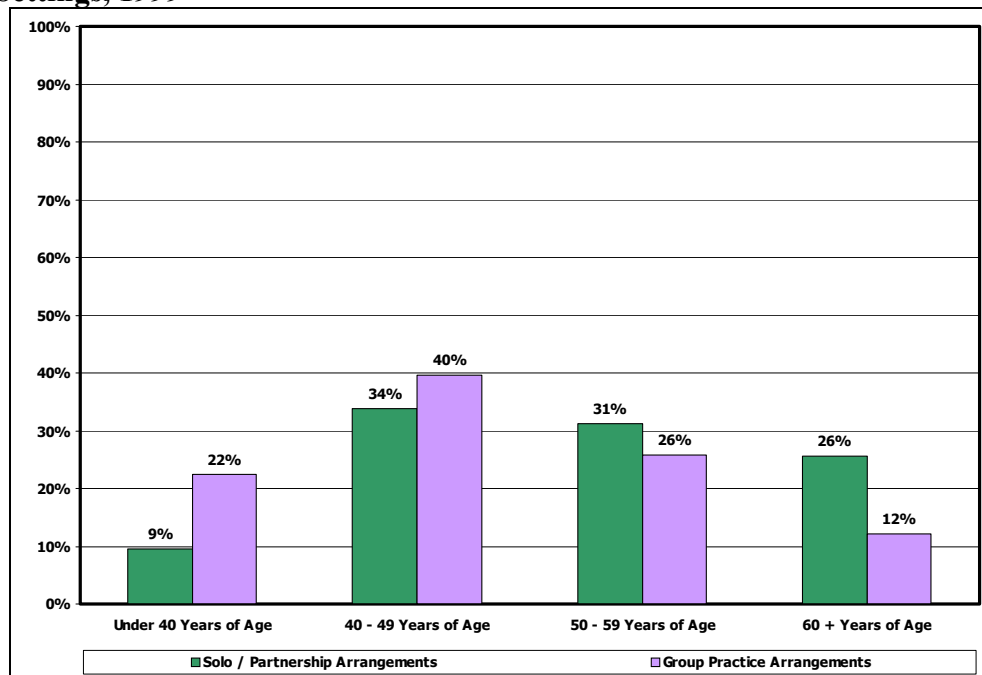


Figure 4-22.
Age Distribution of Core Allergists in Solo / Partnership and Group Practice Settings, 1999



Examining the age distribution of allergists practicing in solo/partnership and group arrangements is telling. Figure 4-22 presents these data. The general trend in the physician workforce toward group and/or employee practice arrangements mentioned above is supported by the data. Allergists in solo practice or partnerships are much more likely to be over 50 years of age (57%) than allergists in group practice (38%). Moreover, only 9% of the solo / partnership allergists are under age 40. One explanation for the higher percentage of allergists in solo/partnership arrangements than the general physician workforce is because allergists tend to be older.

The number of professionals working in an allergist’s practice is also an important characteristic when examining practice patterns. Data for core allergists is presented in Table 4-8. On average, there are slightly fewer than 2 allergists per practice. Core allergists use just over 4 registered nurses in their practices as well. Core allergists do make use of non-physician clinicians with 0.3 physician assistants and 0.4 nurse practitioners on average per practice. Moreover, 36% of core allergist practices employ physician assistants, while 40% employ nurse practitioners.

Table 4-8.
Number of Professionals in Practice of Core Allergists, 1999

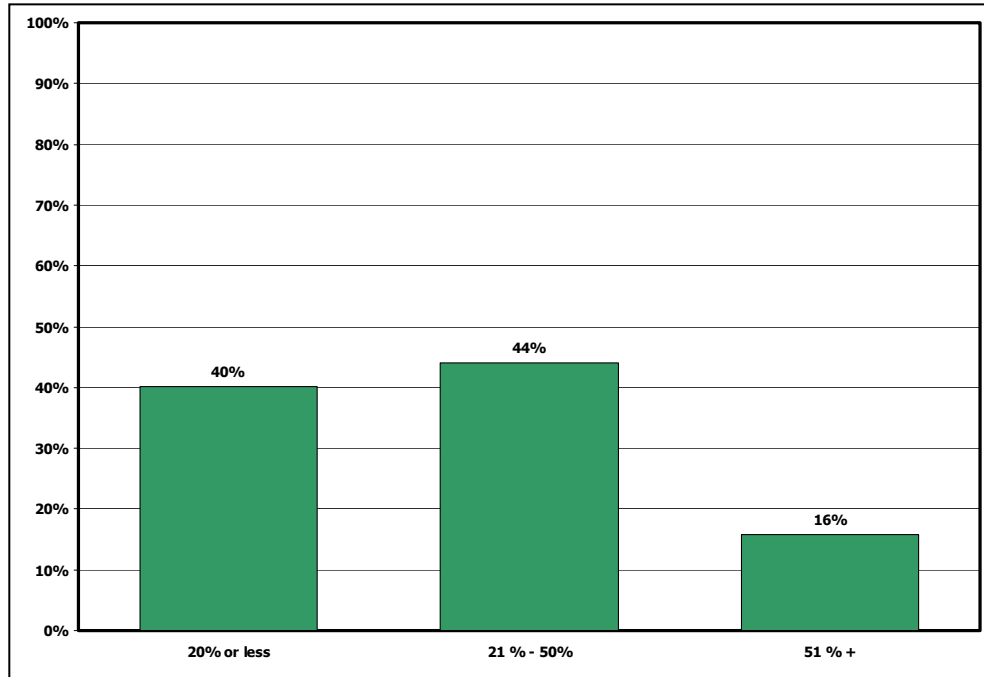
	Physicians	Physician Assistants	Nurse Practitioners	Registered Nurses
Core Allergists	1.7	0.3	0.4	4.1

Note: Numbers refer to head-counts, not FTEs.

c. Medical Aspects of Allergy Practice

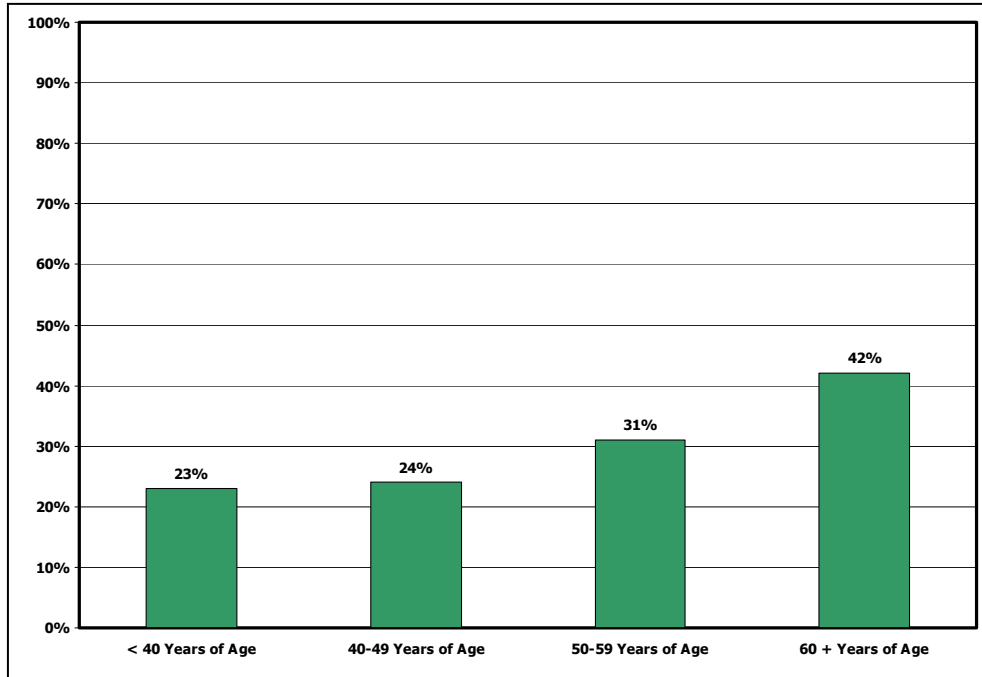
The use of allergy shots (Immunotherapy) among allergists is common, with nearly all allergists treating at least some of their patients with this technique. On average, core allergists treat slightly less than 30% of their patients with allergy shots. Figure 4-23 presents the distribution of allergy shot use levels for core allergists. Clearly, the use of allergy shots is not trivial, as 44% of the core allergists report that they treat one-fifth to one half of their patients in such a manner. Relatively few (16%) allergists use allergy shots as a treatment method for more than 50% of their patients.

Figure 4-23.
Percentage of Patients Treated with Allergy Shots, Core Allergists, 1999



As is evident from the discussion above, there is variation in allergy shot use levels among core allergists. One possible speculation is that differently trained allergists may be more likely than others to use this method of treatment. Figure 4-24 examines the distribution of average percentage of patients treated with allergy shots by age of allergist. There is a clear relationship between age of the allergist and use of allergy shots. Older allergists are more likely to report higher percentages of patients being treated with allergy shots. Moreover, core allergists who have not completed a formal allergy and immunology fellowship program (especially those whose training in allergy and immunology derives solely from an otolaryngology fellowship or short course in allergy and immunology) are much more likely to employ this treatment technique than those who have completed a formal allergy training program. Older core allergists are more likely to fall into that group of allergists.

Figure 4-24.
Average Patients Treated with Allergy Shots by Age of Allergist, Core Allergists 1999



d. Current Practice Activity, Productivity, and Capacity

The volume of new allergy and immunology patients that are seen on average per week can be an indicator of practice differences as well as demand for services among core allergists. Core allergists see an average of 15 new allergy and immunology patients per week. Figure 4-25 presents the distribution of new allergy and immunology patient volume for core and non-core allergists. The majority (60%) of core allergists see between 11 and 25 new patients per week on average. Only a few (8%) are seeing relatively high number of new patients (25+ per week). The remainder (32%) see between 1 and 10 new allergy and immunology patients per week.

Figure 4-25.
Average Number of New Allergy and Immunology Patient Visits per Week to Core Allergists, 1999

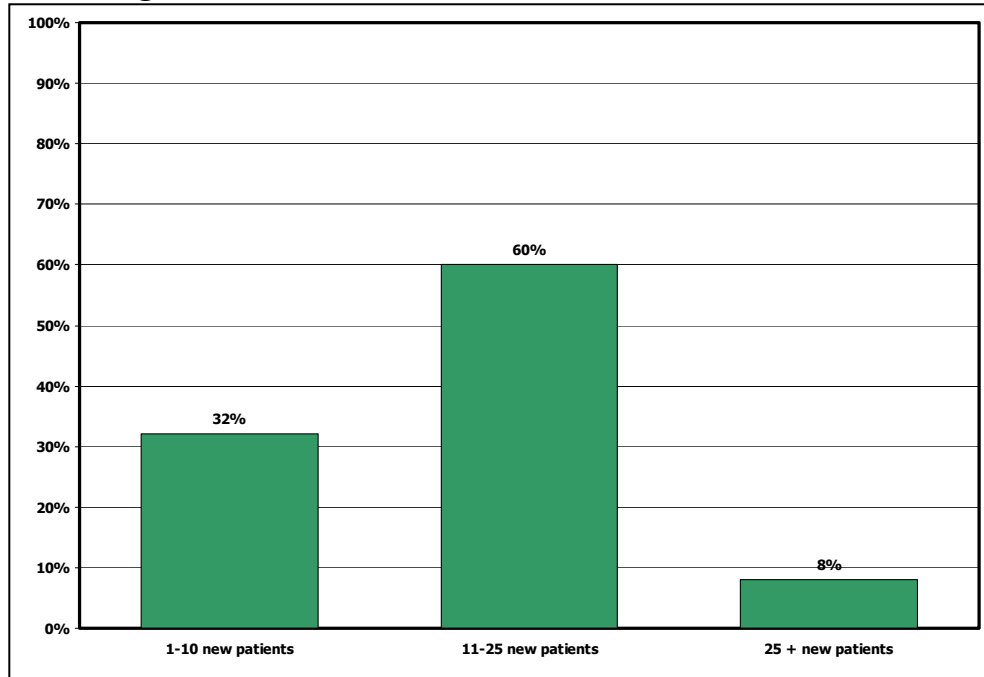


Table 4-9.
Average Number of Allergy and Immunology New Patient Visits per Week to Core Allergists by Age of Allergist, 1999

	New Patient Visits
Under 40 Years of Age	16
40 - 49 years of Age	16
50 - 59 Years of Age	15
60 + Years of Age	10

Examining average new allergy and immunology patient visits per week by age of the allergist shows some variation (Table 4-9). The younger allergists (below 50 years of age) see more new allergy and immunology patients than older allergists. While the differences are not large until an allergist reaches age 60, the variation is statistically significant. The decrease in new patient visits by age observed in the data may be due to the maturing of an allergist's practice as he/she builds a reputation and establishes a patient base within a community. Coupled with the data presented earlier on total allergy and immunology patient visits per week by age, the stages of development of an allergist's practice become clear.

Another way to examine the practice development of allergists is to focus on productivity indicators. Combining total allergy and immunology patient visit data with those on hours spent in allergy and immunology patient care, patients per hour rates can be calculated. For core allergists, the overall allergy and immunology patients per hour rate is 1.8. Table 4-10 presents the allergy and immunology patients per hour rate by age. The youngest (and thus newest) allergists are slightly less productive. The below age 40 group have a patients per hour rate of 1.7. One factor that might be driving this phenomenon is that newer allergists are more deliberate in their practices, taking longer to complete tasks that more experienced allergists treat as second nature. Another possible explanation is that newer allergists, by definition, have newer patients which may require the allergist to spend more time with the patient than an established patient. Since younger allergists see more new patients relative to older allergists, their patients per hour rate drops below that of the older allergists. However, the differences between the age groups are very small, and likely to be practically insignificant.

Table 4-10.
Allergy and Immunology Patients per Hour Rates by Age of Allergist, Core Allergists 1999

	Allergy and Immunology Patients per Hour
< 40 Years of Age	1.7
40 - 49 years of Age	1.8
50 - 59 Years of Age	1.8
60 + Years of Age	1.9

Other indicators of practice capacity/activity included on the practitioner survey are items on average waiting times for patients, both established (Figure 4-26 and Table 4-11) and new (Figure 4-27 and Table 4-11), for appointments with allergists. Overall, established patients wait just over 10 days for an appointment with a core allergist. A majority (53%) of allergists see established patients within a week (Figure 4-26). Very few (6%) of core allergists had waiting times of 1 month or longer for established patients. There is variation in waiting times for established patients by age of the allergist (Table 4-10). As is evident, waiting times for core allergists aged 40 - 49 are the longest (almost 12 days), while those for allergists aged 60 years and above are shortest (9 days). While a clear pattern is not present

in these data, stage of practice may explain some of this variation. As allergists begin their careers, they may have shorter waiting times because their patient base is relatively small, thus they find it easier to fit patients into their schedules, so they have shorter waiting times on average. At the same time, as their practices become more established and mature, waiting times might increase due to a larger patient base and a reputation in their communities of practice. At older ages, when allergists are downsizing their practices in anticipation of retirement, wait times might decrease as their patient base decreases.

Figure 4-26.
Average Wait for Appointment, Established Patients, Core Allergists 1999

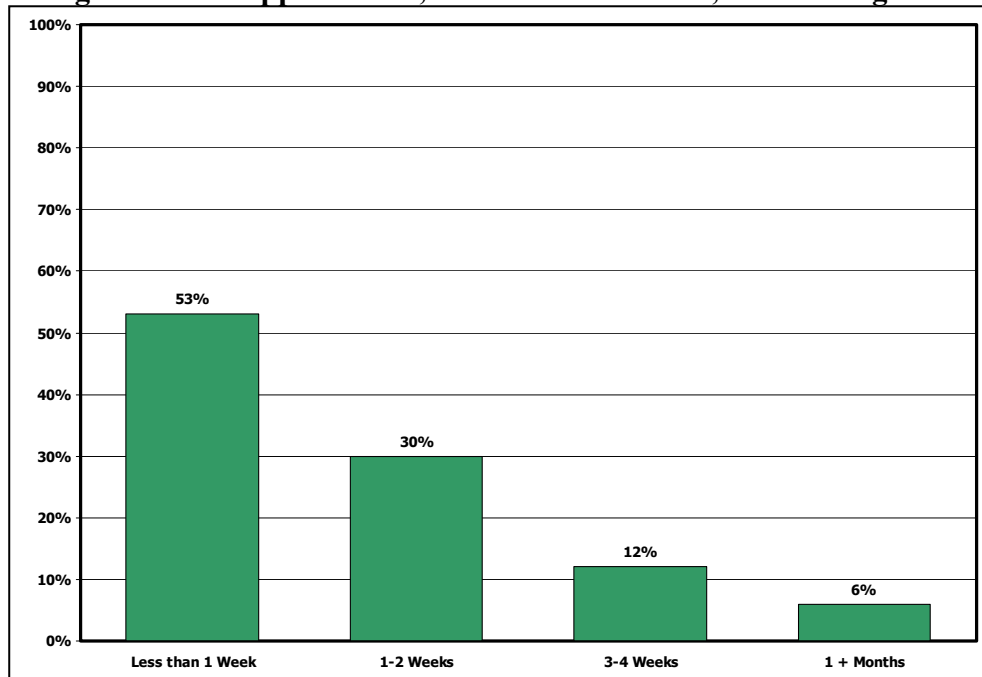


Table 4-10.
Average Wait for Appointment by Age of Allergist, Established Patients, Core Allergists 1999

	Average Wait (in days)
Under 40 Years of Age	9.8
40 - 49 Years of Age	11.7
50 - 59 Years of Age	10.5
60 + Years of Age	9.0

For new patients (Figure 4-27), the data are somewhat different. Overall, new patients have to wait nearly 3 days longer than established patients. Although data is not available on how much time a new patient visit lasts compared to an established patient's visit, new patients

may require more time to treat than established patients, thus, they may be more difficult to fit into a particular schedule, and so core allergists waiting times for new patients would be more likely longer than those for established patients. Just over one-third (35%) of core allergists report waiting times for new patients to be less than a week. Greater percentages of core allergists report longer waiting times (3 - 4 weeks and 1 + months) for new patients than for established. Examining waiting times by age of the allergist (Table 4-11) reveals similar findings to those for established patients. Allergists in the 40 - 49 years of age group have the longest waiting times, while the oldest group of allergists have the shortest average waiting times. As was speculated above, this pattern may be explained by the stage of practice allergists are typically in as they age.

Figure 4-27.
Average Wait for Appointment, New Patients, Core Allergists 1999

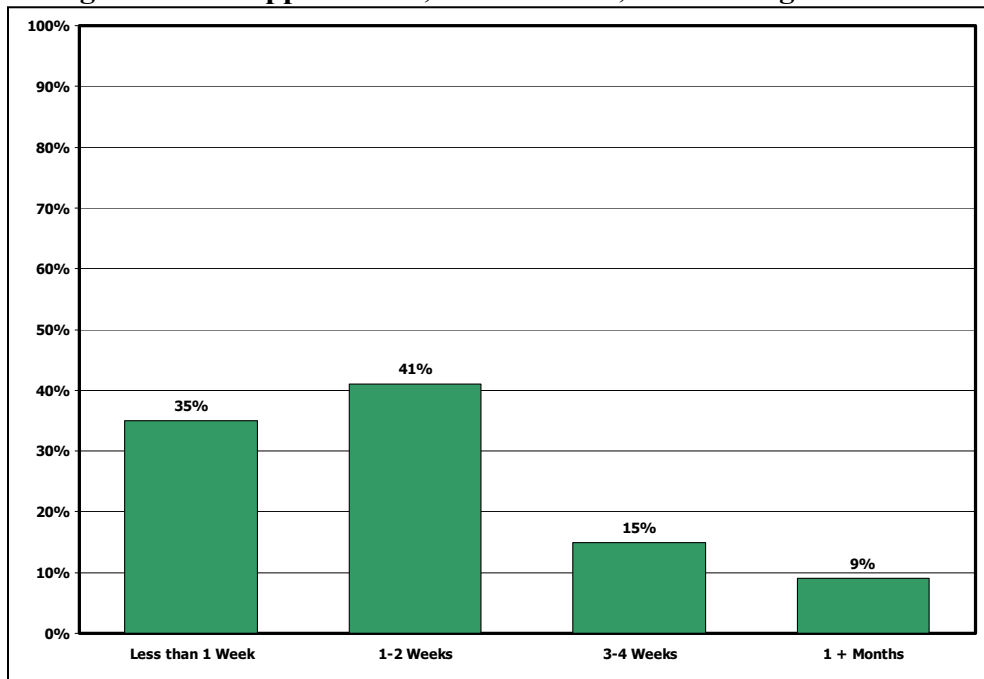
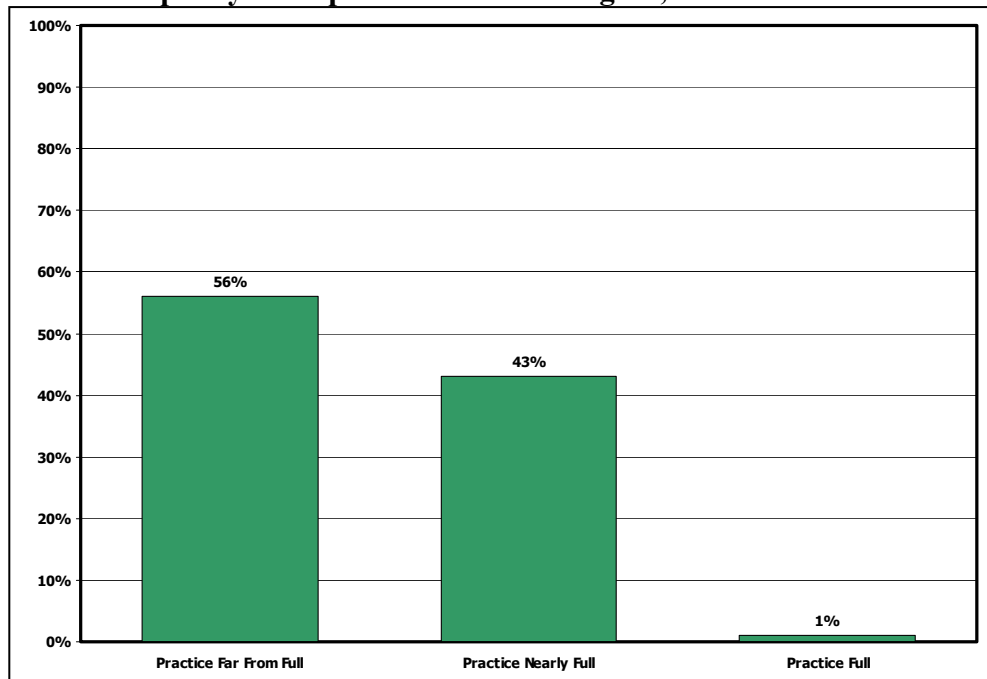


Table 4-11.
Average Wait for Appointment by Age of Allergist, New Patients, Core Allergists, 1999

	Average Wait (in days)
Under 40 Years of Age	12.1
40 - 49 Years of Age	14.2
50 - 59 Years of Age	13.3
60 + Years of Age	11.8

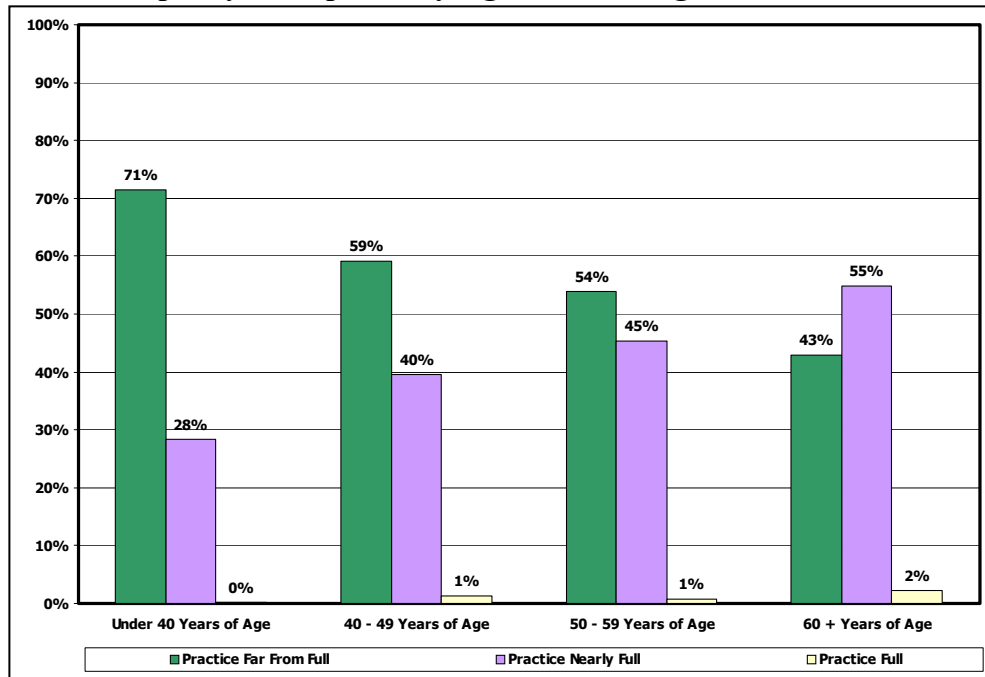
Having reviewed objective data on practice capacity/activity, allergists' perceptions of their practice capacity (Figure 4-28) can also be indicative of their ability to take on additional patients. Core allergists are highly likely to report that their practices are far from full (56%) and they could take on many additional allergy and immunology patients. At the same time, many core allergists (43%) report that their practices are nearly full and they could only take on a few more patients. Very few core allergists (1%) report that their practices are completely full and cannot accept any new patients.

Figure 4-28.
Practice Capacity Perceptions of Core Allergists, 1999



Examining practice capacity perceptions by age reveals a telling pattern (Figure 4-29). As allergists grow older, fewer and fewer allergists perceive that they can take many more additional patients. Most likely, as allergists grow older, their practices mature and they build reputations with residents of the communities they serve. As this occurs, an allergist builds an established patient base which he/she treats on a regular basis such that the taking on of additional new patients begins to become more difficult (without the hiring on of additional physicians or other staff or some other change in a particular practice).

Figure 4-29.
Practice Capacity Perceptions by Age, Core Allergists 1999



Considering all of the data on practice capacity/activity included on the practitioner survey, a clearer picture comes into focus. The data suggest that core allergists, while busy, are not uncomfortably busy. Providing less than 40 hours of allergy and immunology patient care and at the same time being able to schedule the vast majority of their patients for appointments within 2 weeks suggests that there is some capacity within the core allergist group. Allergists' perceptions support these data as a majority of them believe they could take on many new patients. These data suggest that the current supply may be slightly above current demand for providers of those services in the United States.

e. Physician Satisfaction

The final data on current practice characteristics of allergists focus on levels of physician satisfaction with their allergy and immunology practice. The practitioner survey included questions on professional (Figures 4-30 and 4-31) and economic (Figures 4-32 and 4-33) satisfaction. Professionally, nearly three-quarters (74%) of core allergists are at least satisfied, with 26% reportedly "very satisfied" with their practice professionally. Very few (11%) are dissatisfied professionally. The remainder (15%) have neutral opinions on their level of professional satisfaction.

Figure 4-30.
Professional Satisfaction of Core Allergists, 1999

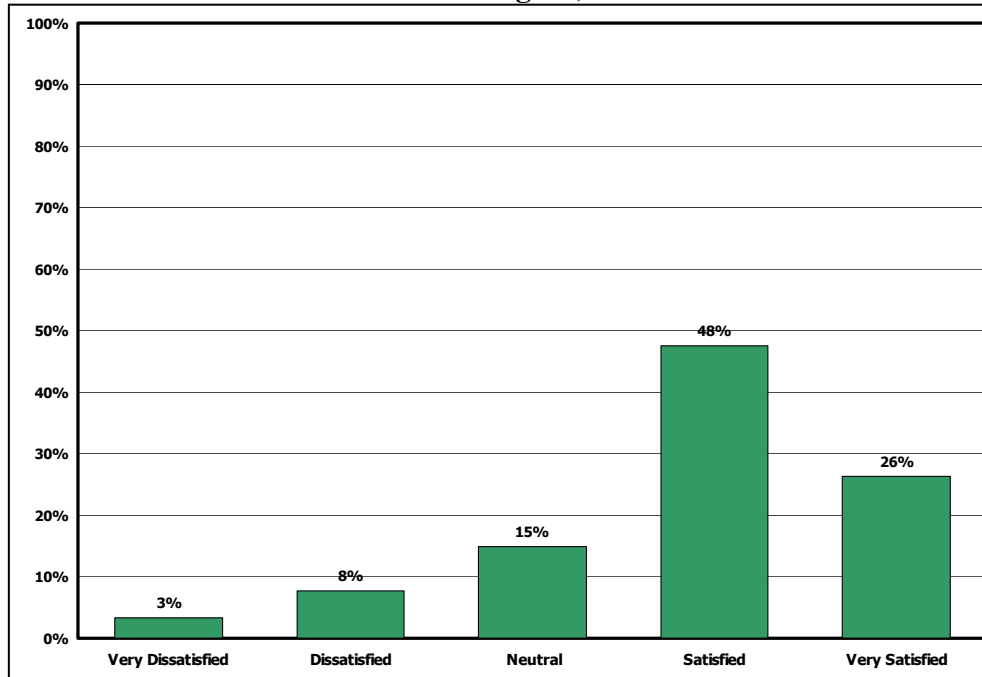
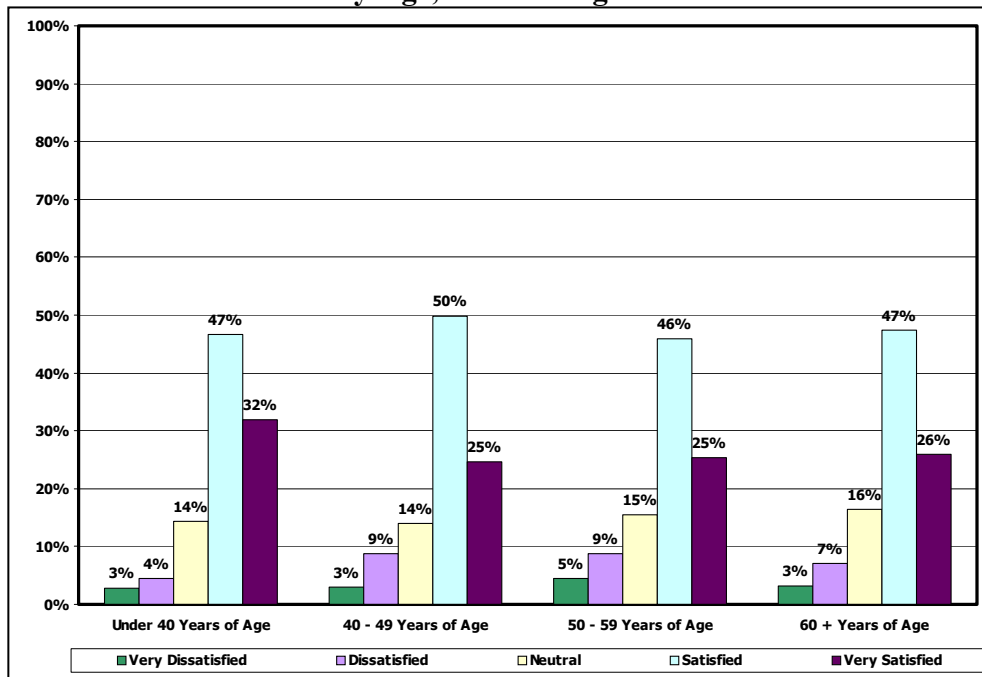


Figure 4-31.
Professional Satisfaction by Age, Core Allergists 1999



In terms of age (Figure 4-31), levels of professional satisfaction do not vary substantially. The youngest group of core allergists are most likely to be very satisfied or to be at least satisfied. This is an encouraging sign for the specialty. The level of satisfaction decreases

slightly with allergist age, but then begins to increase again among the oldest group of core allergists.

Core allergists are substantially less economically satisfied than they are professionally (Figure 4-32). Slightly less than half (47%) of the allergists report being either very satisfied (12%) or satisfied (35%) with their practice economically. Thirty-one percent are dissatisfied, while 22% have neutral opinions about their economic satisfaction. Again, core allergists report higher levels of economic satisfaction at younger ages than at older ages (Figure 4-33). Whether this is a function of genuinely higher incomes or lower expectations among younger allergists is not clear from these data. With the rapid changes in the health care delivery system and the physician's place in it, it is not surprising that these satisfaction scores are low. Some of the dissatisfaction may reflect the general turmoil in the health care delivery system as it struggles to develop a satisfactory model for patient, provider, as well as payer. The next section may shed some light on this subject as data on recent changes in allergists' practices are presented.

Figure 4-32.
Economic Satisfaction of Core Allergists, 1999

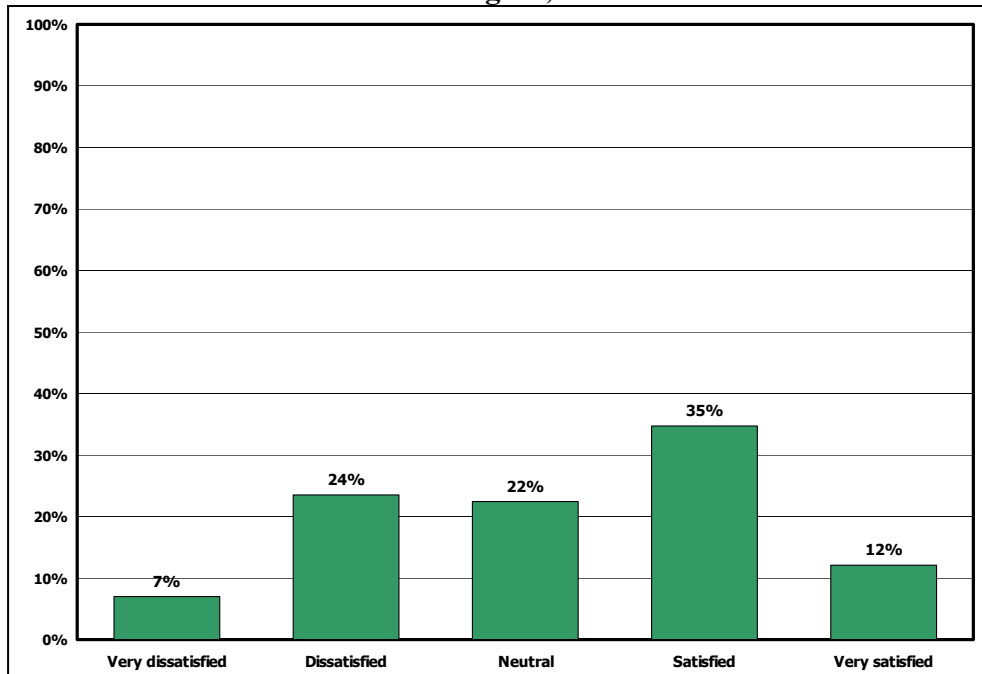
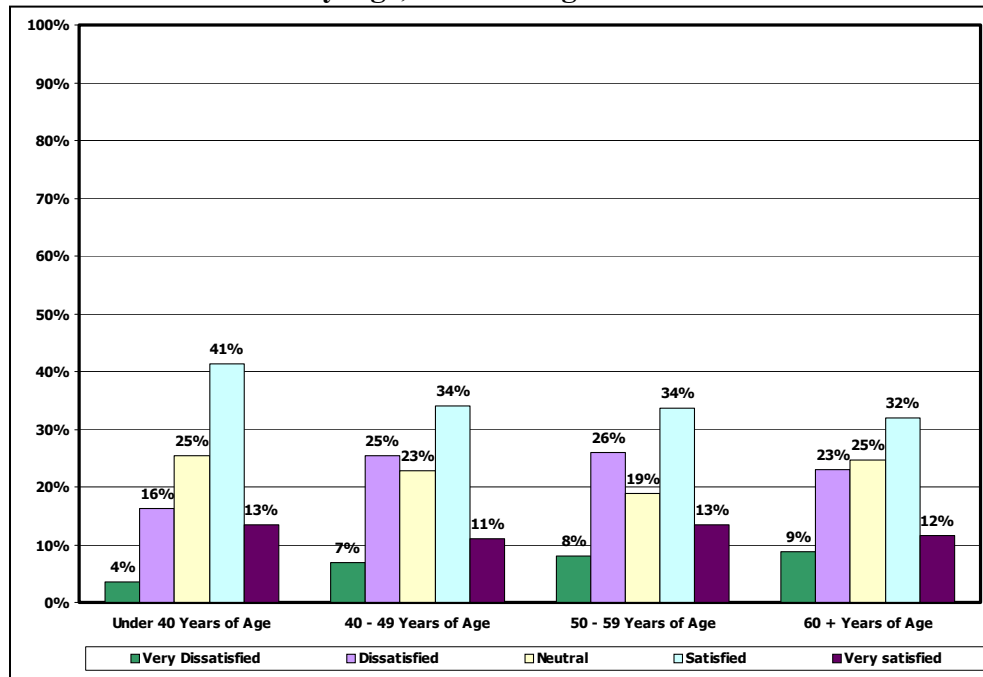


Figure 4-33
Economic Satisfaction by Age, Core Allergists 1999



5. Recent Changes in Allergy Practice

The section begins with an examination of the change in case volume for a number of common allergy and immunology diagnoses, moves through items on changes in case complexity, and ends with an examination of practice growth and practice income change.

An important factor to consider in assessing trends in allergy and immunology practice and possible changes in future demand is the mix of diagnoses in a typical allergist practice. Figure 4-34 presents the reported changes in 11 common allergy and immunology diagnoses over the past 2 years. Of the 11 diagnoses, 6 are reported to have increased in the past 2 years, led by Sinusitis, Urticaria/Angioedema, and Asthma. Of the 5 diagnoses that decreased in volume over the past two years, Insect Sting and Hypersensitivity Lung Disease decreased at the highest rate. On average, however, the changes reported are not extreme, and indicative of stability in demand rather than a substantial increase or decrease.

Figure 4-34.
Percentage of Respondents Reporting Changes in Volume of Allergy and Immunology Diagnoses Over Previous 2 Years, Core Allergists 1999

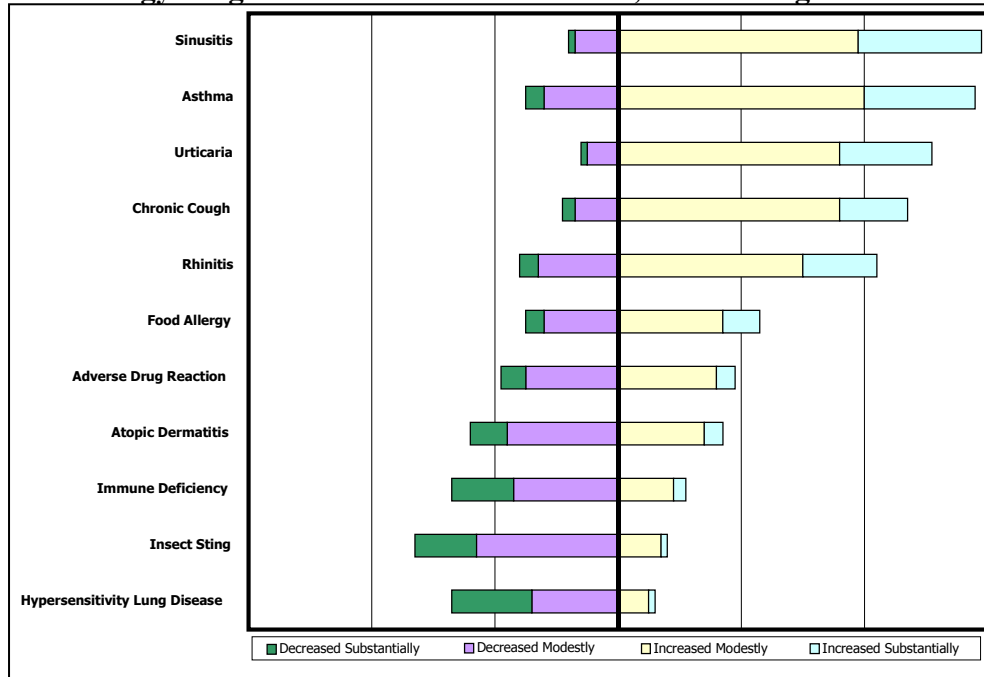
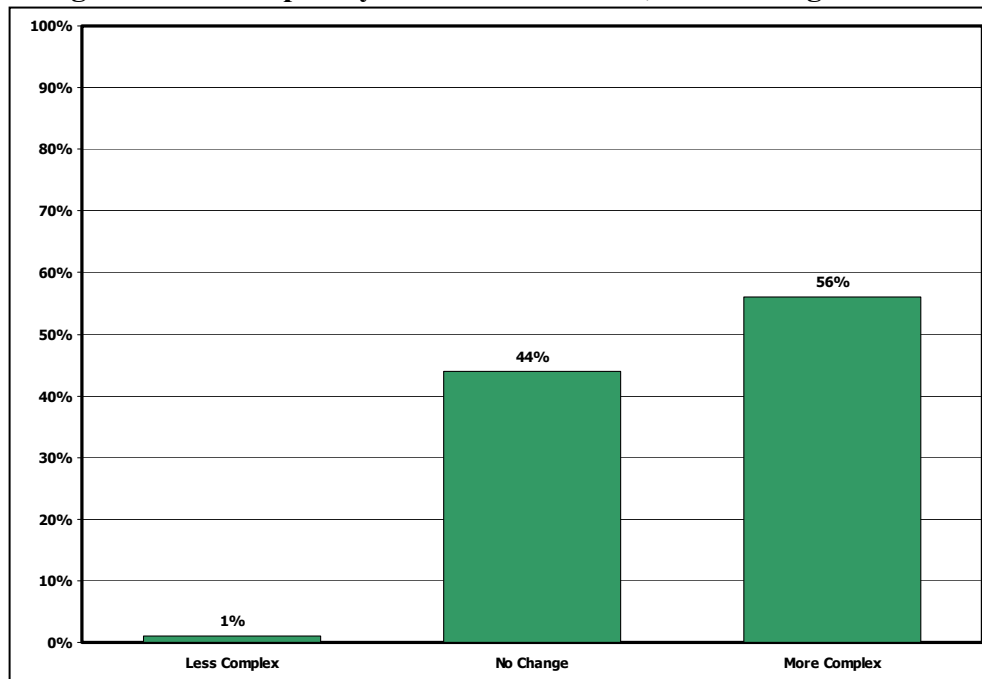


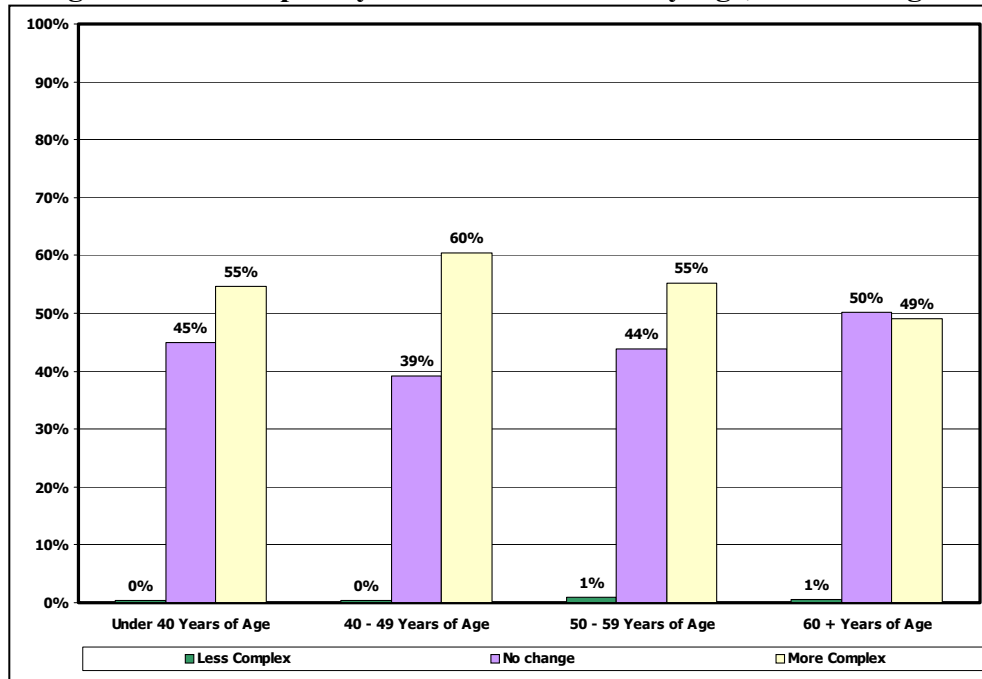
Figure 4-35.
Change in Case Complexity Over Prior 2 Years, Core Allergists 1999



Another aspect that needs to be considered is case complexity; that is, whether allergists are seeing more or less complex cases and how that has changed in the recent past (Figure 4-35).

One of the more striking and very significant findings is the growing complexity of allergy and immunology care being provided by allergists. Overall, 56% of core allergists report that the cases they see have become more complex over the past 2 years, while only 1% report less complex cases. The remainder (44%) report no change in complexity. Possible causes for this increased complexity are further discussed in the next section.

Figure 4-36.
Change in Case Complexity Over Prior 2 Years by Age, Core Allergists 1999

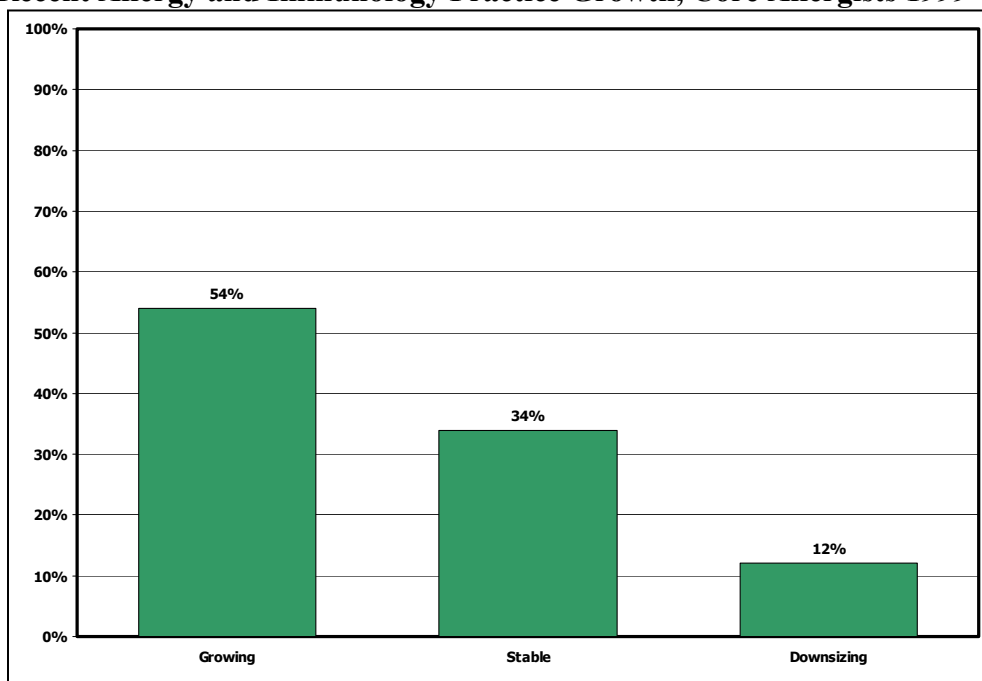


Changes in case complexities vary slightly by age as well (Figure 4-36). It appears that the change case complexity is greater among the 40 - 49 years old core allergists than it is for other allergists. The change in complexity depicted here has a number of different explanations. Among these possible explanations is that directly after completing their allergy and immunology training core allergists might be accustomed to the highly complex case mix that is seen in academic medical centers, such that their experiences in practice are not overwhelming to them initially. However, as they establish their practices and patient bases, they may begin to see more complex, difficult cases because they become known as trusted specialists in their communities. As their practices mature and their patient bases begin to stabilize, case complexity may begin to decrease as the relative number of new

patients in their practices dwindles. Without additional data, however, this line of reasoning can only remain speculative.

In a positive light for allergists, 54% of core allergists report that their practices are growing, while only 12% report that they are downsizing their practices (Figure 4-37). The remaining allergists (34%) report stability in their practice growth. These findings imply that core allergists may be looking forward to increased demand for their services.

Figure 4-37.
Recent Allergy and Immunology Practice Growth, Core Allergists 1999



Not surprisingly, there are significant differences age (Figure 4-38). As is evident, the youngest group of allergists is the most likely (81%) to report that their practices are growing, while the oldest group is most likely (28%) to report that their practices are downsizing. Interestingly, however, even at the oldest age group, as many allergists report that their practices are still growing as report they are downsizing. This, again, is good news for allergists.

Figure 4-38.
Recent Allergy and Immunology Practice Growth by Age, Core Allergists 1999

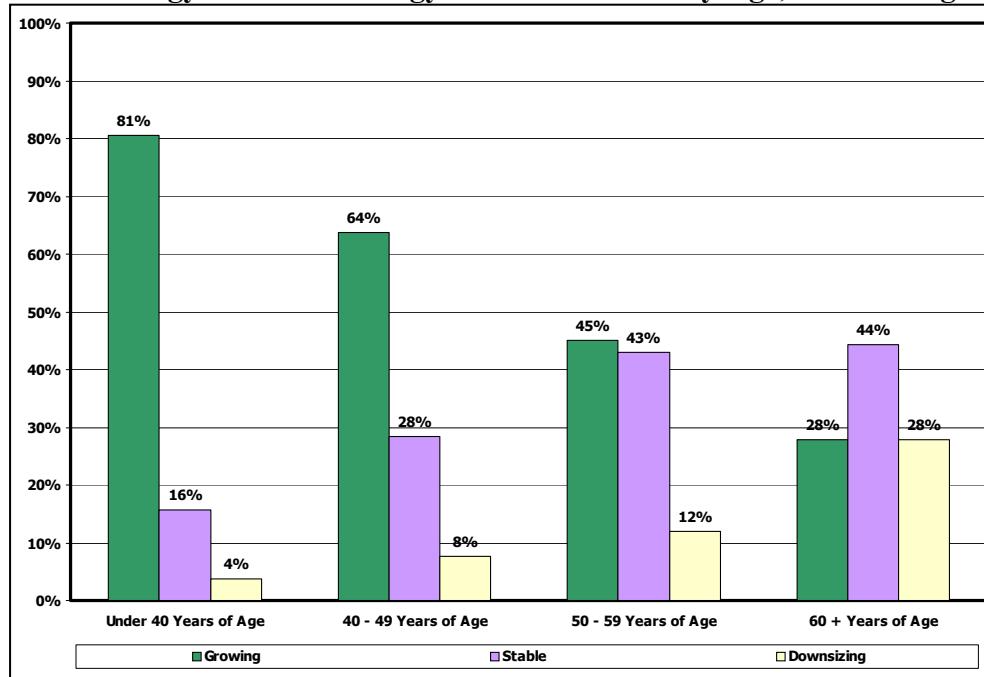
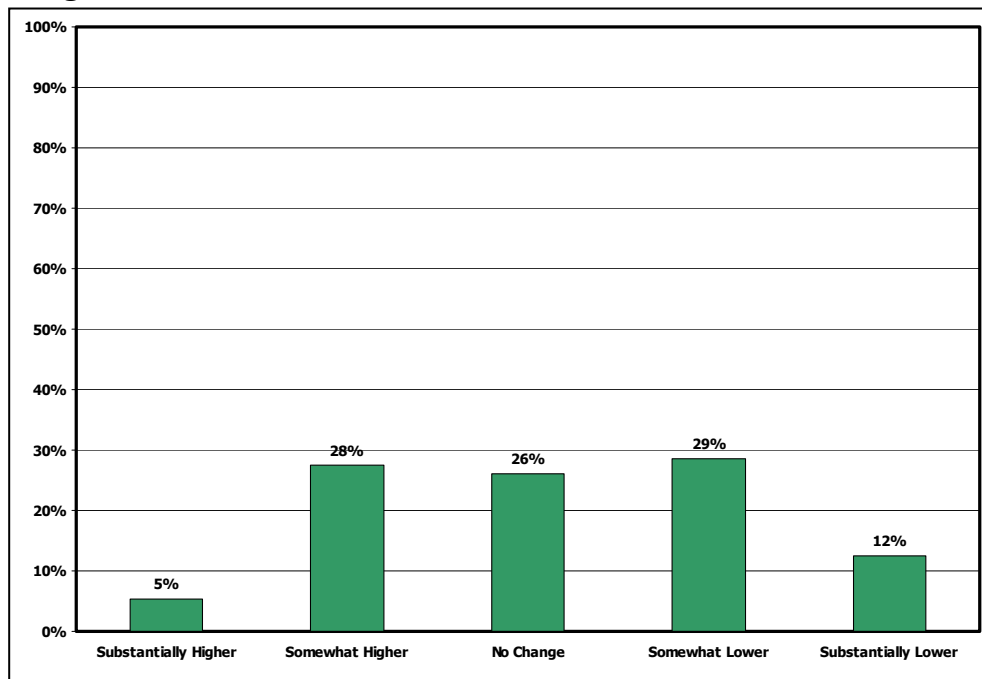


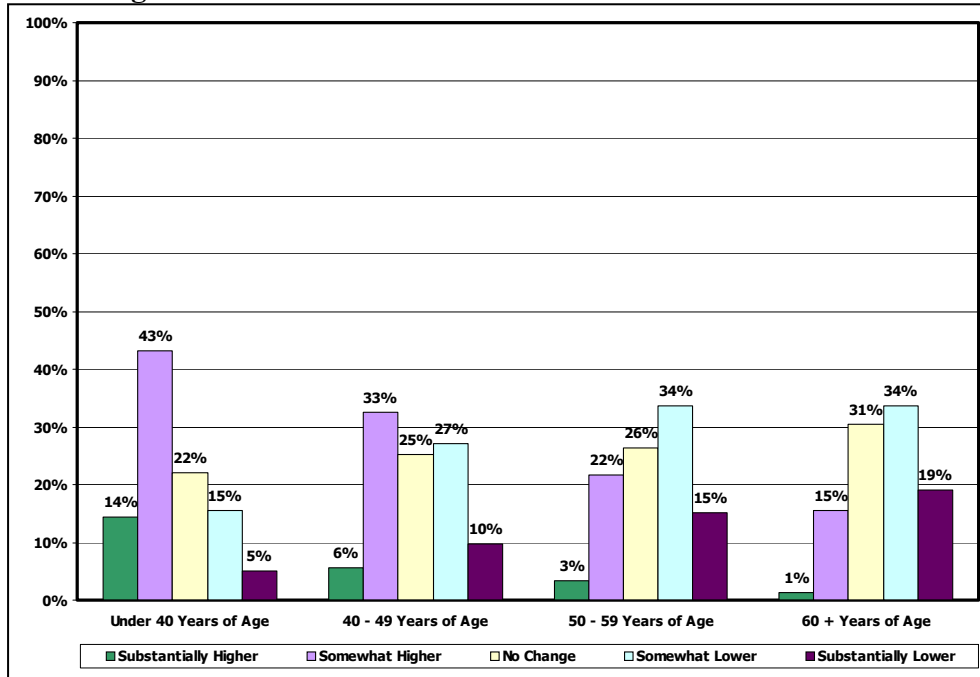
Figure 4-39.
Change in Allergy and Immunology Practice Income Over Prior 2 Years, Core Allergists 1999



Despite growth in practices and the increasing complexity of cases, more allergists (41%) report decreases in allergy and immunology practice income than report increases (33%) in

income over the previous two years (Figure 4-39). These developments may reflect the expansion of managed care and increased competition. This is further discussed below. This finding is somewhat paradoxical as all other data point to an environment that is seemingly demand-rich with growth occurring in most places.

Figure 4-40.
Change in Allergy and Immunology Practice Income Over Prior 2 Years by Age, Core Allergists 1999



In terms of age (Figure 4-40), there is a clear pattern of more allergists reporting a decrease in income as the age of the allergist increases. Some 57% of the youngest group of allergists report that they are earning higher incomes from their allergy and immunology practices in the previous two years. This percentage decreases to 16% in the 60 + years of age group. While it was expected that income would decrease in the oldest age group, it is surprising that the pattern is so consistent across all age groups. Again, in an environment of increasing demand and growth in practices, these findings are unexpected. Before we examine any specific issues which may be linked to these paradoxical findings, we will present data on the potential impact of a number of factors on demand for allergy and immunology services.

6. Future Changes in Allergy Practice

There is always uncertainty in any prediction or forecast of how specific factors will impact the physicians from any specialty. In this respect allergy and immunology is not unique. 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 three survey items which assess the impact of the incidence/prevalence of allergy and immunology conditions, new medications and treatments, and new practice parameters on demand for allergy and immunology services will be examined. In the next section, we consider the impact of the growth in managed care.

First, allergists overwhelmingly believe that over the next five years, the incidence/prevalence of allergy and immunology conditions will increase demand for allergy and immunology services (Figure 4-41). Close to three-fifths (58%) of core allergists report this. Only 2% believe that the incidence/prevalence of these conditions will decrease demand for their services. With allergic and asthmatic conditions continuing to increase, demand for allergy and immunology services is expected to increase as well.

Figure 4-41.
Future Impact of the Incidence/Prevalence of Allergy and Immunology Conditions on Demand for Allergy and Immunology Services, Core Allergists 1999

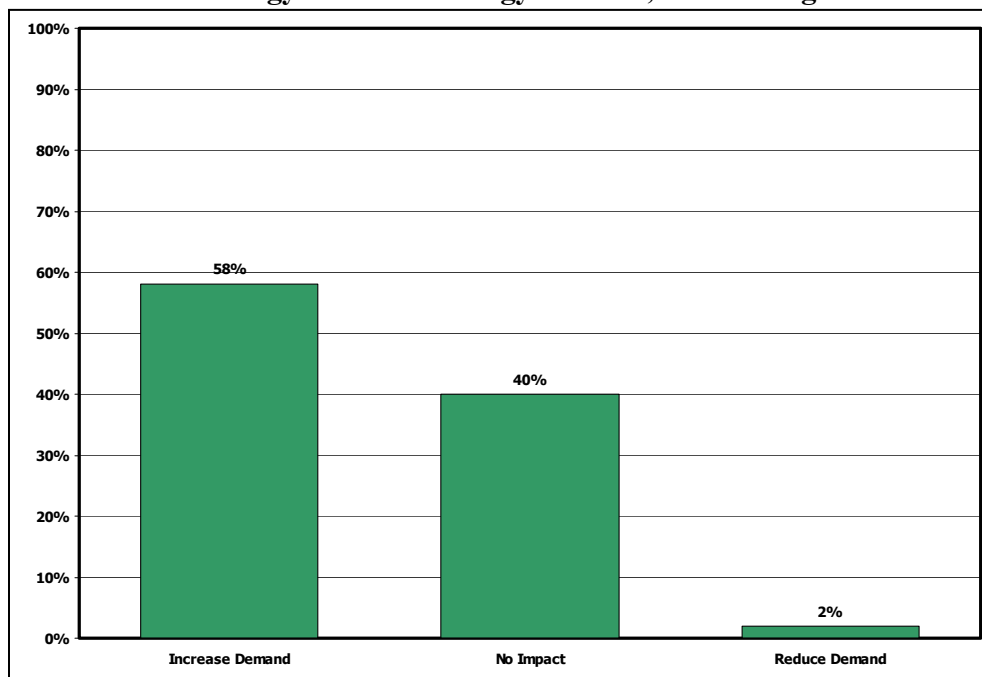
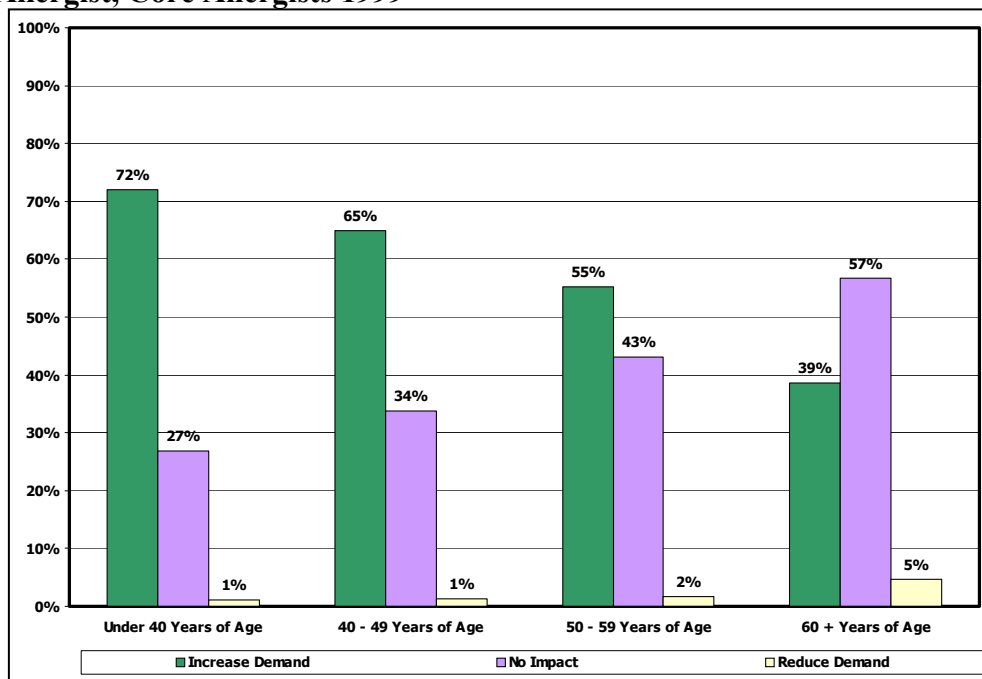


Figure 4-42 presents allergists' opinions on the impact of allergy and immunology conditions on demand for their services by age of the allergists. The overall pattern is one of decreasing impact as age increases. Almost three-quarters (72%) of the youngest allergists report that they expect demand for their services to be increased by the incidence/prevalence of allergy and immunology conditions. The oldest group of allergists is the least likely to report expected increases in demand due to this factor; however, consistent with the other age groups, a far greater percentage of the oldest allergists expect an increase in demand rather than a decrease. Older allergists may not be as likely to be affected by changes in incidence/prevalence of allergy and immunology conditions because they are likely to have a larger established patient bases and new patients may play a smaller role in their practices. Thus, the potential number of new patients may be less relevant in determining future demand for their services.

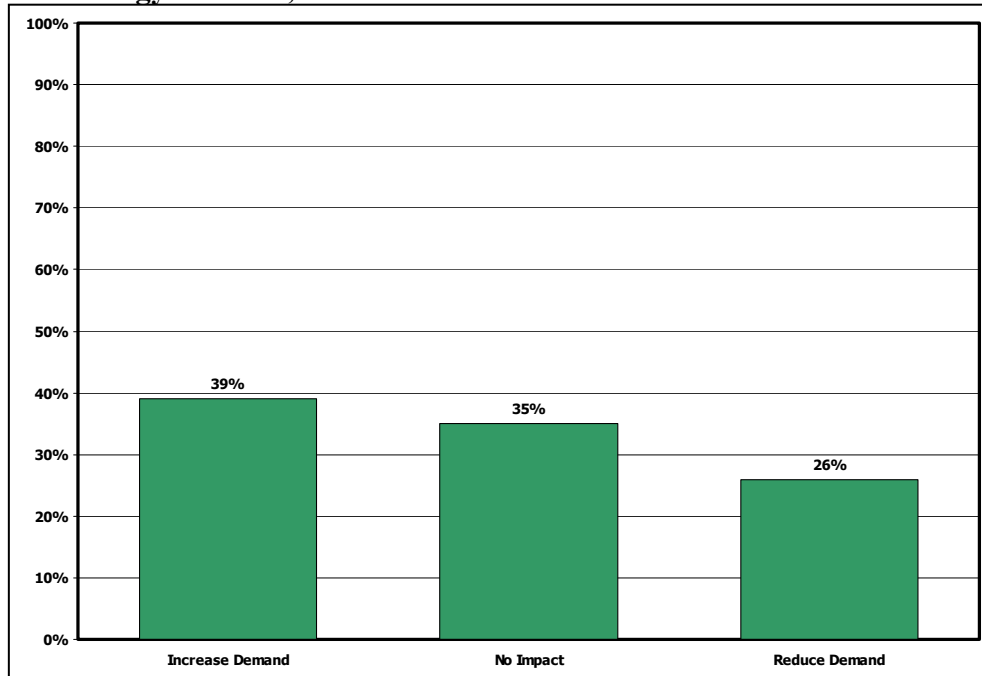
Figure 4-42.
Future Impact of the Incidence/Prevalence of Allergy and Immunology Conditions on Demand for Allergy and Immunology Services by Age of Allergist, Core Allergists 1999



Second, there is somewhat less agreement on the impact of new medications and treatments on demand for allergy and immunology services (Figure 4-43), but, again, a higher percentage believe demand will increase rather than decrease. Overall, core allergists are

split in their opinions on the impact of this factor. Thirty-nine percent of allergists believe that these new medications and treatments will increase demand, while 26% believe they will decrease demand, and 35% of the allergists surveyed believe that new medications and treatments will have no impact on demand.

Figure 4-43.
Future Impact of New Medications and Treatments on Demand for Allergy and Immunology Services, 1999



Age plays a limited role in allergists' opinions concerning the impact of new medications and treatments on demand for allergy and immunology services (Figure 4-44). Allergists under age 60 hold relatively similar opinions with regard to this factor. Over 40% of these allergists believe that new medications and treatments will increase demand for their services over the next five years. However, for allergists age 60 and above, almost an equal percentage think that these new medications and treatments will increase demand (30%) as think they will decrease demand (26%). One possible explanation of this pattern is that the oldest physicians may not believe that they can (or may not want to go through the trouble of) keep(ing) abreast of the newly developed treatments and medications, so that they will not play a significant role in their practices, whereas younger physicians may find it easier to blend new medications and treatments into their practices.

Figure 4-44.
Future Impact of New Medications and Treatments on Demand for Allergy and Immunology Services by Age of Allergist, Core Allergists 1999

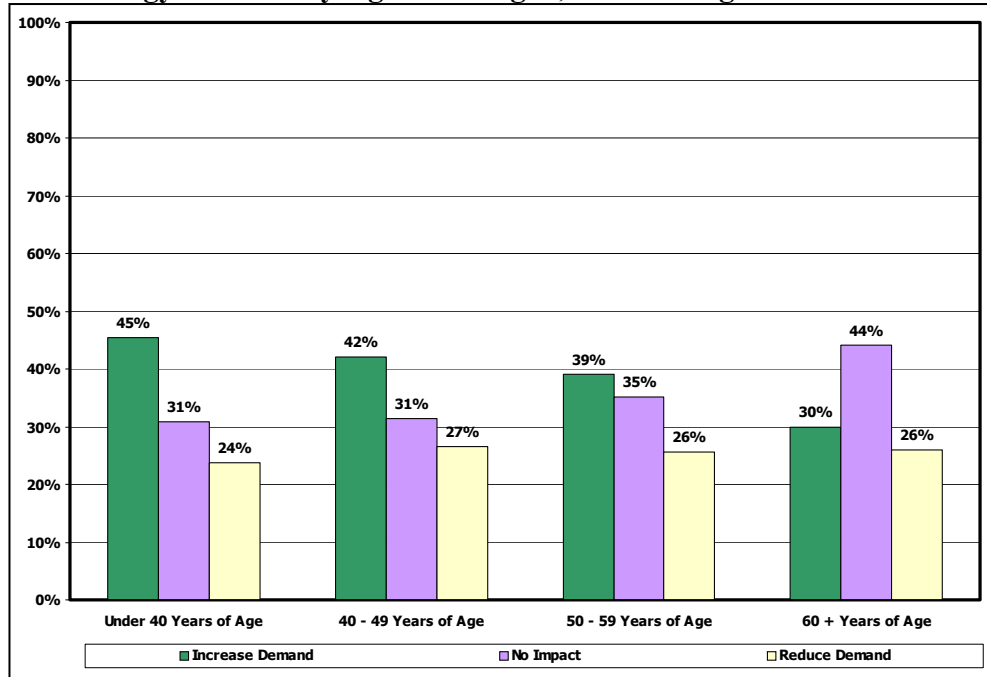
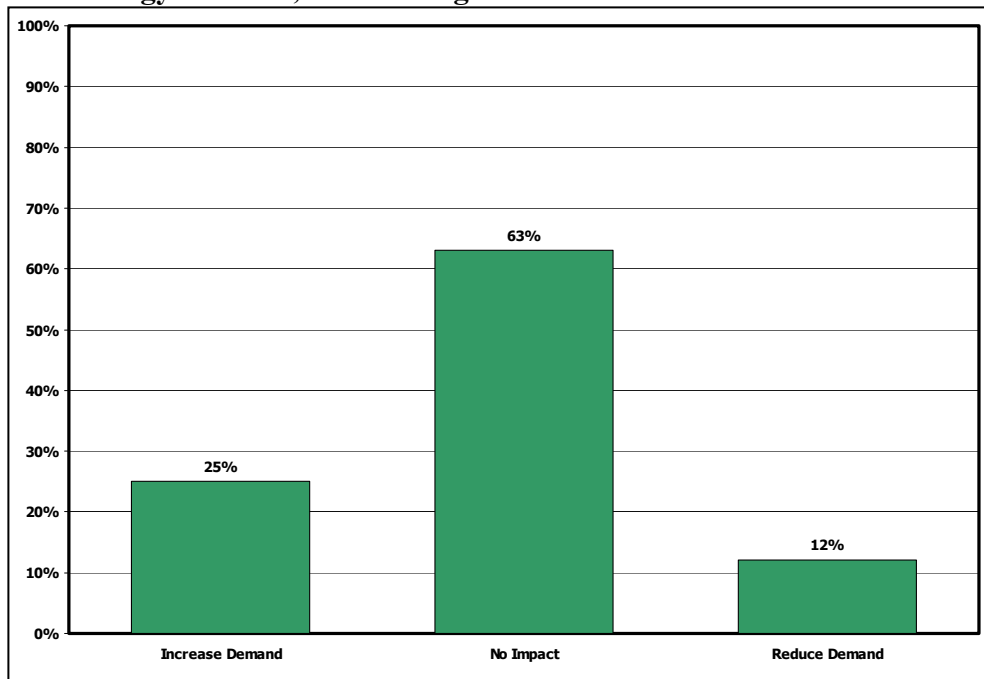
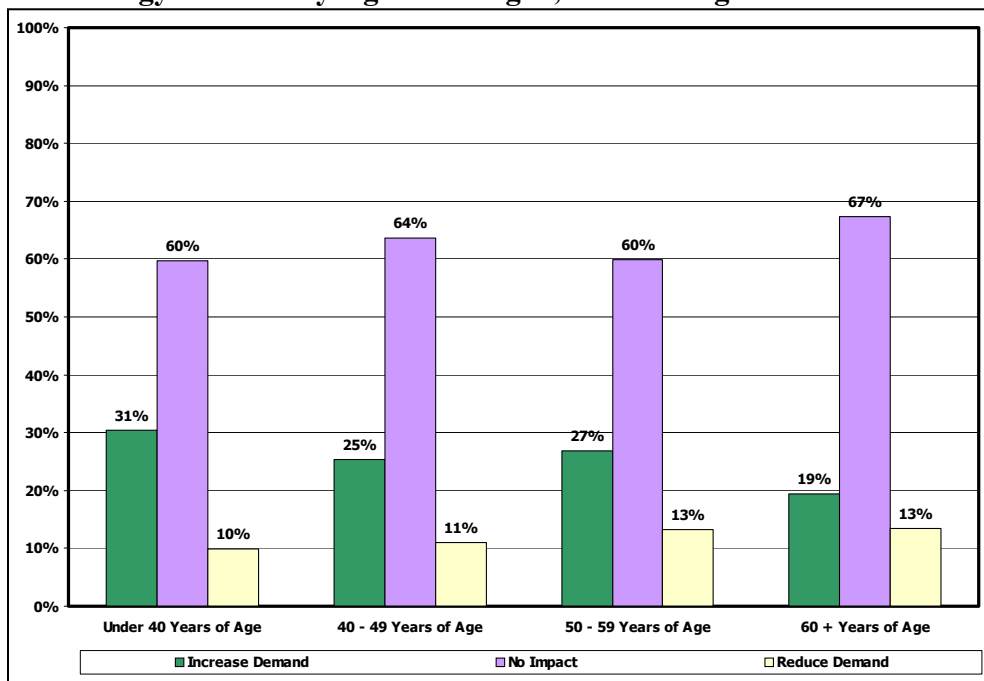


Figure 4-45.
Future Impact of New Practice Parameters on Demand for Allergy and Immunology Services, Core Allergists 1999



Finally, core allergists (63%) believe that new practice parameters will have little effect on demand for allergy and immunology services (Figure 4-45). Twenty-five percent believe that new parameters will increase demand, while only 12% believe they will decrease demand for their services. Examining this distribution by age of allergist (Figure 4-46) reveals little variation across age groups. The oldest group of allergists is less likely to believe that new practice parameters will increase demand, however.

Figure 4-46.
Future Impact of New Practice Parameters on Demand for Allergy and Immunology Services by Age of Allergist, Core Allergists 1999



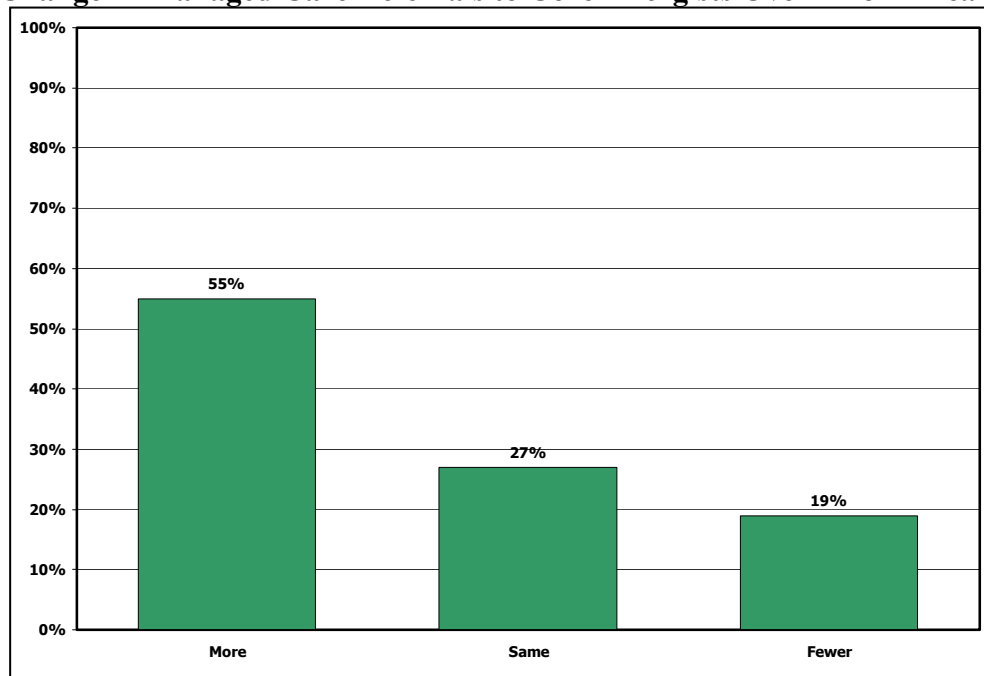
Core allergists, appear to be confident that demand will remain steady or increase as the incidence of allergic and asthmatic conditions increase, as new medications and treatments are developed, and as new practice parameters are established. However, of great concern among health care providers, administrators, and researchers are the impacts of managed care and its expansion on physicians, patients, and other aspects of the health care delivery system in the United States.

7. Effects of Managed Care on Allergy Practice

This section begins with an analysis of the expansion of managed care in the recent past and ends with an examination of how allergists think the expansion of managed care will affect demand for their services in the future.

The expansion of managed care affects not only allergists, but almost all other physicians as well. Over the past two years, over half (55%) of core allergists report that managed care referrals have increased and only 19% report a decrease (Figure 4-47). The remaining (27%) core allergists report no change in managed care referrals over the two prior years. This increase undoubtedly reflects the increased enrollment in managed care, rather than an increase in per capita use of allergists by managed care enrollees.

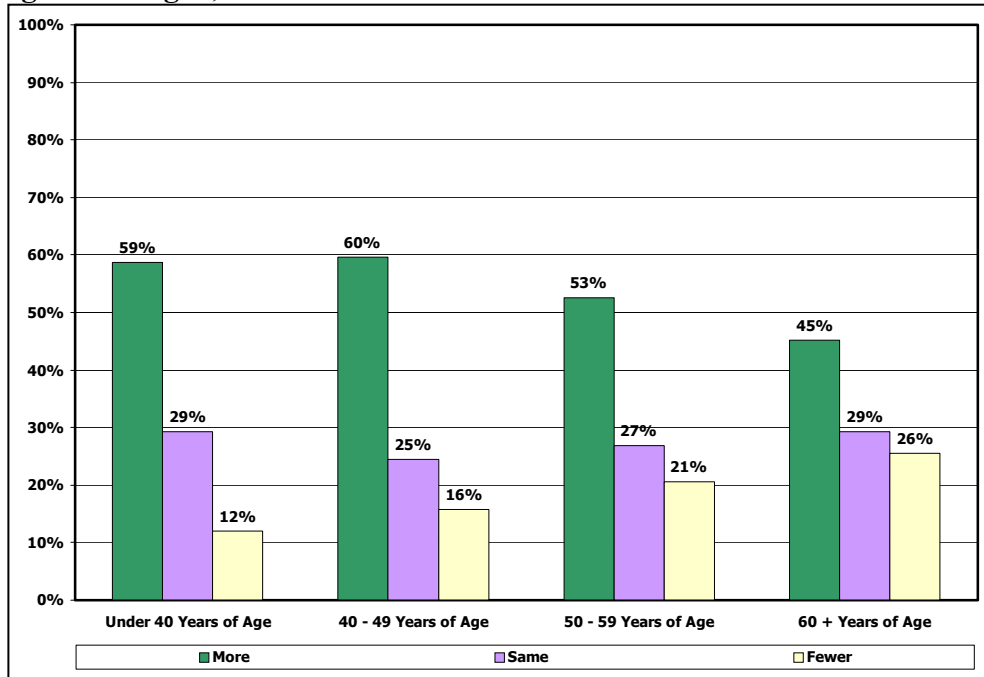
Figure 4-47.
Change in Managed Care Referrals to Core Allergists Over Prior 2 Years, 1999



The increase in managed care referrals does vary somewhat by age (Figure 4-48). Allergists below age 60 are more likely (57%) to report that managed care referrals have increased over the past two years than allergists age 60 and older (45%). At the same time, the older group of allergists are more likely (26%) to report fewer referrals than their younger counterparts (17%). Overall, just over one-quarter (27%) of core allergists report no change in the

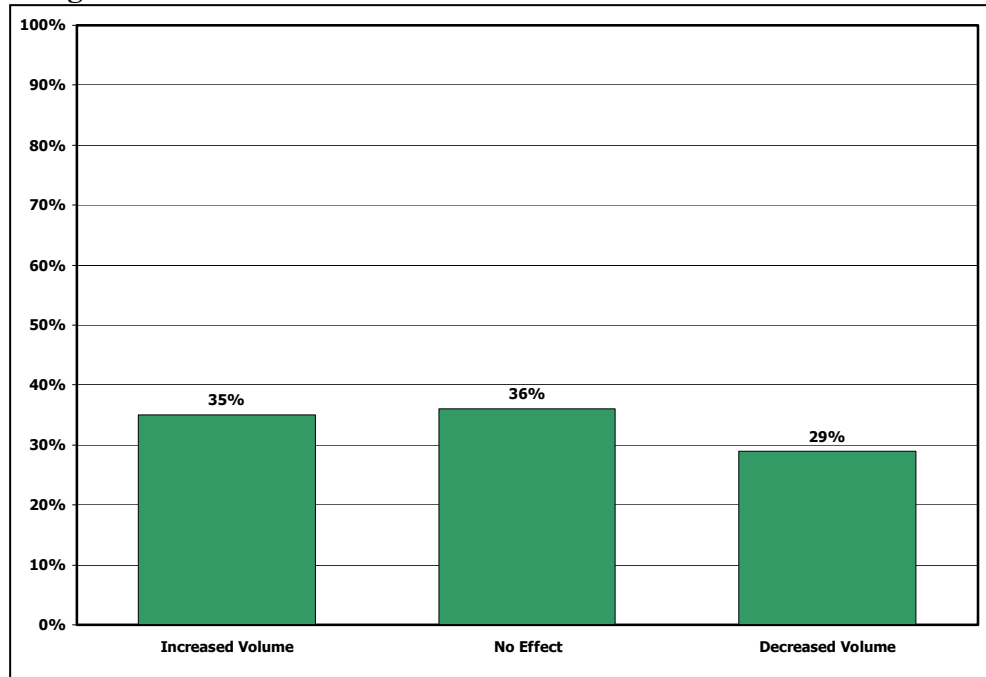
number of managed care referrals they receive. This figure does not vary greatly across age groups.

Figure 4-48.
Change in Managed Care Referrals to Core Allergists Over Prior 2 Years by Age of Allergist, 1999



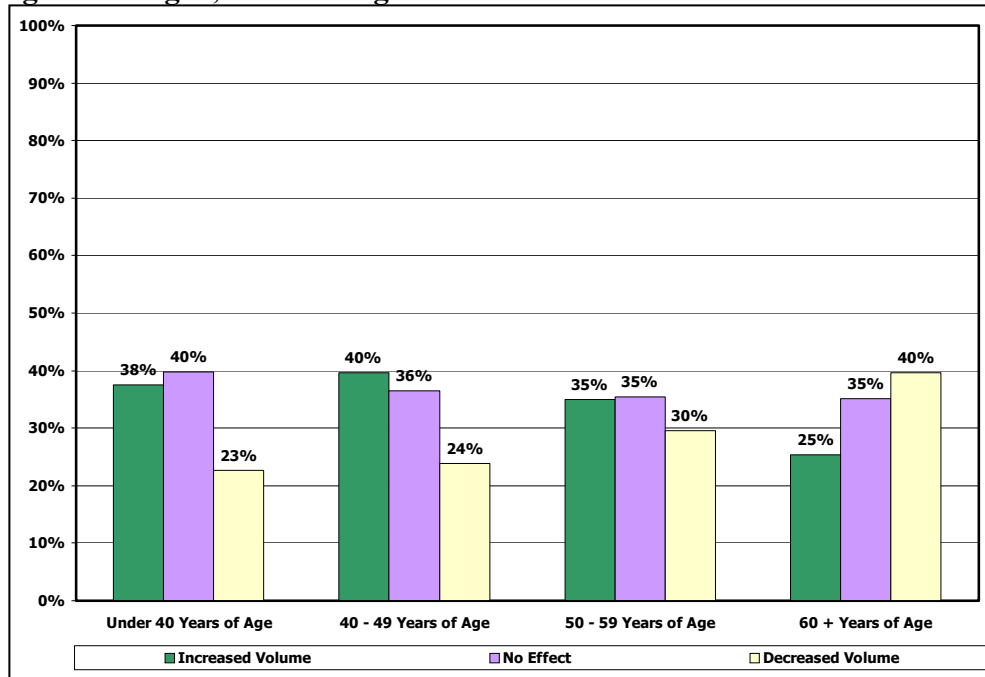
The expansion of managed care and the reported increase in managed care referrals must be assessed as to its impact on allergists' practice. Figure 4-49 presents the impact of the expansion of managed care on patient volume. Overall, the expansion of managed care has had mixed effects on patient volume. Core allergists are split relatively evenly among the three effect categories, with 35% reporting increased patient volume, 29% reporting decreased patient volume, and 36% reporting no effect of the expansion of managed care. This may indicate that some managed care organizations and their policies are moving some allergy cases away from non-board certified and/or older non-formally trained allergists. That is, managed care policies promote the use of an appropriate provider for a patient with certain conditions. In any case, some allergists are increasing their volume of managed care patients while other are seeing fewer patients.

Figure 4-49.
Effect of Managed Care Expansion on Patient Volume in the Last 2 Years, Core Allergists 1999



Examining the impact of managed care expansion on patient volume for core allergists by age (Figure 4-50), little variation is present among allergists below age 60. However, as with managed care referrals, the older groups of allergists have not experienced the increased patient volume due to managed care expansion that the younger allergists have. Forty percent of the oldest group of allergists report that they have experienced a decline in patient volume over the past two years, while only 23% of the younger group report similarly.

Figure 4-50.
Effect of Managed Care Expansion on Patient Volume in the Last 2 Years by Age of Allergist, Core Allergists 1999



While the effects of managed care expansion on patient volume are mixed, the effects on case complexity (Figure 4-51) are clear. Over half (53%) of core allergists report that case complexity has increased over the previous two years due to managed care expansion. As was observed above (pp. 69 • 71), very few allergists (3%) report that it has led to a decrease in complexity. The remainder (45%) report no change in complexity due to managed care expansion. This would appear to be a positive development for patients and practitioners. It appears that managed care is encouraging the more complex allergy related cases to see an allergist while perhaps, encouraging less complex cases to be cared for by the primary care physician.

Figure 4-51.
Effect of Managed Care Expansion on Case Complexity in the Last 2 Years, Core Allergists, 1999

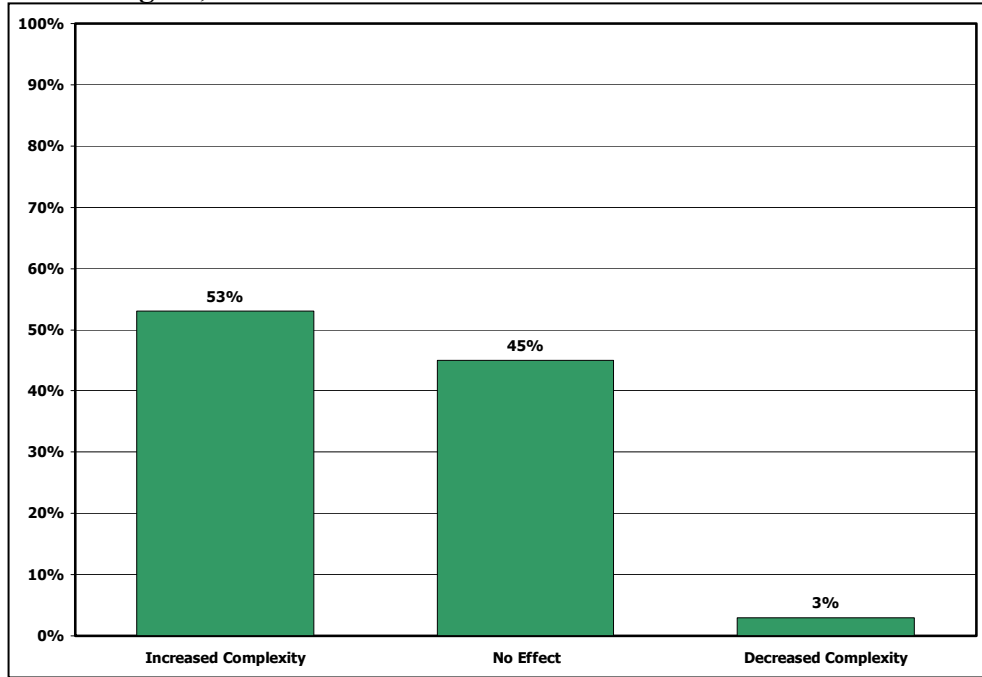
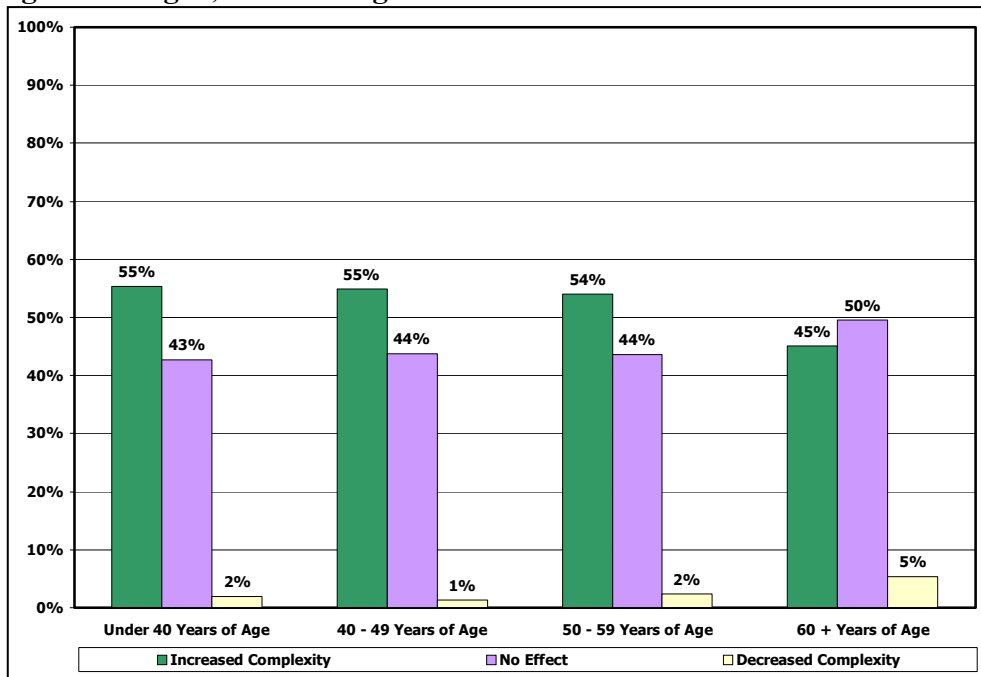


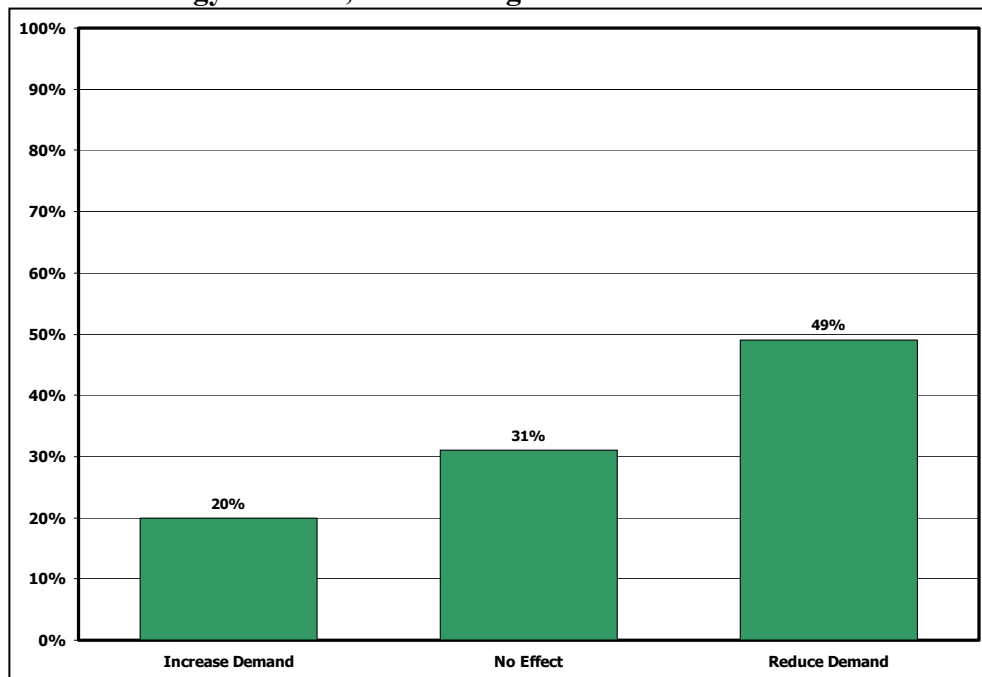
Figure 4-52.
Effect of Managed Care Expansion on Case Complexity in the Last 2 Years by Age of Allergist, Core Allergists 1999



Examining the impact of managed care expansion on case complexity for core allergists by age (Figure 4-52), little variation is present among allergists below age 60. However, as with managed care referrals and patient volume, the oldest group of allergists are slightly less likely to have experienced the increased complexity due to managed care expansion than the younger allergists are. Forty-five percent of the oldest group of allergists report that they have experienced increased case complexity over the past two years, while 55% of the younger group report similarly.

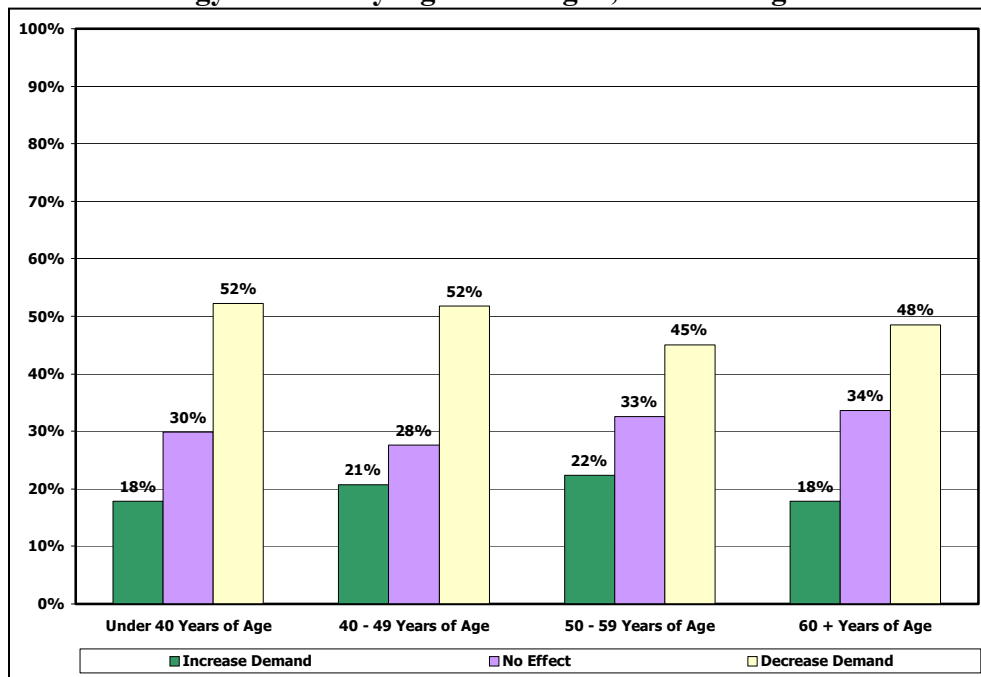
Finally, to complete this examination focused on the expansion of managed care's effects on the practice of allergists, Figure 4-53 presents data on how allergists see the impact of managed care expansion on demand for allergy and immunology services in the next 5 years. Nearly a majority (49%) of core allergists believe that the expansion of managed care will decrease demand for allergy and immunology services. Only 20% of allergists believe that managed care expansion will increase demand for allergy and immunology services. The remaining allergists (nearly a third, 31%) report that managed care expansion will have no effect on demand for the services they provide.

Figure 4-53.
Future Impact of the Expansion of Managed Care on the Demand for Allergy and Immunology Services, Core Allergists 1999



Predictions about how the demand for allergy and immunology services will be affected by the expansion on managed care do not vary substantially by age (Figure 4-54). Again, there appears to be a very slight negative turn for the oldest group in terms of the percentage reporting an increase in demand, but overall, it appears as if across all age groups, allergists predict that demand will be reduced due to the expansion of managed care.

Figure 4-54.
Future Impact of the Expansion of Managed Care on the Demand for Allergy and Immunology Services by Age of Allergist, Core Allergists 1999



In this section, two important and interesting trends are illuminated. First, in general, older allergists do not report that managed care is going to affect their practices as greatly as do younger allergists. Perhaps older allergists, because they are in the twilight of their careers, are choosing not to participate in managed care, so that any effects of managed care, ill or good, would be less likely to have an impact on their practices. At the same time, because younger allergists have anywhere from 15 to 35 years left in their practices, they may be more willing to participate due to the pervasive belief that the health care system in the country is moving more and more toward some sort of “managed” care system. Thus, younger allergists may not believe they have much choice in that matter, so they are more likely participate, and in turn, are more likely to feel the effects of managed care in their practices.

Second, allergists report that managed care is generating increased patient volumes, but at the same time increasing the complexity of cases they treat. When managed care began to expand rapidly, it was widely believed that the primary care case manager and other hurdles to accessing specialists would reduce demand for specialists. However, allergists do not perceive this to have happened. Instead, managed care appears to be pushing patients, at least those with complex needs, toward the specialist, away from non-board certified, non-formally trained allergists, as well as primary care physicians. This is not to say that patients do not have to go through their primary care physicians to get a referral, but it does appear that allergists continue to be available for patients who need their care. This latter point is well evidenced by the increase in case complexity in the past two years due to managed care reported by allergists.

In summary, allergists believe that case mix complexity has been increasing over the past several years and will continue to do so in the future as managed care expands. Although the impact on volume has been mixed to date, far more allergists think managed care will lead to a decline in future demand than will lead to an increase. This is occurring at a time when allergists already have a capacity to see additional patients. Thus, if managed care continues to expand, the effects of declining demand may be felt.

8. Current and Future Employment Opportunities for Allergists

In this section, data will be presented describing core allergists' perceptions of the current and future allergy job market.

Respondents were given the choice of 4 responses to describe the current employment opportunities within 50 miles from their location and within their state of practice. Overall, allergists are very negative about current employment prospects for their specialty (Table 4-12). Specifically, 70% of core allergists report that there are few to no available practice opportunities within 50 miles of their locations. Overall, allergists see the state as holding more potential practice opportunities than the local area. While the perception of job opportunities in the state are a little better, still 45% report few to no available practice opportunities within their states. Only 31% report some or many opportunities within 50 miles compared with 56% within the state.

Table 4-12.
Current Employment Opportunities for Core Allergists, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
Within 50 Miles of Respondent's Location	25%	45%	28%	3%
Within Respondent's State	6%	39%	47%	9%

The same pattern emerges when current employment opportunities within 50 miles of the respondents' locations are examined by region (Table 4-13): overall, allergists see few practice opportunities in their local areas. Regionally, there is some variation. The Mountain (22%) and Pacific divisions (20%) have the smallest percentages of allergists reporting some or many current local opportunities, while the West South Central (40%) and the East North Central (42%) divisions have the greatest percentages.

Table 4-13.
Current Employment Opportunities Within 50 Miles of Respondent's Location for Core Allergists by Region, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
New England	26%	43%	29%	2%
Middle Atlantic	18%	54%	25%	3%
East North Central	18%	40%	37%	5%
West North Central	25%	46%	26%	3%
South Atlantic	25%	43%	27%	4%
East South Central	34%	38%	26%	2%
West South Central	17%	43%	36%	4%
Mountain	41%	38%	19%	3%
Pacific	34%	46%	19%	1%

Table 4-14.
Current Employment Opportunities Within Respondent’s State for Core Allergists by Region, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
New England	12%	49%	34%	5%
Middle Atlantic	3%	38%	52%	7%
East North Central	2%	33%	52%	12%
West North Central	2%	33%	55%	9%
South Atlantic	5%	38%	47%	10%
East South Central	8%	32%	50%	11%
West South Central	5%	31%	48%	16%
Mountain	16%	46%	34%	4%
Pacific	7%	47%	42%	3%

Current employment opportunities for allergists within their states are somewhat more optimistic (Table 4-14). With the exception of the Mountain, Pacific, and New England divisions, 60% of core allergists report some to many available opportunities for allergists within the respondents’ states of practice.

Respondents were also given the choice of 4 responses to describe future employment opportunities over the next five years within 50 miles from their location and within their state of practice. These questions illicit somewhat more optimistic responses (Table 4-15). As in the assessment of current opportunities, overall, core allergists see the state (57% reporting some or many future employment opportunities) as holding more future practice opportunities than the local area (39% reporting some or many future opportunities). However, while statewide employment opportunities are similar presently (56% reporting some or many current opportunities) and in the future (57% reporting some or many future opportunities, local area opportunities appear slightly more abundant in the future 39% reporting some or many future opportunities compared with 31% reporting some or many current opportunities).

Table 4-15.
Future Employment Opportunities for Core Allergists, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
Within 50 Miles of Respondent's Location	16%	45%	35%	4%
Within Respondent's State	6%	37%	49%	8%

Table 4-16.
Future Employment Opportunities Within 50 Miles of Respondent's Location for Core Allergists by Region, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
New England	20%	47%	29%	3%
Middle Atlantic	12%	56%	30%	2%
East North Central	12%	41%	41%	6%
West North Central	17%	50%	30%	3%
South Atlantic	14%	38%	43%	5%
East South Central	18%	39%	38%	5%
West South Central	13%	39%	46%	2%
Mountain	28%	46%	25%	1%
Pacific	19%	49%	29%	3%

A similar pattern emerges when future employment opportunities within 50 miles of their present location are examined by region (Table 4-16): overall, allergists see the more future opportunities in their local areas than current practice opportunities. Regionally, there is relatively little variation. In the Mountain, Pacific, Middle Atlantic, and New England divisions allergists report the fewest future local opportunities, while in the South Atlantic, West South Central, and East North Central divisions allergists report the most.

Table 4-17.
Future Employment Opportunities Within Respondent’s State for Core Allergists by Region, 1999

	No Available Opportunities	Few Available Opportunities	Some Available Opportunities	Many Available Opportunities
New England	9%	52%	33%	5%
Middle Atlantic	5%	44%	47%	4%
East North Central	4%	34%	52%	10%
West North Central	4%	34%	56%	6%
South Atlantic	6%	28%	56%	10%
East South Central	4%	33%	50%	12%
West South Central	5%	29%	53%	13%
Mountain	13%	45%	39%	3%
Pacific	9%	41%	44%	6%

Again, the future employment opportunities within respondent’s state are more optimistic than what is reported in the local area (Table 4-17). In fact, more than 50% of allergists in 7 of the 9 Census divisions believe that the future holds some to many jobs. In the New England and Mountain divisions the smallest percentage of core allergists report some or many future practice opportunities. The South Atlantic and West South Central divisions have the largest percentage (almost two-thirds) of allergists report some or many future practice opportunities.

The employment/practice opportunity data do not reveal any potential hot spots where allergists might filter in to take advantage of an abundance of opportunities currently. Rather, it may be that opportunities only become available when an allergist leaves practice or stops providing patient care; that is, the opportunities that arise are substitutive, as opposed to opportunities due to current shortages in the supply of allergists. These findings are again somewhat paradoxical given the reports of increasing demand, patient volume, and case complexity reported by core allergists.

Finally, in an attempt to directly sort out issues of supply and demand, physicians were queried as to their perceptions of supply and demand for allergists in their local communities (Figure 4-55). Most core allergists (54%) believe that supply and demand are balanced in their communities. Yet three and a half times as many allergists believe supply presently exceeds demand (36%) in their communities than believe demand exceeds supply (10%).

Figure 4-55.
Perceptions of Supply and Demand for Core Allergists, 1999

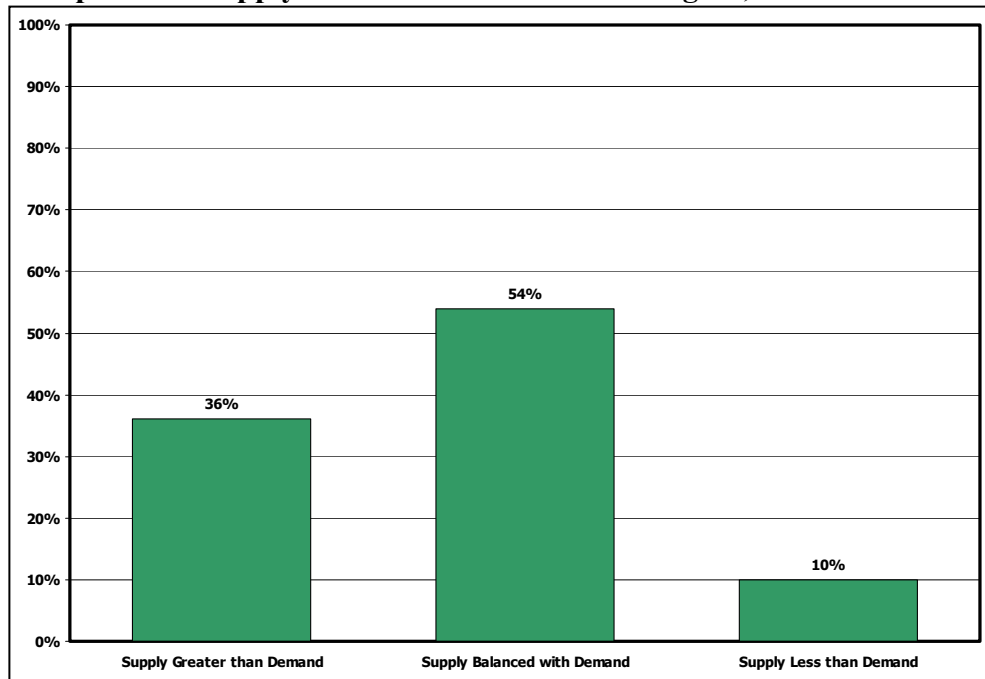


Table 4-18.
Perceptions of Supply and Demand for Core Allergists by Region, 1999

	Supply Greater than Demand	Supply Balanced with Demand	Supply Less than Demand
New England	30%	61%	8%
Middle Atlantic	45%	50%	5%
East North Central	31%	57%	12%
West North Central	27%	61%	12%
South Atlantic	36%	55%	9%
East South Central	28%	57%	15%
West South Central	29%	57%	14%
Mountain	46%	48%	6%
Pacific	43%	51%	7%

While there is variation by region, in general across the country the majority of allergists believe the supply is balanced with or exceeds demand (Table 4-18). The percentage of allergists who believe supply is less than demand ranges from only 5% to 15%. The Middle Atlantic, Mountain, and Pacific divisions seem to show the greatest perception of oversupply

with 6 to 7 times as many allergists perceiving an oversupply versus a shortage of allergists.¹⁰ Interestingly, these perceptions do not seem to be related systematically to allergist to population ratios. The Mountain division has the lowest ratio, yet allergists from that region report an oversupply of allergists. Similarly, in the Pacific division, there is a relatively low allergist to population ratio, yet a perception of an oversupply. Finally, in the Middle Atlantic, which has the highest allergist to patient ratio, an oversupply is also perceived. These observations suggest that the dynamics of supply and demand vary across the Census divisions. A more in depth regional level analysis could shed light on these issues.

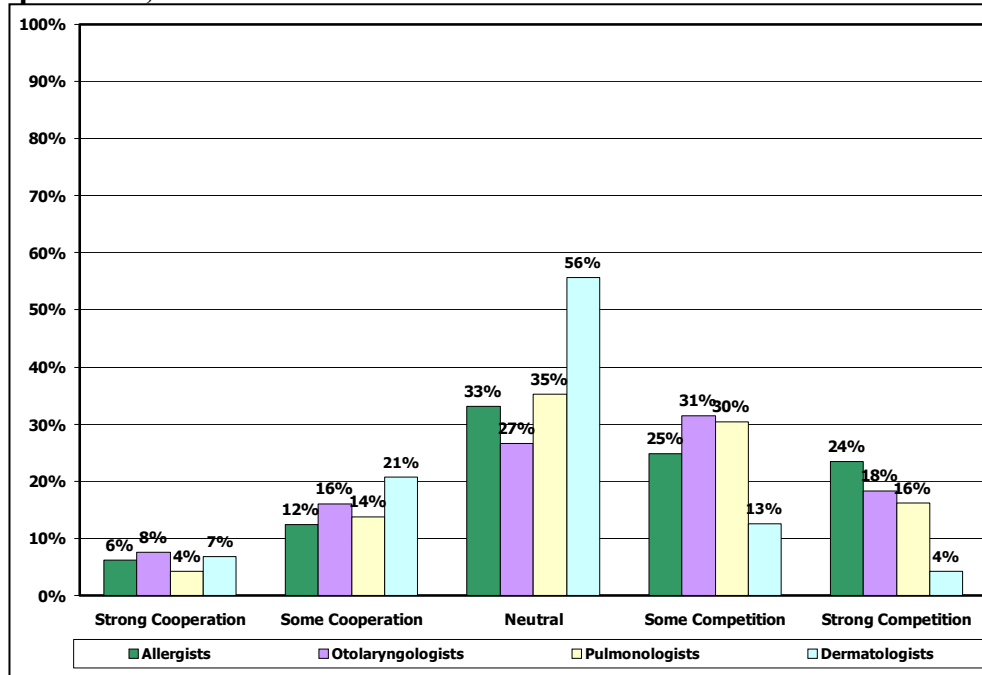
In sum, while the data on current and expected changes in practice imply that there is some room for growth for allergists, their perceptions about the current employment situation and the balance between supply and demand continue to be somewhat pessimistic. Allergists do not perceive a growing market for their services now, but seem somewhat more optimistic about the future.

9. Competition Among Providers of Allergy and Immunology Services

One of the factors that may be related to the perception that the job market is tight, while objectively the market seems to be growing is competition between physicians who provide allergy and immunology services. Respondents were asked a battery of questions relating to the level of competition they observe in their locale between themselves and physicians from other specialties. Figures 4-56 and 4-57 present the data from core allergists' responses.

¹⁰ It should be noted that these are perceptions by allergists in these particular regions. If, for example, allergists cluster in certain locations, they may perceive a balance between supply and demand while elsewhere in the region, there may be shortages. In other words, conceptually, using perceptions as a measure of the balance between supply and demand may hide pockets of supply shortages.

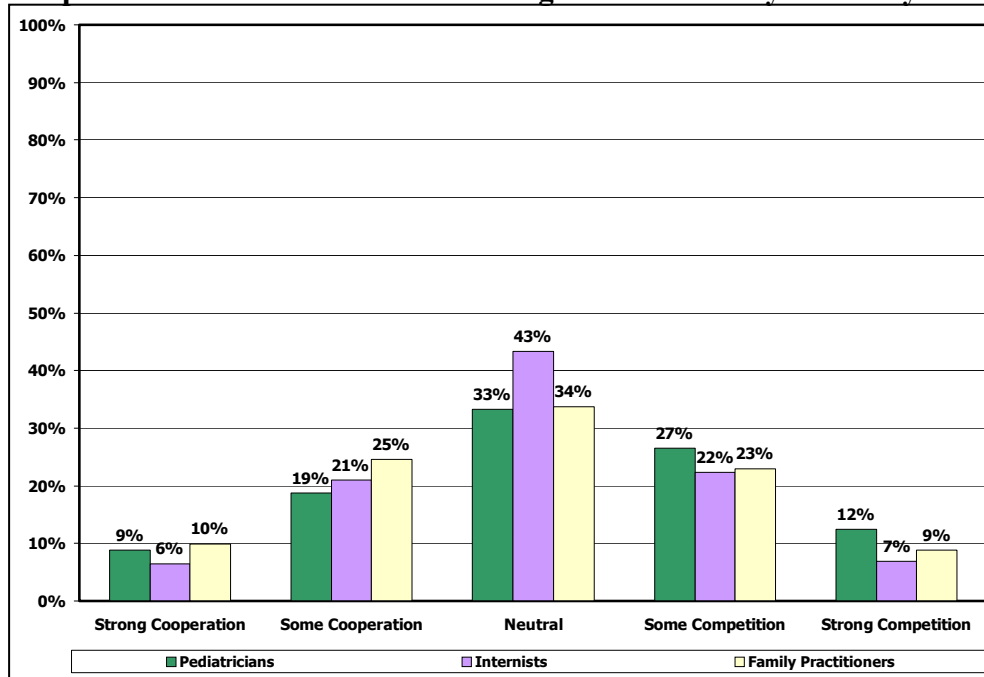
Figure 4-56.
Competition Levels Between Core Allergists and Physicians in Overlapping Specialties, 1999



Overall, core allergists are more likely to report that they compete with other physicians, rather than cooperate. Not surprisingly, there seems to be some varying levels of competition between allergists and other specialists. The direct competitors with allergists are, first and foremost, other allergists (49%) and otolaryngologists (49%), then pulmonologists (46%). That these specialists compete with allergists confirms expectations derived from the substantial overlap in services provided by specialists in these areas. Because allergy and immunology is a relatively small specialty (thus, the likelihood of any one allergist personally knowing another is relatively higher), it is surprising that more cooperation is not being reported among allergists. In fact, as mentioned above, quite the opposite is happening: allergists are among the strongest competitors of other allergists. Dermatologists are the most likely (56%) to be reported as neutral – that is, there is neither competition nor cooperation between core allergists and these physicians. Of the primary care specialists, pediatricians and internists show up as having higher levels of competition (39% and 29%, respectively) than cooperation (28% and 27%, respectively), while family practitioners are slightly more likely to cooperate (35%) than compete (32%) with allergists. This finding is not surprising because of the move toward reliance on primary care physicians by managed

care organizations perhaps forcing allergists to compete with primary care physicians for patients.

Figure 4-57.
Competition Levels Between Core Allergists and Primary Care Physicians, 1999



Looking more closely at allergists and overlapping specialists shows (Table 4-19) that with the exception of the Middle Atlantic, Mountain, and Pacific divisions, otolaryngologists provide the most competition to core allergists. Core allergists are most likely to report high levels of competition with pulmonologists, on the other hand, in Middle Atlantic, South Atlantic, and New England divisions. Cooperation, however, among these groups of physicians is not unheard of with anywhere from 15 to 34% of core allergists in a division reporting cooperation with either otolaryngologists or pulmonologists.

Particularly on the East and West Coasts of the United States (Middle Atlantic and Pacific divisions), allergists are more likely to report experiencing relatively high levels of competition with other allergists. Interestingly, while the division with the highest allergist to population ratio (Middle Atlantic) also appears to have the highest levels of competition among physicians, New England, a division that also has a very high allergist to population ratio does not experience the same level of competition, and, in fact allergists there are more likely to report cooperation with other allergists.

Table 4-19.
Competition Levels Between Allergists and Physicians in Overlapping
Specialties by Region, 1999

New England	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	11%	14%	41%	19%	15%
Otolaryngologists	5%	19%	25%	34%	17%
Pulmonologists	6%	16%	30%	30%	18%
Middle Atlantic	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	5%	10%	31%	31%	23%
Otolaryngologists	6%	13%	29%	33%	20%
Pulmonologists	2%	9%	29%	38%	22%
East North Central	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	4%	15%	34%	25%	21%
Otolaryngologists	6%	19%	26%	34%	15%
Pulmonologists	2%	18%	31%	34%	15%
West North Central	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	11%	13%	38%	24%	14%
Otolaryngologists	17%	17%	29%	24%	13%
Pulmonologists	10%	12%	36%	27%	15%
South Atlantic	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	5%	11%	31%	26%	27%
Otolaryngologists	9%	16%	22%	34%	20%
Pulmonologists	7%	15%	35%	27%	16%
East South Central	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	9%	15%	37%	22%	17%
Otolaryngologists	7%	12%	18%	35%	29%
Pulmonologists	6%	16%	38%	27%	13%
West South Central	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	7%	13%	32%	27%	20%
Otolaryngologists	7%	18%	24%	33%	18%
Pulmonologists	4%	19%	40%	26%	11%
Mountain	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	13%	15%	19%	21%	32%
Otolaryngologists	5%	11%	33%	31%	20%
Pulmonologists	4%	13%	45%	26%	12%
Pacific	Strong Cooperation	Some Cooperation	Neutral	Some Competition	Strong Competition
Allergists	5%	12%	37%	17%	29%
Otolaryngologists	9%	20%	33%	24%	14%
Pulmonologists	3%	12%	44%	27%	15%

Perceptions of competition and the balance of supply and demand, however, seem to be related. Core allergists in the Middle Atlantic, Mountain, and Pacific divisions perceive supply as greater than demand for allergy and immunology services and are also most likely to report relatively high levels of competition with other allergists. In a division such as New England, for example, while the allergist to population ratio may be relatively high, the perception is that the supply of allergists is not greater than demand for their services and allergists are not as likely to report high levels of competition with other allergists.

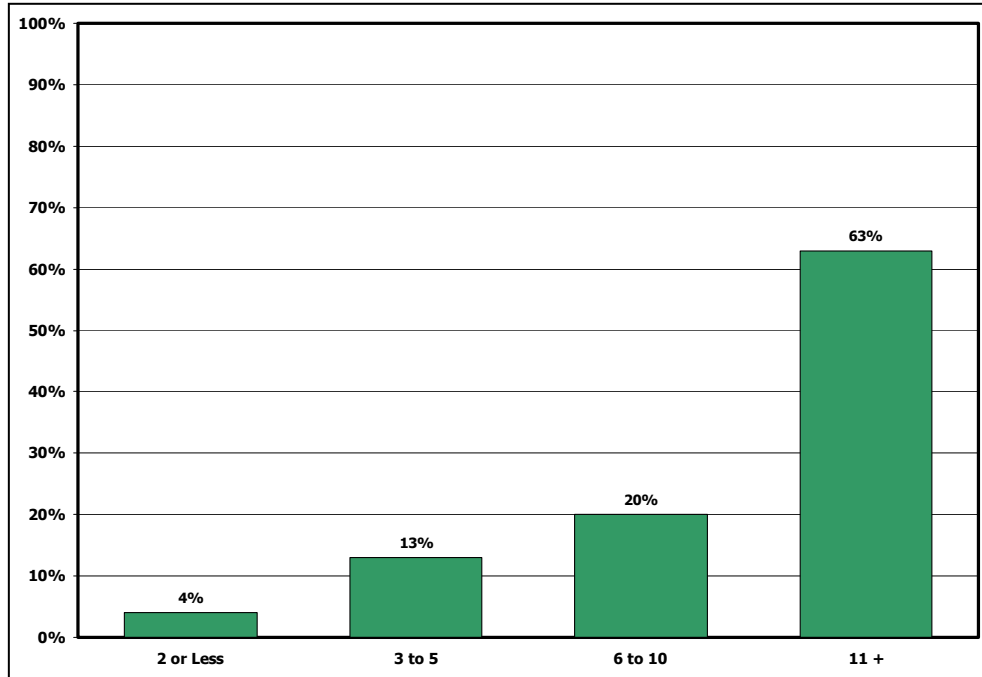
In sum, the data presented in this section on perceptions of competition amongst allergists and other physicians (both primary care and specialty care physicians) confirms the perceptions reported in the previous section on current employment/practice opportunities. The market for allergists at the moment is reported by allergists to be somewhat tight, but as was mentioned above, may loosen in the next five years opening up opportunities for allergists to practice.

10. Retirement Plans Among Allergists

Examining allergists' plans for the future is a key component to assessing the future supply of allergists. First, respondents were asked to indicate in how many years they expected to stop providing allergy and immunology services (Figure 4-58).¹¹ As is shown, the vast majority (63%) of current core allergists plan to continue providing allergy and immunology services for at least the next decade. At the same time, however, within the next 10 years, more than a third of the current core allergists will retire.

¹¹ Some caution has to be used in interpreting these statistics. For some of the allergists, retirement may be something they have not considered very seriously, so their responses are likely to have an unknown amount of error in them.

Figure 4-58.
Years Until Stop Providing Allergy and Immunology Services, Core Allergists 1999



Examining these data more closely by region may give an indication of where the replacement will need to be focused. Table 4-20 presents retirement statistics for core allergists. Overall, each region’s average is relatively close to the others, i.e., there is not a large amount of variation in average years until retirement. The earliest average (median) years until retirement are for core allergists in the West South Central division (9.7 years). Allergists in the Pacific Census division report the longest span until retirement at 12 years. Interestingly, they also report the earliest age at retirement.

Table 4-20.
Retirement Statistics of Core Allergists by Region, 1999

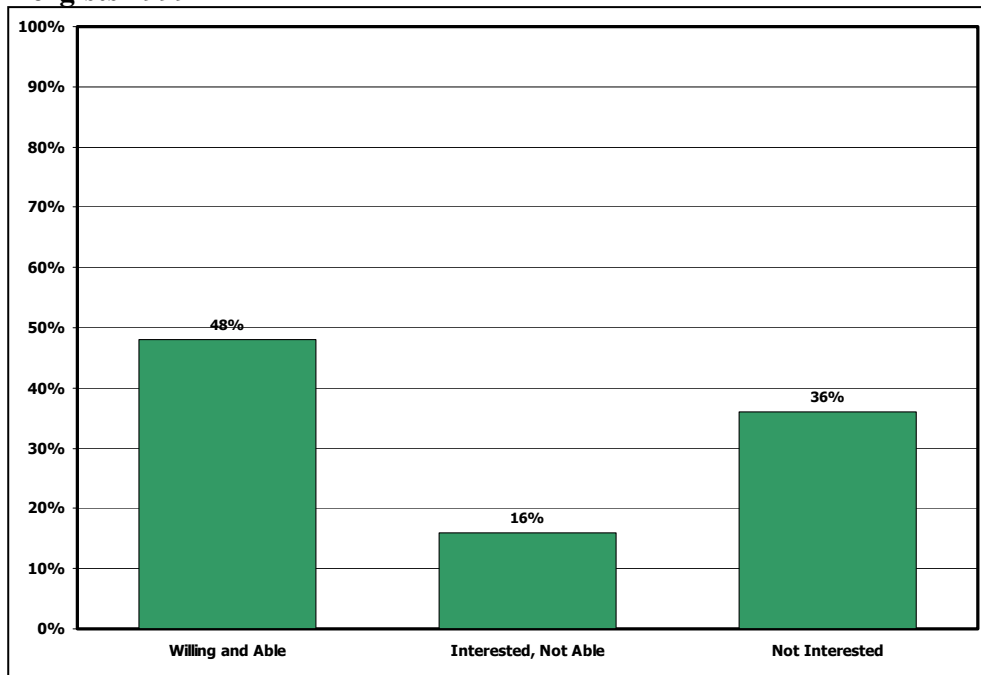
	Median Years Until Retirement	Median Retirement Age
New England	10.7	64.6
Middle Atlantic	11.2	64.4
East North Central	10.9	64.5
West North Central	10.6	64.6
South Atlantic	11.8	64.1
East South Central	11.7	64.1
West South Central	9.7	65.0
Mountain	10.9	64.5
Pacific	12.0	64.0

In sum the data in this section show that a majority of allergists will be providing allergy and immunology services well into the future. For those, however, planning to retire within the next 10 years (37%), the question that needs to be asked is “Who will replace them?”

11. Future Workforce Surveys and Allergists

Finally, as a way to enhance the efficiency and cost-effectiveness of a tracking system for the allergy workforce, the survey included a question on respondents’ willingness to participate in an annual survey on the internet for AAAAI. Figure 4-59 presents these data. Overall, 64% of core allergists are willing to participate in an internet-based workforce survey. Some of those (25%) who are willing, are also not able to participate (i.e., they may not have a regular connection to the internet or may not possess a personal computer). Just over one-third (36%) of the core allergists are not interested in participating in an annual allergy workforce survey on the internet.

Figure 4-59.
Willingness to Participate in AAAAI Internet Workforce Surveys, Core Allergists 1999



Internet-based surveying is an emerging data collection technique which has the potential to allow researchers, the AAAAI and other allergy and immunology stakeholders to gather up-to-date information on allergists quickly and cost-effectively. There are a number of

important questions, of course, that must be addressed before such a process can be implemented. First, how representative (in terms of age, gender, and regional location) of the population of allergists are those who report they are willing and able to participate in the survey? Further analysis is necessary to answer this question.

Figure 4-60 presents the distribution of willingness to participate in an internet-based workforce survey for core allergists by age. There is a clear negative relationship between an allergist's willingness and his/her age. Older allergists are less likely (29%) to be willing and able to participate in this kind of survey than allergists under age 60 (53%) are. At the same time, the negative relationship between willingness to participate in the survey and age appears to stem, at least in part, from older allergists not being able to participate rather than simply not being interested. Twenty percent of the allergists age 60 and above reported that they are willing, but unable to participate in such a survey.

Figure 4-60.
Willingness to Participate in AAAAI Internet Workforce Surveys by Age, Core Allergists, 1999

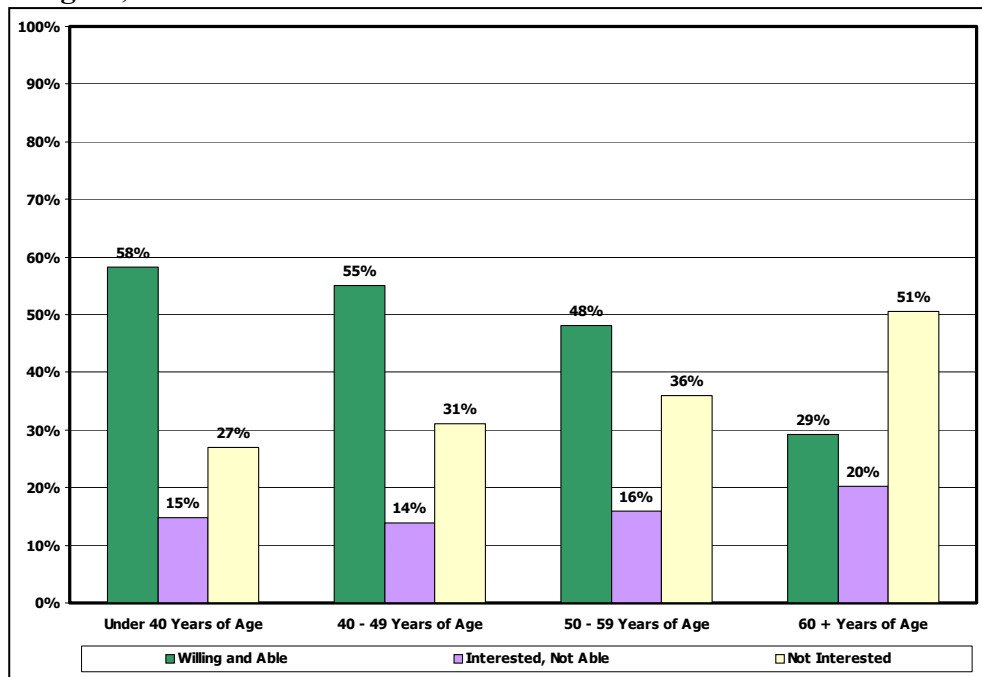


Figure 4-61.
Willingness to Participate in AAAAI Internet Workforce Surveys by Gender, Core Allergists 1999

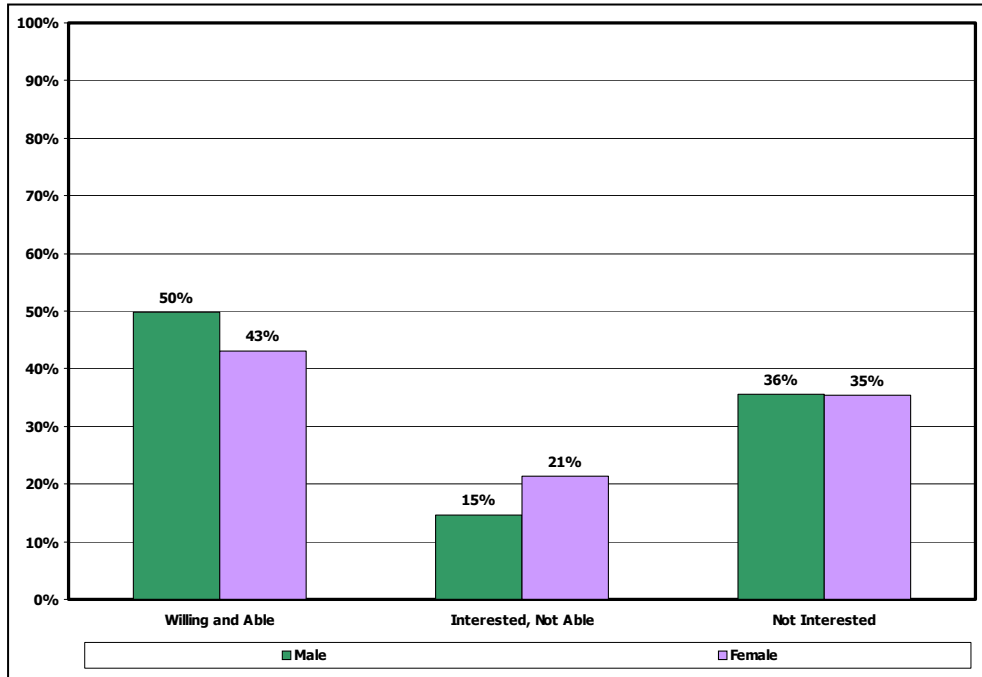


Figure 4-61 presents the distribution of willingness to participate in an internet-based workforce survey for core allergists by gender. Half of the male core allergists are willing and able to participate compared with 43% of the female allergists. Interest in participating in an internet-based survey, however, is equal: 65% of males are interested, while 64% of females are interested. The reason for the difference between male and female allergists is the lack of ability (e.g., not having regular access to the Internet or not owning a personal computer) amongst the females.

Figure 4-62.
Willingness to Participate in AAAAI Internet Workforce Surveys by Region, Core Allergists 1999

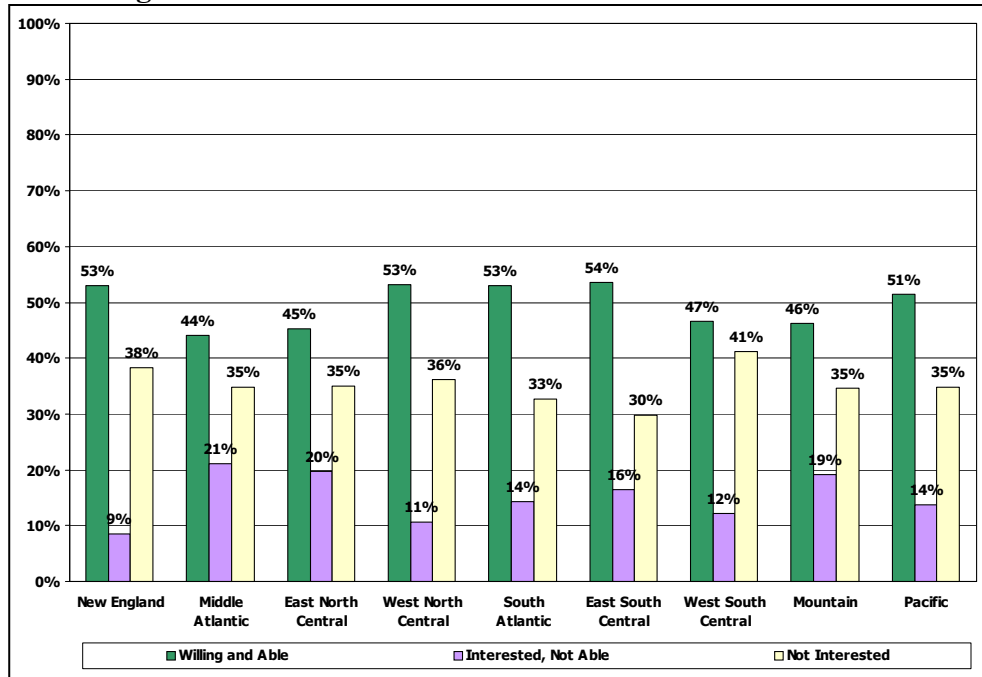


Figure 4-62 presents the distribution of willingness to participate in an internet-based workforce survey for core allergists by practice region. More than half of the allergists in the New England, West South Central, South Atlantic, East South Central, and Pacific divisions are willing and able to participate in a future survey over the internet. While interest is high in almost all divisions, the Middle Atlantic and East North Central have the highest levels of allergists not able to participate in such a survey. The West South Central and New England divisions have allergists that are the least interested in participating in the internet-based allergy workforce survey.

The results from the survey, in sum, show a great deal of interest in future workforce surveys on the internet by core allergists. The data also show that certain groups within the population of allergists (e.g., females, older physicians, etc.) may be less likely to participate in such a survey. Selection of an appropriate sample that can guarantee the representativeness of the survey results will be an important step to be carefully considered during the planning stages of such a survey.

Conclusions

1. Currently, the national supply and demand for allergists is roughly in balance with a slight surplus in many parts of the country.

The responses to the survey of practicing allergists, did not reveal either a significant shortage or surplus at the present time. There were some indications of a modest surplus. For example, many allergists are feeling competition with other allergists and non-allergists; incomes were generally flat over the past two years; waiting times are generally reasonable; and many allergists think that the supply exceeds the demand in their community.

Although there are significant variations in the allergists to population among the regions of the country, there were no areas where there were more obvious shortages or surpluses. This may reflect regional variations in demand and in practice patterns. This is not to imply that all communities in the country have an adequate supply of allergists as there are likely to be pockets of shortages, but this was beyond the scope of this study.

2. There is likely to be a shortage of allergists in the future.

The number of graduates from allergy and immunology is down sharply from just a few years ago. The age distribution of the practicing allergists has already begun to reflect the drop in the number of new allergists. At the same time, more than a third of the practicing allergists indicate that they intend to retire within the next ten years. Given current trends, the allergist to population in the U.S. will begin to decrease within the next several years and continue downward for at least several years.

Demand for allergy and immunology services is more difficult to predict. There are mixed signals, some pointing to increased demand some to decreased demand. For example, allergists report that the incidence of asthma and sinusitis is increasing and that they are seeing the more complex patients than in the past. Interestingly, allergists do not generally expect new medications to reduce demand for their services; this may reflect the increasing complexity and options for pharmacological interventions. On the other hand, managed care is likely to moderate the demand for allergists and there is competition with non-allergists, particularly for the less complex patients. Overall, it

would appear that while demand may increase or decrease slightly, a major shift over the next decade is not anticipated.

In light of the current slight surplus, the initial decrease in supply should not create significant problems in terms of access or in terms of the practice of allergy. However, within the next five years, it is likely that demand will slightly exceed supply. If there is no increase in USMGs or permanent resident IMGs completing allergy and immunology residency programs, and if allergists' expectations to retire are realized, there is likely to be a more serious shortage in the next decade.

3. The allergy and immunology workforce is clearly evolving in some significant ways.

There is a large cohort of older allergists who are not formally trained and many of whom are not board certified that are nearing retirement. This will lead to an increasing percent of allergists who are formally trained. Older physicians and non-formally trained may have different practice patterns than the younger formally trained allergists. This appears to be the case in terms of the use of immunotherapy, which appear to be far more common among the older and non-formally trained allergists. Older allergists also appear less comfortable with the expansion of managed care compared to younger allergists.

Another significant shift that appears to be just beginning is the increasing percent of allergists that are internists and the decreasing percent that are pediatricians. Unlike all of the other age cohorts, internists represent a majority of the youngest cohort of allergists, indicating a major shift from the historical dominance of pediatricians in the specialty.

4. Managed care does not appear to be disrupting the practice of allergy and immunology.

Over the last several years, there has been a good deal of concern among specialist physicians that the expansion of managed care would limit access to specialists. This reflected policies among many managed care plans designed to increase the use of primary care physicians and to decrease access to specialists. Although an increasing

percent of allergists' patients are now enrolled in managed care plans, this does not appear to have led to a major decline in the volume of services by allergists. Thus, when asked what they expected the impact of managed care to be on their practice over the next several years, a similar percent of allergists expect an increase as expect a decrease.

Managed care does appear to be impacting on the case mix of allergists with 53% reporting managed care has led to a more complex case load compared to only 3% believing it has led to a less complex case mix. (The remainder report no impact on case mix.) Encouraging the less complex cases to be treated by the primary care physician and the more complex cases to be treated by the specialist, would appear to be an appropriate role for managed care plans.

5. Allergists are generally satisfied with their professional practice.

Despite the competition, despite relatively little growth in income and despite the many uncertainties of the medical practice place, allergists were generally satisfied with their professional practice. This was generally true for all age groups, but more so for younger allergists. This is a very encouraging sign for the specialty.

6. In light of the many uncertainties around supply and demand, there is a need for better monitoring of the practice of allergy and immunology in order to better assure access to needed allergy services for Americans.

The specialty of allergy and immunology, like the whole field of medicine and the health care delivery system is changing rapidly. There are some ominous signs that the supply of allergists to population will be beginning a long term decline that could lead to reduced access to needed services for Americans. An ongoing monitoring system is needed to assess developments and trends impacting on both supply and demand and this information needs to reach not only the allergy and immunology community but the medical education and training community.

The willingness of nearly half of the allergists to participate in a periodic Internet based survey is very encouraging in this regard. This would be a low cost way to assess trends in the specialty.

**Chapter 5: RESULTS OF THE 1999 SURVEY OF ALLERGY AND
IMMUNOLOGY FELLOWSHIP TRAINING PROGRAM DIRECTORS**

Chapter 5: RESULTS OF THE 1999 SURVEY OF ALLERGY AND IMMUNOLOGY FELLOWSHIP TRAINING PROGRAM DIRECTORS

Summary

From the responses to the *1999 Survey of Allergy and Immunology Fellowship Training Program Directors* three main findings with regard to graduate medical education in allergy and immunology are revealed. First, there are two confounding issues affecting trends in the production of new allergists: financing and demand/employment opportunities. For those allergy and immunology fellowship program directors that perceive that the demand/employment opportunities are increasing, their programs are trying to react to this increased demand by increasing the number of physicians they train. Simultaneously, many program directors report that their programs are under financial pressure and, thus, are reducing their size. Currently, the financial pressures seem to be winning out which may cause the production of new allergists to continue declining in the near term.

Second, potential new allergists view the specialty of allergy and immunology favorably. Pediatric and internal medicine residents see the specialty in a positive light and their view is getting better, according to fellowship program directors. This is a good sign for the specialty as it indicates the existence of an interested and available pool of candidates to recruit if allergy and immunology programs begin to expand in the future.

Finally, program directors perceive that the national job market for allergists is getting better, that is, in the future, there will be more available practice opportunities for physicians providing allergy and immunology services. They report that their graduates are having little difficulty finding practice positions and do not perceive a threat from managed care expansion in the future.

Key Findings

- ❖ Almost half (48%) of current allergy and immunology fellowship program directors report reducing the size of their programs over the past 3 years. The most common reason indicated for the reductions is reduced financial support for the program. Very few (10%) program directors report increasing the size of their programs over the past 3 years.

Chapter 5: Results of the 1999 Survey of Directors of A/I Fellowship Programs

- ❖ Many (66%) program directors perceive that pediatric and internal medicine residents view allergy and immunology positively. More than 40% report that these views have become better in recent years.
- ❖ More than three-quarters (78%) of the directors report that their 1999 graduates had no difficulties finding employment. No program directors report that their 1999 graduates had many difficulties finding practice opportunities.
- ❖ More than 40% of the program directors anticipate that 2000 graduates will face fewer employment opportunities than 1999 graduates.
- ❖ Managed care expansion does not appear to be a major concern for allergy and immunology program directors. Only 16% of current directors foresee fewer practice opportunities as a result of managed care expansion over the next three years.
- ❖ Program directors assess the national job market for allergists as much better than the job market within 50 miles of their training site(s). This may reflect the fact that many physicians decide to practice in the communities where they trained.

Survey of A/I Fellowship Program Directors

This section is organized around a number of key issues in allergy and immunology graduate medical education, including: trends in fellowship program size, attractiveness of allergy and immunology as a subspecialty, and experiences of recent allergy and immunology graduates in the job market. Program directors are in an opportune position to assess both changes in the job market and the attractiveness of the specialty to residents in internal medicine and pediatrics. Moreover, program directors can also provide insights on possible future changes in the training of allergists. Thus, they provide are a good source of information on the aforementioned key issues in graduate medical education. For complete technical details on the survey of allergy and immunology program directors, see Appendices C (p. 196) and D (p. 200).

1. Trends in Fellowship Program Size

As reported in Chapter 3 (pp. 11 – 19), recently graduate medical training in allergy and immunology has been declining. The overall number of fellows-in-training has decreased substantially as has the number of fellowship programs. As Figure 5-1 presents, 48% of the allergy and immunology fellowship program directors report reducing the size of their programs over the past three years. This finding confirms the continuation of the historical trend. At the same time, only 10% of the program directors report increasing the size of their

programs over the same time period. Finally, the remainder (42%) of the directors report that they have maintained the size of their programs over the past three years.

Figure 5-1.
Changes in Allergy and Immunology Training Program Size Over Past Three Years, 1999

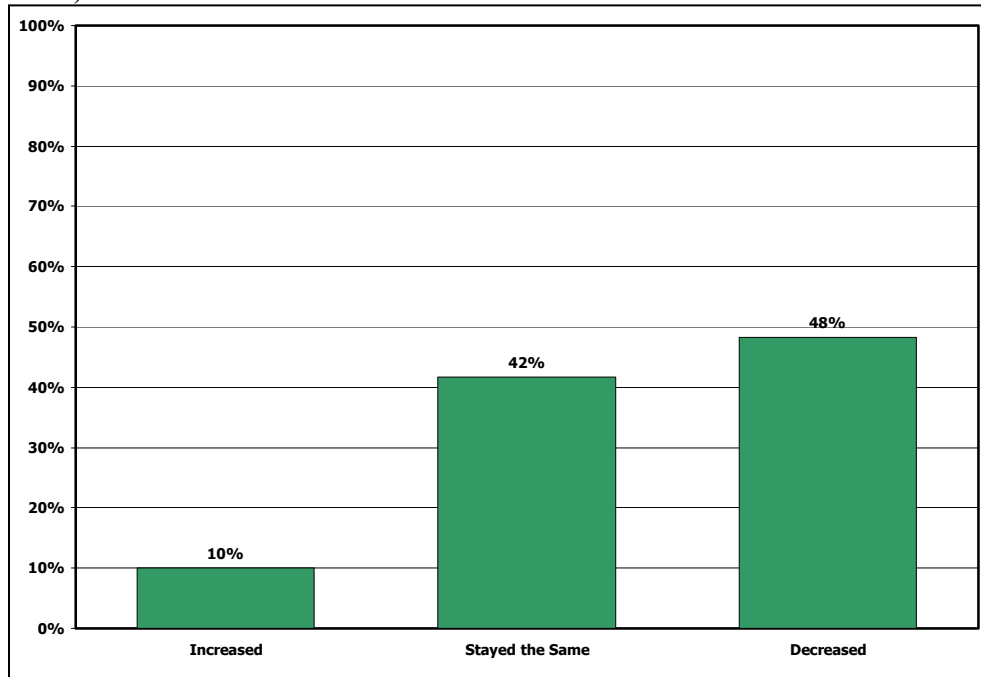


Table 5-1.
Reasons for Allergy and Immunology Fellowship Program Size Reduction Over Past Three Years, 1999

<i># of Programs Reporting a Decrease in Program Size: 29</i>	
Decreased Demand / Employment Opportunities for Graduates	7%
Difficulty Attracting Qualified Applicants	34%
Institutionally Imposed Mandate	28%
Reduced Financial Support for Program	66%
Reduced Training Grant Support	14%
Other	14%

Table 5-1 provides some explanation for the downsizing. The most common reason for the decrease in program size is reduced financial support for the program (66%). A number of open-ended responses from directors reinforce this explanation as well. Difficulty attracting qualified applicants (34%) and institutionally imposed mandate (28%) also appear to be partial explanations of recent decreases in program size. On a positive note, only 7% of the

program directors point to decreased demand and/or employment opportunities for graduates as reasons for program size reduction.

For the 10% of programs that increased in size over the past three years, the most common explanations for the increases are abundance of qualified applicants (33%), increased demand/employment opportunities for graduates (33%), and increased financial support for the program (33%) (Table 5-2). Other reasons for the increases include improved fellowship training and increased training grant support (17%).

Table 5-2.
Reasons for Allergy and Immunology Fellowship Program Size Increases Over Past Three Years, 1999

<i># of Programs Reporting an Increase in Program Size: 6</i>	
Abundance of Qualified Applicants	33%
Increased Demand/Employment Opportunities for Graduates	33%
Increased Financial Support for Program	33%
Increased Training Grant Support	17%
Improved Fellowship Training	17%

In terms of an outlook for the future, program directors report little planned program size change over the next three years (Figure 5-2). The vast majority (72%) of program directors report that they plan to maintain the current size of their programs. At the same time, 12% plan to increase and 17% plan to decrease the size of their programs. Because the plans of current program directors call for little if any change in the size of their programs, it does not appear that the number of new allergists produced each year will significantly change in the near future.

Of those programs that plan to decrease the size of the programs over the next three years, almost all (90%) point to reduced financial support for the program as a reason for the planned reduction (Table 5-3). Other reasons for a planned reduction over the next several years include reduced training grant support (10%), difficulty finding qualified applicants (10%), and disapproval by the Residency Review Committee (RRC) (10%).

Figure 5-2.
Planned Changes in Allergy and Immunology Training Program Size Over Next Three Years, 1999

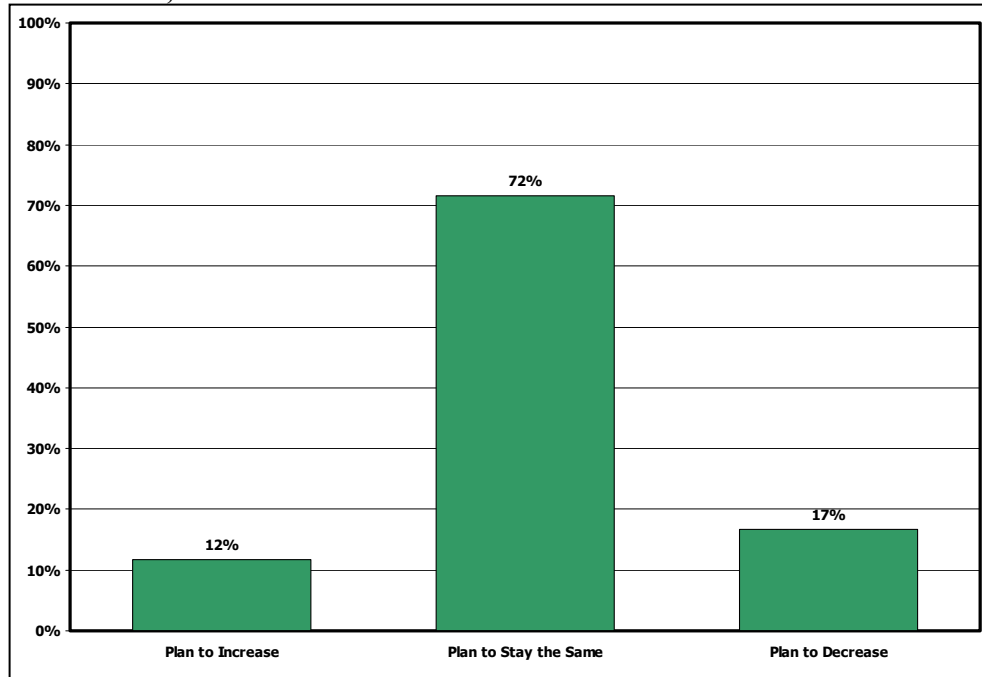


Table 5-3.
Reasons for Planned Allergy and Immunology Fellowship Program Size Reduction Over Next Three Years, 1999

<i># of Programs Reporting Plans to Reduce Program Size: 10</i>	
Difficulty Attracting Qualified Applicants	10%
Disapproval by RRC	10%
Reduced Financial Support for Program	90%
Reduced Training Grant Support	10%

Table 5-4.
Reasons for Planned Allergy and Immunology Fellowship Program Size Increase Over Next Three Years, 1999

<i># of Programs Reporting Plans to Increase Program Size: 7</i>	
Abundance of Qualified Applicants	14%
Increased Demand/Employment Opportunities for Graduates	43%
Increased Financial Support for Program	14%
Increased Training Grant Support	14%
Service Needs of Training Site	14%
Other	14%

Among those programs that report plans to increase their size over the next three years, the most commonly reported reason for the increase is increased demand and/or employment

opportunities for graduates (43%) (Table 5-4). Other reasons for the planned increases include an abundance of qualified applicants (14%), increased financial support for the program (14%), increased training grant support (14%), and service needs of the training site (14%). It appears, then, that programs are beginning to respond to the increasing demand and employment opportunities that were reported in Chapter 4 (pp. 20 – 104) (ramifications of the decreased production of new allergists and the retirement plans of current allergists).

In sum, this section points to two main issues affecting trends in the number of new allergists trained in the United States: financing for graduate medical education and demand/employment opportunities for allergists. The responses of current allergy and immunology fellowship training program directors suggest that the demand/employment opportunities for allergists are increasing and thus programs are trying to react to this increased demand by increasing in size. At the same time, many programs are being put under pressure financially to reduce the size of their programs. It appears that the financial pressures are stronger than the demand pressures, and so the production of new allergists has declined and may continue to decline in the near future.

2. The Attractiveness of Allergy and Immunology as a Subspecialty

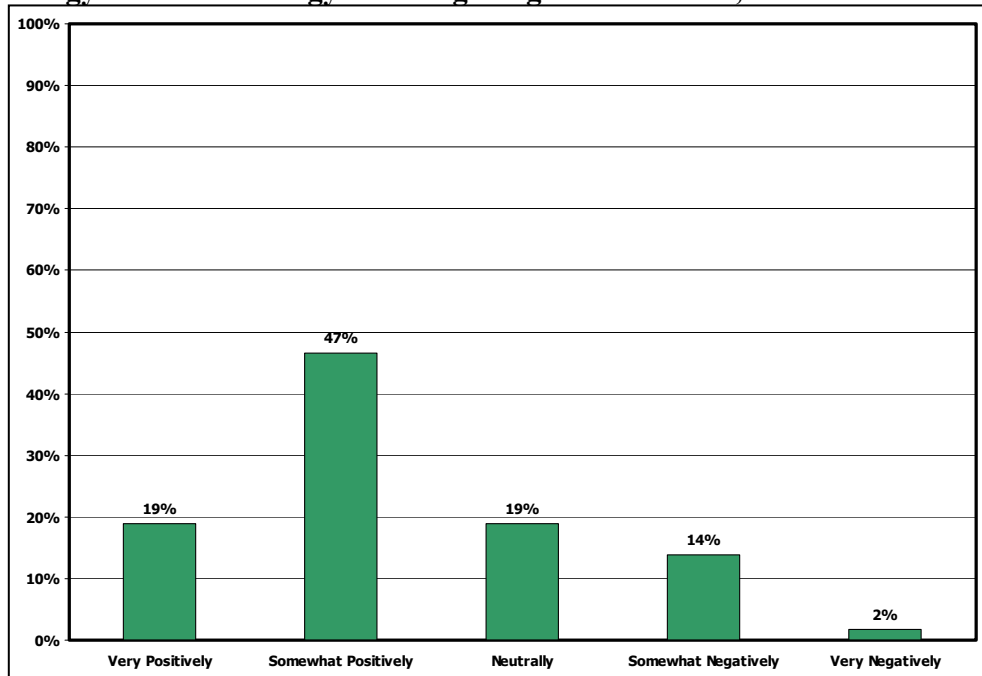
One of the issues that is raised in program directors' survey responses in the last section is difficulty in finding qualified applicants for their programs. The long range success of allergy and immunology as a specialty depends on its ability to attract well qualified physicians into the specialty. All allergy and immunology fellows must first choose to subspecialize, and then must choose allergy and immunology over other specialties. Thus, it is important to understand how the specialty is viewed by medical residents who are considering subspecializing.¹² Moreover, this understanding becomes crucial in developing policies to encourage an increase in the production of new allergists in the United States.

¹² While program directors' opinions on how the specialty is viewed by medical residents is not a perfect measure of the attractiveness of the specialty to medical residents, program directors experience does provide a good window on medical resident attitudes.

Chapter 5: Results of the 1999 Survey of Directors of A/I Fellowship Programs

For allergy and immunology, the important group of medical residents to consider are pediatric and internal medicine residents.¹³ As is presented in Figure 5-3, nearly two-thirds (66%) of the current allergy and immunology training program directors report that the specialty is viewed positively by pediatric and internal medicine residents. At the same time, only 16% report that the specialty is looked upon negatively by medical residents in these specialties. Slightly less than one-fifth (19%) report a neutral view of the specialty by pediatric and internal medicine residents.

Figure 5-3.
Perceived Views of Pediatric and Internal Medicine Residents as Reported by Allergy and Immunology Training Program Directors, 1999

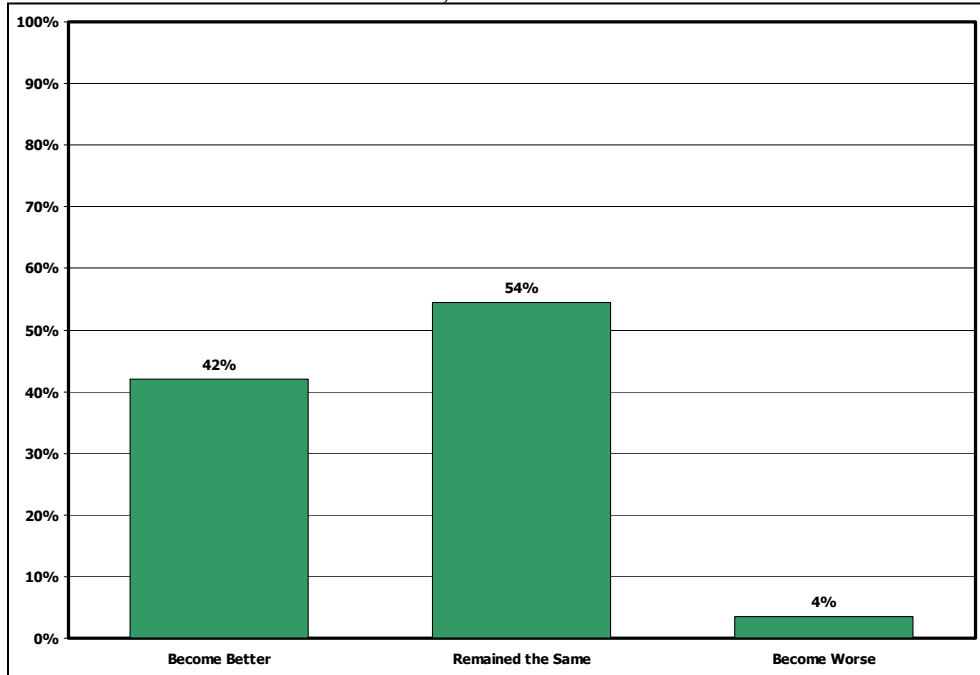


Moreover, slightly less than half (42%) of allergy and immunology program directors report that pediatric and internal medicine residents' view of allergy and immunology has improved over the last three years (Figure 5-4). While a majority (54%) report no change in the view of the specialty, only 2% report that it has become worse in the past three years. In sum, it appears that potential applicants to allergy and immunology fellowship programs have a positive view of the specialty that is getting better. This is a good sign for allergy and

¹³ All allergy and immunology fellows must complete an accredited residency program in pediatrics or internal medicine before they can begin training in allergy and immunology.

immunology and indicates that if allergy and immunology programs begin to expand, there will be enough interest in the specialty to keep their positions filled.

Figure 5-4.
Change in View of Allergy and Immunology of Pediatric and Internal Medicine Residents Over Past Three Years, 1999



3. Directors' Views of Recent Graduates' Experiences in the Job Market

With most fellowship programs having only a few fellows completing training each year, program directors are in a good position to assess the relative ease or difficulty their graduating fellows experience in the job market relative to those in the past. The views of the recently graduated fellows are examined in Chapter 6 (pp. 120 – 154).

Over the past five years, program directors report that on average, 69% of their graduates go on to private practice (Figure 5-5).¹⁴ The second most frequent setting (17%) for new allergists to practice is the academic medical center. Other sectors into which graduates enter include the government/military (5%) and industry (2%). It is clear, however, that the major

¹⁴ It cannot be determined from the directors' responses whether all of these graduating fellows are practicing in the United States. It also cannot be determined at what point exactly these physicians entered the practice setting: after additional training or without additional training.

focus in graduate medical education in allergy and immunology is to prepare patient care physicians for private practice.

Figure 5-5.
Practice Settings of New Allergists, Mean Percentage, 1995 – 1999

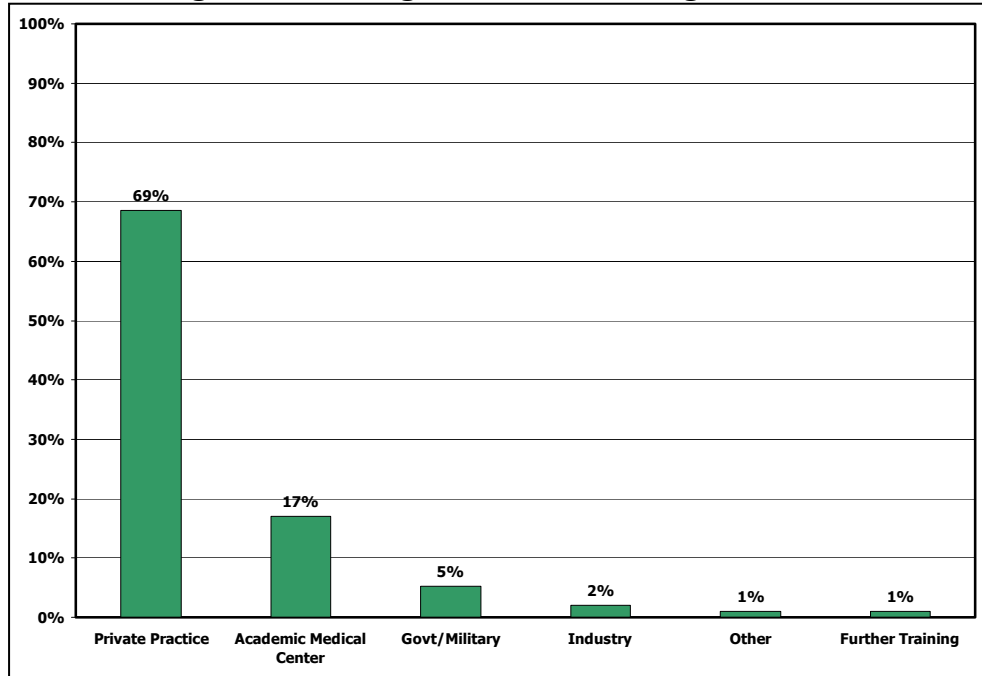
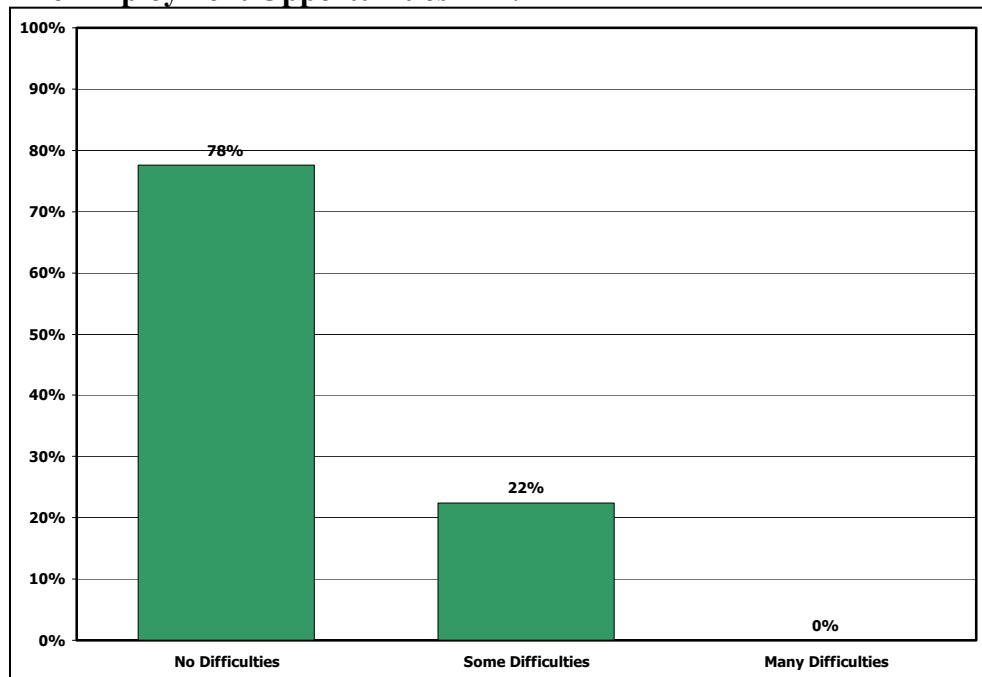
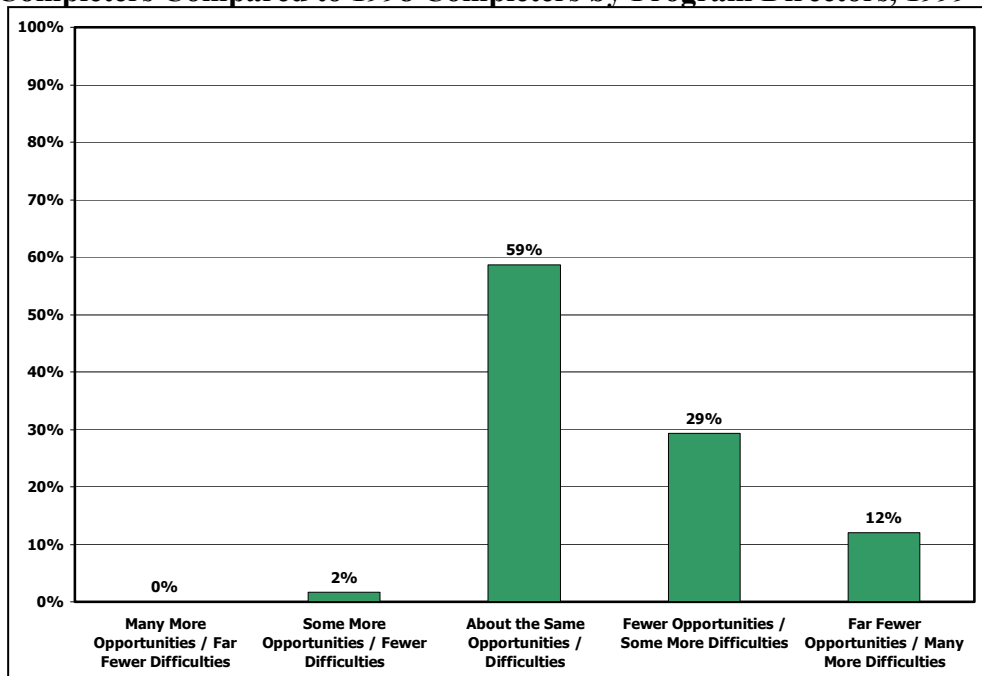


Figure 5-6.
A/I Program Directors' Perceptions of 1998 Graduates' Difficulty Finding Full-Time Employment Opportunities in A/I



Examining how much difficulty the recently graduated fellows have when seeking employment provides a very good picture of demand for physicians in the specialty. Over three-quarters (78%) of the allergy and immunology program directors report that their 1997-1998 (academic year) graduates had no difficulties finding full-time employment in allergy and immunology (Figure 5-6). The remainder (22%) of directors report that their graduates experienced some difficulties. No program directors report graduates having many difficulties finding employment.

Figure 5-7.
Perceived Change in Job Market Opportunities for 1999 Fellowship Program Completers Compared to 1998 Completers by Program Directors, 1999

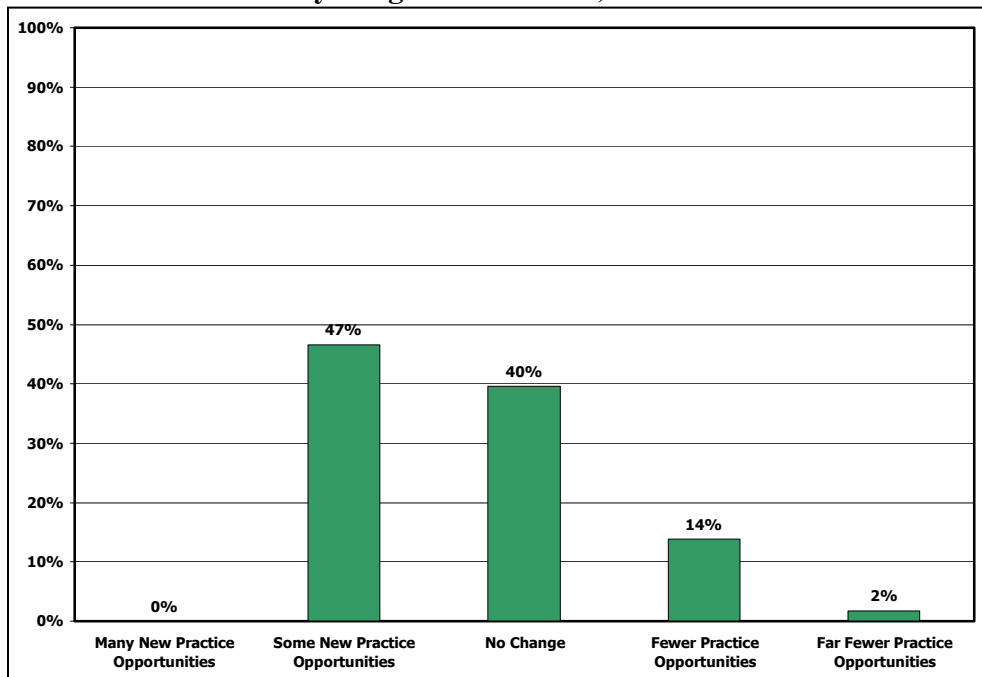


In terms of perceived near term changes in the job market, the picture suggested by allergy and immunology is not as rosy (Figure 5-7). Two-fifths (40%) of the program directors predict that the fellows graduating in 1999 will have fewer opportunities and more difficulties finding positions after completion of their training. Only 1 (2%) program director reports more opportunities for 1999 program completers compared to 1998 completers. However, the majority (58%) of the program directors believe that difficulties and opportunities for 1999 completers will be similar to those for 1998 completers. That program directors are seeing more difficulties confirms the conclusion based on the practitioner survey that certain areas may be in slight surplus allergist situations. At the same

time, however, that more than 10% of the program directors anticipate a much tighter job market is somewhat surprising and suggests that a regional job market analysis may be more revealing.

As presented in Chapter 4 (pp. 20 – 104), managed care and its expansion is an issue of concern among physicians providing allergy and immunology services, as well as physicians in general. Figure 5-8 reveals that allergy and immunology program directors are not overly concerned about the effect of managed care on the job market for new allergy and immunology graduates over the next three years. Specifically, almost half (46%) believe that managed care will lead to some new practice opportunities for new graduates. Only 16% report that managed care will have a detrimental effect on the job market for new physicians providing allergy and immunology services. The remainder (39%) foresee no effect on the new graduate job market as a result of managed care over the next three years

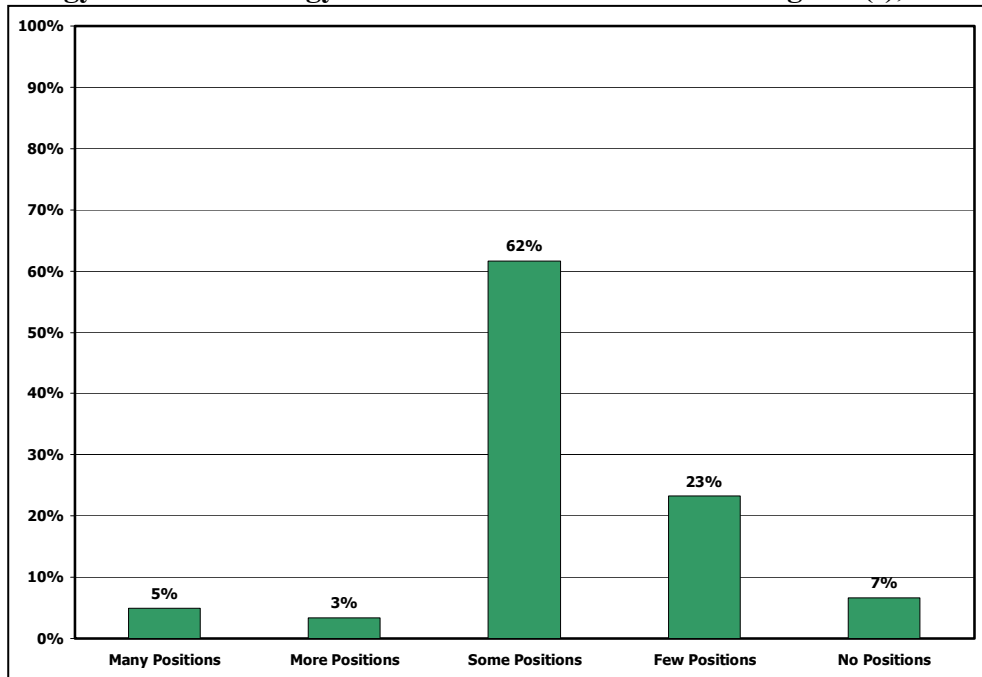
Figure 5-8.
Perceived Effect of Managed Care on A/I Job Market for New Graduates Over the Next Three Years by Program Directors, 1999



Finally, the program director survey asked respondents to assess the overall job market for physicians providing allergy and immunology services locally (within 50 miles of a particular director’s training site; Figure 5-9) and nationally (Figure 5-10). As found with

regard to the practitioner survey, the overall assessment of the national allergy and immunology job market is reported by program directors to be better than the local job market. A significant portion (30%) of program directors report that there are few or no positions available for physicians providing allergy and immunology services within 50 miles of their training sites (Figure 5-9). At the same time, only 8% report that there are more or many jobs available locally. The vast majority of program directors report some available local positions. This relatively poor job market locally may reflect the fact that many physicians completing training practice in the community where they trained regardless of their specialty [22].

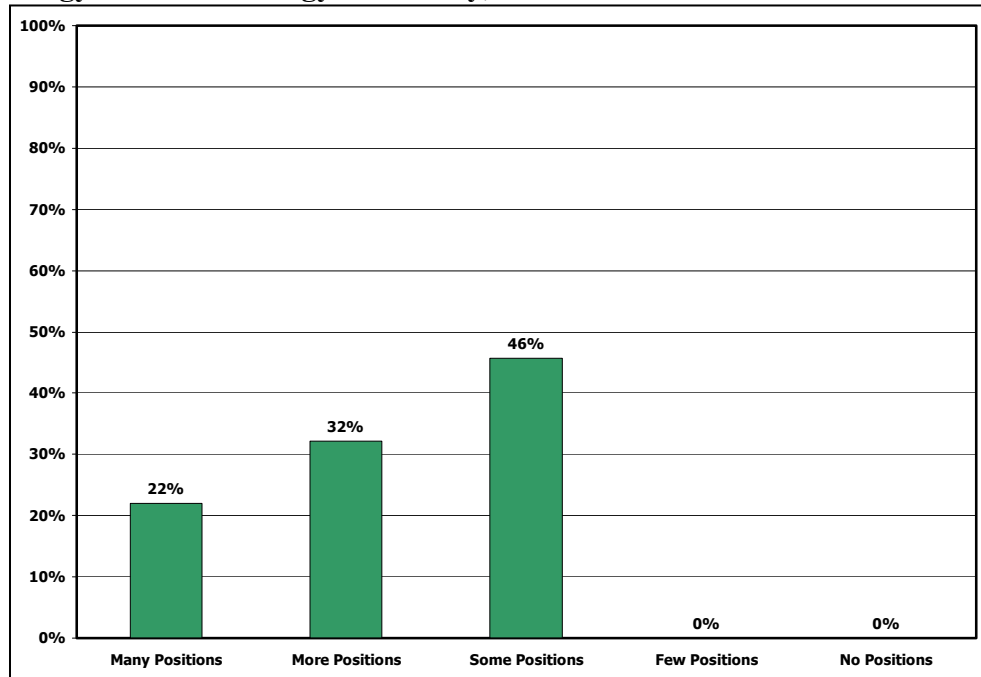
Figure 5-9.
Program Directors' Overall Assessments of the Practice Opportunities in Allergy and Immunology within 50 Miles of Their Training Site(s), 1999



Nationally, program directors are much more optimistic (Figure 5-10), with 22% of program directors reporting many positions available for physicians providing allergy and immunology services. Slightly less than half (46%) report that they perceive some positions nationally for physicians providing allergy and immunology services. Once again, the two vastly different assessments of the job market in allergy and immunology suggests that some locations may be in surplus situations, some in shortages, and some in balance. In any case, a closer examination of the supply and demand for physicians providing allergy and immunology

services at the regional level would be appropriate – there is clear evidence of a perceived maldistribution of physicians providing these services.

Figure 5-10.
Program Directors’ Overall Assessments of the Practice Opportunities in Allergy and Immunology Nationally, 1999



Overall, it has been shown that program directors are optimistic about the job market – they report that their graduating fellows are having few difficulties finding employment, they are not overly concerned about the potentially detrimental effects of managed care on the job market for new allergists, and they believe that nationally, at least, there are practice opportunities for physicians providing these services currently.

Conclusions

Based on the responses to the program director survey, several conclusions become apparent. First, there exists a troubling tension between training program financing and demand for physicians providing allergy and immunology services that threatens to undermine the production of new allergists. On the one hand, programs are reducing training positions because of lack of financial support. On the other hand, the demand for new allergists has directors seeking to increase the training positions. Currently, the demand pressures are succumbing to the financial pressures.

There is, however, according to program directors, a growing interest in allergy and immunology among pediatric and internal medicine residents. The specialty is looked upon by these trainees positively and their view of the specialty has been getting better in the recent past. If production of new allergists were ramped up, there would be a pool of candidates to fill the training positions.

The current national job market for allergists, as perceived by program directors, is very good. Program directors are not seeing their graduates having difficulties finding employment, although they anticipate that this may change in the near term. Program directors assess the regional job market less optimistically, reporting that within 50 miles of their training site(s), there are fewer practice opportunities than there are nationally. Finally, although there has been concern on the part of physicians about the expansion of managed care and its effect on the demand for physicians, program directors do not anticipate that managed care will limit practice opportunities for new allergists in the next several years.

**Chapter 6: RESULTS OF THE 1999 SURVEY OF ALLERGY AND
IMMUNOLOGY FELLOWS COMPLETING TRAINING**

Chapter 6: RESULTS OF THE 1999 SURVEY OF ALLERGY AND IMMUNOLOGY FELLOWS COMPLETING TRAINING

Summary

From the responses to the *1999 Survey of Allergy and Immunology Fellows Completing Training*, a number of findings are revealed. First, demographically, two previously identified trends continue. A majority of 1999 graduates were female. For many years, allergy and immunology, like almost all medical specialties, were dominated by male physicians. During the last 25 years, female physicians have grown dramatically as a group within the physician population. Female allergists have and will continue to grow as a group within the allergist population. International medical graduates (IMGs) also made up almost half of the 1999 graduates. In the 1990s, the percentage of IMG fellows in allergy and immunology training doubled. Training IMG fellows is problematic for allergy and immunology because many of them (i.e., J-1, J-2 visa holders) must leave the United States after they complete their training or apply for a waiver of that requirement. In either case, the likelihood that these physicians will join the allergist supply is much less than those who do not have these obligations. That such a large percentage of the fellows trained in allergy and immunology are IMGs is problematic if the goal is increase the supply of allergists.

Second, allergy and immunology training programs produce *patient care physicians*. In 1999, over 80% of the graduates were planning on entering patient care in the future. Moreover, over 75% of them had already secured positions as patient care allergists. New patient care allergist positions were most likely to be in private practices, to require 20 - 39 hours per week of direct patient care, and to be compensated through salary with incentives. New allergists appear to be satisfied with these positions. They also appear to be satisfied with their choice of specialty as almost all of the 1999 graduates report that they would recommend allergy and immunology to other physicians in training.

Finally, the survey responses indicate that the job market for new allergists is robust. There are practice opportunities reported nationally, with fewer reported within 50 miles of the location an allergist trained. Very few of the 1999 graduates reported experiencing difficulties finding a desirable practice position, and those that had difficulties were able to find positions in less desirable locations or with less desirable compensation.

Key Findings

- ❖ Female physicians made up 56% of the 1999 allergy and immunology graduates.
- ❖ A majority (54%) of the 1999 allergy and immunology graduates were non-white.
- ❖ Slightly fewer than half (42%) of the 1999 graduates attended medical school outside of the United States. Of those, 58% were J-1, J-2 exchange visitors, 14% were permanent United States residents, 14% were naturalized United States citizens, and 14% were native born United States citizens.
- ❖ Slightly more than half (51%) of the 1999 graduates had previously trained in internal medicine, while 45% had previously trained in pediatrics. The remainder (4%) had completed combined internal medicine and pediatrics programs.
- ❖ The vast majority (83%) of graduates reported that they will be practicing as patient care allergists to some degree. Thirty-five percent (35%) will be active in research and 31% in teaching. Only 2% report going on to additional training as their major planned activity after completion of training.
- ❖ Of those going into patient care, 74% had already secured a position within 3 months of their completion of allergy and immunology training.
- ❖ Of the new patient care allergists who had found positions, 63% were in private practice, 25% in a hospital setting, 9% in government or military settings, and 3% in other settings.
- ❖ Most (44%) of the new patient care allergists expect to spend 20-39 hours per week in direct patient care, while 40% expect to spend 40 or more hours per week in direct patient care.
- ❖ Almost all (88%) new patient care allergists reported that they will be compensated through a salary for their services. Moreover, almost two-thirds (64%) of the salaried allergists will also be in a position with incentive payments. The mean base salary for new allergists was just over \$103,000, however, 50% of them will earn less than \$100,000 in annual base salary. USMGs expect to earn slightly less than \$106,000 for a base salary, while IMGs expect to earn about \$97,000 annually. For those expecting to receive incentives, the mean expected level of incentive was \$15,000. USMGs expect slightly more than \$17,000 in incentives, while IMGs expect about \$10,000.
- ❖ Many (84%) new patient care allergists are satisfied with their levels of compensation, with 26% reporting being very satisfied with these levels.
- ❖ An overwhelming majority (97%) of new allergists reported that they would recommend the specialty of allergy and immunology to other physicians in training.

- ❖ A majority (56%) of the new allergists reported no difficulties finding satisfactory employment. Among those that did report difficulties, the difficulties stem from types of positions (e.g., not in desired location), not from a lack of positions more generally. Moreover, only 21% of the new graduates reported having to change their practice plans due to limited practice opportunities.

- ❖ Slightly less than half (45%) of the 1999 graduates reported few or no practice opportunities within 50 miles of the site where they trained. Nationally, however, only 6% reported few or no practice opportunities. Some 39% of the 1999 graduates reported that there were few or no academic opportunities nationally.

Survey of A/I Fellows Completing Training

This section is organized around a number of key issues in allergy and immunology graduate medical education and the current allergy and immunology job market, including: demographics of recent graduates of allergy and immunology fellowship programs, general, as well as specific, future plans of recently graduated fellows, and experiences of recent allergy and immunology graduates in the job market. Recently graduated fellows are in an opportune position to assess the current state of the job market as they are in the midst of securing practice positions. Moreover, recently graduated fellows can offer firsthand accounts of the evolving job market. Thus, they provide a good source of information on the aforementioned key issues in graduate medical education and the job market. Specific technical details about the survey can be found in Appendices E (p. 204) and F (p. 211).

1. Demographic Characteristics of Fellows Completing Training

Below, the results of the fellow exit survey are examined with respect to respondents' demographic characteristics.

Table 6-1 presents the gender, age, and race/ethnicity distributions of allergy and immunology fellows completing training in 1999. As is evident, a majority (56%) of the graduates are women. As reported in the historical analysis [6], the absolute and relative number of women entering the specialty of allergy and immunology has been growing and continues to grow. These data confirm this trend. In terms of age, the vast majority (62%) of the completers are under the age of 35. This is not surprising, given that these physicians are at a relatively early stage in their careers. At the same time, there is a significant proportion (38%) of completers who are age 35 and above. Such a high proportion in this age group is

probably an effect of having such a large percentage of international medical graduates (IMG) amongst those being trained in allergy and immunology. IMGs tend to be older upon entrance into residency programs, and thus, are older upon exit. In terms of race/ethnicity, the largest proportion (46%) of graduates is white. The next largest proportion (25%) is asian/pacific islander.

**Table 6-1.
 Demographic Characteristics of Recent Allergy and Immunology Fellowship Graduates, 1999**

Gender	
Male	44%
Female	56%
Age	
Less than 35 Years of Age	62%
35 - 39 Years of Age	29%
40 - 44 Years of Age	8%
45 - 49 Years of Age	2%
Race/Ethnicity	
Indian Subcontinent	8%
Middle Easterner	8%
Black/African American (non-Hispanic)	2%
Hispanic/Latino(a)	8%
Other	4%
Asian/Pacific Islander	25%
White (non-Hispanic)	46%

As reported in Chapter 3 (pp. 11 – 19), graduate medical training in allergy and immunology has experienced a sharp increase in the percentage of IMGs in training. Figure 6-1 presents the distribution of the location of medical school attended by the completing fellows. A significant portion (42%) of the graduates are IMGs (that is, they attended a medical school outside of the United States or Canada).

One of the concerns with a large proportion of IMGs in training is that many of them will have to return to their countries of origin once they complete their training due to visa and immigration restrictions (especially J-1, J-2 visa holders). This phenomenon would, then, decrease the effective production of physicians providing allergy and immunology services

in the United States. Figure 6-2 presents the citizenship status of all completers. Clearly, most (64%) of the completers are United States citizens, while just over a quarter (27%) are J-1, J-2 exchange visitors.

Figure 6-1.
Location of Medical School Attended of Recent Allergy and Immunology Fellowship Graduates, 1999

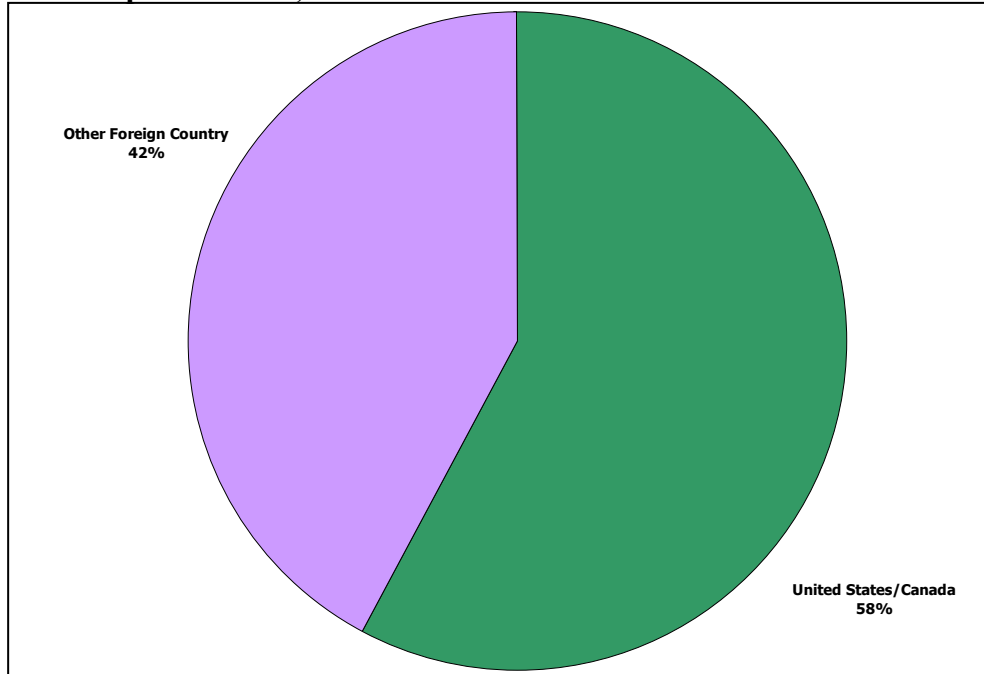


Figure 6-2.
Citizenship Status of Recent Allergy and Immunology Fellowship Graduates, 1999

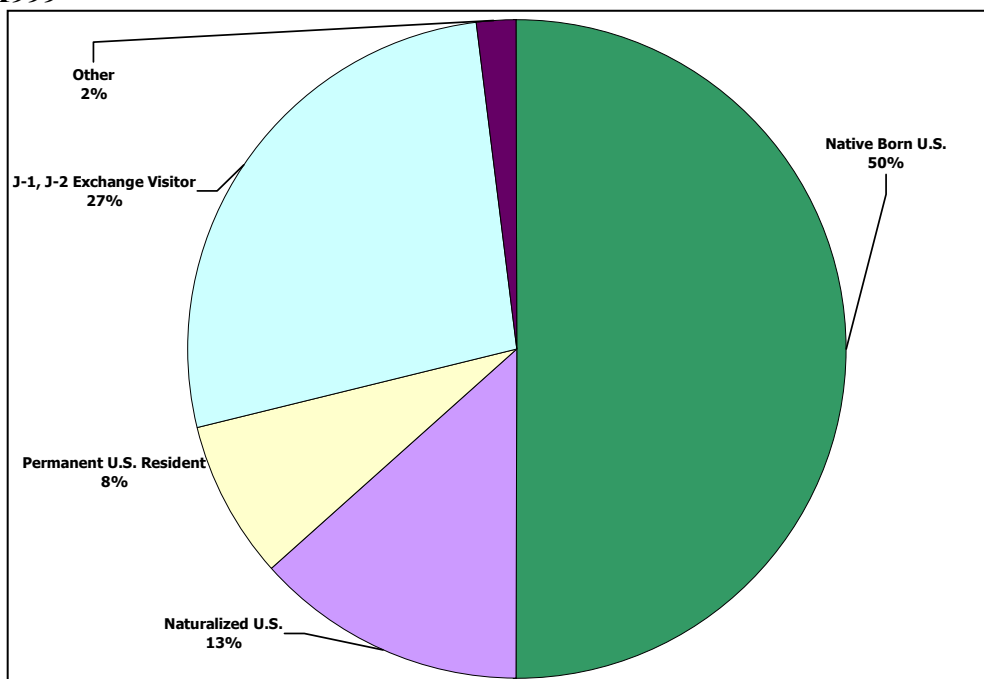
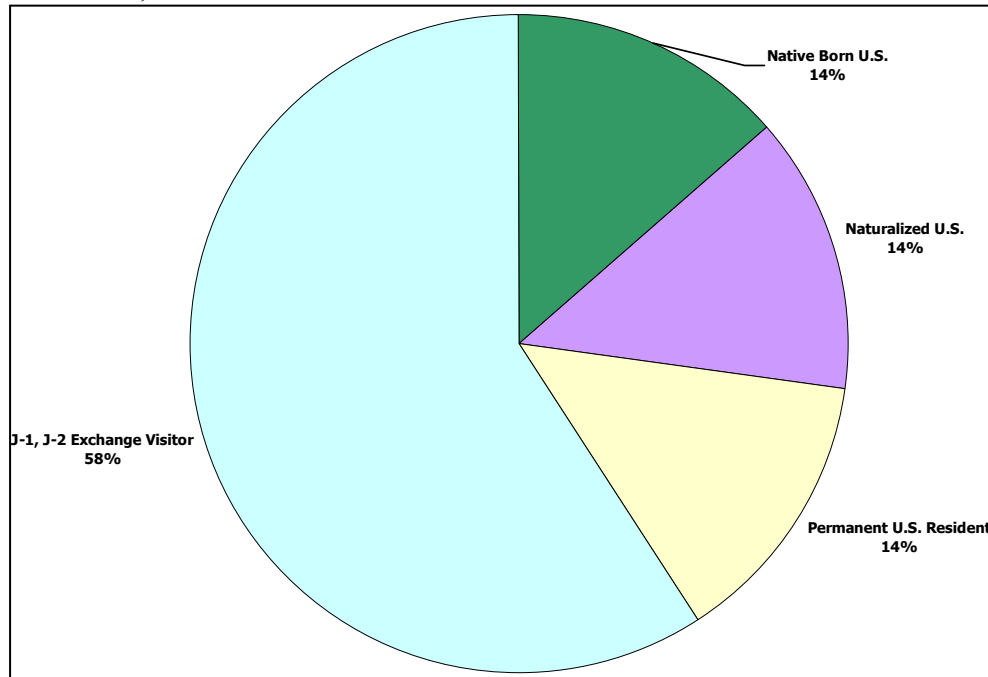


Figure 6-3.
Citizenship Status of IMG Recent Allergy and Immunology Fellowship Graduates, 1999



More than half (58%) of the IMG completers are J-1, J-2 exchange visitors (Figure 6-3) who, thus, have restrictions on them to leave the United States when they have completed training, pursue additional training, or practice in an underserved area.¹⁵ Below, this issue, as well as that of effective production, will be taken up in more detail.

2. Medical Education and Training of Fellows Completing Training

The vast majority (94%) of fellows completing allergy and immunology training have an allopathic medical education (Figure 6-4). In addition, 51% have completed internal medicine training and 45% have completed pediatrics training, and 4% have completed combined programs in these specialties (Figure 6-5). The high percentage of completers trained in internal medicine confirms the trend identified with younger physicians providing allergy and immunology services in Chapter 4 (pp. 20 – 104).

¹⁵ In fact, 41% of the IMGs completing allergy and immunology training in 1999 have such obligations.

Figure 6-4.
Medical School Education of Recent Allergy and Immunology Fellowship Graduates, 1999

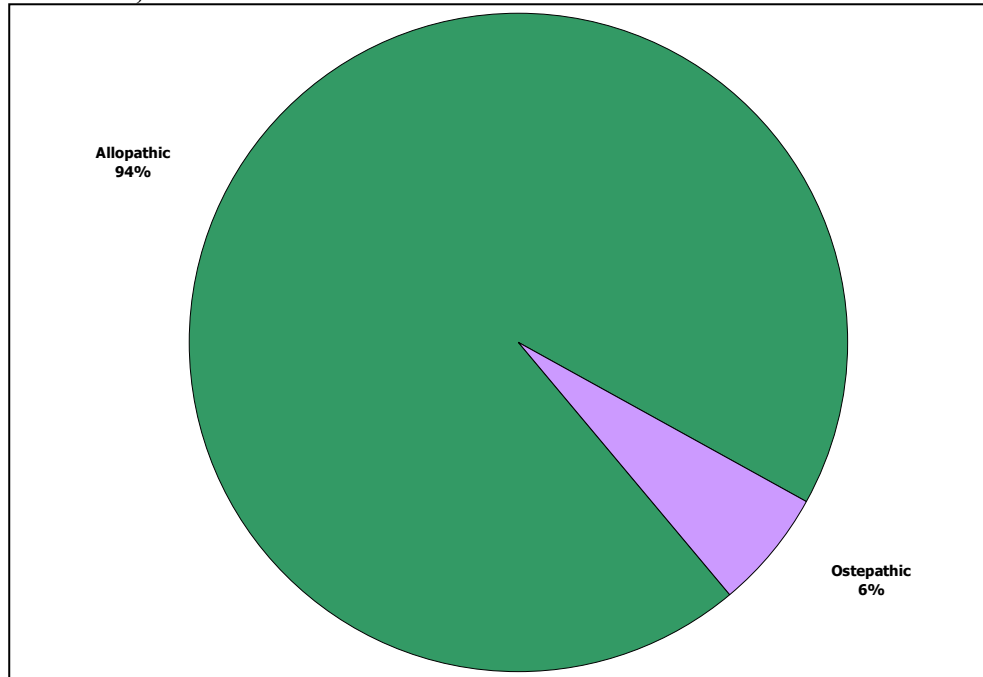
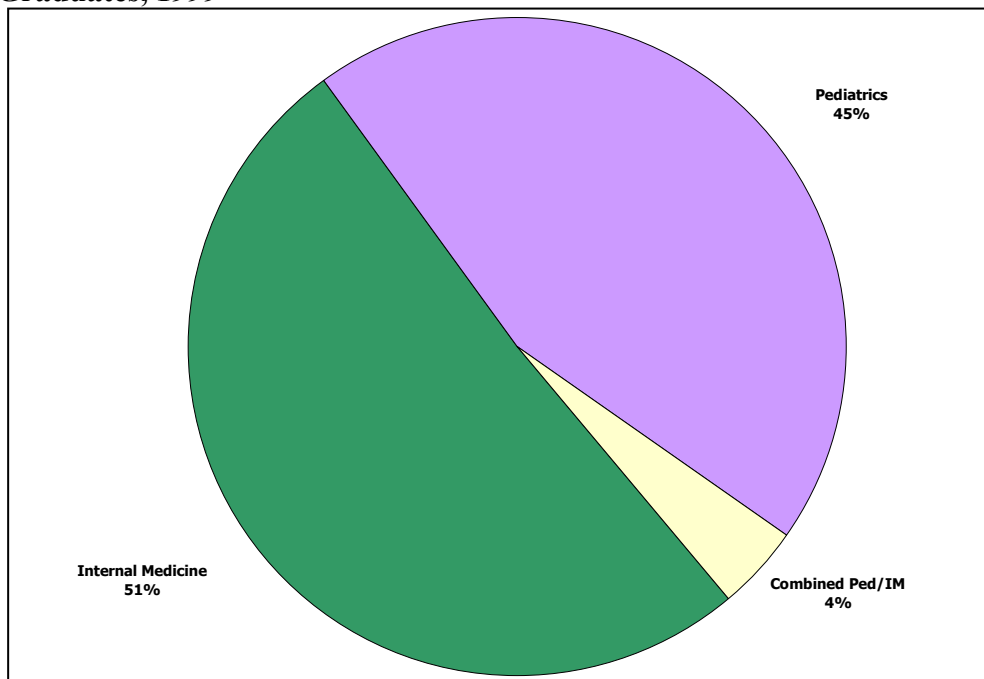
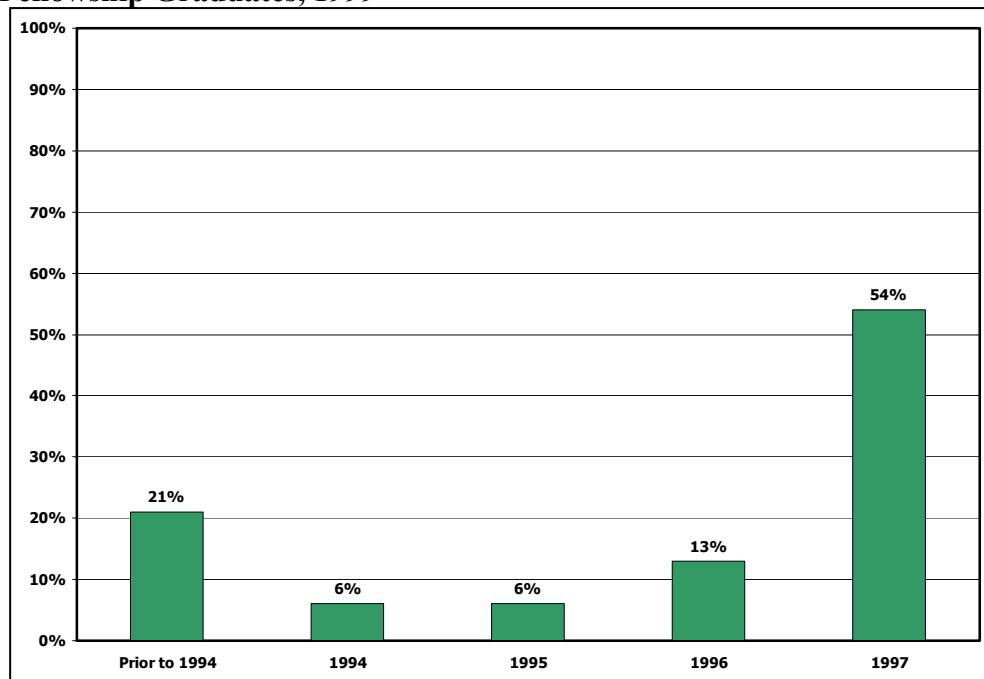


Figure 6-5.
Previous Specialty Training of Recent Allergy and Immunology Fellowship Graduates, 1999



Most of the recent allergy and immunology fellowship program completers had only been trained in allergy and immunology since their initial internal medicine and/or pediatrics training (Figure 6-6). A majority (54%) of the 1999 completers had finished their initial specialty training in 1997 (then completed their allergy and immunology training the typical 2 years later in 1999). At the same time, there is a significant group (21%) of completers who finished their initial training prior to 1994. This suggests that a fair amount of physicians who train in allergy and immunology 1) have trained in at least one other specialty after their initial residency, but before the most recent; and/or 2) returned to training after being in practice for several years. While an interesting characteristic of recent completers, this issue does not become significant unless completers with long training histories are the same physicians who go on to even further training, thus reducing the effective production of physicians providing allergy and immunology services.

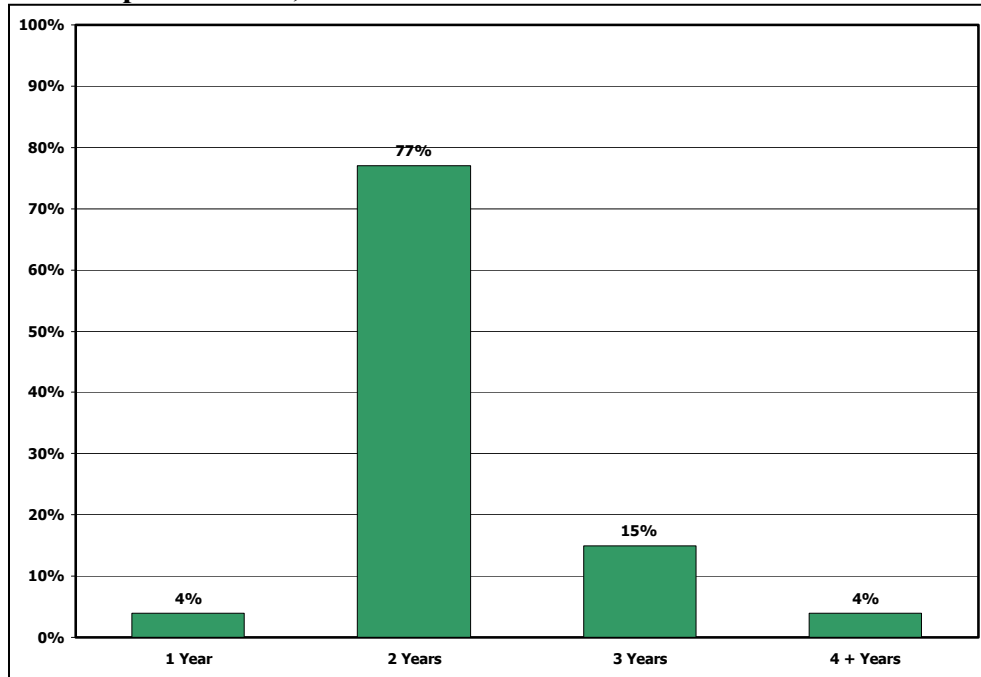
Figure 6-6.
Year Completed Initial Specialty Training of Recent Allergy and Immunology Fellowship Graduates, 1999



Finally, there is some variation among recent fellowship program completers with respect to how much allergy and immunology training they have (Figure 6-7). The vast majority (77%) have the typical 2 years of training (almost all allergy and immunology fellowship training programs are 2 year programs), but almost a fifth (19%) have 3 or more years of training in

allergy and immunology. This finding may shed some light on those above. In any case, it does confirm that allergy and immunology is a terminal program, that is, once a physician completes a fellowship program, he/she does not continue on in allergy and immunology, but rather goes into practice, or selects a different specialty.¹⁶

Figure 6-7.
Years of Allergy and Immunology Training of Recent Allergy and Immunology Fellowship Graduates, 1999



3. Future Plans of Fellows Completing Training

In this section, the future plans of recent training program completers will be examined. Initially, all responses will be analyzed to determine what general plans these physicians have, including: going into practice, teaching, and going on to further training. The second section will examine only those who are going into patient care after completing their training.

¹⁶ Subspecializing further is possible (e.g., clinical and laboratory immunology), but physicians tend not to repeat allergy and immunology again.

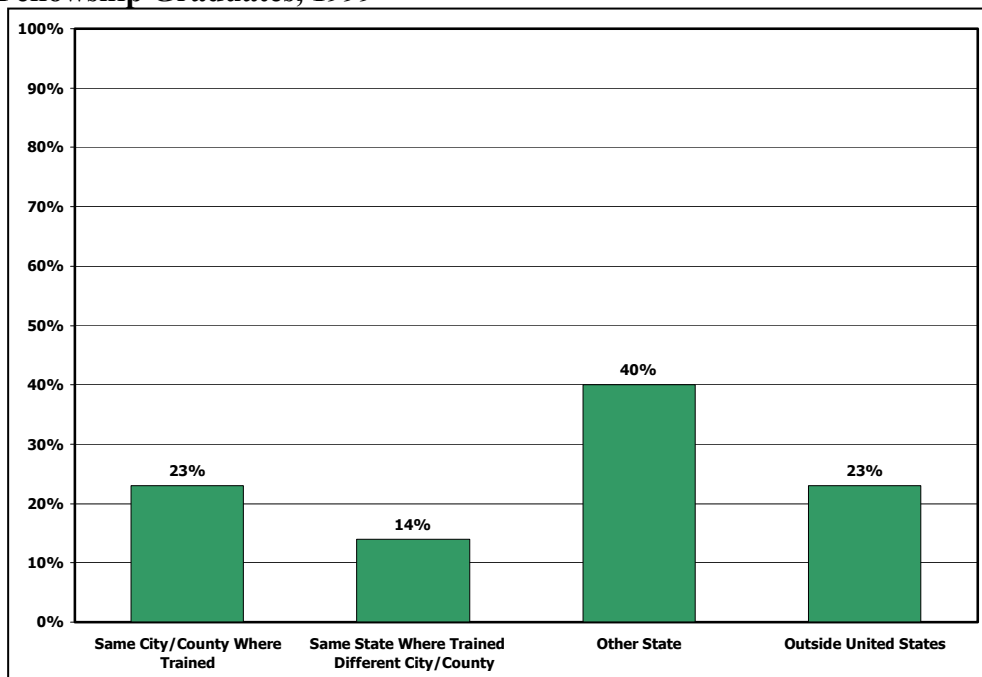
a. General Plans

Of the fellows completing allergy and immunology training in 1999, 83% plan to enter patient care in some capacity¹⁷ (Table 6-2). Academic endeavors make up the next most popular plans for recent program completers: 35% report plans to enter research in academic medicine and 31% report plans to enter teaching. Only 2% of the completers are going on to further training.

Table 6-2.
Planned Activity After Completing Current Fellowship Training of Recent Allergy and Immunology Fellowship Graduates, 1999

Patient Care / Clinical Practice	83%
Research (Academic Medicine)	35%
Teaching	31%
Temporarily Inactive in Medicine	4%
Additional Training	2%
Other	2%

Figure 6-8.
Location of Planned Activity After Training of Recent Allergy and Immunology Fellowship Graduates, 1999



¹⁷ Respondents were allowed to report more than one planned activity, hence the “in some capacity” phrasing.

In terms of mobility, in general, recent allergy and immunology program completers will be working in different places than they trained (Figure 6-8). Two-fifths (40%) of the fellows will be working in different states than they trained. Almost a quarter (23%) will be staying in the same locale, while 14% will be staying in the same state, but moving to another city or county to work. Almost a quarter (23%) will be leaving the country to engage in their planned activity. This figure is somewhat disturbing and suggests that a significant portion of the training effort devoted to allergy and immunology is not being realized by patients in the United States. The percentage of physicians leaving the country after training is driven by the high percentages of J-1, J-2 visa holders being trained in allergy and immunology.

Finally, of the 83% who report that they are going on to patient care activities after training, almost three-quarters (74%) have already secured employment (Figure 6-9). Bear in mind that the survey was administered between May and August 1999, so the remaining 26% have probably found positions at the time of this report. This finding is indicative of a healthy job market that is able to support the current level of training.

Figure 6-9.
Finding A Practice Position Among Recent Allergy and Immunology Fellowship Graduates Planning to Go on to Patient Care, 1999

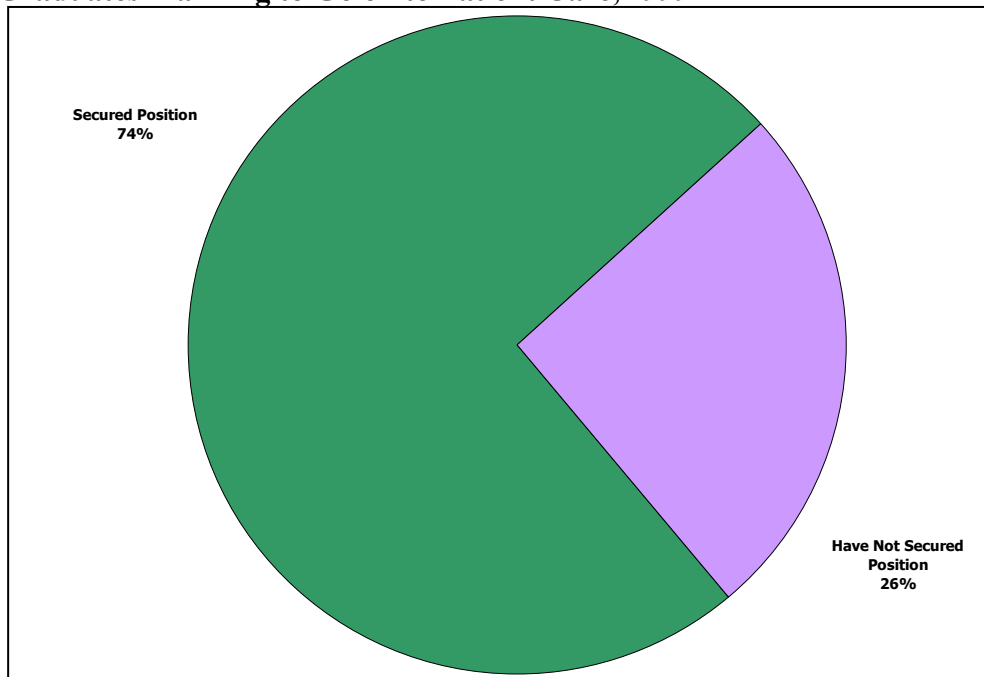
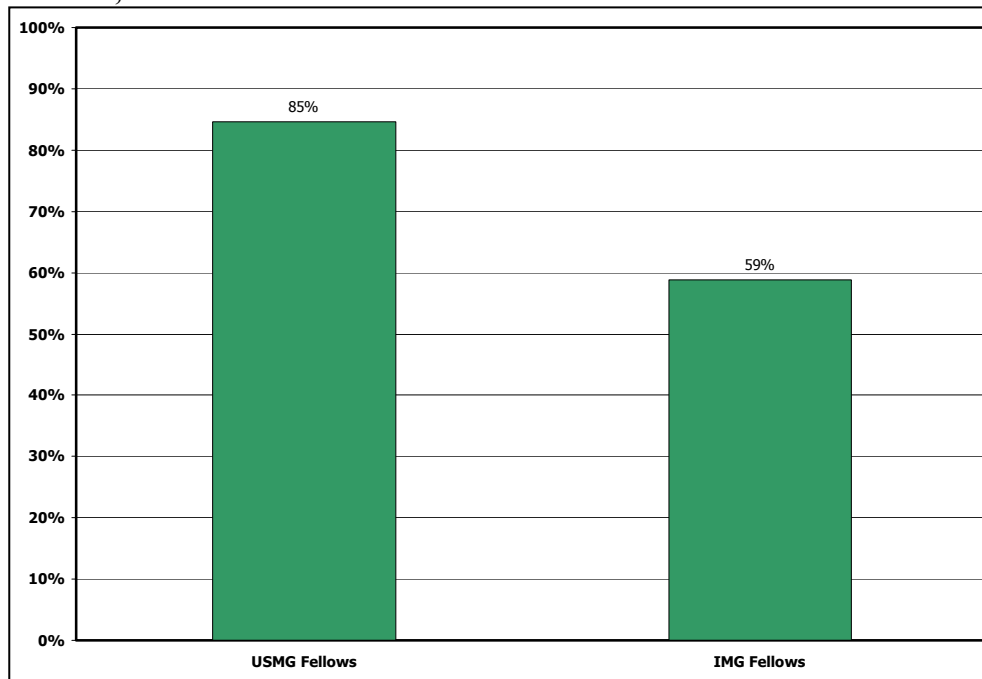


Figure 6-10 shows the percentage of USMG and IMG fellows who are going on to patient care activities after training who had already found a position. As is evident, USMG fellows completing training have a less difficult time finding practice positions, with 85% already with positions at the time of the surveys compared to 59% of the IMG fellows.

Figure 6-10.
Finding A Practice Position Among Recent Allergy and Immunology Fellowship Graduates Planning to Go on to Patient Care by Location of Medical School Attended, 1999



b. Specific Plans

For those recent allergy and immunology fellowship graduates who report planning on going into patient care and have secured a position, a series of questions was included on the fellow exit survey to gather additional details about these new positions. This section explores those data which include a host of topics, such as practice setting, location of practice, compensation, and satisfaction.

i. Practice Characteristics

Figure 6-11 presents data on the practice settings of recent allergy and immunology program graduates. As is evident, a majority (63%) are going into private practice. A quarter (25%) of them are going to practice in hospitals. The remaining graduates (12%) are split between

the government/military (9%) and other settings (3%). Of those going into private practice, 64% will be partners in or owners of their practices, while 36% will be employees.

Figure 6-11.
Practice Settings of Recent Allergy and Immunology Fellowship Graduates
Going on to Patient Care, 1999

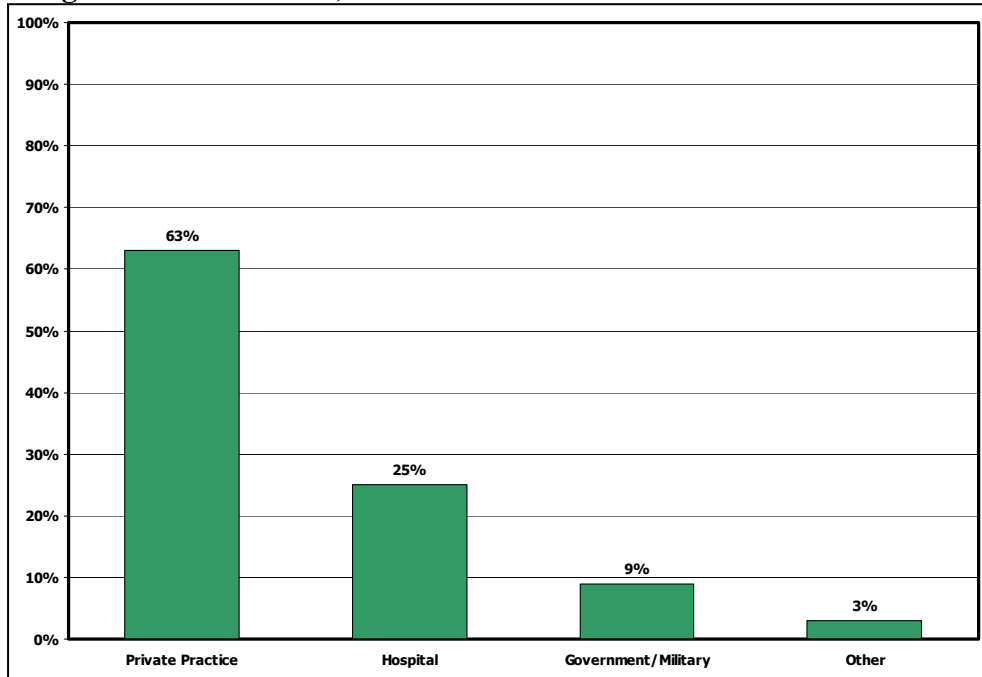
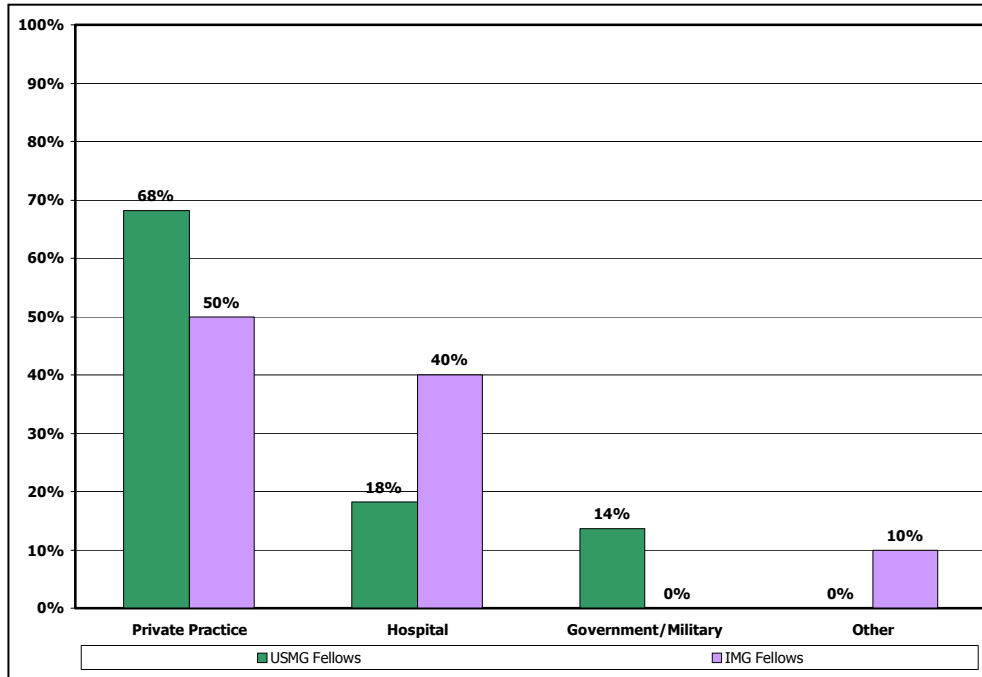


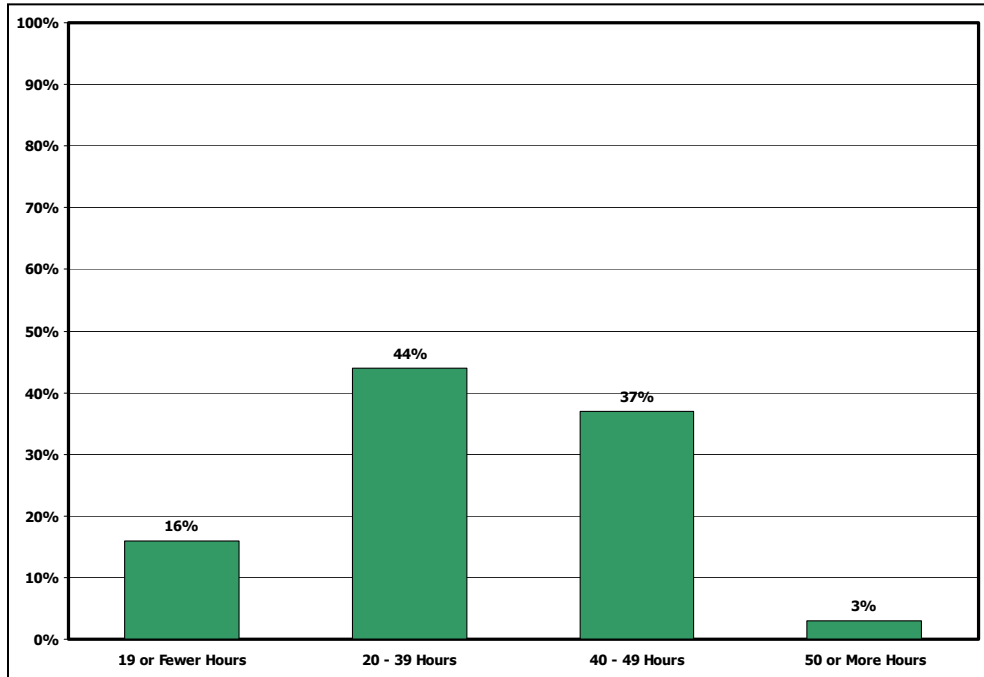
Figure 6-12 shows the practice setting of recent allergy and immunology fellowship graduates who are going into patient care by location of medical school attended. While, private practice is the most common practice setting for both USMG (68%) and IMG (50%) fellows, far fewer USMG fellows (18%) are going to practice in hospital settings than IMG fellows (40%).

Figure 6-12.
Practice Settings of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care by Location of Medical School Attended, 1999



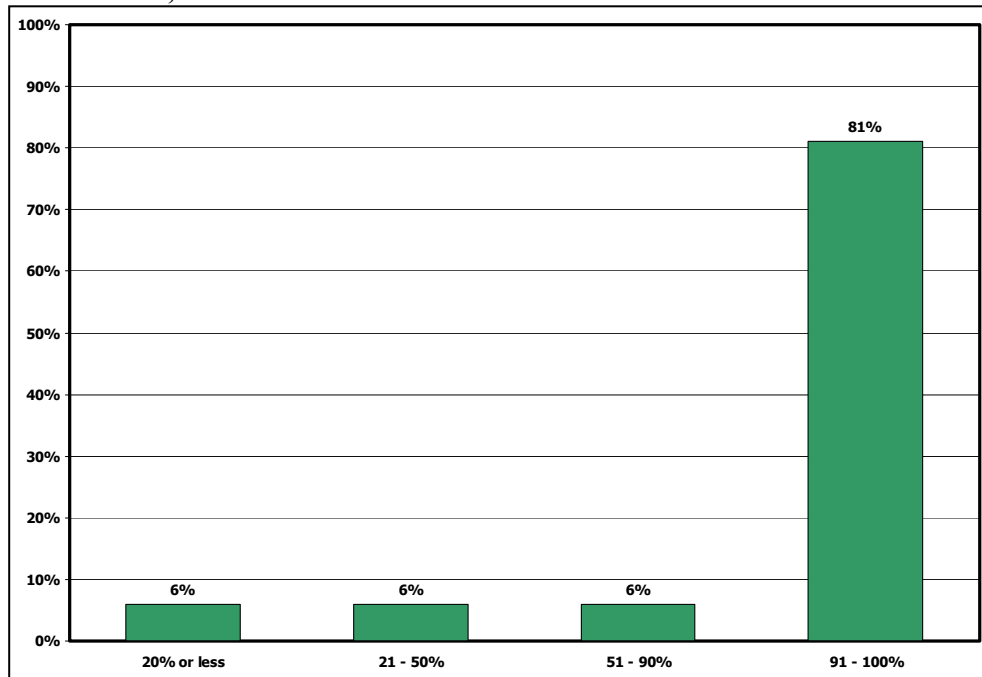
Recent allergy and immunology graduates expect to work an average of 34 hours in direct patient care. Figure 6-13 presents the distribution of hours in direct patient care per week. The largest group (44%) expects to spend 20 – 39 hours per week in direct patient care. Slightly fewer (37%) expect to work 40 – 49 hours per week in direct patient care. The remainder is split between 19 or fewer hours (16%) and 50 or more hours (3%). It should be noted that the expected direct patient care hours per week falls below the average patient care hours for a core allergist (Table 4-4, p. 51). This suggests that productivity among the new allergists may be slightly lower than that of current allergists. A lower productivity level would have serious implications for the future supply of allergists.

Figure 6-13.
Expected Direct Patient Care Hours per Week of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999



Finally, the vast majority (81%) of the 1999 graduates who have found a position report that they will be spending 91 - 100% of their practice time devoted to allergy and immunology services (Figure 6-14). Twelve percent (12%) expect to spend less than a majority of their patient care time devoted to these services.

Figure 6-14.
Expected Percentage of Patient Care Time Devoted to Allergy and Immunology Services of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999



ii. Location of Practice

Where recent allergy and immunology graduates find positions is of interest to all involved in allergy and immunology training. The 1999 graduates of allergy and immunology training programs found practice opportunities in almost all parts of the United States (Figure 6-15). As is evident, 16% of those who have secured employment have done so outside of the country. The most popular area of the country appears to be the East North Central Census Division, where 22% of the graduates report finding positions. Second most popular is the South Atlantic region, where 19% of the graduates report finding practice opportunities. The least popular area is the Mountain region which did not have any new graduates finding positions. For the most part, the distribution of new allergists mimics the allergists already in practice. This does not bode well for all areas in which there are already shortages of physicians providing allergy and immunology services (see Table 4-1, p. 41). In particular, the East North Central region is the only region with relatively few allergists currently that seems to be benefiting from the current entrance distribution of new allergists. Moreover, the

vast majority (72%) of these physicians expect to stay at this practice location for longer than three years.

Figure 6-15.
Geographical Distribution of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999

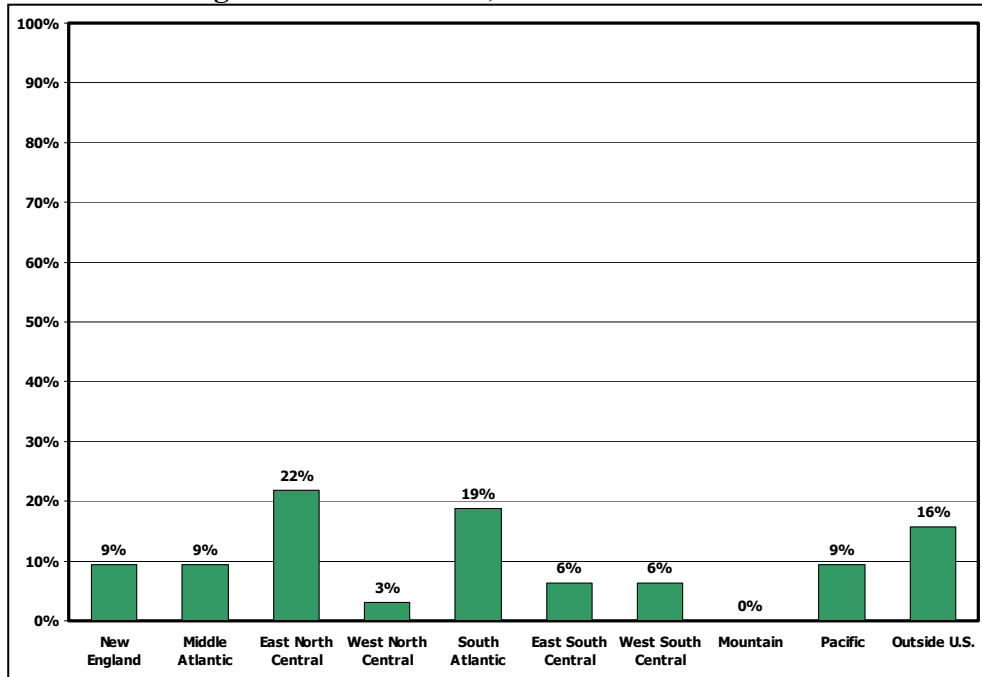
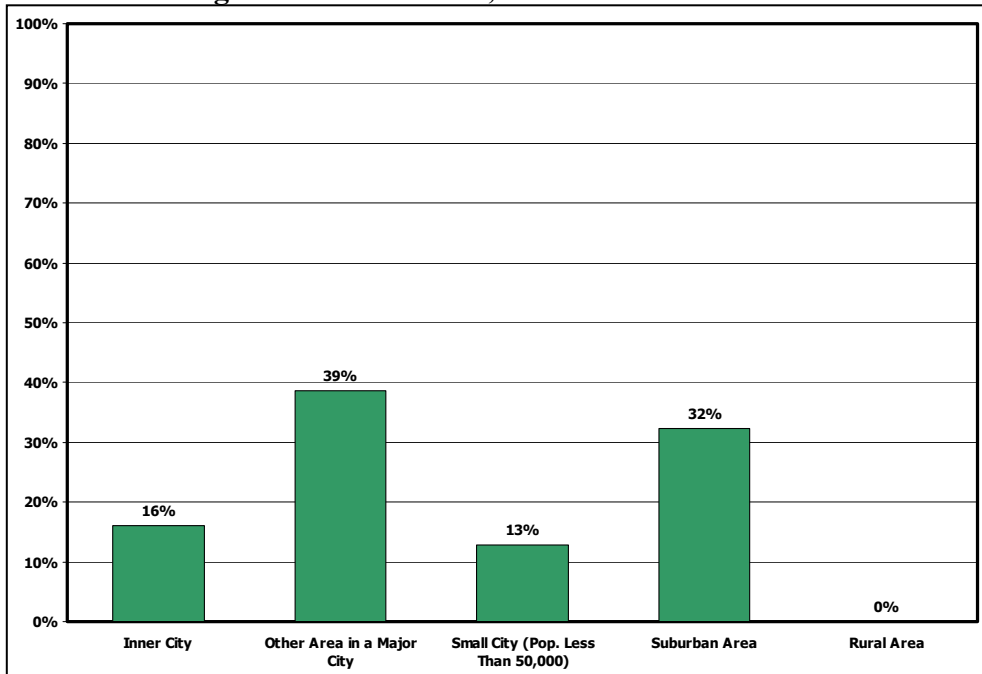


Figure 6-16.
Types of Practice Locations of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999

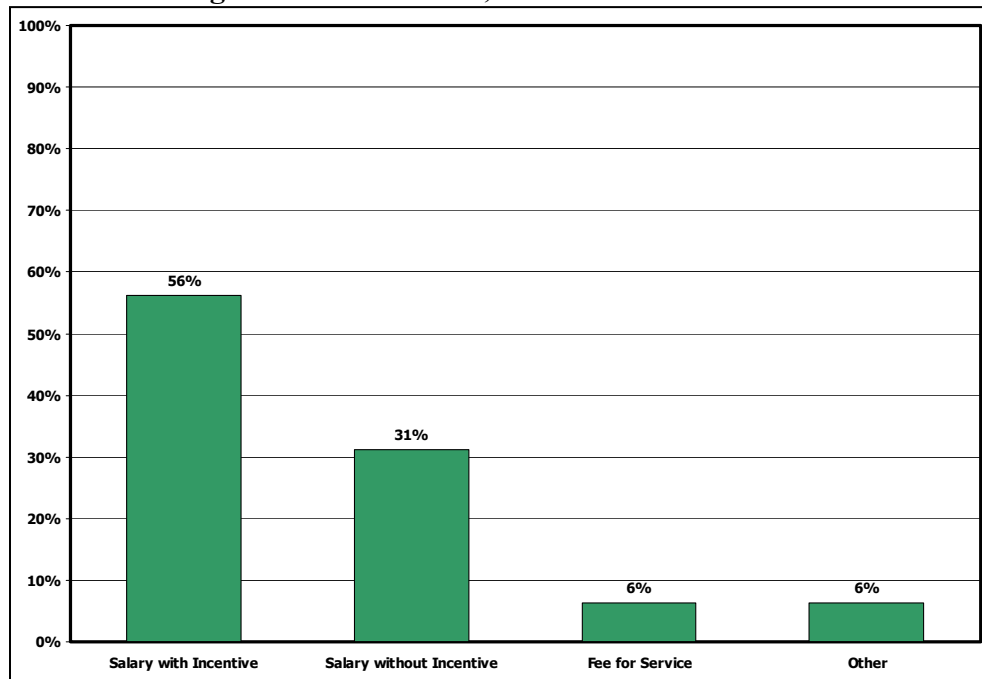


The types of areas that recent graduates are able to find positions include inner cities (16%), other areas within major cities (39%), small cities (13%), and suburban areas (32%) (Figure 6-16). No recent graduates of allergy and immunology programs have secured practice positions in rural areas.

iii. Compensation

Compensation for services is an important, and often sensitive, issue among physicians. For recent graduates of allergy and immunology programs, almost all (88%) will receive some sort of salary (Figure 6-17). Six percent (6%) will receive compensation through fee for service and 6% will receive some other kind of compensation for their services. Of those who will receive a salary, almost two-thirds (64%) will receive salary with an incentive, while the others will only receive a salary.

Figure 6-17.
Type of Compensation of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999



The average base salary (not including incentives) for recent allergy and immunology graduates is \$103,333. Figure 6-18 presents the salary distribution. One half (50%) of the recent graduates will earn less than \$100,000 in annual salary. A small percentage (10%) will earn salaries of \$125,000 or more. The remainder (40%) will earn between \$100,000

and \$124,999. Figure 6-19 shows the distribution of expected salary levels by location of medical school attended. As is evident, USMGs are more likely to expect higher salaries with 14% expecting \$125,000 or more annually for a base salary, while no IMGs expect salaries in that range. On average, IMGs report that they expect to earn about \$97,000, while USMGs expect to earn slightly less than \$106,000 annually.

Figure 6-18.
Expected Base Salary During First Year of Practice of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999

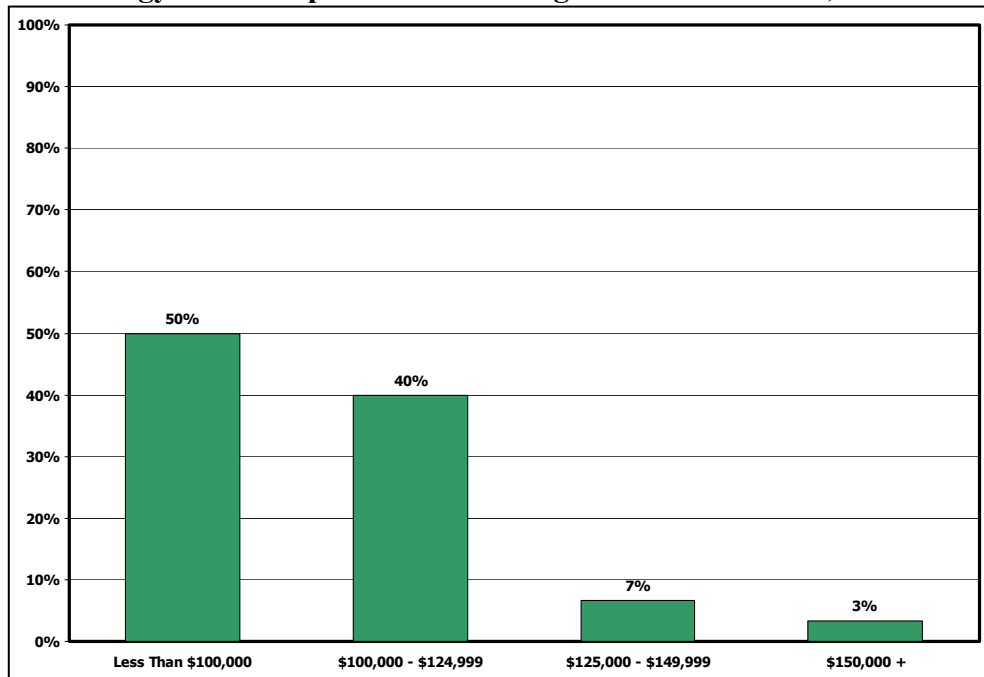


Figure 6-19.
Expected Base Salary During First Year of Practice of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care by Location of Medical School Attended, 1999

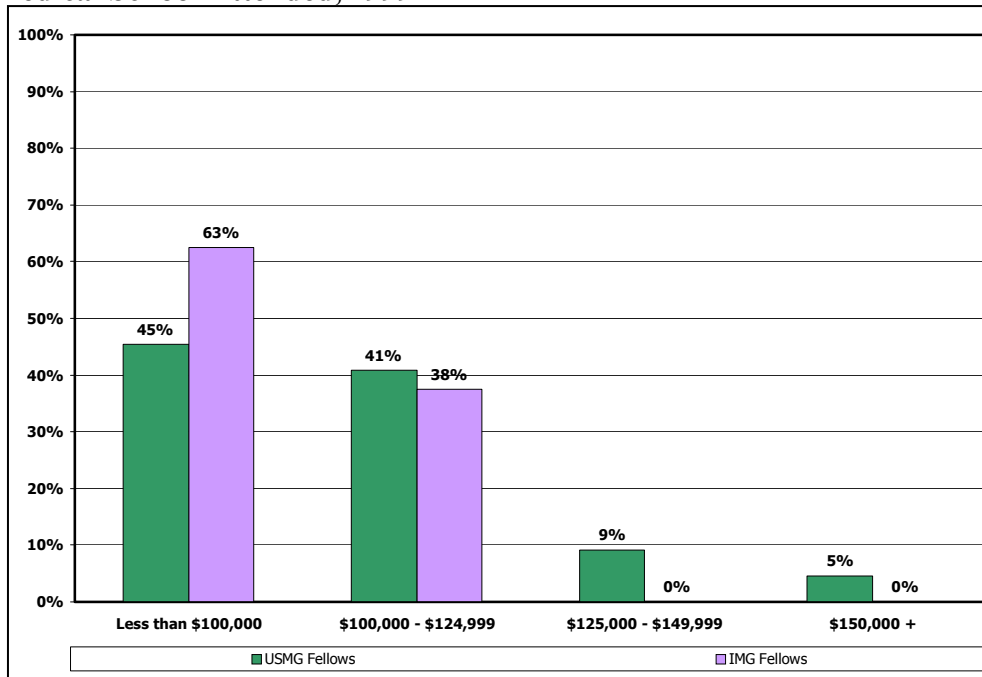
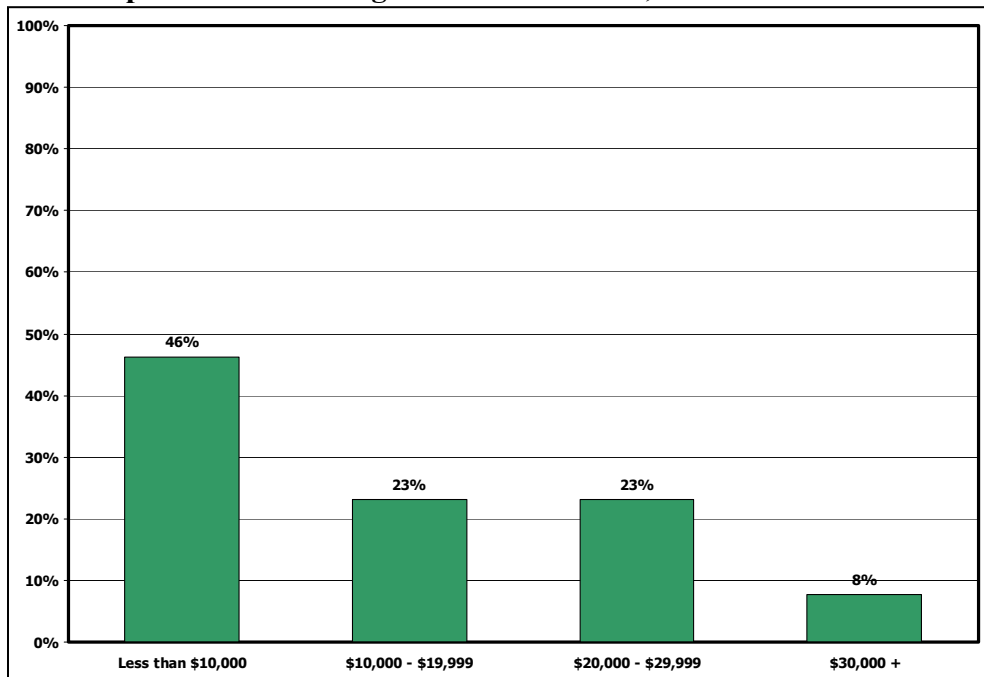
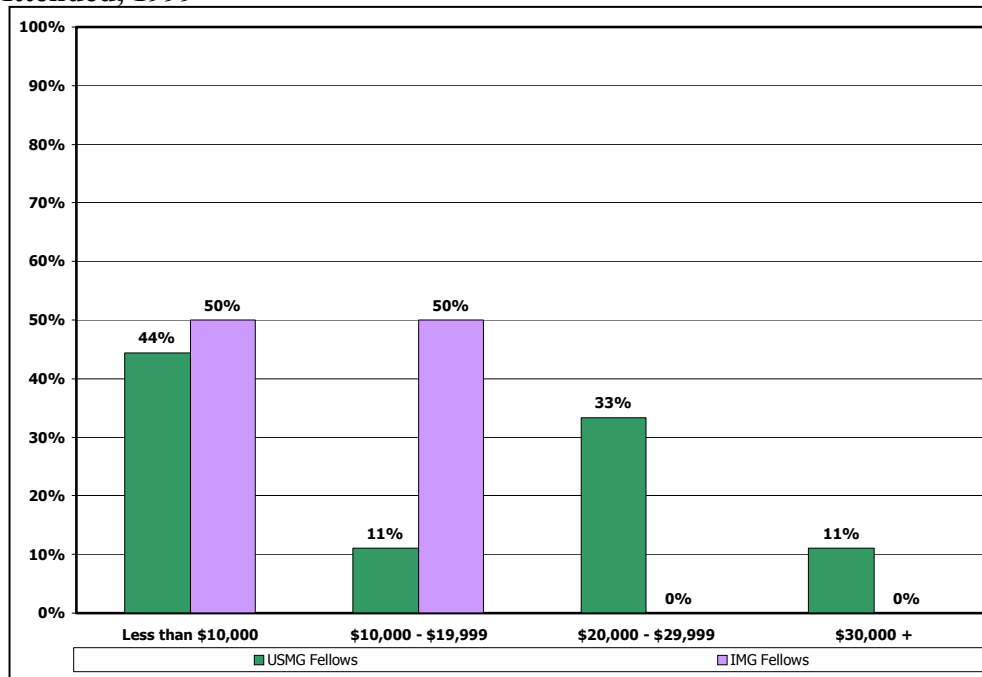


Figure 6-20.
Anticipated Additional Incentive Income of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999



For the 56% of recent graduates who report that they anticipate additional incentive income, the average incentive is \$15,000. Figure 6-20 presents the distribution of anticipated incentive income for recent graduates of allergy and immunology programs. Nearly half (46%) expect less than \$10,000 in incentives, while only 8% expect more than \$30,000. The remainder (46%) is split evenly between those anticipating \$10,000 and \$19,999 and those expecting \$20,000 and \$29,999 in incentive income during their first year of practice. As with annual base salary, USMG fellows expect to earn higher incentives than IMG fellows (Figure 6-21). While no IMG fellows expect incentives of \$20,000 or more, 44% of USMG fellows do. On average, USMG fellows expect to earn slightly more than \$17,000 in incentives, while IMG fellows expect about \$10,000.

Figure 6-21.
Anticipated Additional Incentive Income of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care by Location of Medical School Attended, 1999



iv. Level of Satisfaction

Selecting a specialty for a physician is akin to selecting a career for many other working people. Understanding how satisfied physicians who have chosen allergy and immunology as a specialty is important in developing policies to attract more and better qualified medical residents to the specialty. In this section, two indicators of satisfaction are examined:

satisfaction with salary/compensation and whether a recent graduate would recommend allergy and immunology to other physicians in training.

In general, recent allergy and immunology training program graduates appear to be satisfied with their level of compensation (Figure 6-22). The vast majority (84%) of the recent graduates are satisfied with their anticipated level of compensation, with more than a quarter (26%) reporting being very satisfied. While 16% of the recent graduates are dissatisfied, 10% report being very dissatisfied with their anticipated level of compensation.

Figure 6-22.
Level of Satisfaction with Anticipated Level of Compensation/Salary of Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care, 1999

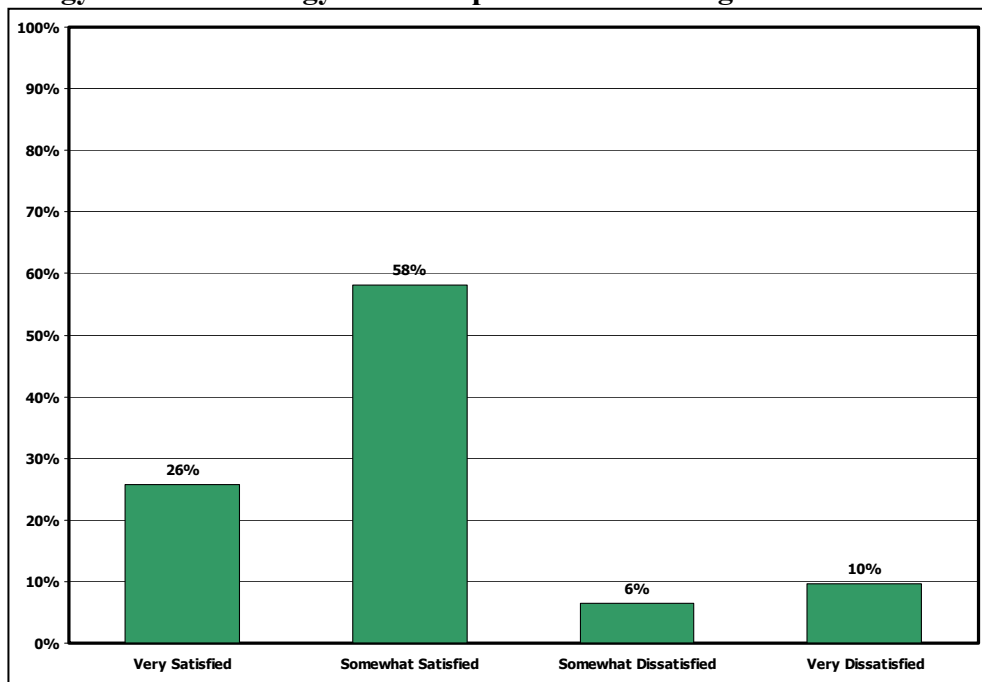
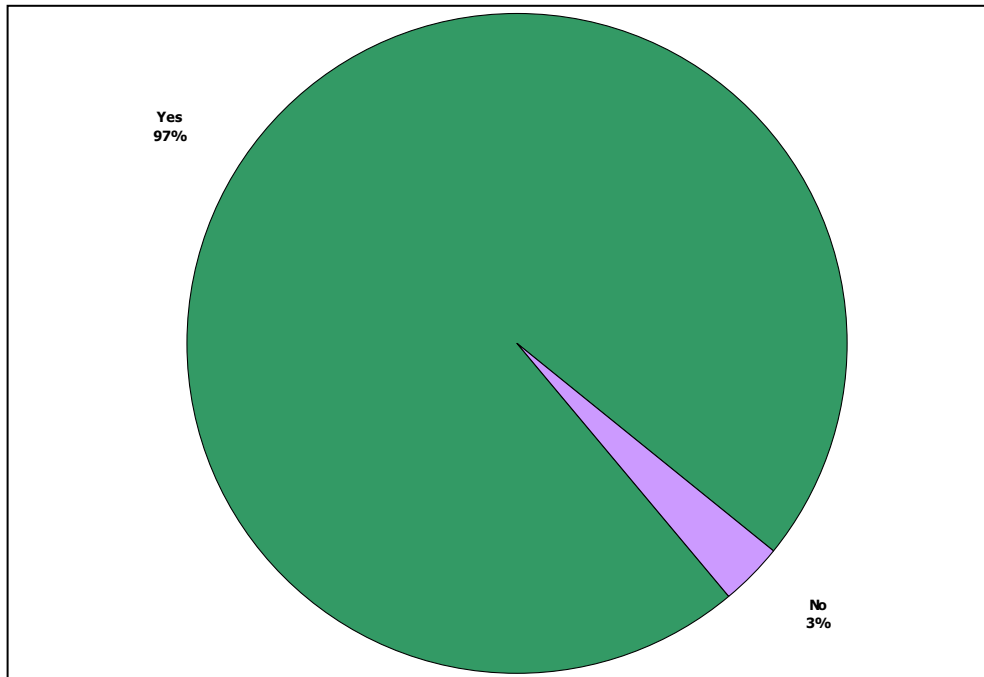


Figure 6-23.
Whether Recent Allergy and Immunology Fellowship Graduates Going on to Patient Care Would Recommend Allergy and Immunology to Other Physicians in Training, 1999



Finally, a relevant indicator of recent graduates' satisfaction with their choice of allergy and immunology as a specialty is whether they would recommend the specialty to medical students or other physicians in training. The recent allergy and immunology graduates who have secured practice positions overwhelmingly (97%) report that they would recommend the specialty (Figure 6-23). This is a very positive indication for allergy and immunology.

4. Experience in the Job Market of Fellows Completing Training

In this section, data will be presented to examine, firsthand, the job market for allergists. Survey data from all fellows who recently completed allergy and immunology training (not just those who have found positions) are included in this section.

a. Finding a Position

A good indicator of the balance between supply and demand for allergists is whether recent graduates of allergy and immunology programs experience difficulties securing satisfying practice positions. A majority (56%) of the 1999 graduating fellows report no difficulties finding a position with which they are satisfied (Figure 6-24). A significant portion (27%),

however, report having difficulties. The remainder (17%) had not begun searching when they were surveyed. If only those who actively sought positions are examined, 68% report no difficulties, while 32% do report difficulties.

Of the recent graduates who report experiencing difficulties finding a practice position, most (62%) report that the difficulty stems from not being able to find a position in a desired location (Table 6-3). Other reasons include lack of positions in desired settings (39%), limited opportunities due to visa status (39%), and family considerations (39%). The high percentage of recent graduates who report difficulty finding positions due to visa status is indicative of the high percentage of IMGs in allergy and immunology training. Only 15% of the recent graduates of allergy and immunology programs report that an overall lack of practice positions is the reason for their difficulty, as well as 23% who report inadequate compensation. In sum, it appears that the difficulties recent graduates are experiencing have more to do with the kind of position rather than whether there are available positions. This is an encouraging sign for the specialty.

Figure 6-24.
Practice Position Search Experiences of Recent Allergy and Immunology Fellowship Graduates, 1999

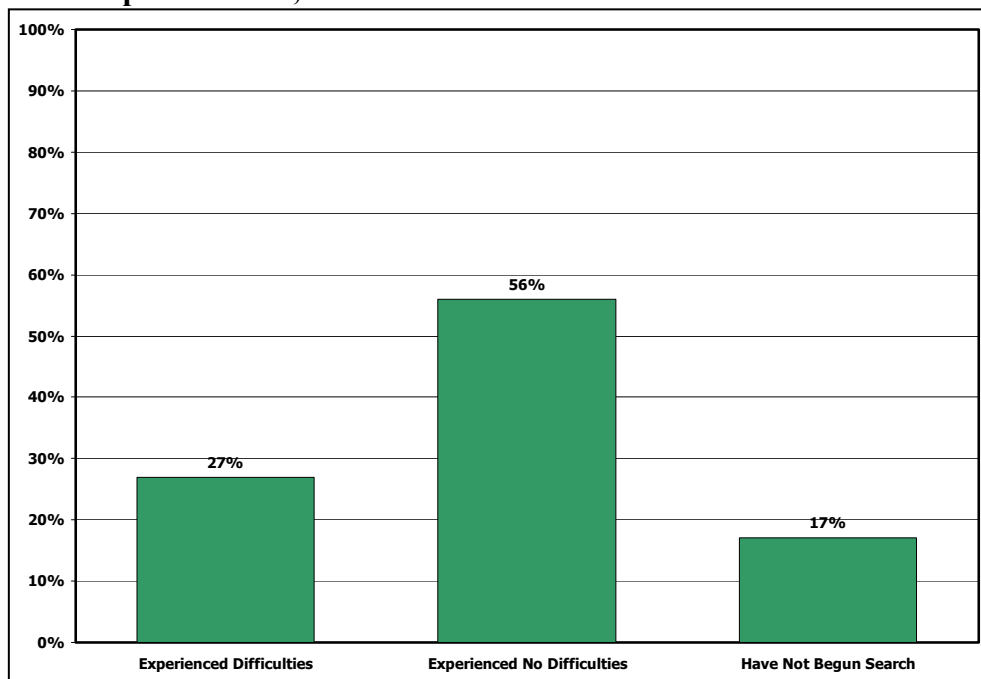
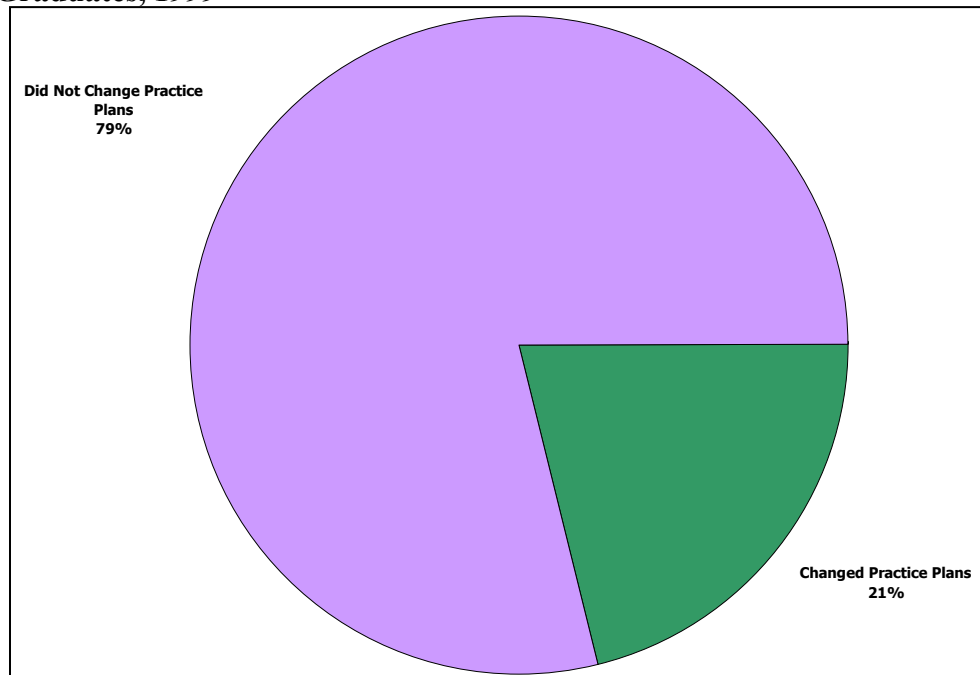


Table 6-3.
Reasons for Difficulty Finding a Practice Position of Recent Allergy and Immunology Fellowship Graduates, 1999

Lack of Positions in Desired Locations	62%
Lack of Positions in Desired Settings	38%
Limited Opportunities due to Visa Status	38%
Family Considerations	38%
Inadequate Salary/Compensation Offered	23%
Overall Lack of Positions / Practice Opportunities	15%

Another indicator of the status of the market for new allergists is whether recent graduates of allergy and immunology programs have to change their plans because of limited opportunities. Figure 6-25 shows that almost four-fifths (79%) of recent graduates report not having to change plans. Only 21% report changing plans due to limited practice opportunities.¹⁸

Figure 6-25.
Effect of Limited Opportunities on Recent Allergy and Immunology Fellowship Graduates, 1999



¹⁸ For the purpose of comparison, slightly more than one-third (34%) of all physicians completing their training in New York State in 1999 experienced difficulties finding a position [23].

Of those who report having to change their practice plans, 25% report seeking employment in another part of the country, 25% report leaving the United States, and 25% report accepting a less desirable position (Table 6-4). Others report continuing their subspecialty training (13%), accepting less desirable compensation (13%), temporarily leaving medicine (13%), and accepting a less desirable setting or location (13%). Again, these data point out that trained allergists, for the most part, are going into practice, just not necessarily in the location or at the compensation level they may have desired.

Table 6-4.
Practice Plan Changes Due to Limited Opportunities of Recent Allergy and Immunology Fellowship Graduates, 1999

Seeking Employment in Different Region of the Country	25%
Leaving United States	25%
Accepting Less Desirable Position	25%
Accepting Less Desirable Compensation	13%
Accepting Less Desirable Setting	13%
Continued Training in Subspecialty	13%
Temporarily Leaving Medicine	13%

Finally, a quantitative indicator of the health of the job market for new allergists can be constructed by examining the ratio of the number positions applied for to the number of offers received by recent allergy and immunology graduates. The mean number of positions applied for is 6 and the mean number of positions offered is 4. The ratio of applications to offers is slightly less than 1.5. That is, on average, recent graduates of allergy and immunology programs received 2 offers for every 3 positions for which they applied.¹⁹

Examining the distributions of the number of positions applied for (Figure 6-26) and the number of offers received (Figure 6-27) reveals that the vast majority (72% and 84%) of recent program graduates applied for and received offers on 5 or fewer positions. Only 9% of recent graduates who report having applied for a position also report not receiving an offer. In all, the data describing the application and position offer experiences of recent allergy and immunology program completers implies a robust job market for new allergists.

¹⁹ It should also be noted that there were 3 recent allergy and immunology graduates who were offered multiple practice positions without having applied for them. These physicians are not included in the ratio calculations.

Figure 6-26.
Number of Positions Applied for by Recent Allergy and Immunology Fellowship Graduates, 1999

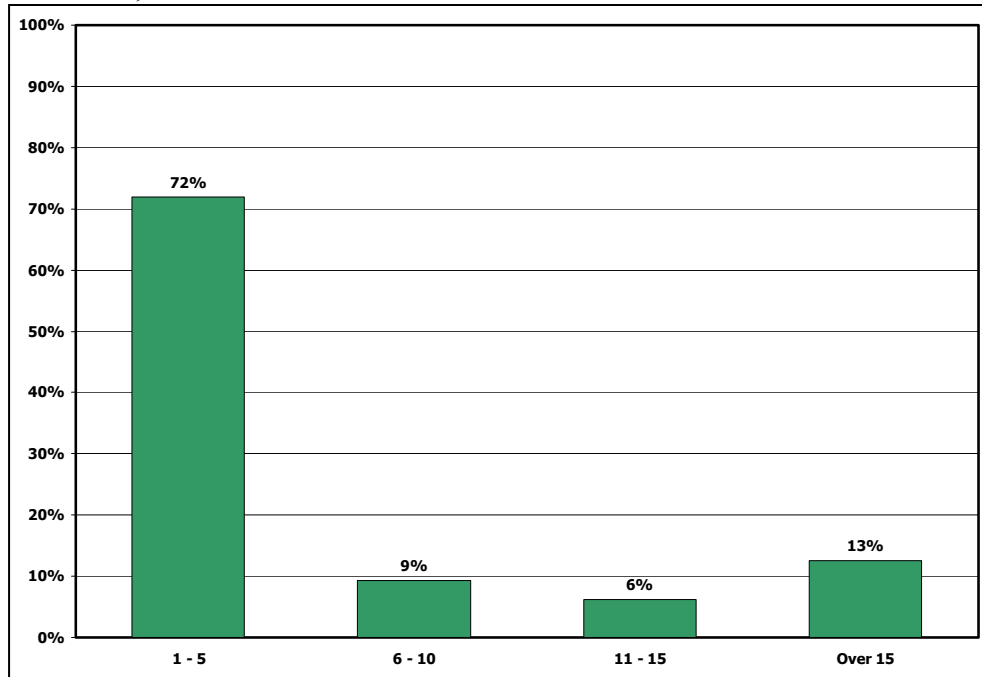
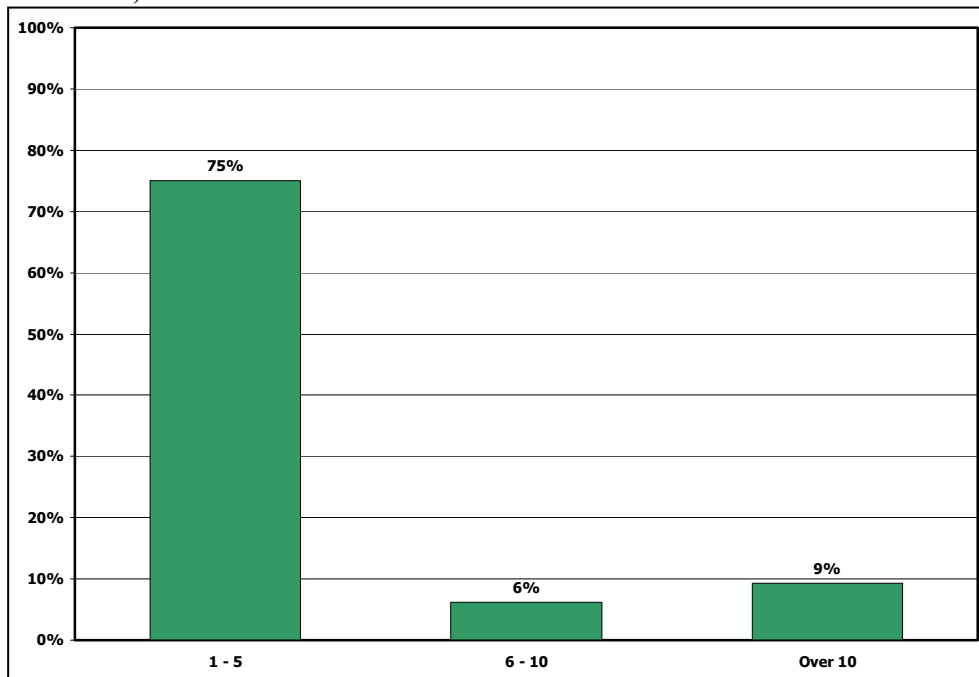


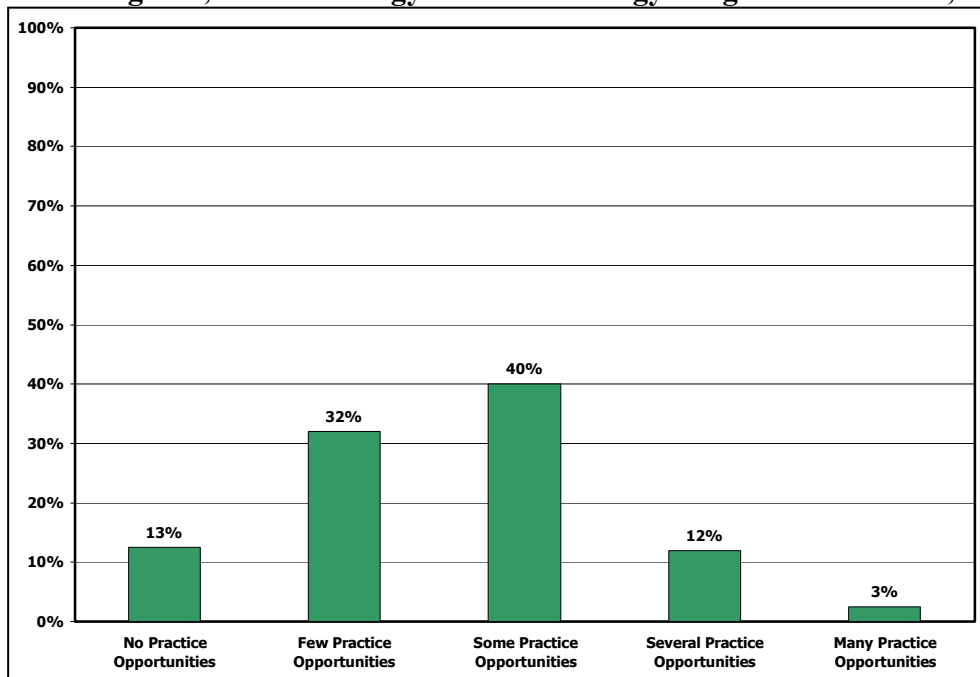
Figure 6-27.
Number of Offers Received by Recent Allergy and Immunology Fellowship Graduates, 1999



b. Assessment of Job Market for Physicians Providing Allergy and Immunology Services

Figure 6-28²⁰ presents data on local job market assessments by recent allergy and immunology program completers. As is evident, most recent graduates report that there are not that many positions within 50 miles of the sites where they trained. Thirteen percent (13%) report that there are no practice opportunities at all locally. At the same time, only 3% report that there are many positions available. The bulk (40%) of recent graduates report some practice opportunities. Importantly, however, almost one-third (32%) of the recent graduates report few available practice opportunities locally.

Figure 6-28.
Assessment of Allergy and Immunology Practice Opportunities within 50 Miles of Training Site, Recent Allergy and Immunology Program Graduates, 1999



The local job market, however, is not perceived the same way by all recent graduates. Figure 6-29 presents the local job market assessment of recent allergy and immunology graduates by location of medical school attended. As is evident, USMG fellows have a slightly more optimistic view of the job market. Almost one-third (30%) of the USMG fellows report few

²⁰ Note that “Few Practice Opportunities” and “Several Practice Opportunities” were not used in the survey to describe the job market for allergists. However, in Figures 6-28 – 6-33, the categories of “No Practice Opportunities,” “Few Practice Opportunities,” “Some Practice Opportunities,” “Several Practice Opportunities,” and “Many Practice Opportunities” are used to aid in reporting and interpreting the results of the survey.

or no practice opportunities within 50 miles of their training site, while almost two-thirds (65%). Almost half (48%) of the USMG graduates perceive some local practice opportunities, whereas slightly more than a quarter (29%) of the IMG graduates share this perception.

Figure 6-29.
Assessment of Allergy and Immunology Practice Opportunities within 50 Miles of Training Site by Location of Medical School Attended, Recent Allergy and Immunology Program Graduates, 1999

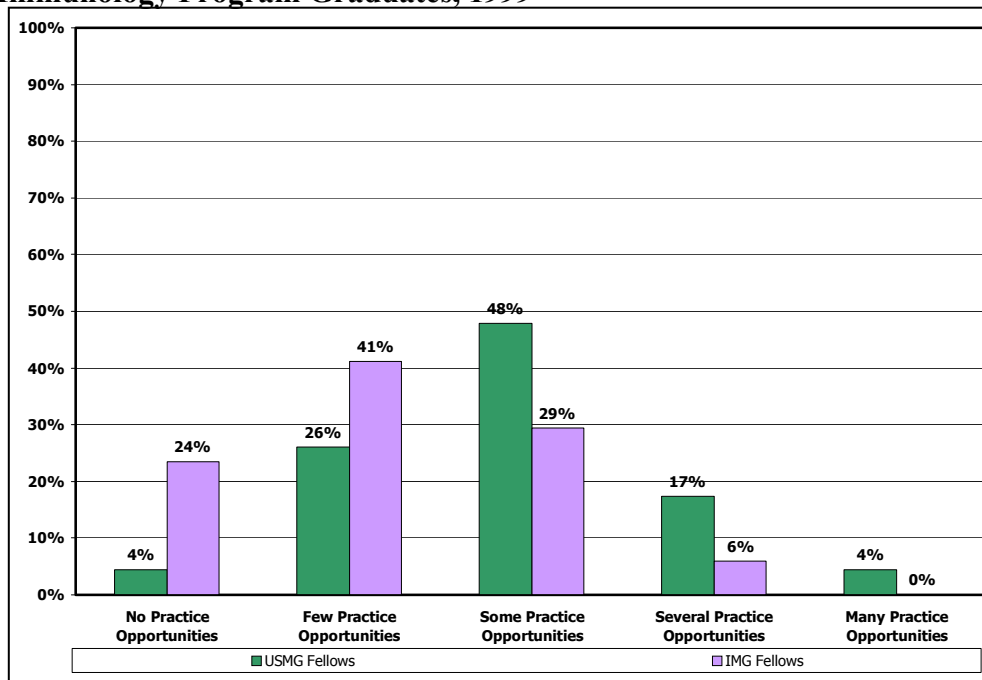


Figure 6-30 reveals a vastly different picture of the national job market for physicians providing allergy and immunology services. Clearly, recent graduates perceive the national job market for allergists to be much better than the local. Almost one-fifth (19%) perceive that there are many practice opportunities nationally. Moreover, only 2% perceive no positions nationally and 4% perceive few positions.

As with the local job market, the national job market is not perceived in the same way by recent USMG graduates and IMG graduates. Figure 6-31 presents the perceptions of the national job market of these two groups. Again, the USMG graduating fellows appear to be more optimistic about the availability of practice opportunities than their IMG counterparts, with no USMG graduates reporting few or no practice opportunities, while almost one-fifth

(17%) of the IMG graduates assess the job market in such a manner. Almost a quarter (23%) of USMG graduates report many practice opportunities nationally compared to 11% of the IMG graduates.

Figure 6-30.
Assessment of Allergy and Immunology Practice Nationally, Recent Allergy and Immunology Program Graduates, 1999

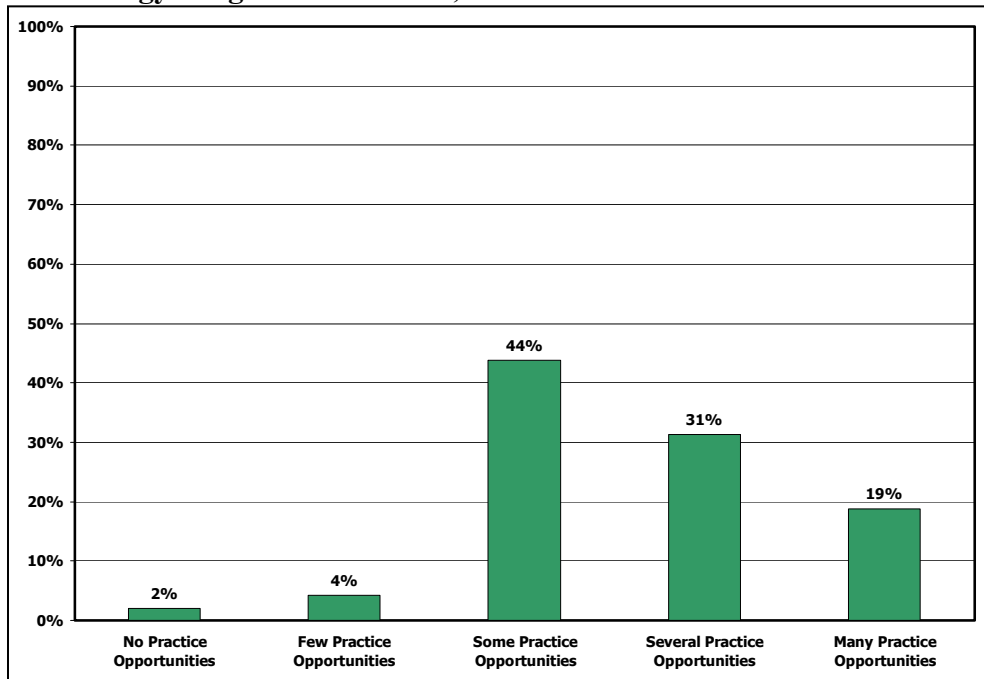


Figure 6-31.
Assessment of Allergy and Immunology Practice Nationally by Location of Medical School Attended, Recent Allergy and Immunology Program Graduates, 1999

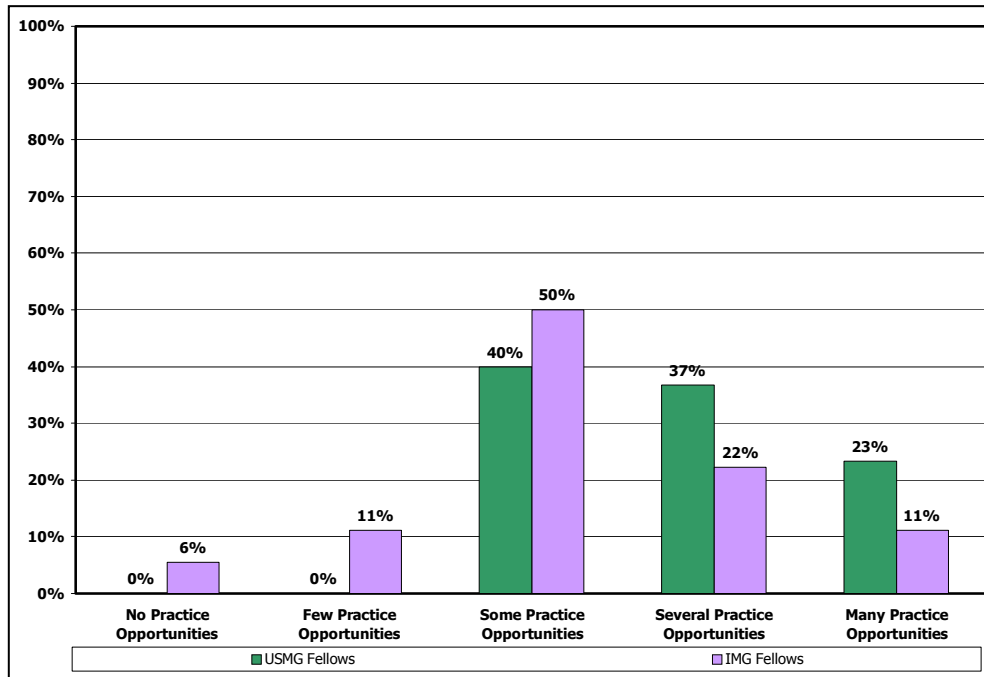


Figure 6-32.
Assessment of Academic Positions in Allergy and Immunology Nationally, Recent Allergy and Immunology Program Graduates, 1999

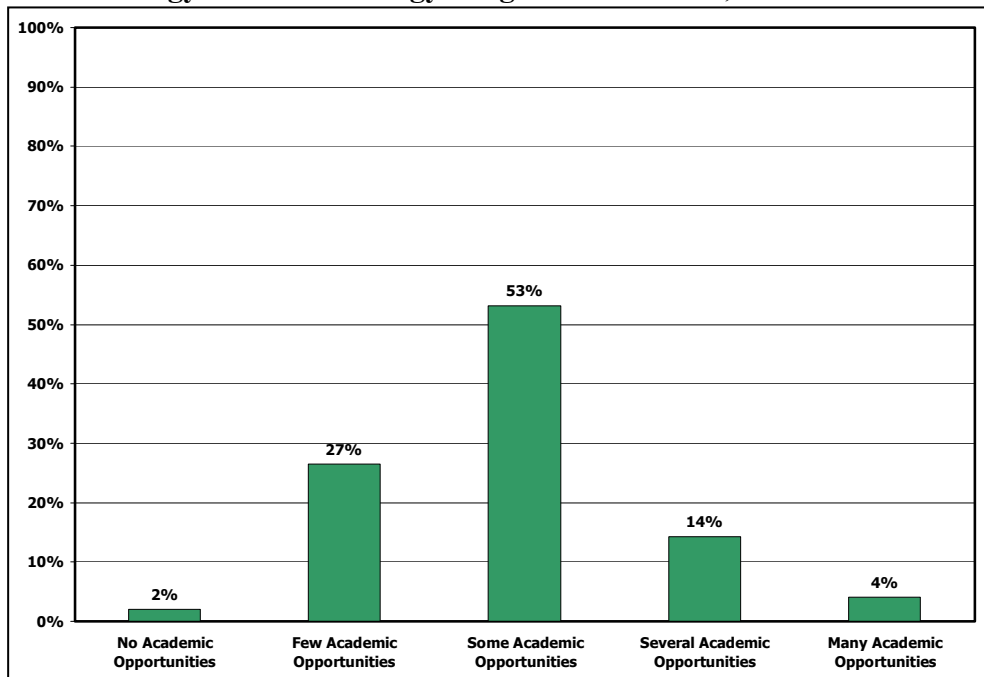
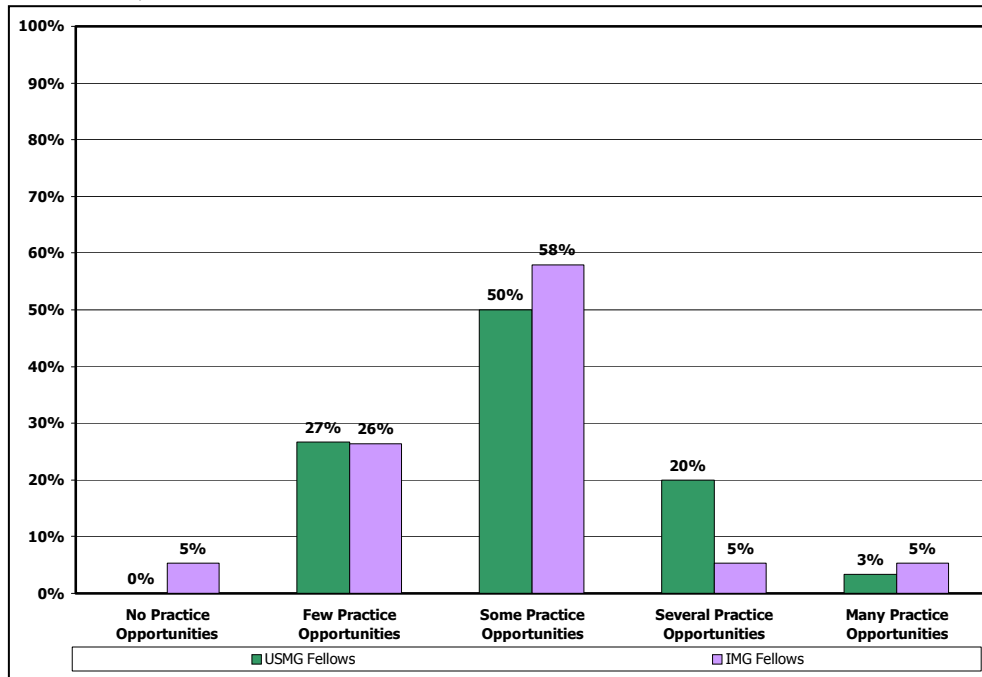


Figure 6-33.
Assessment of Academic Positions in Allergy and Immunology Nationally by Location of Medical School Attended, Recent Allergy and Immunology Program Graduates, 1999



Finally, in terms of academic opportunities for allergists nationally, recent allergy and immunology graduates are less optimistic (Figure 6-32). The majority (53%) of recent program completers perceive some academic positions nationally. Almost one-third (29%), however perceive few or no academic opportunities in allergy and immunology compared to only 18% who perceive several or many opportunities nationally.

As shown above with respect to the national and local job markets for practicing allergists, USMG fellows are slightly more optimistic than IMG fellows about academic opportunities for allergists nationally (Figure 6-33). Almost a quarter (23%) of the USMG graduates report several or many academic positions available nationally compared to 10% of the IMG graduates. Moreover, slightly fewer (27%) of the USMG graduates report few or no academic positions compared to IMG graduates (31%).

Conclusions

While the level of production of new allergists has been and continues to decline, it is important to examine those that are being produced and their experiences in the job market

for allergists. Several conclusions about the production system of allergy and immunology and the job market for new allergists can be drawn from the results of the fellow exit survey.

First, demographically, as was indicated in the Historical Report [6], a majority of the fellows graduating in 1999 are female physicians. While exact figures are not available, some studies [24; 25; 26; 27] indicate that female physicians work 10% to 20% fewer hours over the course of their professional lives than men. Thus, as female physicians become a larger proportion of the allergist workforce, there could be a further decline in the availability of allergy and immunology services.

Second, one of the greatest challenges to allergy and immunology is the issue of IMG physicians. In 1999, almost half of the program graduates were IMGs. Of those, more than half were J-1, J-2 exchange visitors who have obligations to return to their countries of citizenship or practice in underserved areas. The loss of these physicians from the supply of new allergists is a partial explanation of the forecasted decline (see Chapter 7, pp. 155 – 170) in the supply of allergists in the United States.

Third, as indicated in Chapter 4 (pp. 20 – 104), there has been a recent shift in the background training of new allergists from pediatrics to internal medicine. Data from the 1999 fellow exit survey suggests that this new trend will continue. While the implications of this shift are not readily clear, it is a trend to be monitored in the future.

Fourth, as noted in Chapter 5 (pp. 105 – 119), overwhelmingly, the allergy and immunology physician training system produces patient care physicians. The 1999 fellowship graduates were no exception and almost three-quarters had secured practice positions within 3 months of graduation. New allergists are most frequently finding private practice positions that entail spending 20 – 39 hours in direct patient care per week, and will be compensated through a salary with incentives. For the most part, the new allergists of 1999 are satisfied with their choice of allergy and immunology and would recommend it to other physicians in training.

Finally, 1999 fellow exit survey results suggest that the job market for allergists is good. There are practice opportunities nationally, as opposed to within 50 miles of where a

physician trained. Very few new allergists experienced difficulty finding a position, and those that did were able to find positions in less desirable locations or with less desirable compensation.

Overall, the survey results suggest that the nation could absorb a significant increase in the number of allergists completing training each year without much trouble. Combined with the results of the program director survey and the historical trend analysis, this is a good sign for allergy and immunology. At the same time, who is being trained and the effectiveness of the training system to produce patient care allergists needs to be addressed. Clearly the effective production would increase if more USMG/Permanent Resident IMGs were recruited into allergy and immunology programs.

**Chapter 7: FORECASTING THE SUPPLY AND DEMAND FOR
PHYSICIANS PROVIDING ALLERGY AND IMMUNOLOGY
SERVICES, 1999-2014**

Chapter 7: FORECASTING THE SUPPLY AND DEMAND FOR PHYSICIANS PROVIDING ALLERGY AND IMMUNOLOGY SERVICES, 1999-2014

Summary

Using data on the historical trends in the production of new allergists, as well as data on physician separation rates culled from the *1999 Survey of Physicians Providing Allergy and Immunology Services in the United States*, the Center has constructed an age-cohort-flow model to forecast the supply of allergists through 2014. Using recent data on the incidence and prevalence of allergy and immunology conditions, the Center has also estimated the change in demand for allergy and immunology services through 2014. Finally, the Center has developed four alternate scenarios to assess the potential relationship between the supply of allergists and demand for their services over the next 15 years.

The Center's forecasting models show that unless the production of new allergists is increased from current levels, the supply of allergists will fall below demand levels, creating problems for people with allergic and asthmatic conditions in the US. The models show a substantial decline in the supply of allergists due to the fact that current production of new allergists is far less than the numbers of allergists retiring from practice. Unless demand for allergy and immunology services declines 10% or more every 5 years, it is likely that there will be substantial shortages of allergists in the United States. Since allergists and others expect the demand for allergy and immunology services to grow, not shrink, interventions to increase the production of new allergists are recommended.

Forecasting Supply and Demand

Understanding the current and future physician workforce from the perspectives of both supply and demand requires the analysis of a broad range of information. Many of the findings reported in the preceding chapters support the development of forecasts of the supply of allergists and the demand for allergy and immunology services in the future.

The main issues that must be addressed in any study of the current and future supply of allergists are:

1. defining which physicians are considered allergists;

2. defining and estimating a full-time-equivalent (FTE) allergist;
3. identifying and compiling the necessary data on allergists;
4. examination of the geographic distribution of allergists; and
5. the number and future number of allergists in training that will go on to practice in the United States.

In terms of demand, the key factors are:

1. the aging of the population;
2. changes in the birth rate;
3. geographic variations in demand;
4. the use of nonphysician clinicians; and
5. technological/medical developments.

These issues are addressed and data on each examined in chapters 3 through 6 of this report. In this section, all of these data and analyses are organized to develop a model that forecasts the supply of allergists and the demand for their services over the next 15 years. The model will then be used to examine a number of scenarios which describe potential situations that may occur without intervention or as the results of policy decisions. A brief discussion of the implications of these forecasts will follow.

CHWS Model of Supply and Demand for Physicians Providing Allergy and Immunology Services

The components of the models developed to forecast the supply of allergists and demand for allergy and immunology services are described below:

Supply Model Components

The supply model that has been developed is of the age-cohort-flow model family. The model has the following basic structure:

$$\text{Future Supply} = \text{Current Supply} - \text{Separations} + \text{New Allergists Entering Practice}$$

Current Supply: Current supply is the number of physicians providing allergy and immunology patient care services in the United States in 1999. Current supply is estimated from data collected in the *Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999*. Current supply is further distinguished by two variables: 5 year age cohort and formally trained/non-formally trained classification.

Separation: Separation is made up of two components: age-specific mortality 5 year cohort rates and allergist retirement 5 year cohort rates. Age-specific mortality rates are based on 1997 NCHS data [28]. Allergist retirement rates are based on data collected in the *Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999*. Separate attrition rates are generated based on formally trained/non-formally trained classification.

New Allergists: New allergists are based upon the 1999 estimate of new allergists and responses from the *1999 Survey of Allergy and Immunology Fellows Completing Training* to determine the proportion of fellows completing training going into allergy and immunology patient care. An additional 35 FTE allergists are added to represent physicians not trained in allergy and immunology (e.g., otolaryngologists) who have entered the specialty annually in recent years. This figure is based on the current and historical training background distribution of physicians providing allergy and immunology services.

The baseline year for the supply model is 1999, the most recent year for which reliable supply estimates are available. The supply model is expressed in terms of patient care FTE physicians per 100,000 population.

Demand Model Components

The demand model used in this study has the following basic structure:

$$\text{Future Demand} = \text{Current Demand} \forall \text{ Adjustments to Demand}$$

Current Demand: Current demand is based upon the assumption that, in general, supply and demand are roughly in balance currently with a slight surplus of physicians providing allergy and immunology services present in the United States. This assumption is based upon the findings in Chapter 4 (pp. 20 – 104). The value of current demand is calculated using

estimates of patient visits per year per 100,000 population generated from the *Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999*.

Adjustments to Demand: Both upward and downward adjustments will be made to demand to form bands of estimated future demand. A five year over five year adjustment of ∇ 10% as well as ∇ 20% will be used to generate the demand bands. These estimates are based on recent research into the incidence/prevalence of allergy and immunology conditions [1; 3; 29].

Population: Population estimates used in the model are the Middle Series United States Population Projections from the United States Bureau of the Census [30].

The baseline for the demand model is 1999. The output of the model is expressed in terms of patient care FTE physicians providing allergy and immunology services per 100,000 population.

Model Assumptions

The models developed to forecast allergist supply and demand for allergy and immunology services are only valid under a number of assumptions. The assumptions for the supply model include:

- ✓ **Increasing representation of female allergists:** As documented in this report, the percentage of allergists that are female is increasing steadily. Although female physicians have historically worked fewer hours over the course of their professional career, the model does not explicitly incorporate a decrease in supply due to the increase in the percent of allergists that are women. The model, however, does assume that newer allergists will be working fewer hours than the current supply. This is based on the survey of residents completing training in 1999 and is incorporated through the calculation of the FTEs being produced each year. In addition, allergists already work fewer hours per week than the average for all specialties, and therefore the supply may be less affected by the increase in the percent women than other specialties.

- ✓ **Productivity:** Clearly, productivity can have a major impact on the number of allergists that would be needed to adequately serve the nation. A 10% increase in productivity of existing allergists would be equivalent to a 10% increase in the number of allergists in the U.S. The difficulty is that it is unclear what changes in productivity are likely in the coming years; it is not even clear whether productivity is likely to go up or down as there are indicators pointing in both directions. Thus, while the total hours worked may decrease slightly, the growth in group practice and an increase in the use of nurse practitioners and physician assistants could lead to an increase in patients served per day leading to an increase in overall productivity. Because of this uncertainty, the models in this study do not include a specific factor for changes in productivity.
- ✓ **Retirement patterns:** The model assumes that the retirement plans stated by allergists in their responses to the national survey reflect their most likely retirement patterns. A number of developments could speed up or delay the plans, especially the plans beyond the next few years. Using the survey as has been done in this study appears to be the best, most logical source to use. The model also assumes that death rates among physicians providing allergy and immunology services will remain constant over the time period covered.
- ✓ **Non-formally AI trained physicians:** The model assumes that 35 non-formally AI trained physicians per year are added to the supply of physicians providing a significant percent of allergy services as part of their practice. This is based on the results of the practitioner survey. This number could change in future years. For example, to the extent that there is a publicly accepted shortage of physicians to provide allergy and immunology related services, and to the extent that there may be surpluses in other specialties, it is more likely that physicians in other specialties will increase their provision of allergy related services. At this time there is not enough information to make a reasonable prediction as to which direction this component of the supply will go, and therefore the model assumes a steady state.
- ✓ **The economy:** While it is known that a strong economy contributes to increased demand and use of health care services, it is not possible to forecast with any certainty how the U.S. economy will behave over the next 15 years. Should the

economy stay very strong, demand is likely to rise more rapidly, all else being equal; should the economy take a downturn, the growth in demand will be more moderate.

- ✓ **Medical interventions and technology:** Clearly, new developments in this area have the potential to greatly impact on demand. Yet, while new pharmacological interventions could reduce demand for allergy specialists, either through over the counter sales or through prescriptions and treatment by primary care physicians, the survey of practicing allergists revealed that the added complexity and range of treatments would lead to an increase, rather than a decrease in demand. Again, because it is not possible to incorporate new medical developments into the model with any degree of confidence, the models include no explicit adjustment.
- ✓ **Geographical distribution:** The models assume a consistent supply and demand across the nation. It may well be that national averages mask significant variations across regions and in individual communities. Further, it is possible for the total supply to be adequate, even as the nation could have significant pockets of shortages. The model does not take such geographical variations into account, as it is beyond the scope of the current study.
- ✓ **Government policy:** The national policy towards the physician supply and graduate medical education funding is likely to influence the willingness and interest of teaching hospitals in training more or fewer physicians. While national policy statements have expressed concern with a potential over-supply of physicians, it is not possible to predict at this time whether this will lead to policies to reduce funding for GME. In addition, the assumption of an over-supply of physicians is now being challenged. On the other hand, government policies related to IMGs with temporary visas appear to be tightening up, a possibility that is incorporated into the scenarios.

Although these assumptions may not hold up over the time period of interest (1999-2014), they do seem to be reasonable and realistic for this initial modeling effort.

Supply and Demand Scenarios

To reflect the possible variations in factors related to the supply of and demand for allergists, four supply scenarios and five demand scenarios have been developed. Each of these scenarios is described briefly below:

Supply Scenarios: Four supply scenarios are used in this chapter to represent different levels of production of new physicians providing allergy and immunology services and different mixes of new allergists who are USMG/Permanent resident physicians and J-1/ J-2 Exchange visitors. These two production factors are combined to generate four different potential future supply scenarios:

1. Status Quo Production:

This scenario (Figure 7-1) represents the situation in which 1) the number of physicians who complete allergy and immunology training in the United States each year remains constant at 84 graduates from 1999-2014; 2) those graduates ***represent a total of 52 full-time equivalent allergists added to the supply each year***; 3) an additional 35 FTE allergists not trained in allergy and immunology are also added to the supply annually; and 4) the mix of USMG/Permanent Resident/Temporary Visitor remains constant.

2. Increased Production, Status Quo USMG/Perm Resident/Temp Visitor Mix:

This scenario (Figure 7-2) has the following characteristics: 1) the number of physicians who complete allergy and immunology training in the United States each year increases by 25% every 5 years beginning in 2002 (the first year that adjustments to the production system implemented in 2000 would take effect); 2) those graduates ***represent a total of 64 FTE allergists added to the supply each year from 2002 to 2006, 81 from 2007 to 2011, and 101 from 2012 to 2014***; 3) an additional 35 FTE allergists not trained in allergy and immunology are also added to the supply annually; and 4) the mix of USMG/Permanent Resident/Temporary Visitor remains constant over the period of interest.

3. Status Quo Production, Increased USMGs/Permanent Residents:

This scenario (Figure 7-3) has the following characteristics: 1) the number of physicians who complete allergy and immunology training in the United States each year remains

constant at 84 graduates from 1999-2014; 2) the percentage of J-1, J-2 visa holders among graduates of allergy and immunology programs decreases by 50% every 5 years beginning in 2002 (the first year that adjustments to the production system implemented in 2000 would take effect), generating percentages of J-1, J-2 visa holders among all graduates of 13% from 2002 to 2006, 7% from 2007 to 2011, and 3% from 2012 to 2014, which translate into ***a total of 61 FTE allergists added to the supply each year from 2002 to 2006, 65 from 2007 to 2011, and 68 from 2012 to 2014***; 3) an additional 35 FTE allergists not trained in allergy and immunology are also added to the supply annually.

4. Increased Production, Increased USMGs/Permanent Residents:

This scenario (Figure 7-4) has the following characteristics: 1) the number of physicians who complete allergy and immunology training in the United States each year increases by 25% every 5 years beginning in 2002 (the first year that adjustments to the production system implemented in 2000 would take effect); 2) the percentage of J-1, J-2 visa holders among graduates of allergy and immunology programs decreases by 50% every 5 years beginning in 2002 (again, the first year that adjustments to the production system implemented in 2000 would take effect), generating percentages of J-1, J-2 visa holders among all graduates of 13% from 2002 to 2006, 7% from 2007 to 2011, and 3% from 2012 to 2014; 3) those graduates represent ***a total of 76 FTE allergists added to the supply each year from 2002 to 2006, 103 from 2007 to 2011, and 133 from 2012 to 2014***; and 4) an additional 35 FTE allergists not trained in allergy and immunology are also added to the supply annually.

Demand Scenarios: The five different demand scenarios are developed by adjusting the rate of growth of demand over time. The five scenarios represent the following changes in demand every five years of the forecast:

- D1. 20% Increase in Demand for Allergy and Immunology Services
- D2. 10% Increase in Demand for Allergy and Immunology Services
- D3. No Change in Demand for Allergy and Immunology Services
- D4. 10% Decrease in Demand for Allergy and Immunology Services
- D5. 20% Decrease in Demand for Allergy and Immunology Services

These five demand scenarios are combined with the four supply scenarios to create a series of 20 different supply-demand scenarios. In the discussion that follows each of the models is identified with a two-digit code that corresponds to the different supply-demand scenarios described above. The first digit in the code represents the supply scenario, and the second digit represents the demand scenario. Thus, the code 1-D3 represents the Status quo supply scenario combined with the Status quo demand scenario.

Forecasts

1. Status Quo Model (Supply Scenario 1)

The Status Quo Model (Figure 7-1) has the following characteristics: 1) the number of physicians who complete allergy and immunology training in the United States each year remains constant at 84 graduates from 1999-2014; 2) those graduates represent a total of 52 full-time equivalent allergists added to the supply each year; 3) an additional 35 FTE allergists not trained in allergy and immunology are also added to the supply annually; and 4) the mix of USMG/Permanent Resident/Temporary Visitor remains constant over the period of interest.

As is clearly evident, the status quo scenario does not bode well for allergy and immunology. Current production levels are dangerously low. If maintained, these production levels will result in significant decreases in allergist supply over time. By 2014, the supply of FTE physicians providing allergy and immunology services will have declined by over 1,000 FTEs (30%). In terms of FTE allergists to 100,000 population (Figure 102), the decline is even more steep (39%).

The balance between supply and demand over the time period of interest will suffer from maintaining the current levels of production as well. Table 7-1 presents the percentage shortage or surplus forecast under the five different demand scenarios for the status quo supply scenario. (*Note: A positive percentage represents a surplus, while a negative percentage represents a shortage.*) As is evident, if demand remains constant, by 2004 there will be an 11% shortage of FTE allergists nationally. If demand increases by 10% every 5 years, the shortage will be 19%. Moreover if demand increases by 20% every 5 years, the shortage will be 26% as early as 2004. In any scenario in which demand remains constant or

increases, there will be a shortage of FTE allergists under current production levels which will get worse over time.

Figure 7-1.
Projections of the FTE Allergist to 100,000 Population Ratio and the Demand for Allergy and Immunology Services, 1999-2014: Status Quo Model

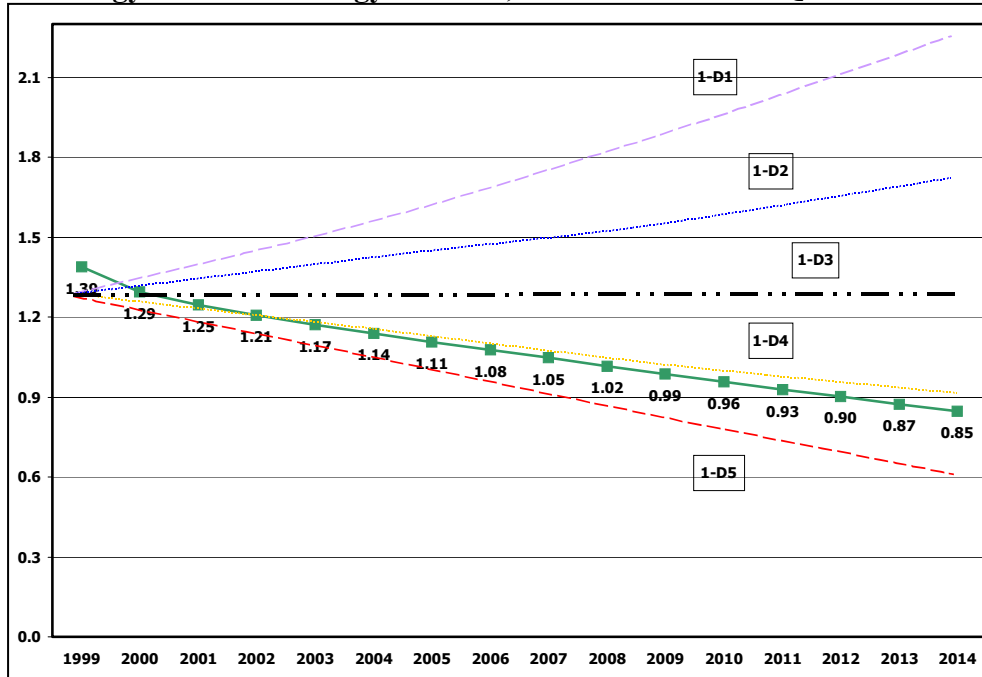


Table 7-1.
Ratio of Supply of Allergists to Demand for Allergy and Immunology Services, 1999-2014: Status Quo Model

Model Description	1999	2004	2009	2014
1-D1 Demand growing by 20% every 5 years	---	-26%	-47%	-62%
1-D2 Demand growing by 10% every 5 years	---	-19%	-37%	-50%
1-D3 Demand remaining at 1999 level	8%	-11%	-23%	-34%
1-D4 Demand declining by 10% every 5 years	---	-2%	-5%	-10%
1-D5 Demand declining by 20% every 5 years	---	11%	20%	29%

On the other hand, if demand declines 10% every 5 years, current levels of production are nearly sufficient to keep the allergist supply and demand for allergy and immunology services in balance. If demand declines 20% every 5 years, there will be a substantial surplus of allergists. However, based on the perceptions of currently practicing allergists, a decline in demand is unlikely.

2. Increased Production, Status Quo USMG/Permanent Resident/Temporary Visitor Mix (Supply Scenario 2)

This scenario, while better than the status quo scenario, results in serious problems for the allergy and immunology specialty. By 2014 under this increased production scenario, the supply of FTE physicians providing allergy and immunology services will have declined by slightly less than 800 FTEs (21%). In terms of FTE allergists to 100,000 population (Figure 7-2), the decline is even more severe (31%).

Figure 7-2.
Projections of the FTE Allergist to 100,000 Population Ratio and the Demand for Allergy and Immunology Services, 1999-2014: Increased Production, Status Quo USMG/Permanent Resident/Temporary Visitor Mix Model

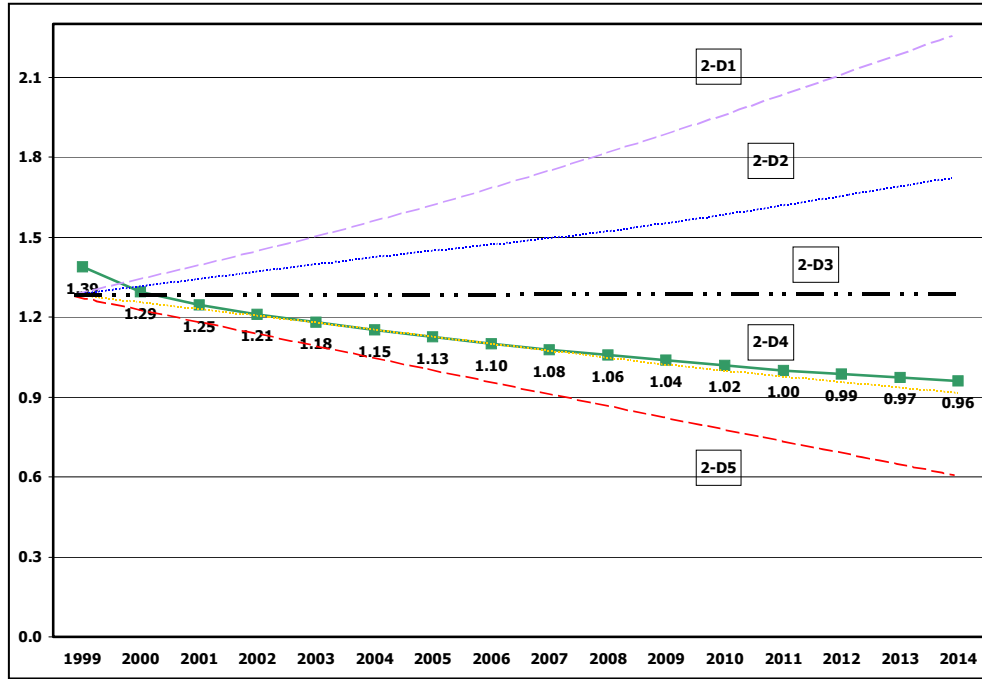


Table 7-2.
Ratio of Supply of Allergists to Demand for Allergy and Immunology Services, 1999-2014: Increased Production, Status Quo USMG/Permanent Resident/Temporary Visitor Mix Model

Model Description	1999	2004	2009	2014
2-D1 Demand growing by 20% every 5 years	---	-25%	-44%	-57%
2-D2 Demand growing by 10% every 5 years	---	-18%	-33%	-44%
2-D3 Demand remaining at 1999 level	8%	-10%	-19%	-25%
2-D4 Demand declining by 10% every 5 years	---	0%	0%	3%
2-D5 Demand declining by 20% every 5 years	---	12%	26%	46%

The balance between supply and demand over the time period of interest will continue to suffer even under this scenario of increased production. Table 7-2 presents the ratio of the forecasted supply of FTE allergists to the forecasted demand for their services. As is evident, if demand remains constant and production is increased by 25% every 5 years beginning in 2002, by 2004 there will be a 10% shortage of FTE allergists in the US. If demand increases by 10% every 5 years, the shortage will be 18%. And if demand increases by 20% every 5 years, the shortage will be 25% as early as 2004. In any scenario in which demand remains constant or increases, there will be a shortage of FTE allergists under these increased production levels which will be exacerbated over time.

On the other hand, if demand declines 10% every 5 years, the increased levels of production are sufficient to keep the allergist supply and demand for allergy and immunology services in balance. If demand declines 20% every 5 years, there will be substantial surpluses of allergists. However, based on the perceptions of currently practicing allergists, a decline in demand is not very likely.

3. Status Quo Production, Increased USMGs/Permanent Residents (Supply Scenario 3)

As is evident from Figure 7-3, this scenario does not bode well for allergy and immunology. While the results are better scenario than under the Status Quo Model, even changing the USMG/permanent resident/temporary visitor mix to favor those physicians who will practice in the United States after they complete their allergy and immunology training does not allow the supply of allergists to keep up with the demand for allergy and immunology services. By 2014, the supply of FTE physicians providing allergy and immunology services will have declined by slightly less than 1,000 FTEs (26%). In terms of FTE allergists to 100,000 population (Figure 106), the decline is even greater (35%).

Supply and demand will be out of balance under this scenario of increased USMGs/permanent residents. Table 7-3 presents the ratio of the forecasted supply of FTE allergists to the forecasted demand for their services. As is evident, if demand remains constant and the percentage of J-1, J-2 visa holders among allergy and immunology training program completers is decreased by 50% every 5 years beginning in 2002, by 2004 there will be an 11% shortage of FTE allergists nationally. If demand increases by 10% every 5 years, the

shortage will be 19%. Moreover, if demand increases by 20% every 5 years, the shortage will be 25% as early as 2004. In any scenario in which demand remains constant or increases, there will be a shortage of FTE allergists under these increased USMGs/permanent residents proportion levels which will be exacerbated over time.

Figure 7-3.
Projections of the FTE Allergist to 100,000 Population Ratio and the Demand for Allergy and Immunology Services, 1999-2014: Status Quo Production, Increased USMGs/Permanent Residents Model

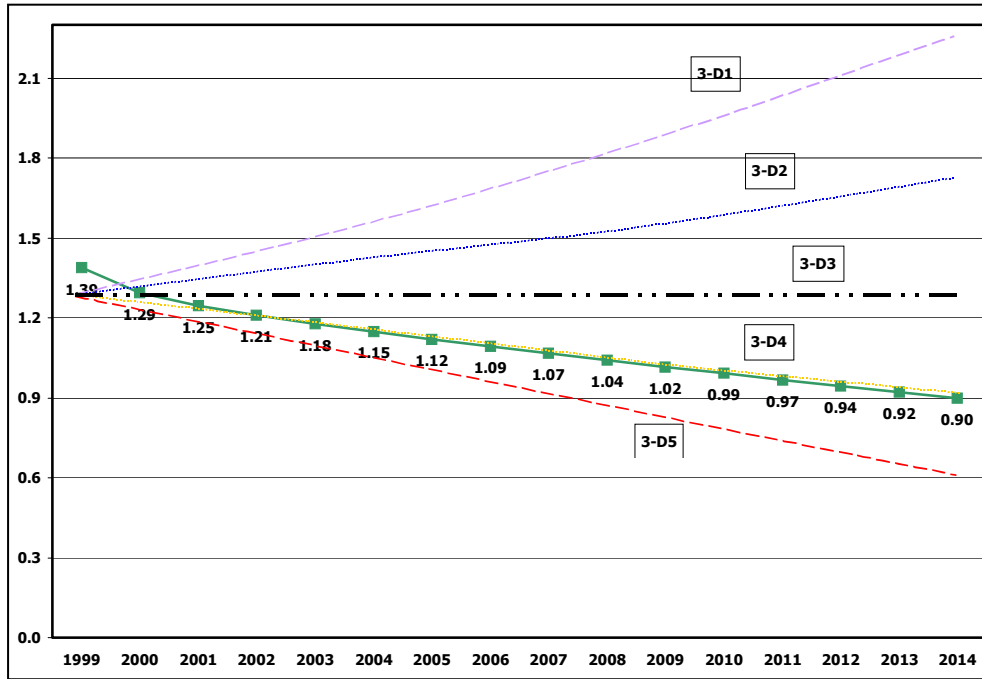


Table 7-3.
Ratio of Supply of Allergists to Demand for Allergy and Immunology Services, 1999-2014: Status Quo Production, Increased USMGs/Permanent Residents Model

Model Description	1999	2004	2009	2014
3-D1 Demand growing by 20% every 5 years	---	-25%	-45%	-60%
3-D2 Demand growing by 10% every 5 years	---	-19%	-35%	-47%
3-D3 Demand remaining at 1999 level	8%	-11%	-21%	-30%
3-D4 Demand declining by 10% every 5 years	---	-1%	-2%	-4%
3-D5 Demand declining by 20% every 5 years	---	12%	24%	37%

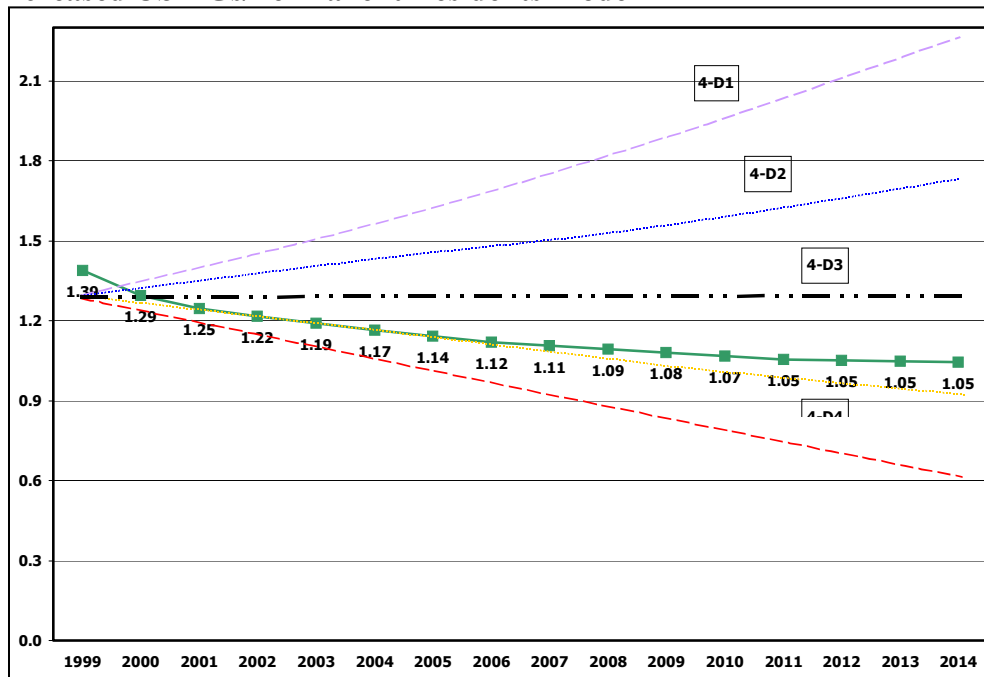
As has been the case with the scenarios above, if demand declines 10% every 5 years, the increased levels of new physicians being added to the supply of allergists are nearly sufficient to keep the allergist supply and demand for allergy and immunology services in

balance. If demand declines 20% every 5 years, there will be substantial surpluses of allergists. However, based on the perceptions of currently practicing allergists, a decline in demand is not very likely.

4. Increased Production, Increased USMGs/Permanent Residents (Supply Scenario 4)

As is evident from Figure 7-4, this scenario provides the “best” fit of the four groups of forecast models. While still forecasting a decline in the number of FTE allergists over time, the decline is much less severe: 528 fewer FTE allergists in 2014 than in 1999, a 14% decline. Although more severe, the decline of 24% in the FTE allergists to 100,000 population ratio is less than in the three previous scenarios. However, even this model does not predict that the supply of allergists will keep up with the demand for allergy and immunology services. It should be noted that this model projects the beginnings of a net increase of allergists beginning in 2013.

Figure 7-4.
Projections of the FTE Allergist to 100,000 Population Ratio and the Demand for Allergy and Immunology Services, 1999-2014: Increased Production, Increased USMGs/Permanent Residents Model



The balance between supply and demand over the time period of interest will, however, continue to suffer even under this scenario of increased production and increased

USMGs/permanent residents. Table 7-4 presents the ratio of the forecasted supply of FTE allergists to the forecasted demand for their services. As is evident, if demand remains constant and the percentage of J-1, J-2 visa holders among allergy and immunology training program completers is decreased by 50% every 5 years beginning in 2002, while at the same time the number of allergists who complete their training each year increases by 25% every 5 years beginning in 2002, by 2004 there will be a 9% shortage of FTE allergists nationally. If demand increases by 10% every 5 years, the shortage will be 18%. Moreover if demand increases by 20% every 5 years, the shortage will be a 24% shortage as early as 2004. In any scenario in which demand remains constant or increases, there will be a shortage of FTE allergists under these increased production and increased USMGs/permanent residents proportion levels which will be exacerbated over time. Beginning in 2013, as noted above, the supply of allergists begins to show a net increase.

Table 7-4.
Ratio of Supply of Allergists to Demand for Allergy and Immunology Services, 1999-2014: Increased Production, Increased USMGs/Permanent Residents Model

Model	Description	1999	2004	2009	2014
4-D1	Demand growing by 20% every 5 years	---	-24%	-42%	-53%
4-D2	Demand growing by 10% every 5 years	---	-18%	-31%	-39%
4-D3	Demand remaining at 1999 level	8%	-9%	-16%	-19%
4-D4	Demand declining by 10% every 5 years	---	1%	4%	12%
4-D5	Demand declining by 20% every 5 years	---	13%	31%	59%

As has been the case with the 3 previous scenarios, if demand declines 10% every 5 years, the increased levels of new physicians being added to the supply of allergists are sufficient to keep the allergist supply and demand for allergy and immunology services in balance. If demand declines 20% every 5 years, there will be substantial surpluses of allergists. However, based on the perceptions of currently practicing allergists, a decline in demand is not very likely.

Conclusions

In this chapter, the Center's supply and demand forecasting model has been described and applied to physicians providing allergy and immunology services over the next 15 years. It was found that in the four supply scenarios considered, it is only possible for the supply of

allergists to be balanced with or greater than the demand for allergy and immunology services if demand for those services were to remain constant. Since demand for allergy and immunology services is generally expected to increase, these models indicate difficulties for the specialty of allergy and immunology in the coming years.

These scenarios were developed as references for how allergist supply and demand for allergy and immunology services might be related over the next 15 years. They were constructed under reasonable assumptions and conditions, and offer a wide variety of potentialities. However, the results of the model show that severe imbalances will not occur for 5 years. Between now and then, the balance between supply and demand should be closely monitored and the models adjusted to compensate for new information.

These forecasting models point to difficulties for the allergy and immunology specialty in the United States. Remedies aimed at reducing the gap between the allergist supply and the demand for allergy and immunology services should be developed and implemented immediately in order to minimize difficulties for the public in addressing their medical problems related to allergies.

**Chapter 8: RECOMMENDATIONS FOR THE FUTURE OF ALLERGY
AND IMMUNOLOGY**

Chapter 8: RECOMMENDATIONS FOR THE FUTURE OF ALLERGY AND IMMUNOLOGY

- 1. The community of health professionals involved in care for individuals with allergic and asthmatic conditions should take steps to encourage an increase in the number of physicians formally trained in allergy and immunology.*

The rising incident of allergic and asthmatic conditions as well as the increasing sophistication of medical interventions to treat these conditions, requires a well-trained medical workforce. Physicians with formal training in allergy and immunology are critical to efforts to expand and treat patients with allergies and asthma. Therefore, in light of the finding that the supply of allergists will be decreasing and is likely to fall below demand within the next few years, it is strongly recommended that steps be taken to encourage internists and pediatricians to consider sub-specializing in allergy and immunology.

A program of **active recruitment** of pediatric and internal medicine 2nd year residents (who are making decisions about whether to subspecialize) needs to be implemented to ensure that all positions in all programs are filled by qualified candidates. Allergy and immunology fellowship program directors report that allergy and immunology is looked upon favorably by these residents, so actively recruiting them should be possible. Moreover, it is recommended that any program of active recruitment should be ***focused on USMGs and permanent resident IMG medical residents***. IMGs with temporary visas have a greater likelihood of leaving the country after training for a variety of reasons, including lack of job opportunities and visa restrictions. Thus, in order to maximize the likelihood of successfully increasing the effective production of FTE allergists, temporary visa holding IMGs should be excluded as targets of active recruitment.

It has been documented that loss in the production of allergist in the United States has been driven by the drop in USMGs entering the specialty. This trend must be reversed if the supply of allergists is to remain roughly balanced with demand for allergy and immunology services.

However, the specialty should be cautious not to overshoot and produce too many additional allergists. Because the marketplace for physician production can be very sensitive and the shortage of allergists represents a relatively small total number of physicians (i.e., there are over 100,000 physicians in training), the goal should be a modest increase in production to perhaps, from the current 84 to 125 allergists per year with the vast majority being USMGs or permanent residents.

2. The American Academy of Allergy, Asthma, and Immunology and others involved in the field should explore enhanced public support for allergy and immunology fellowship programs.

Over the past decade, the federal government through the Medicare program and several state governments through the Medicaid program have provided incentives for teaching hospitals and residency programs to increase their production of primary care physicians. This reflected a national consensus that there was a need for additional primary care physicians. Given the documentation provided in this report, as well as the growing number of federal and state initiatives to diagnosis and treat asthma, a case should be made to federal and state policy makers to provide incentives to increase the production of allergists. The most common factor reported by training program directors for reducing the size of their programs is reduced financial support for the program.

AAAAI and program directors should also work together to lobby the appropriate institutions to ensure that financial support for allergy and immunology fellowship programs is maintained, at the very least, and increased in the very near future.

3. The American Academy of Allergy, Asthma, and Immunology should take steps to publicly circulate the likelihood of a potential shortfall in the supply of allergists over the next 15+ years.

The American Academy of Allergy, Asthma, and Immunology is dedicated to the advancement of the knowledge and practice of allergy, asthma and immunology. As such, it is imperative that the Academy share the findings of this report with interested allergy and immunology stakeholders and the general medical community. This publicity and

information circulation may also support efforts to increase production of new allergists as news about potential shortages of allergists filters down to internal medicine and pediatric residents.

It is imperative that *efforts aimed at reversing the trends reported here begin immediately*. The *decline* in the supply of allergists has *already begun*. The effects, while they have not been seen as yet, will come shortly, as the slight surplus of allergists declines to a shortage within the next 10 years. There is the potential, if the supply of allergists declines too far, that the specialty will lose viability. Signs of a potential viability problem can be seen in the recent sharp decline in total fellows in training and fellows completing training. This becomes particularly problematic if demand for allergy and immunology services increases over the next 10 years, accelerating any potential viability issues.

4. The American Academy of Allergy, Asthma, and Immunology should develop a workforce tracking system to monitor the important trends identified in this series of reports.

In light of the uncertainties around supply and demand, the Center for Health Workforce Studies recommends that better monitoring of the issues identified over the course of this project in order to better assure access to needed allergy and immunology services for Americans as well as ensure the viability of the specialty. The specialty of allergy and immunology, like the whole field of medicine and the health care delivery system, is changing rapidly. There are some ominous signs that the supply of allergists is beginning a long-term decline that could lead to reduced access to needed allergy and immunology services. An ongoing monitoring system is needed to assess developments and trends impacting on both supply and demand and this information needs to reach not only the allergy and immunology community, but also the general medical education and training community.

The workforce tracking system should include: a periodic workforce survey of practicing allergists (especially on issues of retirement plans, hours in patient care, case volume, allergists' experiences with managed care, and perceptions of competition); an annual exit survey of graduating fellows; and an annual survey of fellowship program directors. In an

effort to reduce cost and collect data in a timely manner, the Center suggests using the Internet as a data gathering tool. Allergists report high levels of willingness to participate in Internet-based workforce surveys.

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APPENDIX A: Survey of Physicians Providing Allergy and Immunology in the United States, 1999

APPENDIX B: Practitioner Survey Details

APPENDIX B: Practitioner Survey Details

1. Definition of the Population

The first step in gathering information on physicians providing allergy and immunology services is defining the population. For the purposes of this study, the Center employs a broad definition of the population of allergy and immunology physicians: all physicians (MD or DO) who are either members of AAAAI or the American College of Allergy, Asthma, and Immunology (ACAAI), or have self-declared allergy, allergy and immunology, or allergy and immunology diagnostic laboratory as their primary or secondary specialty according to the *Masterfile of Physicians of the American Medical Association* (AMA).

While this definition is broader than those used by several studies in the past, the use of a comprehensive definition ensures that no major segment of the population providing allergy and immunology services is overlooked. Defining the population as only physicians certified by the American Board of Allergy and Immunology (ABAI) or only members of AAAAI and/or ACAAI, or only physicians who self-declare allergy and immunology as their primary specialty ignores the reality of the current physician marketplace and increased competition among physicians of various specialties who may be feeling pressure to expand the range of services they provide.

A narrow definition also ignores the possibility that rapidly developing technological breakthroughs in treatments for allergy and immunology diagnoses are allowing physicians from other specialties to provide allergy and immunology services. In addition, there is no one unified professional organization that represents all physicians who provide these services; given the voluntary nature of membership in professional organizations in general, it is likely that not all physicians providing allergy and immunology services will be members of the various organizations.

Finally, the relatively “young” age of the specialty of Allergy and Immunology (i.e., the ABAI was established in 1971, less than 30 years ago), may mean that some older physicians who have and continue to provide allergy and immunology services may not be board certified in the specialty and may not be members of one of the allergy and immunology

associations. For the purposes of this project, the broadest definition of the population of physicians providing allergy and immunology services is the most appropriate.

2. Mailing List Sources

The elements of the population of physicians providing allergy and immunology services were drawn from three separate sources: the membership database of AAAAI; the membership database of JCAAI; and AMA. The three databases were merged to create a master mailing list. Because there are no unique identifiers common to the databases, physician names were compared to weed out any duplicate physicians – physicians who appeared on more than one list (e.g., between the AAAAI membership database and AMA Masterfile, there were approximately 2,200 physicians included in both databases). This duplicate removal process was extremely difficult, time-consuming, and continued throughout the survey process from mailing list generation to the initial analysis of the survey results. For the most part, the difficulty stemmed from the fact that name conventions varied across databases. For example, MacDonald in one file might have been Macdonald in another file, or Mac Donald in another file, or Smith-Mac Donald in another file. The duplicate cleaning process was not a trivial task.

3. Survey Mailing Details

At the outset of the survey process, the population of physicians providing allergy and immunology services included a total of 6,570 names. Between May 5 and May 13, 1999, each was sent a package consisting of a 2-page (4-sided) survey, a cover letter, a business reply envelope, and a business reply postcard. The postcard also served as an incentive to complete the survey by offering those who desired a summary of the survey results. All were enclosed in a 10” by 13” kraft envelope. For those physicians who were known to be members of AAAAI, the cover letter was printed on letterhead from AAAAI; all other physicians received a cover letter with Center for Health Workforce Studies letterhead.

A follow up mailing to the non-respondents was conducted on June 14 and 15, 1999 that consisted of 4,097 packages with identical contents to the first, save for a different cover letter (again, the AAAAI members received AAAAI letterhead, while non-members did not). The third round of mailing was conducted somewhat differently. For the AAAAI member

non-respondents (1,457), the Center selected a random sample of 1,228 (84%) to receive a third survey package. For the non-AAAI member non-respondents (1,739), the Center selected a random sample of 264 (15%) to receive a very brief survey (Figure B-1) with 3 questions that could be faxed to the Center in lieu of a third complete survey package. This survey was designed to assess whether the non-responding non-AAAI members were in fact providing any allergy and immunology services. The third mailing (second follow up) occurred on July 30, 1999.

Figure B-1.
Fax-Back Survey of Non-AAAI Member Non-Respondents, 1999

July 30, 1999

Dr. <<first>> <<last>>
<<address1>>
<<address2>>
<<city>>, <<state>> <<zip>>

Dear Dr. <<last>>:

Since May we have been conducting a survey of physicians providing allergy and immunology services. According to the American Medical Association, you have indicated that you provide these services; however, we realize that some physicians are not accurately identified. In order to determine the national supply of physicians providing allergy and immunology services, we simply wish to confirm that you do indeed currently act in this capacity.

Please take a moment to answer the questions below. You can respond by either faxing this page to 518/402-0252 or using the enclosed prepaid business reply envelope.

If you have any questions about the survey, please contact me or Guy Forte, Project Director, at 518/402-0250. We hope to receive your survey soon.

Sincerely,

Edward S. Salsberg
Director, Center for Health Workforce Studies

Please fill in the appropriate boxes.

I **do not** currently provide allergy and immunology services.

I do provide allergy and immunology services.

Estimated hours per week providing these services:

Primary practice zip code:

Fax: 518/402-0252
Please respond by August 15, 1999

All survey responses remain strictly confidential. During the data collection phase of the survey, the Center kept a running list of physicians who had and had not responded to the survey to facilitate the follow up mailings. Once data collection was finished and duplicates were deleted, this running list was destroyed and no unique identifiers were kept for individual survey responses.²¹

4. Response Rate Analysis

Once the duplicate elements and respondents were eliminated from the population and survey dataset, it was determined that there were 6,197 physicians appropriate for the survey. Of these, 3,491 (56.3%) responded to the full survey. To determine whether certain substantively relevant groups in the population are over- or under-represented, response rates have been calculated for a number of groups, including males and females, AAAAI members, exclusive ACAAI members, and non-AAAAI/ACAAI members. Age group-specific response rates are also included for those physicians whose ages are known. Other groups, such as those defined by medical school location, are not included in this analysis because complete, detailed information for these variables for all elements of the population was not available. Table B-1 presents the detailed response rates and results of statistical representativeness tests.²²

Members of AAAAI have a response rate of 69.4%, while exclusive members of ACAAI and other non-AAAAI members combine for a rate of 38.4% (with individual rates of 40.4% and 38.2%, respectively). The differences between each group and the overall response rate (56.3%) are statistically significant ($p < .001$), thus we can conclude that members of AAAAI are over-represented in the survey responses, while exclusive ACAAI and other non-AAAAI members are under-represented. This finding is not surprising, however; as non-members had less incentive to respond (not being members, referring to AAAAI would not induce them to reply). At the same time, AAAAI members had more incentive to respond (their

²¹ The only information the Center has kept with regard to the survey that could identify individual respondents is whether they requested to receive a summary of the survey results and how (mail or email) and where (mail address or email address) it was to be sent. Close to one-third of respondents requested a summary.

²² These tests include comparing overall response rates to characteristic-specific response rates to determine whether certain characteristics are associated with statistically different response rates than those of the overall population.

organization is the funding source of the project, they have received a cover letter from AAAAI, signed by AAAAI's current president). The survey responses that are presented in this report have been adjusted to account for allergists' organizational memberships.

Table B-1.
Response Rate Calculations for Survey of Physicians Providing Allergy and Immunology Services in the United States, 1999

	<i>Rate</i>	<i>N</i>	<i>Responses</i>	
Overall	56.3%	6197	3491	
Organizational Membership				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
AAAAI/AAAAI and ACAAI	69.4%	3582	2487	13.17***
ACAAI (only)	40.4%	225	91	-4.77***
Neither	38.2%	2390	913	-15.41***
Geographic Location				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
New England	55.9%	379	212	-0.15
Middle Atlantic	58.4%	1106	646	1.29
East North Central	56.4%	869	490	0.03
West North Central	56.8%	391	222	0.17
South Atlantic	55.8%	1163	649	-0.33
East South Central	55.5%	321	178	-0.31
West South Central	56.1%	654	367	-0.11
Mountain	59.9%	337	202	1.32
Pacific	53.4%	960	513	-1.68
Puerto Rico	70.6%	17	12	1.29
Gender				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
Male	56.3%	4951	2787	0.00
Female	56.5%	1246	704	0.01
Age*				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
Below 40 years of age	61.7%	716	442	2.02
40 - 49 years of age	64.1%	1597	1024	4.56***
50 - 59 years of age	60.6%	1544	936	1.98
60 + years of age	56.1%	1677	940	-1.27
* Overall response rate by known age was 60.4%				
*** $p < .001$				

In terms of geographic location, response rates in the nine Census Divisions and Puerto Rico, while ranging from 53.4% to 70.6%, do not vary statistically from the overall survey response rate. Thus, the survey results are geographically representative of physicians currently providing allergy and immunology services across the country. In terms of gender, response rates among males and females do not vary considerably, with females responding at a .2% higher rate. Neither the male response rate nor the female response rate vary statistically from the overall response rate. Finally, in terms of age, the results are mixed. All age groups except for the 40-49 years of age group have statistically similar response rates. While the 40-49 years of age group have a higher response rate (64.1%, $p < .001$) than the total population whose age information is known (60.4%), this over-representation cannot be taken into account in the analysis of the survey results because complete, detailed age information about the total is not available, so the appropriate adjustments cannot be made. Approximately 10% of the total population have missing age information.

As mentioned above, for the third mailing to non-AAAAI members a brief fax-back survey was distributed. The overall response rate for the fax-back survey was 45.2% (117 responses from 259 sent, 5 were eliminated due to duplication). Table B-2 presents the detailed response rates and results of statistical representativeness tests for the fax-back survey of non-AAAAI physicians.

Of the nine Census Divisions, only New England's response rate (25.0%) varies somewhat from the overall response rate (45.2%). In all divisions, however, the response rates indicate that the results are representative of the population. In terms of gender, as well, while males and females differ slightly in their response rates (47.4% and 34.8%, respectively), neither deviates statistically from the overall response rate. Finally, in terms of age, while the response rates do vary by age group, statistically they are not significant different than the overall response rate for the population whose age is known. Thus, the fax-back survey responses of non-AAAAI physicians are representative of the population.

Table B-2.
Response Rate Calculations for Fax-Back Survey of Non-AAAAI Physicians Providing Allergy and Immunology Services in the United States, 1999

	<i>Rate</i>	<i>N</i>	<i>Responses</i>	
Overall	45.2%	259	117	
Geographic Location				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
New England	25.0%	16	4	-1.79
Middle Atlantic	46.5%	43	20	0.26
East North Central	42.9%	28	12	-0.16
West North Central	50.0%	20	10	0.48
South Atlantic	46.9%	49	23	0.33
East South Central	50.0%	12	6	0.38
West South Central	50.0%	28	14	0.56
Mountain	50.0%	22	11	0.50
Pacific	41.5%	41	17	-0.35
Gender				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
Male	47.4%	213	101	0.49
Female	34.8%	46	16	-1.25
Age*				
	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
Below 40 years of age	30.0%	20	6	-1.60
40 - 49 years of age	51.0%	51	26	0.47
50 - 59 years of age	45.7%	46	21	-0.20
60 + years of age	50.0%	88	44	0.42
* Overall response rate by known age was 47.3%				
*** $p < .001$				

The results of the fax-back survey of non-AAAAI physicians were used to determine whether physicians who are not members of AAAAI are currently providing any allergy and immunology services in order to account for non-respondent non-AAAAI members in the practitioner survey results. Because the respondents of the fax-back survey look very similar (i.e., they are just as likely to practice allergy and immunology) to the respondents of the full practitioner survey, the full practitioner survey respondents have been weighted to account for the non-AAAAI non-respondents. Similarly, AAAAI members who responded to the

survey have been weighted account for AAAAI non-respondents. The weighting is achieved through use of a multiplier applied to each response according to organizational (AAAAI or non-AAAAI) membership (see below for details on the weighting process).

5. Survey Response Weighting Details

Above it was noted that the raw survey responses had to be adjusted before they could be accurately analyzed and presented due to the over-representation of AAAAI members and under-representation of Non-AAAAI members. This section lays out the procedures undertaken to correct for these imperfections in the data.

AAAAI Raw Practitioner Survey Results		Frequency	Percent
A	Actively providing A&I patient care	2,226	89.5%
	Still in residency/fellowship training as of 4/30/99	1	0.0%
	Not actively providing A&I patient care (not retired)	131	5.3%
	Retired from clinical practice	128	5.1%
	<i>Total</i>	<i>2,486</i>	<i>100.0%</i>
Adjusted for AAAAI Members Non-response		Frequency	Percent
B	Actively providing A&I patient care	3,206	89.5%
	Still in residency/fellowship training as of 4/30/99	1	0.0%
	Not actively providing A&I patient care (not retired)	189	5.3%
	Retired from clinical practice	184	5.1%
	<i>Total</i>	<i>3,581</i>	<i>100.0%</i>

Panel A shows the frequency and percentage distributions for the raw responses to the full practitioner survey by AAAAI members. The adjusted frequency and percentage distributions are shown in Panel B. These adjusted responses were calculated by applying the percentage distribution in Panel A to the non-respondents who were AAAAI members.

Panel C shows the frequency and percentage distributions for the raw responses to the full practitioner survey by Non-AAAAI members. Panel D shows the frequency and percentage distributions for the raw responses to the fax-back survey of Non-AAAAI member non-respondents. The adjusted frequency and percentage distributions for raw responses in Panel D are shown in Panel E. These adjusted responses were calculated by applying the percentage distribution in Panel D to the non-respondents to the fax-back survey.

C	Non-AAAAI Raw Practitioner Survey Results	Frequency	Percent
	Actively providing A&I patient care	670	66.7%
	Still in residency/fellowship training as of 4/30/99	90	9.0%
	Not actively providing A&I patient care (not retired)	82	8.2%
	Retired from clinical practice	163	16.2%
	<i>Total</i>	<i>1,005</i>	<i>100.0%</i>
D	Non-AAAAI Fax-back Survey Results	Frequency	Percent
	Provide allergy and immunology services	73	62.4%
	Do not provide allergy and immunology services	44	37.6%
	<i>Total</i>	<i>117</i>	<i>100.0%</i>
E	Adjusted Non-AAAAI Fax-back Survey Results	Frequency	Percent
	Provide allergy and immunology services	1,005	62.4%
	Do not provide allergy and immunology services	606	37.6%
	<i>Total</i>	<i>1,611</i>	<i>100.0%</i>
F	Adjusted Practitioner Survey Results (based on fax-back survey) Non-AAAAI Only	Frequency	Percent
	Actively providing A&I patient care	1,556	59.5%
	Still in residency/fellowship training as of 4/30/99	209	8.0%
	Not actively providing A&I patient care (not retired)	285	10.9%
	Retired from clinical practice	566	21.6%
	<i>Total</i>	<i>2,616</i>	<i>100.0%</i>

Panel F shows the adjusted full practitioner survey results for Non-AAAAI members based on the results of the fax-back survey. The adjusted responses in Panel F were calculated by applying the percentage distribution from the raw full practitioner survey responses for Non-AAAAI members (Panel C) to the adjusted fax-back survey results (Panel E), then summing to determine the adjusted practitioner survey results for Non-AAAAI members. Specifically, the responses in the two categories in Panel E were split by the appropriate percentage distribution in Panel C. The adjusted frequencies in category “provide allergy and immunology services” from Panel E were distributed among the “actively providing A&I patient care” and “still in residency/fellowship training as of 4/30/99” categories from Panel C according to the percentage distribution in Panel C, then added to the non-AAAAI member raw practitioner survey frequencies (Panel C). Similarly, the adjusted frequencies in category “do not provide allergy and immunology services” from Panel E were distributed among “not actively providing A&I patient care (not retired)” and “retired from clinical practice” categories from Panel C according to the percentage distribution in Panel C, then added to the Non-AAAAI member raw practitioner survey frequencies (Panel C).

G	Practitioner Survey Results Adjusted for AAAAI Members and Non-AAAAI Members	Frequency	Percent
	Actively providing A&I patient care	4,763	76.9%
	Still in residency/fellowship training as of 4/30/99	210	3.4%
	Not actively providing A&I patient care (not retired)	473	7.6%
	Retired from clinical practice	750	12.1%
	<i>Total</i>	<i>6,197</i>	<i>100.0%</i>

Panel G shows the final adjusted survey responses for all respondents, AAAAI members and Non-AAAAI members. These figures were calculated by summing the adjusted AAAAI member survey responses (Panel B) with the adjusted Non-AAAAI member survey responses (Panel F).

AAAAI Weights		Value
H	Actively providing A&I patient care	1.44
	Still in residency/fellowship training as of 4/30/99	1.44
	Not actively providing A&I patient care (not retired)	1.44
	Retired from clinical practice	1.44
Non-AAAAI Weights		Value
I	Actively providing A&I patient care	2.32
	Still in residency/fellowship training as of 4/30/99	2.32
	Not actively providing A&I patient care (not retired)	3.47
	Retired from clinical practice	3.47

Finally, Panels H and I present the weights that were applied to survey responses in order to correct for the non-representativeness of the data based on organizational membership. Separate weights were calculated for each membership group (AAAAI members and Non-AAAAI members) due to differences in the response rate to the full practitioner survey of the two groups. The weights for AAAAI members (Panel H) were calculated by dividing the adjusted full practitioner survey responses for AAAAI members (Panel B) by the raw full practitioner survey responses for AAAAI members (Panel A). The weights for Non-AAAAI members (Panel I) were calculated by dividing the adjusted full practitioner survey responses for Non-AAAAI members (Panel F) by the raw full practitioner survey responses for Non-AAAAI members (Panel C).

**APPENDIX C: 1999 Survey of Directors of Allergy and Immunology
Fellowship Programs**

**1999 SURVEY OF DIRECTORS OF
ALLERGY AND IMMUNOLOGY FELLOWSHIP PROGRAMS**

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

This questionnaire is designed to obtain information on Allergy and Immunology fellowship programs and practice opportunities for Allergy and Immunology fellows completing training in the U.S. Your response will be **confidential** and will be reported only in national and regional tabulations and summaries. *Please mark only one answer for each question unless otherwise directed.*

A. ALLERGY AND IMMUNOLOGY FELLOWSHIP PROGRAM CHARACTERISTICS

1. Please fill in the table below to the best of your knowledge.

Academic Year	ACGME-Approved Positions		Applicants <i>(to begin training during this academic year)</i>		New Fellows <i>(Program Year 1)</i>		Fellows Completing Training In This Year <i>(Do not include those completing a preliminary year)</i>		Fellows Completing Training Going on to Further Training	
	Previous Training		Previous Training		Previous Training		Previous Training		Previous Training	
	Peds	Int Med	Peds	Int Med	Peds	Int Med	Peds	Int Med	Peds	Int Med
(July 1996 – June 1997)										
(July 1997 – June 1998)										
(July 1998 – June 1999)										
(July 1999 – June 2000)*										
(July 2000 – June 2001)*										
(July 2001 – June 2002)*										

* Please estimate the figures for future years to the best of your ability.

A) If you **reduced** the size of the program in the **past 3 years**, what were the reasons for the change?
(Please mark all that apply)

- Reduced training grant support
- Difficulty attracting qualified applicants
- Reduced financial support for program
- Institutionally imposed mandate
- Decreased demand/employment opportunities for graduates
- Other, specify: _____
- Not Applicable

Appendix C

B) If you **plan to reduce** the size of the program over the **next 3 years**, what are the reasons for the change?

(Please mark all that apply)

- Reduced training grant support
- Difficulty attracting qualified applicants
- Reduced financial support for program
- Institutionally imposed mandate
- Decreased demand/employment opportunities for graduates
- Other, specify: _____
- Not Applicable

C) If you **increased** the size of the program in the **past 3 years**, what were the reasons for the change?

(Please mark all that apply)

- Abundance of qualified applicants
- Increased financial support for program
- Service needs of training site(s)
- Increased training grant support
- Increased demand/employment opportunities for graduates
- Other, specify: _____
- Not Applicable

D) If you **plan to increase** the size of the program over the **next 3 years**, what are the reasons for the change? *(Please mark all that apply)*

- Abundance of qualified applicants
- Increased financial support for program
- Service needs of training site(s)
- Increased training grant support
- Increased demand/employment opportunities for graduates
- Other, specify: _____
- Not Applicable

2. A) How do you think Allergy and Immunology is viewed by pediatric and/or internal medicine residents?

- Very positively
- Somewhat positively
- Neutrally
- Somewhat negatively
- Very negatively

B) How do you think the views of pediatric and internal medicine residents about Allergy and Immunology have changed over the previous 3 years?

- Become worse
- Remained about the same
- Become better

B. ALLERGY AND IMMUNOLOGY JOB MARKET

1. Indicate the percentage of fellows graduating from your program in the past 5 years who find employment in the following types of positions:

--	--	--

Private practice

--	--	--

Academic medical center

--	--	--

Industry

--	--	--

Government/Military

--	--	--

Other, specify: _____

Appendix C

2. Do you think that fellows who completed your training program during the 1997-1998 academic year experienced difficulties finding full-time employment opportunities in Allergy and Immunology?
- Many Difficulties
 - Some Difficulties
 - No Difficulties
 - Don't Know

3. How do you anticipate the job market experiences of fellows who complete your training program during the 1998-1999 academic year will compare to those who completed training during the 1997-1998 academic year?
- Many more opportunities / far fewer difficulties finding positions
 - Some more opportunities / fewer difficulties finding positions
 - About the same
 - Fewer opportunities / some more difficulties finding positions
 - Far fewer opportunities / many more difficulties finding positions

4. What effect of managed care expansion on the Allergy and Immunology job market during the **next 3 years** do you foresee?
- Many new practice opportunities for new graduates
 - Some new practice opportunities for new graduates
 - No change
 - Fewer practice opportunities for new graduates
 - Far fewer practice opportunities for new graduates

5. What is your overall assessment of the practice opportunities **in Allergy and Immunology within 50 miles of your training site(s)**?

No Positions	Some Positions	Many Positions
0	1	2
3	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. What is your overall assessment of the practice opportunities **in Allergy and Immunology nationally**?

No Positions	Some Positions	Many Positions
0	1	2
3	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please provide any additional comments or observations you may have about your training program and/or the employment opportunities for Allergists and Immunologists that cannot be captured from the questions above:

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

Please return the completed questionnaire in the enclosed SASE to:

Center for Health Workforce Studies
 School of Public Health, University at Albany
 One University Place, Suite 200
 Rensselaer, NY 12214-3456

If you have questions about the questionnaire or the study, please call the Center at 518-402-0250

APPENDIX D: Program Director Survey Technical Details

APPENDIX D: Program Director Survey Technical Details

1. Definition of the Population

For the purposes of this survey, the Center defines the study population as program directors of active, accredited allergy and immunology fellowship programs in the United States.

There are three groups that this definition excludes which could potentially generate trained physicians who provide allergy and immunology services: 1) active programs outside the United States; 2) clinical laboratory immunology programs; and 3) non-accredited fellowship programs that continue to train physicians. None of these exclusions, however, should dramatically affect the results of the survey as none of these sources accounts for very large numbers of training allergists. Focusing on the active, accredited allergy and immunology fellowship programs, the main producers of new formally trained allergists, is most appropriate for the purposes of this component of the overall workforce project.

2. Mailing List Sources

The elements of the population of directors of allergy and immunology fellowship programs were obtained from two sources: AMA's Graduate Medical Education files and AAAAI's masterlist of allergy and immunology training programs. Together, these sources indicated 85 fellowship programs at the time of the survey (late Spring 1999). Through correspondence with several programs and AAAAI, it was determined, however, that there existed only 77 active, accredited allergy and immunology fellowship programs in the United States. The remaining programs (although initially surveyed) were made up of inactive, unaccredited, and/or closed/merged programs. With the rapid decline in the number of active, accredited programs evidenced in the historical trend data on allergy and immunology graduate medical education as well as recent commentary by Bardana [31], it was not surprising that the lists were somewhat outdated.

3. Survey Mailing Details

At the outset of the survey process, the population of program directors included a total of 85 names. On May 19, 1999, each director was sent a package consisting of a 3 page survey, a cover letter, a business reply postcard, enough fellow exit surveys for their 1999 graduates

(see Appendix F, p. 211), and a self-addressed, stamped return envelope. The postcard served as an incentive to complete the survey (as well as distribute and collect the fellow exit surveys) by offering those who desired a summary of the survey results.

A follow up mailing to the non-respondents was conducted on July 30, 1999 that consisted of a cover letter, another copy of the program director survey, a business reply card, and a business reply envelope. A second follow up was conducted on September 17, 1999. Finally, on November 22, 1999, the remaining non-respondents were faxed a shortened version of the program director survey consisting of two questions on the number of fellows in the 1998-1999 and 1999-2000 academic years.

All survey responses remain strictly confidential. During the data collection phase of the survey, the Center kept a running list of directors who had and had not responded to the survey to facilitate follow up mailings. Once the data collection was completed, the running list was destroyed. A list of those directors who wished to receive a summary of the survey results was kept to facilitate the distribution of the survey summary.

4. Response Rate Analysis

In all, 71 directors of the 77 active, accredited programs responded to the survey for a response rate of 92%. The main concern, in terms of representativeness, is the geographic location of the program. To determine whether survey response rates vary significantly across geographic location, response rates have been calculated for each geographic area. Table D-1 presents the survey response rates by geographic area within the United States as well as the results of the statistical test to determine whether the differences were statistically significant. As is evident, while there is some slight variation in response rate by geographic area, these differences do not reach statistical significance. Thus, the program director survey responses are representative of the population of program directors in the United States.

Table D-1.
Response Rate Calculations for Program Director Survey, 1999

Geographic Location	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
New England	80.0%	5	4	-0.67
Middle Atlantic	88.2%	17	15	-0.47
East North Central	100.0%	9	9	2.55
West North Central	88.9%	9	8	-0.30
South Atlantic	92.3%	13	12	0.01
East South Central	100.0%	3	3	2.55
West South Central	100.0%	7	7	2.55
Mountain	100.0%	2	2	2.55
Pacific	91.7%	12	11	-0.06

**APPENDIX E: 1999 Survey of Allergy and Immunology Fellows
Completing Training**

**1999 SURVEY OF ALLERGY AND IMMUNOLOGY
FELLOWS COMPLETING TRAINING**

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

This questionnaire is designed to obtain information on the job market, demographic characteristics, and practice plans of allergy and immunology fellows completing training in 1999. Your response will be **confidential** and will be reported only in national and regional tabulations and summaries.

Please mark only one answer for each question unless otherwise directed. For questions with boxes for responses, please print responses neatly.

A. DEMOGRAPHIC CHARACTERISTICS

3. Gender:
- Female
 - Male

2. Age:

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3. Citizenship Status
- Native Born U.S.
 - Naturalized U.S.
 - Permanent Resident
 - H-1, H-2, H-3 Temporary Worker
 - J-1, J-2 Exchange Visitor
 - Other, specify: _____

4. Race/Ethnicity:
- Asian or Pacific Islander
 - Black / African American (non-Hispanic)
 - Hispanic / Latino(a)
 - Indian Subcontinent
 - Middle Easterner
 - Native American / Alaskan
 - White (non-Hispanic)
 - Other, specify: _____

5. Professional Memberships: *(Mark all that apply)*
- American Academy of Allergy, Asthma and Immunology (AAAAI)
 - American College of Allergy, Asthma and Immunology (ACAAI)
 - Clinical Immunology Society (CIS)
 - American Association of Immunologists (AAI)
 - Regional/State/Local Allergy and Immunology Society
 - American Thoracic Society (ATS)
 - American Academy of Pediatrics (AAP)
 - American College of Physicians–American Society of Internal Medicine (ACP–ASIM)
 - Other, specify: _____

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B. MEDICAL EDUCATION AND TRAINING

6. Type of Medical School Education: Allopathic (M.D.) Osteopathic (D.O.)

7. A) Medical School:
 United States (if yes, complete below)
 Canada
 Other Country (specify: _____)

B) Specify state if medical school in the United States:
 AL CT IL MD MO NM OK SC VT
 AZ DC IA MA NE NY OR SD VA
 AR FL KS MI NV NC PA TN WA
 CA GA KY MN NH PR ND TX WV
 CO HI LA MS NJ RI OH UT WI

8. Graduate Medical Education:
 Specialties in which you have **completed** training at the **graduate** level: *(Mark all that apply)*
 If subspecializing/doing additional fellowship: Specialty you are **entering this year**:

- | | | |
|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | Allergy and Immunology |
| <input type="radio"/> | <input type="radio"/> | – Clinical and Laboratory Immunology |
| <input type="radio"/> | <input type="radio"/> | Internal Medicine (General) |
| <input type="radio"/> | <input type="radio"/> | – Pulmonary Disease |
| <input type="radio"/> | <input type="radio"/> | – Rheumatology |
| <input type="radio"/> | <input type="radio"/> | – Other Internal Medicine Subspecialty |
| <input type="radio"/> | <input type="radio"/> | Internal Medicine and Pediatrics (Combined) |
| <input type="radio"/> | <input type="radio"/> | Pediatrics (General) |
| <input type="radio"/> | <input type="radio"/> | – Other Pediatrics Subspecialty |
| <input type="radio"/> | <input type="radio"/> | Other, specify: |

9. Year completed Initial Residency training (i.e., pediatrics or internal medicine):

Initial Residency: 19

10. Years of Allergy and Immunology fellowship training completed as of 6/30/99:

1 2 3 4+

C. FUTURE PLANS

11. What do you expect your principal work activity to be after completion of your current fellowship program?

- (Mark all that apply)*
- | | |
|--|--|
| <input type="radio"/> Patient Care / Clinical Practice | <input type="radio"/> Teaching |
| <input type="radio"/> Additional Subspecialty Training or Fellowship | <input type="radio"/> Temporarily Inactive in Medicine |
| <input type="radio"/> Research (Academic Medicine) | <input type="radio"/> Other, specify: _____ |
| <input type="radio"/> Research (Industry) | <input type="radio"/> Undecided |

12. Which best describes the location of your primary activity after training?

- Same city/county as current training
- Same state – but different city/county
- Other state
- Outside United States

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13. If you are going on for **additional residency training/fellowship** in 1999, what are the main reasons?
(Mark all that apply)

- To further your medical education
- Unable to find a satisfying position
- Unable to find any position
- To stay in the United States (i.e., due to visa status)
- Other, specify: _____

14. Do you have an obligation or visa requirement to work in a federally-designated Health Professional Shortage Area (HPSA)?

- Yes
- No

15. If you are planning to enter patient care, have you found a practice position yet?

- Yes
- No (Skip to Part E)

If you are not planning to enter Patient Care after completing your current training – Skip to Part E

D. SPECIFIC PLANS

If you are going into Patient Care:

16. Which best describes the type of Patient Care Practice you will be entering? (Please mark only one in each column)

	a. Principal Practice Setting	b. Secondary Practice Setting
	<input type="radio"/>	<input type="radio"/> Solo Practice
	<input type="radio"/>	<input type="radio"/> Partnership (2 physicians)
	<input type="radio"/>	<input type="radio"/> Group Practice – Owner / Partner
	<input type="radio"/>	<input type="radio"/> Group Practice – Employee
	<input type="radio"/>	<input type="radio"/> Hospital – Inpatient
	<input type="radio"/>	<input type="radio"/> Hospital – Ambulatory Care
	<input type="radio"/>	<input type="radio"/> Hospital – Emergency Room
	<input type="radio"/>	<input type="radio"/> Freestanding Health Center or Clinic
	<input type="radio"/>	<input type="radio"/> Managed Care Organization / HMO
	<input type="radio"/>	<input type="radio"/> Urgent Care Clinic
	<input type="radio"/>	<input type="radio"/> Military/U.S. Government
	<input type="radio"/>	<input type="radio"/> State or Local Health Department
	<input type="radio"/>	<input type="radio"/> Private Industry
	<input type="radio"/>	<input type="radio"/> Nursing Home
	<input type="radio"/>	<input type="radio"/> Temp Agency
	<input type="radio"/>	<input type="radio"/> Other
	<input type="radio"/>	<input type="radio"/> Undecided

c) How many hours do you expect to work per week in direct patient care?

- 0 – 9
- 10 – 19
- 20 – 29
- 30 – 39
- 40 – 49
- 50 or more

d) What percentage of your practice time do you expect to be devoted to **allergy and immunology services**?

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

Appendix E

17. What is the zip code of the **principal practice address** at which you will be working (*if zip code is unknown, please indicate city/town and state*)?

Principal Practice
Zip Code

--	--	--	--	--

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

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

City/Town

--	--

State

18. Which best describes the area in which your principal practice is located?

- Inner city
- Other area within major city
- Suburban
- Small city (population less than 50,000)
- Rural

19. How will you be compensated at your principal practice?

- Salary without incentive
- Salary with incentive
- Capitation
- Fee for service
- Other, specify: _____

20. Expected Personal Income during first year of practice:

A) Base Salary/Income

B) Anticipated Additional Incentive Income

- Less than \$100,000
- \$100,000 - \$124,999
- \$125,000 - \$149,999
- \$150,000 - \$174,999
- \$175,000 - \$200,000
- Over \$200,000

- Less than \$10,000
- \$10,000 - \$19,999
- \$20,000 - \$29,999
- \$30,000 - \$39,999
- \$40,000 - \$50,000
- Over \$50,000

21. What is your level of satisfaction with your salary/compensation?

- Very Satisfied
- Somewhat Satisfied
- Somewhat Dissatisfied
- Very Dissatisfied

22. Will you be practicing in a federally designated Health Professional Shortage Area?

- Yes
- No
- Unknown

23. Do you expect to be at your principal practice **more than 3 years**?

- Yes
- No
- Undecided

24. Would you recommend the specialty of Allergy and Immunology to medical students or other physicians in training?

- Yes
- No

Appendix E

E. EXPERIENCE IN JOB MARKET

25. a) Did you have a difficult time finding a position you were satisfied with?

- Yes
- No
- Haven't looked yet (*Skip to question 29*)

b) **If Yes**, what would you say were the **main reasons**? (*Please identify up to three*)

- Overall lack of positions / practice opportunities
- Lack of positions in desired locations
- Lack of positions in desired setting (e.g., Hospital, HMO, Group Practice, Academic Medical Center, etc.)
- Inadequate salary / compensation offered
- Limited opportunities due to visa status
- Family considerations
- Other, specify: _____

26. a) Did you have to change your plans because of limited opportunities?

- Yes (*If yes, specify below*)
- No

b) **If Yes**, how did you change your plans? (*Please mark all that apply*)

- Sought employment in different region of country
- Continued training in a subspecialty
- Temporarily left medicine
- Accepted less desirable position
- Accepted less desirable compensation
- Accepted less desirable setting or location
- Other, specify: _____

27. How many positions did you apply to?

- | | | |
|----------------------------|-------------------------|-------------------------------|
| <input type="radio"/> None | <input type="radio"/> 3 | <input type="radio"/> 6 - 10 |
| <input type="radio"/> 1 | <input type="radio"/> 4 | <input type="radio"/> 11 - 15 |
| <input type="radio"/> 2 | <input type="radio"/> 5 | <input type="radio"/> Over 15 |

28. How many employment / practice offers did you receive?

- | | | |
|----------------------------|-------------------------|-------------------------------|
| <input type="radio"/> None | <input type="radio"/> 3 | <input type="radio"/> 6 - 10 |
| <input type="radio"/> 1 | <input type="radio"/> 4 | <input type="radio"/> Over 10 |
| <input type="radio"/> 2 | <input type="radio"/> 5 | |

29. What is your overall assessment of the practice opportunities in **Allergy and Immunology within 50 miles of the site where you trained?**

No Positions		Some Positions		Many Positions
0	1	2	3	4
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. What is your overall assessment of the practice opportunities in **Allergy and Immunology nationally?**

No Positions		Some Positions		Many Positions
0	1	2	3	4
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. What is your overall assessment of the **academic** opportunities in **Allergy and Immunology nationally?**

No Positions		Some Positions		Many Positions
0	1	2	3	4
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix E

32. Please provide any additional comments or observations you may have about your training experiences in Allergy and Immunology and/or the employment opportunities for Allergists and Immunologists:

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

Please return the completed questionnaire to your program director.

Center for Health Workforce Studies
School of Public Health, University at Albany
One University Place, Suite 200
Rensselaer, NY 12214-3456

If you have questions about the questionnaire or the study, please call the Center at 518-402-0250

APPENDIX F: Fellow Exit Survey Technical Details

APPENDIX F: Fellow Exit Survey Technical Details

1. Definition of the Population

For the purposes of this survey, the Center defines the study population as physicians who completed allergy and immunology fellowship programs in the United States in 1999. Physicians who have recently completed their allergy and immunology fellowship training and are or have been on the job market can offer valuable information about the demand for physicians who provide allergy and immunology services. Moreover, determining how large a proportion of the recent graduates enter patient care, continue training in another subspecialty, or leave the country can help advise allergy and immunology stakeholders how many physicians they need to train to maintain an adequate supply of physicians providing allergy and immunology services.

2. Mailing List Sources and Mailing Details

For this survey, because the respondents were not known prior to distributing the survey instrument, the Center could not rely on a list of physicians who had completed their allergy and immunology training in 1999. Instead, in the distribution of the program director survey, the program directors were asked to distribute the fellow exit survey to their graduating fellows. This method was abandoned during the follow up mailings where program directors were asked to supply a list of the physicians who completed their programs in 1999. The Center, in turn, attempted to contact these physicians directly. Because surveys were distributed as contact information was received, no specific dates can be given as definite distribution dates. However, fellow exit surveys were distributed from late Spring 1999 through early Fall 1999.

3. Responses

The Center received 53 responses from the estimated 84 physicians who completed allergy and immunology training in the United States in 1999 for a response rate of 63%. Again, because there were no data points observed prior to administration of the survey, there is no definite way to determine how representative the responses received by the Center are of the total population of physicians completing allergy and immunology training in 1999.

To indirectly assess representativeness, the geographical area of the fellowship program from which the fellows graduated can be examined. The comparison of interest is the rate of response of programs with graduates. Of the programs that responded, 43 reported that they had graduates in 1999. So, overall, the Center received fellow exit surveys from fellows who graduated from 36 of those programs generating an 84% response rate. Table F-1 presents this response rate by geographic area. It is clear that there is wide variation in this response rate, with the exception of the two areas with 100% response rates (East South Central and Mountain Census Divisions), the rates do not vary statistically from the overall rate. Therefore, the responses to the fellow exit survey are considered representative of the population of fellows who completed training in allergy and immunology in the United States in 1999. It should be noted that while this method of determining representativeness is not ideal, it is the only option for this survey.

Table F-1.
Response Rate Calculations for Fellow Exit Survey, 1999

Geographic Location	<i>Rate</i>	<i>N</i>	<i>Responses</i>	<i>t^{sig}</i>
New England	40.0%	5	2	-1.93
Middle Atlantic	63.6%	11	7	-1.29
East North Central	83.3%	6	5	-0.02
West North Central	80.0%	5	4	-0.20
South Atlantic	77.8%	9	7	-0.40
East South Central	100.0%	2	2	2.89*
West South Central	71.4%	7	5	-0.68
Mountain	100.0%	2	2	2.89*
Pacific	40.0%	5	2	-1.93

* *p* < .05