American Academy of Allergy Asthma & Immunology

The state of the academic medical center in allergy/immunology: Work Group Report of the AAAAI A/I Division Directors Committee

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The field of allergy and immunology (A/I) has transformed modern medicine with the development of diagnostic and therapeutic advances in all areas of health. This Work Group Report from the Division Directors Committee of the American Academy of Allergy, Asthma & Immunology describes the current state of 5 mission areas (clinical, educational, research,

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Received for publication November 22, 2024; revised April 22, 2025; accepted for publication May 2, 2025.

Available online July 31, 2025.

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0091-6749/$36.00

https://doi.org/10.1016/j.jaci.2025.05.013

equity, and advocacy) within the A/I divisions/subdivisions of academic medical centers (AMCs) in the United States. The current states of the clinical and educational mission areas in AMCs in A/I are strong, with an increasing prevalence of atopic/immunologic disorders and novel therapeutics, solid trainee interest, and tremendous potential for research, equity, and advocacy efforts. The interest in the field of A/I has outpaced the creation of new positions, leading to an increase in unmatched applicants yearly. Weaknesses and threats include decreasing federal research and educational funding, changing health care insurance policies, the dynamic legislative environment, and the negative impact of the business focus in academic institutions. The future of A/I will depend on the preservation of a strong academic foundation with improved recruitment to academic positions, increased training positions, and greater incentives for development of career opportunities in research and education, utilizing artificial intelligence tools and strong advocacy strategies. (J Allergy Clin Immunol 2025;156:1173-84.)

Key words: *Allergy, immunology, clinical, medical education, research, equity, advocacy, academic medical center, division*

Abbreviations used

AAAAI: American Academy of Allergy, Asthma & Immunology
ACAAI: American College of Allergy, Asthma & Immunology
ACGME: Accreditation Council for Graduate Medical Education
A/I: Allergy/immunology
AMC: Academic medical center
NIH: National Institutes of Health
RVU: Relative values unit
URM: Underrepresented in medicine

The field of allergy and immunology (A/I) has transformed modern medicine with the development of diagnostic and therapeutic advances in all areas of health care. This Work Group Report from the Division Directors Committee of the American Academy of Allergy, Asthma & Immunology (AAAAI) purposes to bring awareness regarding the current state of 5 mission areas (clinical, educational, research, equity, and advocacy) within the A/I divisions/subdivisions of academic medical centers in the United States and share the existing opportunities to advance the field (Fig 1). Academic A/I divisions/subdivisions in academic medical centers are under stress regarding reimbursement and institutional support, and at the same time the medical expertise required to manage immunologic diseases is all the more advanced and critical. The strengths, weaknesses, threats, and opportunities are outlined so all stakeholders—including physicians, administrators, researchers, legislators, community members, and patients—can work toward the optimization of the academic enterprise to strengthen the health of all patients with allergic/immunologic diseases.

CLINICAL MISSION

Strengths

Allergists/immunologists practicing in AMCs keep up with the rapidly evolving understanding of immunopathology and the expanding therapeutic options for immune-mediated diseases. This expertise of the A/I physician comprises the skills and training to care for challenging, complex cases that have perplexed colleagues, and A/I divisions/subdivisions are uniquely qualified to take care of patients spanning the entire age spectrum, from neonatology to geriatrics. In addition, the multiorgan system nature of the conditions treated by A/I physicians engenders interdisciplinary collaboration across the AMC, positioning A/I specialists as valued partners to primary and specialty care physicians and other caregivers (Table I).

This unique skill set of academic A/I physicians enables the ownership and leadership of effective interventions in both inpatient and outpatient settings, such as with antibiotic allergy delabeling, chemotherapy desensitization, allergen immunotherapy, immunoglobulin therapy, and biologic therapies. These distinctive qualities of A/I specialists in strong A/I divisions/subdivisions demonstrate immense value within AMCs (Table I). A/I is well positioned for the future because of a strong pipeline of fellowship programs matriculating bright, well-qualified internists and pediatricians entering the field.[1]

In contrast to other areas in the AMC that depend on in-person delivery of care or physical facilities (eg, access to an expert surgeon or specific equipment), knowledge-based A/I care can be delivered via innovative care platforms such as telemedicine, protocols, and clinical informatics tools. A/I divisions/subdivisions that have effectively leveraged these technologies have demonstrated public health–level impact, with improvement of quality and reduced costs—for example, β-lactam allergy.[2-4] Diseases of allergic/immunologic inflammation have high prevalence with substantial impact on comorbidities and are associated with increased direct and indirect costs to health care systems, but they can be effectively treated with evidence-based interventions. Focusing on the quality of care and outcomes delivered by A/I specialists will enhance the strength of academic A/I divisions/subdivisions in the future.

Weaknesses

Business aspects of health care have gained increased priority.[5] Various financial interests have become increasingly focused on health care as an important investment and business entity. These interests include private equity firms, publicly traded physician management companies, health insurers, and national pharmacy chains.[5] Over the years, the number of administrator positions has grown significantly compared to physicians. As early as 1991, Woolhandler and Himmelstein[6] published the relative growth of administrator positions in US health care and showed an approximate 10-fold rise compared to physician positions over the prior two decades. This trend has continued since then.[7] According to data from the Bureau of Labor Statistics, the National Center for Health Statistics, and the United States Census Bureau's Current Population Survey, during a 35-year period (1975-2010), the number of physicians in the United States grew 150% while the number of health care administrators increased 3,200%.[8] The gap in health care administrative spending between the United States and other industrialized countries is large;[7,9] it seems to reflect inherent inefficiencies of a private insurance–based, multipayer system compared to a single-payer systems.[9]

These changing conditions directly impact A/I divisions/subdivisions and quality of clinical care, research, and education.

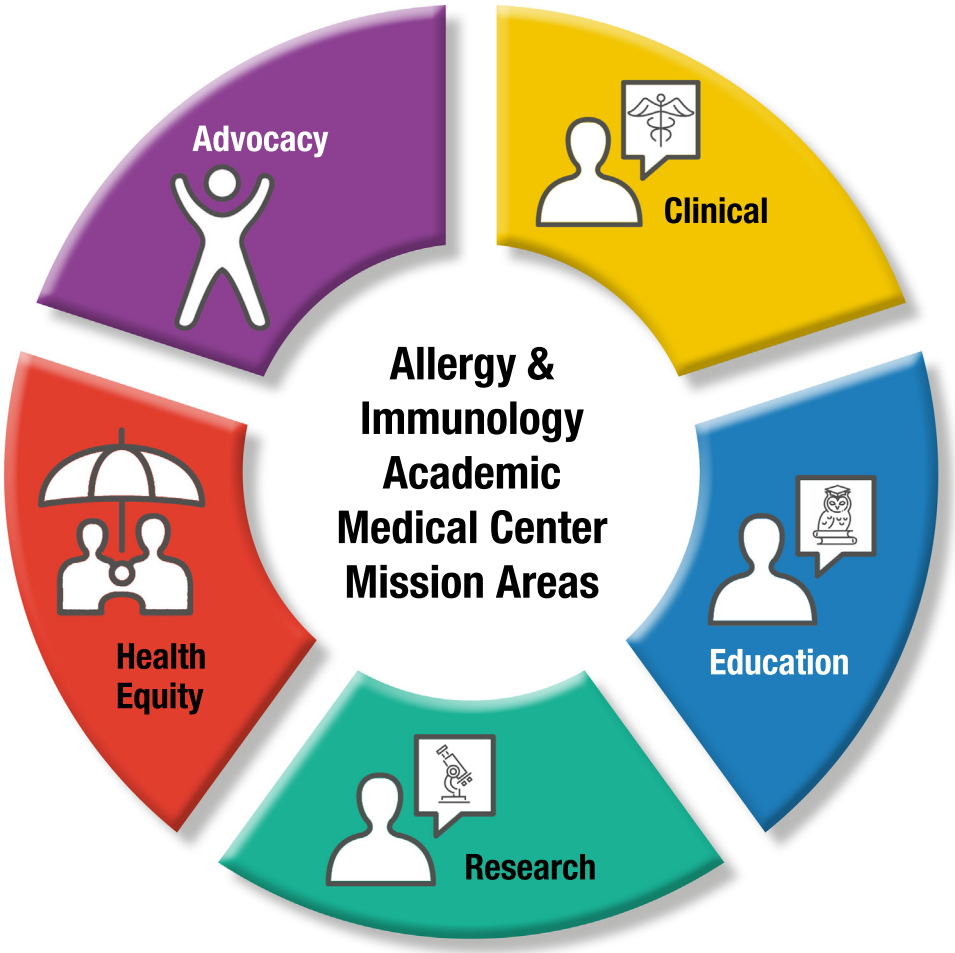

FIG 1. A/I AMC includes clinical, educational, research, health equity, and advocacy mission areas.

In 1991, the Relative Value Scale Update Committee was created by the American Medical Association to develop the relative values unit (RVU) system to account and reimburse physicians' work.[10] To stay financially viable within this system, AMCs must closely follow metrics and benchmarks, but there are potential inherent problems with this system, including the outsized public payer patient volume in the AMC, lack of advanced practice physicians' RVU contribution guidance, absence of normalization standards for varying clinical effort, and uncompensated or unaccounted physician time and effort, such as electronic medical record inbox management (Table I). Even though a physician's yearly RVU productivity may increase, new RVU uses and definitions may cause national benchmarks to increase so that annual compensation does not increase over the long term.

Focusing on incentivizing clinical work without a similar incentive for research and educational missions in the AMC will lead to the loss of the latter two missions, transforming the job duties of an academic clinician to those similar to private practitioners and eroding the future US physician workforce and research innovation efforts. Some AMCs have instituted aggressive growth plans that increase the demand for clinical services and may outcompete regional health systems and private practices; yet the mission of the AMC is not to compete with private practice. If the compensation plans, which are increasingly favoring clinical work compared to educational and research efforts as a result of financial pressures, cannot compete with private practice, physicians will leave the AMC (Table I).[11] Although value-based care has been emphasized as more important than quantity, in some centers, A/I division directors report RVU productivity metrics are utilized by administrative decision makers with little consideration of the impact on quality of care. There is a paucity of literature in the United States concerning the impact of health care management decisions on patient care and quality-of-life outcomes.[12] A growing divide between the business of health care and the physicians who provide this care has become a priority to address in the AMC (Table I).

Threats

As the prevalence of allergic- and immune-mediated diseases continues to rise across the United States and around the world,[13-16] a most important opportunity presents itself: the urgent need to grow A/I services within AMC. Most allergist/immunologists are community based; approximately a fifth are medical school faculty. But this demand is also its biggest threat. Because of patient demand for A/I services, primary care and other specialties have implemented untested ways to provide that care instead of waiting to see an A/I specialist. This includes access

TABLE I. Clinical mission

Strengths	● Care for diseases with high prevalence (ie, asthma). ● Expertise in complex patient care. ● Patient care for entire age spectrum. ● Interdisciplinary care with strong partnership with other specialties. ● Inpatient, outpatient, and virtual care.
Weaknesses	● Health care monetization and its emphasis on incentivizing clinical work without similar incentives for research and educational missions. ● Uncompensated or unaccounted physician time and effort. ● Absence of normalization standards for varying clinical effort and clinical support staff. ● Declining physician autonomy in care decisions. ● Lack of advanced practice physicians' RVU contribution guidance.
Threats	● Insufficient A/I physicians to meet patient demand. ● Primary care and other specialties providing untested care because of patient demand for A/I services and long wait times. ● A/I divisions are small and less visible to leadership. ● Decreased overall reimbursement for care (ie, cuts to Medicare and Medicaid). ● Heterogeneity in insurance prior-authorization process.
Opportunities	● A/I expertise to expand new therapies like biologics and immunotherapy. ● Promotion of precision medicine in A/I through balance of clinical, educational, and research mission areas. ● Implementation of thoughtful compensation incentives. ● Development of benchmarks for best practice clinical care. ● Transparency and faculty understanding of compensation and institutional finances. ● Continued funding for Medicare and Medicaid. ● Partnerships and collaboration with private practice primary and specialty care colleagues supported by professional organizations. ● Advocacy to enhance clinical mission supported by professional organizations.

to broad IgE-specific serum panels, non-IgE skin testing, and other nonstandard testing ordered by nonallergists at the patient's expense and at risk of misinterpretation. In addition, most A/I divisions in AMCs are small or are incorporated into a larger subspecialty division, such as pulmonary or rheumatology, and therefore are less visible or are branded at the department or hospital level (Table I). Some AMCs lack A/I specialists, and physicians rely on nearby private practitioners to care for A/I patients, some of whom may not offer the full breadth of services. A/I physicians have a better understanding of the mechanisms behind disease states thanks to their academic training in immunology, so they are better positioned to be experts for immune-mediated diseases. More A/I physicians are needed to fill this gap.

The decrease in overall reimbursement over the last 20 years based on Medicare fee schedule decreases affects reimbursement across the board (Table I). This has become even more of a threat in recent months, with cuts to Medicare and Medicaid proposed in the legislature. Decreased reimbursement for physician services has resulted in institutional increase in the number of patients during a clinical session and decreased time spent with each patient during office visits. More cuts will decrease access to physician services. Also, institutions receive a separate facility fee that in turn may lead to lower rates accepted by the institution for physician work. This directly affects the RVUs produced by the physician. A/I physicians also may not receive RVU "credit" for different procedures at some institutions, including spirometry, patch testing, or skin prick testing. The current heterogeneity in the insurance prior-authorization process for A/I services and medications is also a threat experienced by the entire specialty, causing delays in access to care (Table I).[17,18] This is a serious threat that wastes financial resources in the AMC.

Opportunities

In the Association of American Medical Colleges Physician Specialty Data Report, A/I ranks 12th of 48 specialties for the fewest active physicians per capita, with 1 active A/I physician for every 65,197 people in the United States,[16] and fellowship positions have not been growing fast enough to fill the immense need.[19] As current and new biologic therapies are developed to treat asthma, atopic dermatitis, food allergies, nasal polyposis, autoinflammatory disorders, and eosinophilic esophagitis, as examples,[20] these treatment modalities and their proper prescription will become a cornerstone of our specialty. This expertise is also needed because of the increasing adoption of new immune therapies, such as oral immunotherapy for food allergy[21] and subcutaneous and sublingual immunotherapy for aeroallergen disease, and biologics for asthma and atopic dermatitis (Table I). The availability of biologics and inhibitors of signaling pathways to treat diseases of immune dysregulation allow for personalized treatment based on genetic diagnoses, like STAT gain-of-function disorders treated with JAK-STAT inhibition.[22]

Administrators and clinicians should work together to create balance in the clinical, educational, and research mission areas as they relate to precision medicine in A/I . Thoughtful compensation incentives should be implemented to deliver this specialized care (Table I). In summary, the opportunities for best practice clinical care of patients with allergic or immune-mediated diseases abound, and the AMC has an essential role to play in the growth of these services to improve patient access. Development of benchmarks for best practice clinical care would help AMC and community patients. Transparency and faculty understanding of compensation and institutional finances will be essential to expand services, programs, and training programs in the AMC

(Table I). Consistent funding for physician care for patients through Medicare and Medicaid is essential. Partnerships and collaboration with private practice primary and specialty care colleagues are important if there is no academic division/subdivision affiliate (Table I). Advocacy efforts should also be utilized to enhance the clinical mission in A/I, such as the recent expansion of antibiotic allergy delabeling, which has resulted in cost savings for hospitals and patients.[23,24]

EDUCATION

Strengths

The preservation and enhancement of the quality of fellowship training to ensure a strong A/I workforce is critical for the future of the specialty. Several intrinsic characteristics of the A/I specialty make it attractive to trainees. The versatile and overlapping nature of A/I with other fields allows the clinician to treat the whole patient across the life-span, routinely collaborating with other experts (Table II). The ability to tangibly improve patient quality of life generates a high level of satisfaction and fulfillment for most allergists/immunologists, which in turn inspires a dedication to teaching and lifelong learning. A/I fellowship programs also offer an attractive opportunity for those interested in a career in medical education.

A/I as a specialty ranks highly in terms of wellness and work–life balance (Table II).[25] There are opportunities for hybrid careers, which can provide a sense of fulfillment. The Chrysalis and SPARK programs, developed, respectively, by A/I national organizations American Academy of Allergy, Asthma & Immunology (AAAAI) and the American College of Allergy, Asthma & Immunology (ACAAI) to expose and attract prospective trainees to the field have made great strides in fostering specialty interest. Further investment and efforts with such programs would generate increased engagement among students and residents (Table II). In recent years, residents are increasingly choosing a career in A/I, as reflected by 242 applicants to A/I fellowship programs in 2024 compared to 204 in 2019, but the number of applicants per position is 1.4, and 30% of applicants failed to match in 2024 because of a lack of positions (Table II).[26] The number of fellowship positions and funding for such positions is not growing to meet the clear demand.

Weaknesses

Because A/I is a specialty with much care provided in the outpatient setting, students and residents rotating through hospitals may not be familiar with the specialty (Table II). A/I also has a smaller workforce, and training programs are generally smaller than specialties such as pulmonology, cardiology, or hematology/oncology (Table III), limiting the impact of A/I on policymaking at the institutional level. There is a general lack of knowledge or experience among medical students and residents about the specialty.

This is exacerbated by the overlapping nature of A/I with many other specialties, including pulmonology, rheumatology, dermatology, and otorhinolaryngology. For example, trainees may encounter asthma treated by pulmonologists, autoinflammatory diseases by rheumatologists, atopic dermatitis by dermatologists, and allergic rhinitis by otorhinolaryngologists. However, the pathogenesis of these diseases is allergic and immune mediated, providing opportunities for interdisciplinary collaboration. As a result, there are missed opportunities at many levels to engage, recruit, and retain a robust workforce and expand A/I programs (Table II). A/I is not part of a core curriculum in internal medicine and pediatric programs but rather is an elective, thus limiting exposure to this specialty. Although strides have been made in recent years, with growing interest and applications to A/I fellowship programs, there is lack of assigned institutional funding for fellowship programs, and the residency federal cap limits the ability to increase fellowship positions throughout the country (Table II).[27] The trend in A/I fellowship programs since 2008 shows a lower number of programs compared to other subspecialties (Fig 2). Changing these trends is essential for the A/I specialty to thrive.

Threats

A major threat is the growing trend of trainees moving away from pursuing academic careers and instead pursuing private equity–owned, private practices, industry, or other nonclinical careers (Table II).[28] This threat has far-reaching consequences because the training of future allergists/immunologists, research within the field, and advocacy endeavors often develop in the academic setting. Financial considerations affect academic A/I divisions/subdivisions just like they do in other medical settings. Differential compensation between academic and private practice[29] juxtaposed against persisting external pressures to maximize RVU/clinical productivity often repels trainees who may otherwise be interested in academic medicine toward alternative career pathways (Table II).[30] Similar to the general shift away from academic medicine is the steady decline in trainees pursuing research careers.[31] Recent proposals to decrease overall research funding to academic medical institutions and the cuts to Department of Education trainee funding will all adversely impact the education of A/I trainees, limiting promising careers and research advancement.

The trainee preference toward more lucrative careers compared to academic medicine significantly affects the pediatric workforce. A/I is a conjoint specialty, so any issue affecting the pediatric workforce will affect the specialty overall. There has been a recent decreasing rate of trainees choosing pediatrics, and more particularly pediatric subspecialties.[32] The fellowship fill rate of all pediatric subspecialties fell to 77.4% in 2024, a decrease of 1.7% compared to 2023. Although the pediatric A/I fellowship fill rate at 94.4% in 2024 was higher than other subspecialties, it was lower than the 100% fill rate for internal medicine.[33] This decreased interest in the field of pediatrics threatens the A/I specialty. Critical attention is needed to reverse these trends (Table II).

There appears to be a global trend in medicine where the younger generation of physicians' priorities extend beyond and outside of medicine, such that retention of young, talented individuals can be challenging, and nonclinical roles are increasingly pursued. The rising national trend of resident and fellow unionization is another reflection of the disenchantment with the medical and administrative system in which trainees work, which influences their career choices (Table II). The reasons for these choices and trends are complex, but dissatisfaction with the *status quo* and increased prioritization of mental health and work–life balance call for a more active, urgent approach.

TABLE II. Educational mission

Strengths	● Versatile and overlapping nature of A/I, ability to tangibly improve patient quality of life, and treating whole patient across life-span attractive to trainees. ● Wellness and work–life balance attracts physicians to field. ● Strong pipeline programs for residents. ● High demand for fellowship positions.
Weaknesses	● Fellowship positions have not been growing fast enough to fill immense need. ● Lack of knowledge or experience among medical students and residents about specialty. ● A/I is not part of a core curriculum but is an elective. ● Lack of institutional funding.
Threats	● Trainees are pursuing private equity–owned, private practice careers, careers in industry, or other nonclinical careers. ● Differential compensation in academic and private settings to pay medical education debt. ● Declining NIH grant support for medical training. ● Decline in pursuit of research careers. ● Unionization as reflection of disenchantment with medical and administrative system.
Opportunities	● Extension of incentive targets beyond clinical productivity toward scholarly activities. ● Faculty development activities for junior faculty supported by professional organizations like AAAAI and ACAAI. ● Introduction of A/I early in medicine pipeline to medical students. ● Development of governmental graduate medical education and philanthropic funding sources. ● Routine provision of training opportunities for those without A/I exposure supported by professional organizations. ● Development of a repository of standardized curricula (ie, AAAAI's A/I clinical curriculum). ● Utilization of consultation services to exposure residents to A/I through institutional, academic, and private practice activities.

TABLE III. Residency/fellowship programs compared to A/I programs, 2024

Specialty	No. of programs	No. of positions	No. of applicants
A/I	98	169	242
Rheumatology	127	276	359
Hematology/oncology	198	755	986
Pulmonology/critical care medicine	222	781	1083
Gastroenterology	239	690	1064
Cardiology	271	1199	1802

Opportunities

Fortunately, there are several actionable opportunities to address the weaknesses and threats to A/I to advance educational missions. On a systems/institutional level, leadership should extend incentive targets beyond clinical productivity toward scholarly activities such as teaching and research, which is likely to attract academically inclined trainees and retain young faculty (Table II).[30] Governmental graduate medical education and philanthropic funding sources should be developed and utilized to support these activities. Faculty development activities should be embedded into offerings for all junior faculty in group settings. Development topics such as "how to teach," "how to give feedback and have difficult conversations," and "time management strategies" foster connections among faculty.

Several opportunities exist to increase A/I exposure and experience to prospective trainees, and 3 in particular should be pursued. First, A/I should be introduced early in the medicine pipeline (Table II). Faculty, fellowship program directors, and A/I leadership should advocate for, develop, and implement educational and clinical curricula for medical students and internal medicine and pediatric trainees, like those available online through AAAAI. Second, institutions should routinely provide training opportunities for students or residents if they do not have A/I exposure, providing opportunities to residents in underserved areas and underrepresented in medicine (URM) residents to facilitate heterogeneity in the workforce and health access initiatives. Third, a repository of standardized curricula for implementation of rotations at any institution should be leveraged to optimize the A/I experience for learner.

Another opportunity includes inserting A/I into consultations in the inpatient setting, where students and residents encounter some of the most intriguing clinical cases, which inspire them to choose a field of practice. This provides an opportunity for academic faculty to actively engage learners by teaching and providing expert clinical contributions. Finally, the educational mission can be augmented by applying/incorporating artificial intelligence tools in didactic and clinical education at all training levels (Table II). In AMCs without A/I divisions/subdivisions, virtual training opportunities can be implemented. Competency-based medical education should be embraced by prioritizing A/I competencies and development of future faculty.

RESEARCH

Strengths

Significant strengths of A/I divisions/subdivisions exist in robust partnerships across institutions (Table IV). Such efforts of consortia in the areas such as asthma, immune tolerance, and food allergy are resulting in progress, and young investigators are often included as part of these teams. This helps engage junior faculty and provides additional resources. There is also a general trend for increasing interest in research careers of medical students and an increase in first R01 grants to physician-scientists.[34] Further, while a small percentage (1.3%) of graduating MD-PhD residents choose to enter an A/I fellowship program, a large percentage (78%) of these allergy MD-PhDs remain in academia compared to other specialties.[35] The growth in biologic treatments and understanding the basic mechanisms of the immune system are significant strengths in the A/I division/subdivision.

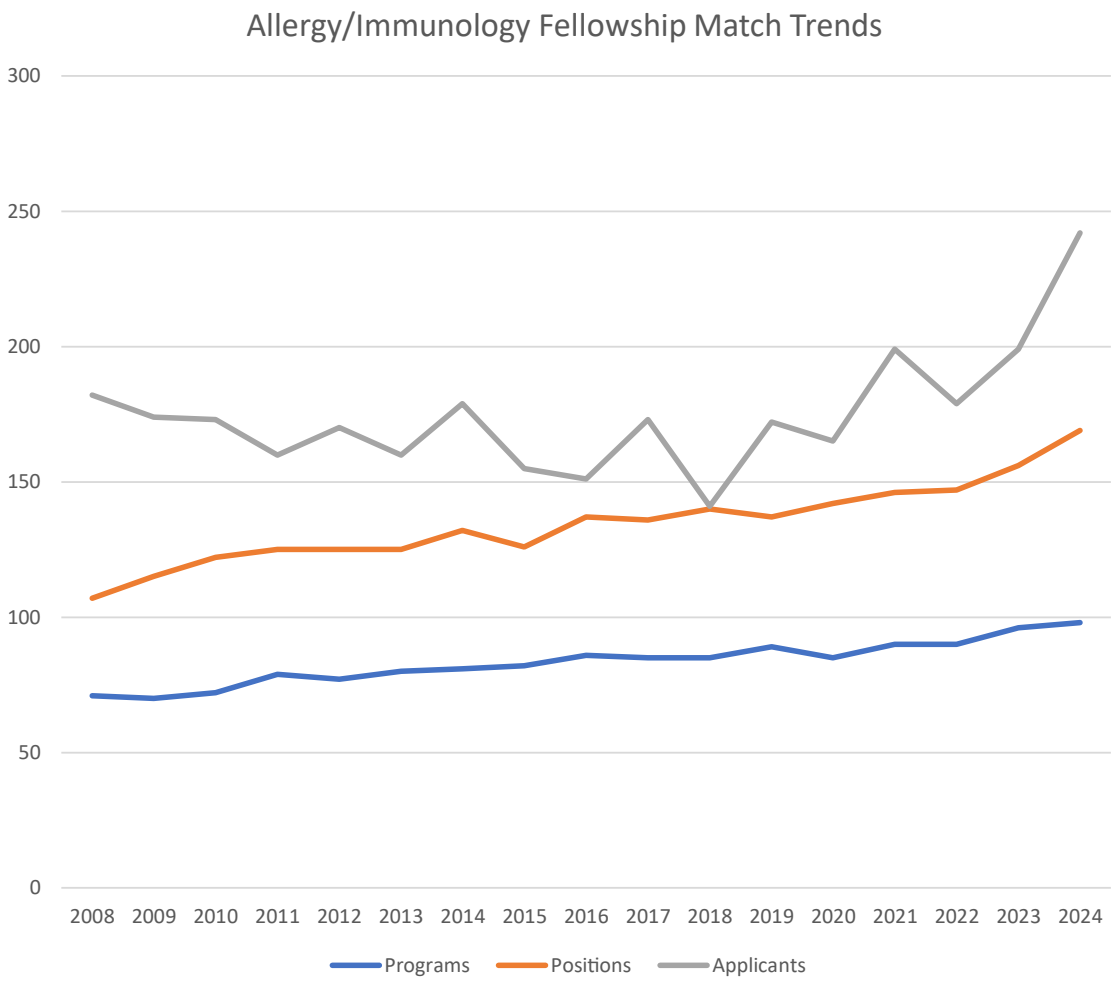

FIG 2. Trend in A/I fellowship programs, fellowship program positions, and applicants per year since 2008. Increase in applicants over past 5 years has outpaced creation of new programs or positions, leading to increase in unmatched applicants year over year.

In addition, the breadth of the patient population and the impact of social determinants of health and climate change on the diseases evaluated by allergist/immunologists provide a rich source of research material. Finally, within the field there are institutions with strong research-focused A/I divisions/subdivisions that could provide guidance and direction for those divisions/subdivisions whose research is less well established.

Weaknesses

Within the A/I division/subdivision there are some weaknesses that threaten or impair the research endeavor (Table IV). The pipeline to participating in allergy research starts with training and exposure. A/I is underrepresented in medical schools,[36] and a number of A/I training programs do not have a dedicated research year. In fact, the Accreditation Council for Graduate Medical Education (ACGME) only allows for 6 months of research rather than an entire year.[35] National Institutes of Health (NIH) training T32 grant funds, which may provide an additional research year, are competitive and only held by a subset (~37) of the 88 institutions with A/I fellowship programs, and most of these T32 grants are not in A/I divisions.[37,38] This is compounded by an aging investigator pool,[39] a rising median age of first R01 funding (45 years),[40] and fewer early-career awards being awarded to MD physicians.[34] In addition to workforce concerns, there are deficits in clinical translational research, with underrepresentation of Black and Hispanic individuals in research, limiting applicability to the very populations most affected by asthma and other atopic disease.[41,42]

Threats

Several significant risks threaten the research mission of an A/I division/subdivision. These threats include financial cuts in research grants for A/I physicians, the creep of clinical responsibilities into the research arena, increased uncompensated time dedicated to electronic record notes leaving less time for research activity participation, declining NIH funding, and recent proposals to decrease the indirect rates overall to medical institutions (Table IV). The NIH salary cap is substantially lower than clinical pay at many AMCs, leading to financial losses for the division or faculty member. The increasing focus on the monetization of health care in academic institutions has negatively affected interest in research. Increasing overhead rates for AMC clinical research makes it more difficult for A/I divisions/subdivisions to be selected for phase 3/4

TABLE IV. Research mission

Strengths	● Robust partnerships across institutions. ● General trend for increasing interest in research careers of medical students. ● Growth in biologic usage and understanding basic mechanisms of immune system. ● Impact of social determinants of health and climate change as research topics. ● Strong research-focused A/I divisions in field.
Weaknesses	● Underrepresentation of A/I in medical schools. ● Only 6 months' training allowed by ACGME in training programs. ● T32 research grants to fund research are competitive and not guaranteed. ● Underrepresentation of Black and Hispanic individuals to perform clinical translational research.
Threats	● Creep of clinical responsibilities into research arena. ● Increased uncompensated time dedicated to electronic record notes. ● Declining NIH funding due to financial cuts in research grants for A/I physicians and diseases. ● NIH salary cap is substantially lower than clinical pay. ● Increasing overhead rates for clinical research and recent proposals to decrease indirect rates overall to medical institutions.
Opportunities	● Take advantage of robust research infrastructure. ● Interdisciplinary collaboration and partnership with divisions with robust research division through institutions and professional organizations. ● Electronic medical record databases that grow clinical research. ● Limitation of strict NIH funding criteria for promotion. ● Increase research exposure to science for trainees through institutions and professional organizations. ● National societies and physicians that advocate and lobby for increased research funding and overhead best practices through professional organizations.

pharmaceutical studies. In addition, some institutions impose an additional substantial "tax" or take a cut of the residual funds from industry trials. These funds are used for administrative tasks instead of the originally intended research. A trend toward increased oversight and managerial layers slows down or even prevents clinical studies from being undertaken. Dedicated clinical/bench researchers are threatened by the potential for continued (or worsening) federal grant pay lines. Because of limited support, researchers often leave academia to move into industry, eroding divisional research capabilities and mentorship. As researcher numbers decrease, the overall institutional infrastructure for research withers. Finally, the continued reduction in new allergist/immunologists who want to perform research further erodes the pipeline for physician-researchers.

Opportunities

A/I divisions/subdivisions have several opportunities related to research activities (Table IV). First, they are located within AMCs, which typically have a robust research infrastructure. Division members can partner and work with other academic units to further their research efforts through interdisciplinary collaboration. Appropriate infrastructure should exist to allow smaller academic units to undertake clinical research projects. Facilities and equipment to collect and store biospecimens can be made available in satellite clinic locations to facilitate research. AMCs, as a referral center from community practitioners, tend to see rare, unusual cases. This provides an opportunity to develop research around these less well-studied conditions and access to a much larger patient population than seen in community practice. AMC electronic medical record databases are larger and more easily queried. These provide strong opportunities to grow additional clinical research activities and to use artificial intelligence methods. The ability to form partnerships and collaborations within and without the parent institution is another opportunity that can extend the basic and clinical research capabilities of a division/subdivision through mentorship relationships. Given the increasing difficulty and uncertainty of NIH funding, strict overreliance in NIH funding should be avoided for promotion decisions for junior faculty. Advocacy for continued NIH research funding should be expanded to support research efforts in the A/I divisions/subdivisions and to grow an unbiased US health care research enterprise.

A/I divisions/subdivisions should develop and grow their research endeavors. To this end, we recommend working to increase the pipeline of researchers in divisions by encouraging increased research exposure in fellowship and exposing fellows and junior faculty to mentors and group-based science (including outside of traditional A/I research). National societies can help by advocating and lobbying for increased research funding and helping to determine best practices that can be used to argue for reduced institutional overhead charges (ie, indirect costs) utilized for nontransparent administrative costs while at the same time increasing support for divisional research activities. Through attention to these issues (and those outlined above), even small A/I divisions/subdivisions can develop and grow impactful research programs that will not just benefit faculty and trainees but also patients and their families.

HEALTH EQUITY

Strengths

The strength of A/I divisions/subdivisions includes the commitment to delivering effective health care to all patients, irrespective of socioeconomic status, race, ethnicity, or sexual orientation (Table V). This approach allows divisions/subdivisions to focus on providing quality care to all populations regardless of the financial reimbursement. Because A/I diseases affect

TABLE V. Health equity mission

Strengths	● Commitment to delivering effective health care to all, regardless of financial reimbursement. ● A/I patient base is growing in heterogeneity, which provides an ideal environment to train heterogeneous workforce. ● A/I divisions have encouraged historically marginalized students in medical school and residency programs to pursue field.
Weaknesses	● Severe scarcity of heterogeneous people in physician workforce, with ~50% less representation compared to US population. ● Higher burden of allergic disease in historically marginalized communities. ● Poorer outcomes for historically marginalized communities.
Threats	● Higher incidence and prevalence of A/I diseases and poorer outcome in heterogeneous, marginalized populations. ● Disparities across several measures, including delayed/missed diagnoses, limited access to health care and specialized treatments, and restricted or delayed access to specialists. ● Limited research on implementation research to mitigate impact of redlining. ● Public insurance poor reimbursement rates. ● Low health care worker availability.
Opportunities	● Holistic support of applicants to fellowship programs. ● Support for advancement, professional development, retention, and grant acquisition efforts of faculty from marginalized communities by institutional and professional organizations. ● Partnerships with primary care physicians to improve referral process and disease management of at-risk patients. ● Recruitment of all populations into clinical trials through community connections by institutions. government, and industry organizations. ● Establishment of satellite clinics that serve marginalized communities. ● Incorporation of heterogeneous, supportive staff to all efforts.

the general population broadly and have been increasing in prevalence, the A/I patient base is growing in heterogeneity along with the US population. This heterogeneous patient population provides an ideal environment to train a heterogeneous workforce. Indeed, A/I divisions/subdivisions have embraced the mission of increasing the heterogeneity of the A/I workforce by encouraging those of lower socioeconomic status and those who are URM in medical school and residency programs to pursue research, clinical, and leadership careers in A/I .

Weakness

A major weakness of academic A/I divisions/subdivisions, and the field in general, is the severe scarcity of historically minoritized people (URMs) in the medical workforce, with ~50% less representation compared to the US population (Table V).[43-45] The higher burden of allergic disease in historically marginalized communities,[45-48] along with poorer outcomes, make the underrepresentation of minority physicians in the A/I workforce an urgent and critical issue to address.

Threats

Threats to achieving health access in A/I include the higher incidence and prevalence of A/I diseases and poorer outcome in rural and minoritized communities (Table V). For example, hospitalization rates for asthma are inversely related to household income.[46] Asthma with recurrent exacerbations is more common among Black children compared to children of other races.[46-48] Asthma exemplifies these inequities, but recent data also highlight disparities in eczema, inborn errors of immunity, anaphylaxis, and food allergy.[49-52] These differences are seen across several measures, including delayed or even missed diagnoses, limited access to health care and specialized treatments, and restricted or delayed access to specialists, resulting in increased morbidity and mortality.

The burden and outcome of allergic diseases are greatly affected by social determinants of health, including socioeconomic status and environmental exposures that are exacerbated by geographic redlining, a process of drawing boundaries around neighborhoods according to the race of its residents, then depriving them of resources and opportunities.[53] Redlining contributes to disparities in air quality, housing conditions, access to healthy food, and green spaces, all of which affect the prevalence and severity of allergic diseases.[54]

Access to health care is a significant challenge, with patients from lower socioeconomic backgrounds often facing barriers to receiving timely and appropriate care (Table V).[45,46,52] These barriers include state insurance plans (eg, Medicaid) not reimbursing enough to cover the cost of care so private physicians can care for only a limited number or no low-income patients. Public insurance plans set inflexible limits to prevent certain allergy testing and make advanced therapies difficult to access for the patients who need them to prevent the poorest outcomes. The availability of culturally competent health care workers is even more limited, and finding specialists with appropriate cultural backgrounds is particularly difficult.[44] These factors are essential for effective communication, patient education, and adherence to treatment plans, which are critical for the overall management of allergic diseases in all populations.

Opportunities

Academic A/I divisions/subdivisions have an opportunity to reshape the A/I health care environment to better serve all members of our society. Access to specialized care remains a challenge despite broader insurance coverage (Table V). In addition, historically marginalized groups are underrepresented in clinical trials for biologic drug development.[44,45] A/I divisions/subdivisions engaged in clinical trials can address these issues by proportionately recruiting underrepresented, historically marginalized groups into clinical trials.

There are numerous opportunities that academic A/I programs can leverage to decrease the inequity of A/I health care. In the long term, enhancing workforce heterogeneity is essential by including individuals who are Black or African American, Hispanic/Latino, Native Hawaiian or Pacific Islander, and American Indian or Alaska Native in recruitment efforts. The rise in tuition-free medical school programs may increase applicants from URM groups. Academic A/I divisions/subdivisions should focus on recruiting, mentoring, and supporting URM fellows, helping them to join and lead A/I programs. Additionally, divisions/subdivisions should support URM fellows in their academic advancement, professional development, retention, and grant acquisition efforts. In the short term, partnering with primary care physicians, especially those URMs, can improve referral processes and help manage disease burden more effectively.

Establishing satellite clinical programs in hospitals and health care centers that serve minority populations can enhance their access to A/I specialists. Academic A/I divisions/subdivisions also have the opportunity to develop multidisciplinary clinics with other specialties to provide state-of-the-art care and precision medicine to all patients. Additionally, incorporating heterogeneous, supportive staff like social workers, community health workers, dietitians, and psychologists can further enhance comprehensive disease management and patient care.

ADVOCACY MISSION

Strengths

All A/I divisional mission areas in the AMC would benefit from physician advocacy, and the impact of these efforts could benefit all areas of academic medicine (Table VI). Advocacy will always be integral because legislation and federal and state regulations dictate teaching hospital reimbursement, research funding, and educational policies. Advocacy has preserved our ability to practice through demonstration of standards in our field through practice parameters. Both the AAAAI and ACAAI professional organizations have strong emphasis on advocacy and have specific divisions or councils dedicated to it, like the Joint Task Force on Practice Parameters, founded in 1989.

Academicians must be engaged in investigating the role of advocacy in preserving the clinical, educational, research, and equity mission areas in teaching hospitals and clinics. For the clinical mission, legislation has become increasingly important in determining the quality of medical care and access to services and testing for A/I patients. Advocacy should be utilized to advocate for sufficient coverage of specialist services and is an important part of determining A/I practice income.

Weaknesses

It has been >15 years since the Joint Council of Allergy, Asthma, and Immunology (JCAAI) published the role of advocacy as it relates to practice.[55] Physicians are uniquely positioned to affect policy implementation to the benefit of patient outcomes. However, most physicians have not had sufficient training and experience in health policy and advocacy to be optimally effective in this vital role (Table VI).[56] It is especially important in our specialty to achieve health equity and access to our services for all patients.[57,58]

Threats

Prior authorization for testing for some patients can add an administrative burden and may delay testing and thus treatment if it is not done in a timely manner. Recently, 3 states (Illinois, Louisiana, and California) passed laws designed to improve their residents' access to cancer biomarker testing. Academic physicians should be aware of these laws and engage in efforts to promote patient access to services alongside private physicians (Table VI).[59] The recent AAAAI president's preauthorization task force participated in advocacy to engage governmental entities to address this administrative burden. This is one example of the need to address AMC funding via advocacy.[60,61] The American Board of Internal Medicine, American College of Physicians, American Academy of Pediatrics, and American Medical Association, among other organizations, have called for a commitment to advocacy from every physician.[62]

Opportunities

There are several opportunities supported by professional organizations (Table VI). For the educational mission, ACGME implemented health policy and advocacy requirements across all specialties, with milestones for A/I fellowship training as Systems-Based Practice: Physician Role in Health Care Systems.[59,63] Courses are being implemented in medical school curricula, and this will be an important field in the future for academic physicians.[64] Pediatricians and internists have promoted the incorporation of advocacy policy programs and medical education curricula. The Academic Pediatric Associations' Health Policy Scholars met with the government relations team in their affiliated institutions as part of their experiential learning curriculum.[65] Graduate medical education funding should grow through these advocacy efforts.

For the research mission, graduate medical education and NIH funding are important topics for advocacy efforts from A/I physicians in collaboration with national organizations like the AAAAI and ACAAI. Institutional offices of governmental relations can also play an important role, with benefits to both the office and physicians that include improved knowledge of advocacy opportunities, enhanced advocacy efforts leveraging physicians' expertise and patient stories, message alignment, and amplification of physician and institutional advocacy work. With orientation and mentorship, physician advocacy will facilitate improved institutional and governmental policies. In the AMC, advocacy collaborative efforts between physician-advocates and institutional offices of governmental relations should be pursued.

SUMMARY

The current states of the clinical and educational mission areas in the AMC in A/I are strong, with an increasing prevalence of atopic/immunologic disorders, novel therapeutics, solid trainee interest, and tremendous potential for research, equity, and advocacy efforts. Weaknesses and threats include changing health care insurance policies, decreasing NIH funding, the dynamic legislative environment, and the negative impact of the business focus in academic institutions. The future of A/I depends on us to take advantage of the opportunities we describe here to ensure the strength of our specialty and the health of the nation. Opportunities to preserve the benefits of a strong academic foundation for our specialty will result in better recruitment to academic positions, with greater incentives for developing career

TABLE VI. Advocacy mission

Strengths	● Advocacy preserves ability to practice through demonstration of field's standards through practice parameters. ● Both AAAAI and ACAAI have strong emphasis on advocacy through Joint Council of Allergy, Asthma, and Immunology. ● Physicians are uniquely positioned to affect policy implementation to benefit patient outcomes. ● Recent prior-authorization advocacy efforts through preauthorization task force.
Weaknesses/Threats	● Limited engagement of A/I physicians in advocacy. ● Lack of literature regarding successful advocacy efforts. ● Lack of awareness of laws affecting patients and practices. ● Limited partnership with private physicians to engage in advocacy.
Opportunities	● A/I physicians can join advocacy efforts of national organizations like AAAAI and ACAAI. ● Participation in developing practice parameters to drive policy through Joint Task Force on Practice Parameters, supported by AAAAI and ACAAI. ● Implementation of advocacy courses in medical school and resident curricula supported by professional organizations. ● Partnership with institutional OGRs to improve knowledge of advocacy opportunities, enhance advocacy efforts leveraging physicians' expertise and patient stories and message alignment with support by local and national professional organizations. ● Collaborations between physician advocates and institutional OGRs.

OGR, Office of governmental relations.

opportunities in research and education, utilizing artificial intelligence tools, and creating strong advocacy strategies.

DISCLOSURE STATEMENT

Supported in part by National Institute of Allergy and Infectious Diseases grant 1U01AI170836 (to A.H.N.-W.) and by National Institutes of Health–National Heart, Lung, and Blood Institute grants (R01HL156277 and R01HL159701 to T.Z.).

Disclosure of potential conflict of interest: C. M. Davis discloses, outside the current report, support from Novartis, Genentech, Takeda, and Allergy and Asthma Network; and service as director of the AAAAI board. C. Akin discloses, outside the current report, clinical trial support and consultancy for Blueprint Medicines, Cogent, and Telios; and consultancy for Novartis. T. Carr discloses, outside the current report, royalties from UpToDate and Wolters Kluwer; and consulting for Apogee Therapeutics, GSK, Novartis, and AstraZeneca. R. L. Fuleihan discloses, outside the current report, consultancy for Grifols, Takeda, and Pharming. M. H. Grayson discloses stock options in Invirsa; and service as editor-in-chief of *Annals of Allergy, Asthma & Immunology,* adjudication panel member for Bayer, director of the Asthma and Allergy Foundation of America (AAFA), chair of the AAFA medical scientific council, and member of the American Lung Association scientific advisory committee. S. Gupta discloses consulting for Avilar; and acting as site PI for clinical trials from Takeda and Octapharma. A. H. Nowak-Wegrzyn discloses, outside the current report, research support from the National Institutes of Health–National Institute of Allergy and Infectious Diseases, DBV Technologies, and Siolta Therapeutics; speaking fees from Nestlé, Danone, and Thermo Fisher Scientific; royalties from UpToDate; and service as associate editor for *Annals of Allergy, Asthma & Immunology,* chair of ABAI board of directors, director of the AAAAI board, and chair of the medical advisory board of the International FPIES Association. The rest of the authors declare that they have no relevant conflicts of interest.

We thank Katie Tezlaff and Phyllis Carothers for their expert administrative assistance.

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