

Creating a New National Workforce for Internal Medicine

**American College of Physicians
A Position Paper
2006**

Creating a New National Workforce for Internal Medicine

A Position Paper of the
American College of Physicians

This paper, written by M. Renee Zerehi, was developed for the Health and Public Policy Committee of the American College of Physicians: Jeffrey P. Harris, MD, *Chair*; David L. Bronson, MD, *Vice Chair*; CPT Julie Ake, MC, USA; Patricia P. Barry, MD; Molly Cooke, MD; Herbert S. Diamond, MD; Joel S. Levine, MD; Mark E. Mayer, MD; Thomas McGinn, MD; Robert M. McLean, MD; Ashley E. Starkweather, MD; and Frederick E. Turton, MD. It was approved by the Board of Regents on 3 April 2006.

Creating a New National Workforce for Internal Medicine: Recommendations of the American College of Physicians

April 3, 2006

Executive Summary

This position paper highlights the looming crisis in the supply of primary care physicians, particularly the pending undersupply of general internists and the potential impact on the health care of the United States population. There has been a steady decline of medical students and residents pursuing careers in primary care specialties including general internal medicine. At the same time, many of those already in practice are nearing retirement and others are under such stress that they are looking for an exit strategy. Unless steps are taken now, there will not be enough general internists to take care of an aging population with growing incidences of chronic diseases. Without general internal medicine, the health care system will become increasingly fragmented, over-specialized, and inefficient—leading to poorer quality care at higher costs. Immediate steps must be taken to reverse the decline in interest in careers in primary care, including general internal medicine, and improve the payment and practice environment of existing primary care physicians.

The American College of Physicians (ACP) is the nation's largest specialty society, representing 119,000 internal medicine physicians (internists) and medical students. Internists specialize in the prevention, detection and treatment of illness in adults. Our membership includes physicians who provide comprehensive primary and subspecialty care to tens of millions of patients, including taking care of more Medicare patients than any other physician specialty. The College is especially concerned about the impending crisis in the supply of general internists and calls for the following changes in order to preserve a specialty so vital to the physician workforce:

Position 1: A national health care workforce policy is needed to reverse the impending collapse of primary care medicine.

Position 2: A national health care workforce policy should support the complimentary but different roles played by general internists and family physicians.

Position 3: A national health care workforce policy should propose comprehensive measures to make it more attractive for physicians to choose primary care, directed at the times (1) medical students decide whether or not they will go into an internal medicine or family medicine residency programs and (2) internists complete their initial training and choose whether to go into subspecialty, hospital, or office-based primary care medicine. Such measures must include: changes in reimbursement policies that undervalue the contributions of primary care physicians; relief from high levels of student debt; and changes in medical education to expose medical students and residents to positive educational and practice experiences in well-functioning office-based primary care practices.

Position 4: A national health care workforce policy should recognize and support the critical roles played by internal medicine subspecialists, hospitalists and geriatricians in meeting the needs of an aging population with multiple chronic diseases.

Position 5: This policy should increase the number of physicians trained in general internal medicine and who are prepared to practice in new practice models that are centered on patients' needs and that incorporate the elements of the chronic care model.

Position 6: A national health care workforce policy should support the role of nurse practitioners and physician assistants within collaborative teams that assign overall responsibility and accountability for care to the patient's personal physician.

Position 7: A national health care workforce policy should address the contributions of international medical graduates in meeting current and anticipated needs of the patient population.

Creating a New National Workforce for Internal Medicine:
Recommendations of the American College of Physicians

The United States is in the midst of a health care crisis that is expected to worsen over the next several years. The population is aging and is becoming increasingly diverse. Chronic care conditions have increased and the cost of care continues to rise at an unsustainable rate. These factors have already impacted access to care, health care quality, and health disparities, and may be exacerbated in the future by a looming crisis in the physician workforce.

The College is very concerned that if current trends continue as the U.S. population ages, there will not be an adequate supply of well-trained primary care physicians to meet the nation's growing health care needs.¹ ACP is particularly concerned about the adequacy of the supply of general internists who provide care in outpatient settings. Some general internists are choosing to leave internal medicine, while others near retirement, are choosing to retire earlier than planned.² Simultaneously, there has been a precipitous decline in the number of medical students and residents choosing to pursue careers in office-based general internal medicine. If this trend continues, a shortage of primary care physicians will likely develop more rapidly than many now anticipate.

ACP calls on the federal government, large employers and other purchasers, health plans and the medical profession itself to take immediate action to create a comprehensive national health care workforce policy. The U.S. currently does not have national policies to guide the training, supply and distribution of health care providers. Unlike the U.K. and Canada, which have single-payer systems that give government the leverage to manipulate the healthcare workforce supply, including controlling both training capacity and employment opportunities, comprehensive planning for the health professions in the

U.S. would require coordination and planning among many different funding sources. Nevertheless, all stakeholders must be involved in coordinated workforce planning to improve health care quality, access to care, curb rising health care costs, and to provide incentives to help ensure an adequate supply of primary care physicians. A comprehensive national health care workforce policy would have multiple goals. This paper will focus on key elements that must be included in such a policy to ensure an adequate supply of well-trained primary care physicians.

This paper is one in a series of five papers being developed by the College to fundamentally change the way health care is provided in the United States. A paper on linking payments to quality includes specific recommendations on how pay-for-performance measures can improve quality and recognize the value of care provided by internists.³ A third paper on the Advance Medical Home offers a new model for financing and delivering care in which physician practices would be organized to provide ongoing care through a personal physician connected to a team of health care professionals and using evidence-based guidelines and applying appropriate health information technology to meet the needs of patients while being accountable for the quality and value of care provided.⁴ The fourth paper proposes redesigning medical education to better prepare medical students and trainees for practice in ambulatory care settings.⁵ A fifth paper will provide a comprehensive set of recommendations for reforming dysfunctional physician payment policies.⁶ Together, these papers provide a comprehensive vision for reforms that are centered on patients' needs and that recognize the critical role of internal medicine in meeting those needs.

Position 1: A national health care workforce policy is needed to reverse the impending collapse of primary care medicine.

For the past two decades, most workforce analyses, including those by the federal Graduate Medical Education National Advisory Committee (GMENAC) in 1980⁷ and subsequent reports by the Council on Graduate Medical Education (COGME), pointed to an impending national *surplus* of physicians. They recommended limits on medical school enrollment and caps on graduate medical education (GME) training slots. However, the expected surplus never materialized, and instead, there are *shortages* in some areas of the country. COGME now predicts that there will be a shortage of 65,000 to 150,000 physicians in 2020, and recommended a 15% expansion of medical schools and an increase in the number of residency positions.⁸

The numbers and types of health care professionals being trained are largely determined by the availability of training programs, the number of applicants, and inpatient service needs of academic medical centers. But, institutional service needs are a poor indicator of national health workforce requirements, particularly as patient care has continued to shift from inpatient to outpatient settings. The nation needs sound research methodologies embedded in its workforce policy to project the supply and distribution of physicians in the United States. In addition, the reasons for predicted shortages must be analyzed and addressed in order to protect the nation's need for physicians, particularly physicians best-suited to provide care in areas where demand will be the highest. Past projections

have been inaccurate, and there is no current consensus on future needs.⁹ Consequently, some advise a cautious approach.¹⁰ Accordingly, this paper highlights the need for an overall national workforce policy and emphasizes the need to address the most pressing problem of assuring an adequate supply of primary care physicians. It does not propose specific targets for increasing the number of primary care physicians nor the overall supply of physicians.

The ACP has considered the option of increasing the number of students entering medical schools to increase the supply of physicians, but concluded that increasing the overall pool of physicians would not assure that adequate numbers enter and remain in practice in primary care. Instead, ACP recommends a more targeted approach, recognizing the nation's increasing demographic demands for health care and the prospect of a dwindling supply of primary care physicians.

ACP is alarmed that primary care medicine is near collapse. General internists are leaving practice sooner than other physician specialties at the same time that fewer medical students are choosing to make the practice of general internal medicine and primary care their central career goal. Approximately 21% of physicians who were board certified in the early 1990s have left internal medicine, compared to a 5% departure rate for internal medicine subspecialists.¹¹ General internists are faced with excessive administrative burdens, high patient loads, and declining revenues coupled with increasing costs for providing care. As a result, many are choosing to retire early, and others who are approaching retirement age are reducing their workloads as an alternative to retirement.

Medical students and residents are not only discouraged by the experiences of their mentors, but inundated with debt. Deterred by the prospects of a bleak practice environment and lower earnings potentials, the number of medical students and residents choosing to pursue careers in general internal medicine are declining at alarming rates. (See Table 1) The number of third-year internal medicine residents choosing to pursue a career in an internal medicine subspecialty or other specialties has risen each year for the past eight years, while the percentage choosing careers in general internal medicine has steadily declined. In 2005, only 20% of third-year internal medicine residents intended to pursue careers in general internal medicine, down from 54% in 1998.¹² Even more disheartening, only 13% of first-year internal medicine residents intend to pursue general internal medicine.¹² For some students, internal medicine has become a less competitive "fall back" option rather than a true career choice.¹³

This decline is occurring at exactly the same time when the evidence suggests that the need for primary care physicians, who can provide the coordination and management services needed to treat chronic illnesses for adults, will continue to rise, due to an aging population and more patients with complex chronic diseases. In 2000, physicians spent an estimated 32% of patient care hours providing services to adults age 65 and older. If current utilization patterns continue, it is expected that by 2020, almost 40% of a physician's time will be spent treating the aging population.¹⁴

General internists are at the forefront of managing chronic diseases, providing comprehensive and coordinated long-term care. Their services are critically important to the changing demands in U.S. health care. Approximately 133 million people in the United States are currently living with one or more chronic conditions.¹⁵ Furthermore, almost 50% of Americans with a chronic condition have multiple chronic conditions.¹⁶ Between 2000 and 2030, the number of Americans with chronic conditions is expected to increase by 37%, an increase of 46 million people.¹⁵ In addition, due to medical and technological advances, many people are now surviving conditions or injuries that were previously fatal.¹⁷

A collapse of primary care will result in higher expenditures and lower quality. Studies have shown that primary care has the potential to reduce costs while still maintaining quality.¹⁸ States with higher ratios of primary care physicians to population have better health outcomes, including mortality from cancer, heart disease or stroke.^{19 20} Studies have shown that states with more specialists have higher per capita Medicare spending. Conversely, an increase in primary care physicians is associated with a significant increase in quality of health services, as well as a reduction in costs.²¹

The supply of primary care physicians is also associated with an increase in life span.²²²³ The preventive care that general internists provide can help to reduce hospitalization rates.²⁴ In fact, studies of certain ambulatory care-sensitive conditions have shown that hospitalization rates and expenditures are higher in areas with fewer primary care physicians and limited access to primary care^{25 26}.

Position 2: A national health care workforce policy should support the complementary but different roles played by general internists and family physicians.

The training and care that family physicians and general internists provide are distinctly different. Family physicians are trained to diagnose and treat a wide variety of ailments in patients from children to old age. Family physicians receive a broad range of training that includes internal medicine, pediatrics, obstetrics and gynecology, psychiatry, and geriatrics. Special emphasis is placed on prevention and the primary care of entire families, utilizing consultations and community resources when appropriate.²⁷

General internists provide long-term, comprehensive care in the office and the hospital, managing both common and complex illness of adolescents, adults, and the elderly. Internists receive in-depth training in the diagnosis and treatment of conditions affecting all organ systems. They are also trained in the essentials of primary care internal medicine, which incorporates an understanding of disease prevention, wellness, substance abuse, mental health. Internists' training is solely directed to care of adult patients; consequently internists are especially qualified to take care of adult and aged patients with multiple complex chronic diseases.

The ability of general internists to provide preventive care and early treatment is essential in reducing health care costs and enhancing the quality of care. One of the hallmarks of general internal medicine is the ability to care for a patient from adolescence to old age. Both patients and physicians value the relationship they build throughout the years.²⁸ Of all the attributes of primary care physicians valued by patients, continuity ranks among the highest.^{29 30}

The declining interest of medical students and residents in pursuing careers in both family medicine and internal medicine is alarming. The College recognizes that the U.S. must take steps to preserve both disciplines and improve the attractiveness of primary care careers; however this paper will focus primarily on internal medicine.

Position 3: A national health care workforce policy should propose comprehensive measures to make it more attractive for physicians to choose primary care, directed at the times (1) medical students decide whether or not they will go into an internal medicine or family medicine residency programs and (2) internists complete their initial training and choose whether to go into subspecialty, hospital, or office-based primary care medicine. Such measures must include: changes in reimbursement policies that undervalue the contributions of primary care physicians; relief from high levels of student debt; and changes in medical education to expose medical students and residents to positive educational and practice experiences in well-functioning office-based primary care practices.

Achieving an adequate supply of internists in both ambulatory and hospital settings will require gaining a better understanding of the factors that influence the career choices of medical students and internal medicine trainees, and implementing measures to make office-based general internal medicine equally attractive with subspecialty and hospital medicine.

The emergence of hospitalists (physicians whose practice emphasizes providing general medical care for hospitalized patients³¹) in the mid 1990s resulted in further career branching within internal medicine. While many internists continue to practice in both office and hospital settings, others defer all inpatient care to hospitalists. 85% of practicing hospitalists are trained in internal medicine, and 5% have completed subspecialty fellowships.³² The percentage of third-year internal medicine residents intending to become hospitalists increased from 0% in 1998 to 12% in 2005. With the rapid growth of hospital medicine, even fewer general internal medicine residents are choosing to practice in the ambulatory care setting. Hospitalists can play a considerable role in the care of hospitalized patients, but there must be an adequate supply of general internists practicing in both ambulatory and hospital settings. An adequate supply of internists in ambulatory settings is needed to provide comprehensive, longitudinal care to these patients once they are discharged from the hospital. Expanding the number of physicians trained in general internal medicine will be important to assure a strong base of office-based general internists and support the growth of the field of hospital medicine.

High levels of student debt coupled with inequitable and dysfunctional payment policies are also key drivers behind the decline in the number of physicians going into primary care. Over 80% of graduating medical students have educational debt. Medical education debt was 4.5 times as high in 2003 as it was in 1984, far outpacing increases in the consumer price index. The median educational debt burden for graduates of public medical schools now tops \$100,000, and the median debt for graduates of private schools is \$135,000. About 5% of all medical students will graduate with debt of \$200,000 or more. Students with large debts are much more likely to be influenced by debt in their career choices. Those students with debt that exceed \$150,000 are the least likely to select a primary care residency.³³ Because of high student debt, many internists who otherwise might consider going into office-based primary care may instead choose to go into subspecialties that offer higher anticipated career earnings, allowing them to pay off their accumulated debt more rapidly.

Measures to reduce the burden of student debt should include:

- An expansion of federal loan repayment programs, particularly those that encourage careers in primary care, such as Title VII's Primary Care Loan Program and the National Health Service Corps.
- New loan repayment and forgiveness programs that provide incentives for pursuing careers in primary care. For example, loan repayment or forgiveness for physicians who agree to dedicate a certain portion of their practice to Medicare and Medicaid patients, or for caring for the uninsured.
- Deferment of educational loan repayment until after completion of postgraduate training and an expansion of the tax -deductibility of interest on educational loans by removing or raising existing income caps.

Medicare, as the single largest purchaser of health care in the United States, has a particular responsibility to replace policies that are antithetical to primary care with ones designed to encourage and support its central importance. In January 2006,³⁴ ACP issued a report that outlined a series of recommendations on reforming Medicare payment policies so that physicians engaging in primary care can receive reimbursement that is commensurate with the value of their contributions. The recommendations included new models for paying physicians for coordination of care of patients with chronic diseases, increased payment for office visits and other evaluation and management services, separate payment for email consultations for non-urgent health issues that can reduce the need for face-to-face visits, and additional payments to physicians who use electronic health records to improve quality. Reducing existing income disparities would make the field more attractive and increase the number of physicians entering and continuing practice in primary care specialties.

The education and training of general internists are a central part of preparing to meet the future health care needs of the United States. For the past several years, leaders in academic internal medicine have become increasingly concerned about whether

residency training is appropriately designed to prepare internists for practice. In September 2005, ACP developed a set of principles and goals for redesign of training in internal medicine ACP calls for:

- Increased exposure to the ambulatory care setting, in a practice environment that demonstrates the satisfaction to be gained from providing ongoing care to patients.
- Recognition of the importance of team-based care in both outpatient and inpatient settings and to prepare general internists to function as integral members of a health care team.
- Providing graduating residents with the skills necessary to effect organizational and practice-based change and to be team leaders.
- Explicit funding for internal medicine residency programs that demonstrate an increase in production of general internists.

Position 4: A national health care workforce policy should recognize and support the critical roles played by internal medicine subspecialists, hospitalists and geriatricians in meeting the needs of an aging population with multiple chronic diseases.

Internists can choose to focus their practice on general internal medicine or may complete a fellowship to subspecialize or earn a certificate of added qualification in one of 13 areas of internal medicine. (See Table 2) Both the general internist and the internal medicine subspecialist play an important role in the care of adult patients. General internists have the knowledge and depth of experience to play a central role in the primary care of adults, serving as the patient's first contact and a provider of comprehensive, continuing, evidence-based care that involves the development and maintenance of a sustained and trusting patient-physician relationship. The internal medicine subspecialist provides expertise in areas including adolescent medicine, allergy/immunology, cardiology, endocrinology, gastroenterology, geriatrics, hematology, infectious disease, nephrology, oncology, pulmonology, rheumatology and sports medicine. Multiple or complex conditions require a partnership between the primary care physician and the relevant subspecialist. In some cases, the subspecialist may be best suited to provide both the primary and subspecialized care of a patient with a complex condition.

While specialists have expertise and skills to best care for patients with certain illnesses and complications, primary care physicians have been shown to deliver care similar in quality to that of specialists for conditions such as diabetes and hypertension while using fewer resources.³⁵

Workforce policy should recognize that the majority of elderly patients can be treated by a general internist or family physician who has knowledge and training in the care of elderly patients but has not received a certificate of added qualifications in geriatric

medicine. At the same time, more geriatricians, because of their unique qualifications and training, will be needed to provide consultations and ongoing care for many of the frailest of older patients.

Today there are approximately 9,000 certified geriatricians in the United States. There are concerns that this number is far short of the current estimated needs and that the supply of geriatricians will continue to decline.³⁶ There must be an adequate supply of appropriately trained general internists and geriatricians to care for the oldest segment of the population and the heaviest consumers of health care. Because most geriatricians are board certified in internal medicine, it will be important to assure an adequate supply of general internists as a prerequisite to assuring a sufficient supply of geriatricians.

Position 5: This policy should increase the number of physicians trained in general internal medicine and who are prepared to practice in new practice models that are centered on patients' needs and that incorporate the elements of the chronic care model.

Approximately half of all Americans are living with a chronic condition.¹⁵ Nearly two-thirds of Americans age 65 and older have multiple chronic conditions.¹⁵ Among adults ages 80 and older, 92% have at least one chronic condition and 73% have two or more.¹⁵

The current method of health care delivery in the United States, which emphasizes episodic treatment for acute care through private health insurance and governmental programs, is not optimally meeting the health care needs of patients with chronic diseases.

In January 2006, the American College of Physicians proposed a fundamental change in the way that primary care is delivered and financed. ACP proposed the advanced medical home model,³⁸ a vision of health care from the perspective of a patient and his/her family. It acknowledges that the best quality of care is provided not in episodic, illness-oriented, complaint-based care – but through patient-centered, physician-directed, longitudinal care that encompasses and values both the art and science of medicine.

The advanced medical home model envisions physicians in practices that provide comprehensive, preventive and coordinated care centered on patients' needs, using health information technology and other process innovations to assure high quality, accessible and efficient care. Practices would also be accountable for results based on quality, efficiency and patient satisfaction measures. They would incorporate the key elements of the Chronic Care Model developed by Edward Wagner, MD.³⁹ Practices certified as advanced medical homes would be eligible for reimbursement commensurate with the value of the services they offer.

Widespread adoption of the advanced medical home should help increase the numbers of physicians who choose to practice in office-based general internal medicine and family medicine. It would help correct existing reimbursement inequities by providing sustained

and ongoing financing that supports the value of care coordinated by a primary care physician. It would also provide a model of practice that should be more satisfying to both patients and their physicians, because it will allow primary care physicians to regain a sense of partnership with their patients that many feel has been lost in the existing fragmented and episodic health care system.

Position 6: A national health care workforce policy should support the role of nurse practitioners and physician assistants within collaborative teams that assign overall responsibility and accountability for care to the patient's personal physician.

Nurses, nurse practitioners (NPs) and physician assistants (PAs) have considerable training and skills that are valuable to the patient care team. ACP supports expanded roles of these health care professionals within collaborative teams that include a physician who takes responsibility for the quality of care provided. The roles they play should depend on their clinical competencies.

The United States needs an adequate supply of nurses, as a shortage will have an impact on all health care professionals and systems, medical education, and patient safety.⁴⁰ In some underserved localities nurse practitioners provide basic and routine primary care services. The care that they provide can be both valuable and efficient in non-complex cases. However, independent nurse practitioners are not a substitute for the comprehensive care provided by a general internist to patients with multiple and complex chronic diseases.

Position 7: A national health care workforce policy should address the contributions of international medical graduates in meeting current and anticipated needs of the patient population.

More International Medical Graduates (IMGs) choose internal medicine than any other specialty. Many rural and underserved areas depend on international medical graduates for health care services. The J-1 visa waiver program offers a critical source of health care providers to community health centers and other locations in rural communities and underserved areas. These underserved populations deserve the same health care as other Americans and increasing the number of qualified physicians who are available to provide care in these communities is a great step towards ensuring that all Americans have equitable access to care.

The annual number of IMGs admitted to the US for residency training can serve as an important national workforce policy safety valve that would allow for relatively rapid expansion of the number of IMGs admitted during times of US physician shortages and contraction of the supply during times of surplus. ACP recognizes the value and contributions of IMGs and supports the use of J-1 visa waivers to fill shortages in rural communities and underserved areas. If all IMGs currently in primary care practice were removed, one out of every five "adequately served" non-metropolitan counties would become underserved and the number of rural counties with no primary care physicians would rise from 161 to 212.⁴¹ However, the College cautions that the nation should not rely on international medical graduates alone to solve the shortage of primary care

physicians in the United States. Consideration must be given to the need for medical personnel in the home countries of some of these physicians, as many are severely underserved.

Conclusion

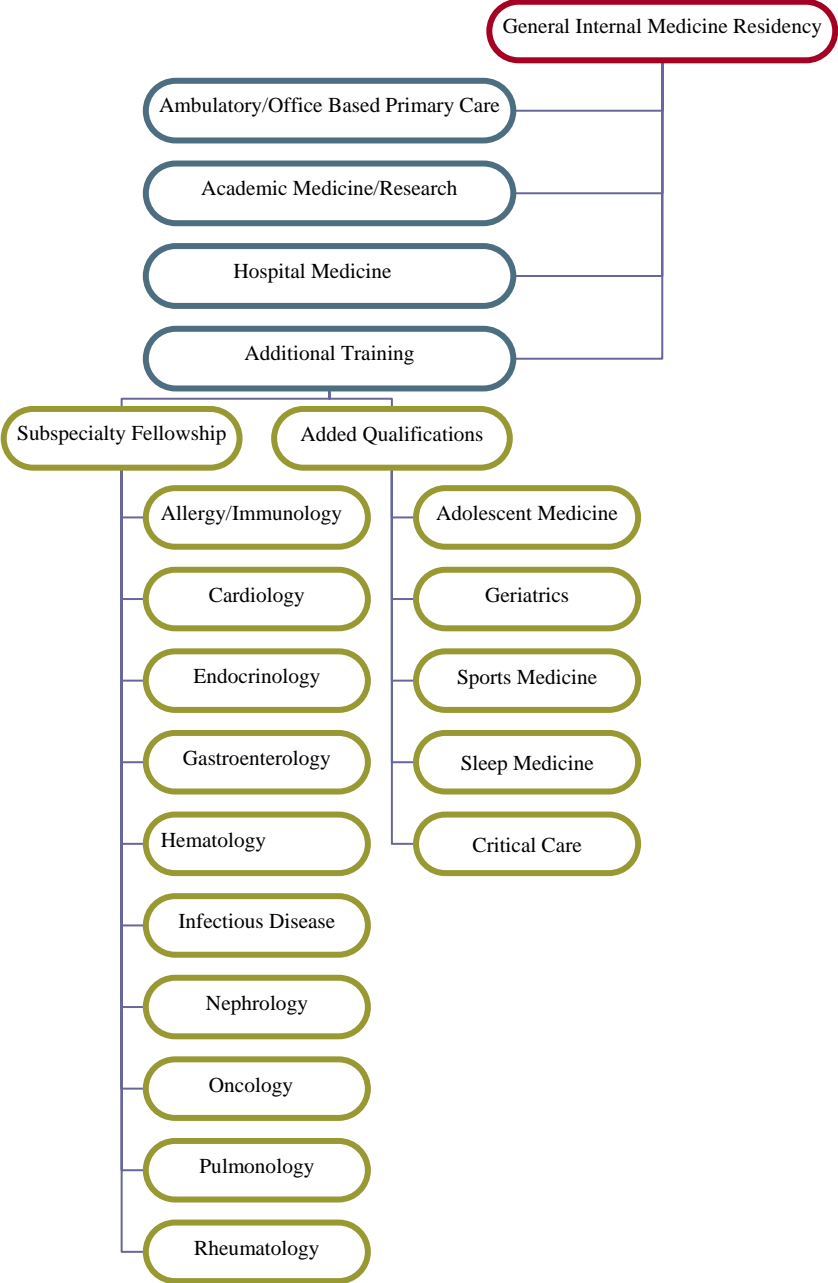
ACP believes that well trained general internists are an excellent value for the health care system. As the baby boom population ages and incidences of multiple chronic conditions rise, more general internists will be needed. Specific efforts must be made to ensure an adequate supply of general internists and to encourage entry into the field of internal medicine. The consequences of failing to act will be higher costs, greater inefficiency, lower quality, more uninsured persons, and growing patient and physician dissatisfaction.

The United States needs a comprehensive national workforce policy that includes a goal of substantially increasing the number of trained and practicing primary care physicians as a proportion of the total physician population. A national workforce policy will not be effective in assuring an adequate supply of physicians, and specifically, internists who practice in office-based general internal medicine practices, without changes in reimbursement policies, student debt, and other factors that discourage physicians from going into primary care and encourage those who already are in practice to leave primary care.

Table 1. Trends in Career Plans of Third-Year Residents Enrolled in U.S. Categorical and Primary Care Internal Medicine Training Programs, 1998-2005

Year	No. of respondents	Career plan (%)					
		General internal medicine	Hospitalist	Subspecialty	Other	Undecided	Missing
1998	4,008	54	N/A	42	3	N/A	1
1999	4,338	49	N/A	47	2	N/A	2
2000	4,562	44	N/A	51	4	N/A	2
2001*	4,565	40	N/A	54	4	N/A	2
2002	3,495	28	4	56	2	6	4
2003	4,732	27	7	57	2	6	1
2004	4,974	24	8	56	4	8	0
2005	4,926	20	12	58	1	7	1

Table 2: Career Paths of General Internal Medicine Residents



-
- ¹ ACP. Revitalization of Internal Medicine: Overview of the Problem and Recommendations on Reducing Medical Student Debt, 2003.
- ² Lipner RS, Bylsma WH, Arnold GK, Fortna GS, Tooker J, Cassel CK. Who is maintaining certification in internal medicine—and why? A national survey 10 years after initial certification. *Ann Intern Med.* 2005;144:29-36.
- ³ Linking Physician Payment to Quality Care. American College of Physicians. October 2005
- ⁴ The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Care. American College of Physicians. January 2006.
- ⁵ Training Redesign Position Papers. American College of Physicians. September 2005 and January 2006.
- ⁶ Reforming Dysfunctional Payment Policies. Under draft by the Medical Services Committee of the American College of Physicians.
- ⁷ Graduate Medical Education National Advisory Committee. Report of the Graduate Medical Education National Advisory Committee. Summary Report. Washington, DC: U.S. Department of Health and Human Services; 1981. DHHS publication HRA 81-652.
- ⁸ Council on Graduate Medical Education. Sixteenth Report: Physician Workforce Policy Guidelines for the United States, 2000-2020. Rockville, MD: U.S. Department of Health and Human Services; 2005.
- ⁹ Wilson, F. U.S. Needs More Physicians Soon, but How Many More is Debatable. *Annals of Int. Med.* 2005;143 (6) 469-72.
- ¹⁰ Sox S. Leaving (Internal) Medicine (editorial). *Annals of Int. Med.* 2006; 144 (1):57-58.
- ¹¹ Lipner RS, Bylsma WH, Arnold GK, Fortna GS, Tooker J, Cassel CK. Who is maintaining certification in internal medicine—and why? A national survey 10 years after initial certification. *Ann Intern Med.* 2005;144:29-36.
- ¹² Popkave, CG. Research Associate, Office of Research, Planning, and Evaluation, American College of Physicians. Personal communication. February 2006. ITE Exam Survey Data.
- ¹³ Hauer KE, Alper EJ, Clayton CP et al. Educational responses to declining student interest in internal medicine careers. *American Journal of Medicine.* 2005; 118 (10) 1164-70.
- ¹⁴ US. Department of Health and Human Services. “Changing Demographics: Implications for Physicians, Nurses, and Other Health Workers.” Health Resources and

Services Administration, Rockville, MD, U.S. Department of Health and Human Services.

¹⁵ Johns Hopkins University (2004) “ Chronic Conditions: Making the Case for Ongoing Care.” Baltimore, MD. Johns Hopkins University Partnership for Solutions.

<http://www.partnershipforsolutions.org/dms/files/chronicbook2004.pdf>

¹⁶ Wu, Shin-Yi and Green, Anthony, *Projection of Chronic Illness Prevalence and Cost Inflation*. RAND Corporation, October 2000.

¹⁷ Advisory Committee on Training in Primary Care Medicine and Dentistry (2004) Fourth Annual Report to the Secretary of the U.S. Department of Health and Human Services and to Congress. Preparing Primary Health care Providers to Meet America’s Future Health care Needs: The Critical Role of Title VII, Section 747

¹⁸ Bodeheimer T and Fernandez A. High and rising health care costs. Part 4: can costs be controlled while preserving quality? *Ann Intern Med*. 2005;143:26-31

¹⁹ Shi, L. The relationship between primary care and life chances. *Journal of Health Care for the Poor and Underserved*. 1992; 3:321-35

²⁰ Shi, L. Primary care, specialty care, and life chances. *International Journal of Health Services*. 1994; 24:431-58.

²¹ K. Baiker and A. Chandra, “Medicare Spending, the Physician Workforce, and Beneficiaries’ Quality of Care,” *Health Affairs*, 7 April 2004

²² Vogel, RL and Ackermann JR, Is primary care physician supply correlated with health outcomes? *International Journal of Health Services*. 1998; 28:183-96.

²³ Greenfield S, Nelson EC, Zubkoff M, Manning W, Rogers W, Kravitz RL, et al. Variations in resource utilization among medical specialties and systems of care. Results from the medical outcomes study. *JAMA* 1992;267:1624-30

²⁴ Bindman AB, Grumbach K, Osmond D, Komaromy M, Vranizan K, Luri N, et al. Preventable hospitalizations and access to health care. *JAMA* 1995;274:305-11.

²⁵ Parchman ML, Culler S. Primary care physicians and avoidable hospitalizations. *J Fam Pract*. 1994;39:123-8

²⁶ Basu J, Friedman B, Burstin H. Managed care and preventable hospitalization among Medicaid adults. *Health Serv Res*. 2004;39:345-61

²⁷ Becoming An MD – Choosing A Specialty AMA <http://www.ama-assn.org/ama/pub/category/2375.html>

²⁸ American College of Physicians Doctors For Adults
<http://www.doctorsforadults.com/about.htm>

²⁹ Safran, DG. Defining the future of primary care: what can we learn from patients? *Ann Intern Med.* 2003; 138:248-55.

³⁰ Mainous AG 3rd, Baker R, Love MM, Gray DP, Gill JM. Continuity of care and trust in one's physician: evidence from primary care in the United State and the United Kingdom *Fam Med.* 2001; 33:22-7

³¹ Wachter RM, Goldman L. The emerging role of "hospitalists" in the American health care system. *N Engl J Med* 1996;335:514-7

³² What Is A Hospitalist? Society of Hospital Medicine
http://www.hospitalmedicine.org/Content/NavigationMenu/AboutSHM/DefinitionofaHospitalist/Definition_of_a_Hosp.htm

³³ Rosenblatt RA and Andrilla CHA. The Impact of U.S. Medical Students' Debt on Their Choice of Primary Care Careers: An Analysis of Data from the 2002 Medical School Graduation Questionnaire. *Academic Medicine* (2005) 80: 815-819.

³⁴ State of the Nations Healthcare. ACP. January 2006.

³⁵ Greenfield S, Rogers W, Mangotich M, Carney MF, Tarlov AR. Outcomes of patients with hypertension and non-insulin dependent diabetes mellitus treated by different systems and specialties. Results from the medical outcomes study. *JAMA.* 1995;274: 1436-44.

³⁶ *Caring for Older Americans: The Future of Geriatric Medicine.* 2005. American Geriatrics Society

³⁷ US. Department of Health and Human Services. "Changing Demographics: Implications for Physicians, Nurses, and Other Health Workers." Health Resources and Services Administration, Rockville, MD, U.S. Department of Health and Human Services.

³⁸ The Advanced Medical Home: A Patient-Centered, Physician-Guided Model of Health Care. Policy Monograph of the American College of Physicians. January 2006

³⁹ M. Von Korff, J. Gruman, J. Schaefer, S.J. Curry, and E.H. Wagner. 1997. Collaborative Management of Chronic Illness. *Annals of Internal Medicine* 127: 1097-1102. [Also see Patients as Effective Collaborators in Managing Chronic Conditions.

Milbank Memorial Fund July 1999 accessible at
<http://www.milbank.org/reports/990811chronic.html#7>]

⁴⁰ Needleman J, Buerhaus PI, Mattke S, Stewart BA, Zelevinsky K. Nurse Staffing and Patient Outcomes in Hospitals: Executive Summary. February 28, 2001.

⁴¹ Strengthening the Role of International Medical Graduates in Providing Access to Health Care for Rural America. National Rural Health Association March 2003