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*Please see Quick Facts Tables in the back pocket of this publication.*
Developed by the American Academy of Pediatrics (AAP) Medical Student Outreach and Pediatric Career Support Program, Department of Membership.

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If you are interested in becoming a medical student member of the AAP, call the AAP Membership Department at 800/433-9016 or obtain a medical student membership application online at www.aap.org/member/memcat.htm.
Pediatrics 101 is a resource guide to information and expertise about one of the most rewarding medical specialties. The content briefly explores some of the things to think about in preparing for a career in medicine. In broad strokes it describes premedical and medical education, the training experience, and career opportunities. At each step you will find links to pursue content in more depth. “Quick Facts,” located inside the back cover, provide additional information about pediatric careers.

If you are considering a career in pediatrics, consult the helpful resources you’ll find in this guide. Medical training is a huge commitment and a major investment. Approach physicians you know and ask for their insights.

If you are drawn to pediatrics, count yourself very lucky and let your heart be your compass. Consider the words of an 82-year-old general pediatrician who still teaches medical students: “When you’re a general pediatrician you’re a member of every family that you take care of. Would I recommend pediatrics? You bet your life!”

This publication appears both in print and on the American Academy of Pediatrics Web site (www.aap.org/profed/career.htm). If you have the print version, please consult the Web version for quick links to many useful resources.
No other physician group can match pediatricians on career satisfaction.

• Ninety-six percent of current graduating pediatric residents who are in the general practice job market report that if they did their residency over, they would choose pediatrics again (2003 AAP Third-Year Resident Survey, unpublished data).

• Pediatricians reported higher satisfaction than internists on key satisfaction indicators including job, career, and specialty satisfaction. Additionally, generalist pediatricians were more satisfied than all other physicians surveyed regarding their relationships with patients and their personal time. They were also more likely to recommend their specialty to a student seeking advice.¹²

The opportunities for graduates of pediatric residencies are diverse and numerous.

• Eighty percent of residents seeking a general practice position report obtaining their most desired position.³

• Training in general pediatrics is also the portal for careers in the pediatric subspecialties. Because many pediatric subspecialties are currently experiencing workforce shortages or are anticipated to experience such shortages in the near future, a healthy supply of graduates of general pediatrics residency programs is essential to ensure an adequate pediatric subspecialty workforce.
**Flexible jobs are more common in pediatrics than any other specialty.**

- Pediatrics is at the forefront of the trend toward more flexible work arrangements for physicians. Data indicate that 26.1% of pediatricians versus 14.4% of all physicians have worked part-time at some point in their careers. Growth in part-time positions may not only provide fulfilling work arrangements for many, but they may also offset some supply concerns for the future.\(^{4,5}\)

- Pediatrics is a specialty that offers a broad spectrum of rewarding career options. Pediatricians are free to choose one or more practice settings and styles; they may pursue a wide variety of interests. Generalist pediatricians are needed now and in the future to serve as educators, mentors, hospitalists, and researchers. Rewarding careers are also available in public health, international health, health policy, and administrative leadership.

**Today and for the foreseeable future, there are many medically underserved communities seeking pediatricians.**

- In the current supply level, which has been portrayed as at or near balance, there are still 48% of the 6,102 discrete primary care service areas (PCSAs) (local health care markets) in the United States that do not have a pediatrician. A small but important number of children, 290,000, live in 313 PCSAs without either a pediatrician or a family physician.\(^6\)

- National health care workforce projections, though useful for analysis and policy at a macro level, cannot take into account regional or local workforce needs. For this reason, it is important that regional and local health care needs be assessed through additional studies that can address the “nuts-and-bolts” issues.

Because numerous, often unpredictable factors influence the adequacy of the workforce, workforce projections should not be the sole information used to choose one’s career.

- Demand for services from pediatricians may increase due to factors such as increased insurance coverage for children, a growing shift in the number of physician office visits for children from family physicians to pediatricians,\(^7,8\) changes in the type of and demand for pediatric services deriving from advances in genetics, and/or decreases in the supply of other pediatric subspecialties that could affect the breadth of care provided by pediatric generalists.

- It is difficult to predict accurately a future undersupply or oversupply of pediatricians. Workforce projection models are an important tool in this endeavor; however, they are but one piece of information that should be used in career planning.

*Developed by the American Academy of Pediatrics Division of Graduate Medical Education and Pediatric Workforce (www.aap.org/gme).*
Pediatricians focus on the physical, emotional, and social health of infants, children, adolescents, and young adults from birth to 21 years. Developmentally oriented and trained in skilled assessment, their patient-care lens is focused on prevention, detection, and management of physical, behavioral, developmental, and social problems that affect children.

Pediatricians diagnose and treat infections, injuries, and many types of organic disease and dysfunction. They work to reduce infant and child mortality, foster healthy lifestyles, and ease the day-to-day difficulties of those with chronic conditions. With structured evaluation and early intervention, pediatricians identify and address developmental and behavioral problems that result from exposure to psychosocial stressors. They appreciate the vulnerability of childhood and adolescence, and actively advocate for measures to protect their health and safety.

The ability to communicate effectively with patients, families, teachers, and social service professionals is a key to effective pediatric care. Pediatricians collaborate with pediatric subspecialists and other medical and surgical specialists in the treatment of complex diseases and disorders. They work closely with other health professionals concerned with the emotional needs of children. They advise educators and child care professionals. They are major advocates for access to care and a medical home for all children.

General pediatrics is a multifaceted primary care specialty. The general pediatrician’s responsibilities include:

- Management of serious and life-threatening illnesses
- Referral of more complex conditions as needed
- Consultative partnerships with other care providers, such as family practitioners, nurse practitioners, and surgeons
- Health supervision (health promotion and disease prevention activities to enable each child to reach full potential)
- Anticipatory guidance (advice and education for patients and parents regarding appropriate preparation for predictable developmental challenges)
- Monitoring physical and psychosocial growth and development
- Age-appropriate screening
- Diagnosis and treatment of acute and chronic disorders
- Community-based activities in sports medicine, school health, and public health
Many pediatricians choose to focus on a particular aspect of child health. They may subspecialize exclusively or as a part of their general pediatric practice. Those who subspecialize in pediatric critical care have intensivist training to manage pediatric patients with life-threatening medical problems. Adolescent medicine physicians, for example, are pediatricians who have additional training and expertise in working with adolescents and young adults.

Other pediatric subspecialists elect to focus on care of pediatric patients after completing training in their respective disciplines. A pediatric surgeon, for example, is a surgeon trained to conduct procedures on pediatric surgical patients. A pediatric radiologist is a radiologist with special skill in interpreting diagnostic tests in young patients.

Most of the pediatric subspecialties have a “section” of their own within the American Academy of Pediatrics (AAP) that provides a forum for education and dialogue. For a quick overview of pediatric medical and surgical subspecialty options, scan the list of section home pages on the AAP Web site (www.aap.org/sections/shome.htm). Several offer detailed descriptions of the scope and nature of their training and practice.
The premed years are the time to think about your motivation, weigh your strengths, and find your perspective. Choosing a career is a developmental process; it takes time and it doesn’t happen in a vacuum. Talk to people in the field and get hands-on experience working or volunteering in a medical environment.

One former director of medical education (also known as a clerkship director) urges that students thinking about medical school give serious thought to their motivation. “When I interviewed college students, the ones I worried about were those who had chosen medicine because they thought it was a good profession to ‘make money,’” she says. “I think if you choose a career in medicine you have to have a passion for the care of people. There has to be a passion there to drive you, because medical school is not all that fun. It’s a lot of hours and you’re working hard. Sometimes people get all the way to medical school and then find out that they don’t really want to be there.”

Find a Health Professions Advisor

A health professions advisor is an excellent resource for those exploring a medical career. Most colleges and universities in the United States designate someone in their advising office to focus on health professions. If you are a high school student, or someone who has been working for a few years and is no longer on campus, contact the National Association for Advisors for the Health Professions (www.naahp.org/advisors.htm). These people are the experts in your corner!

Research Medical Schools

Most medical schools have a Web site, which will describe the size of their program, its faculty, and its strengths. Spend some time on a few of these sites to pick up some indicators to help discriminate among these schools.

Stay Interesting!

While premed students need to meet curriculum requirements for medical school admission, medical schools are interested in well-rounded students. Having excellent grades in science is important, but so are interests in other academic areas. “We look for good grades in organic chemistry and other science courses,” one pediatrician advises, “but a varied experience in volunteerism and validating their interest in medicine by medical shadowing or participating in biomedical research can also be very helpful.”

TIP

Some medical schools do not accept AP (advanced placement) course credit. (These are classes taken in high school by eligible students who then test out of the college class.) Students planning to apply to medical school may need to take these classes again during their undergraduate years.
A Word About Combined BS/MD Degree Programs
A few medical colleges offer combined degrees for highly qualified students—a BS/MD degree program that enables students to bypass the Medical College Admission Test (MCAT) and proceed directly from college to medical school. These programs require certain commitments early in a student’s career, but have huge benefits for the right candidates.

Many successful people, including some with postdoctoral degrees, decide to pursue a medical career later in life. Experience and maturity are valuable assets, and it would be unwise to discount a career in medicine if that is what you truly want. Instead, talk to knowledgeable advisors about ways to combine your expertise with a medical career, sometimes shortening the training required in certain postdoctoral programs down the road.

TIP
Because there are 125 allopathic medical schools in the United States and Canada, and 20 colleges of osteopathic medicine, this guide focuses on allopathic medical training. Although most of the information is equally pertinent to osteopathic training, there are important distinctions. To learn about those distinctions and to locate schools of osteopathy in the United States, go to the Web site of the American Association of Colleges of Osteopathic Medicine at www.aacom.org.
Online Resources

Three excellent resources for premed students are available online. Although there may be some duplication, each has unique benefits.

From the Association of American Medical Colleges

- Advice for those beginning to think about a medical career, on the Careers in Medicine overview page: www.aamc.org/students/considering/careers.htm
- Cues to selecting a good undergraduate school and an introduction to the medical school experience on the Making the Decision Web page: www.aamc.org/students/considering/decision.htm
- A list of the 31 universities that offer a combined degree program (BS/MD) on the Curriculum Directory page: services.aamc.org/currdir/section5/start.cfm

From the American Medical Students Association (AMSA)

AMSA has a guide for premedical school students, but you must be an AMSA member to obtain it: www.AMSA.org/premed

From the American Medical Association

- Becoming an MD, which offers an overview of physician education in the United States, along with many useful links (eg, accredited US medical schools and medical specialty medical boards): www.ama-assn.org/ama/pub/category/2320.html
- A medical glossary with common terms that medical students will need to know: www.ama-assn.org/ama/pub/category/2376.html
- Frequently asked questions about pursuit of a medical career: www.ama-assn.org/ama/pub/category/3627.html
Section 6: Getting into Medical School

The Association of American Medical Colleges (AAMC) estimates that only about one half of those who apply to medical school are accepted. This is an average; some programs are substantially more competitive.

Most applicants take the Medical College Admission Test (MCAT) about 18 months before they plan to enter medical school; generally in April of their junior year of college. The MCAT is administered by the AAMC, which develops test content in cooperation with US medical schools.

Six components determine the candidate’s eligibility for medical school admission:
1. Undergraduate course work
2. Grade point average
3. Performance on the MCAT
4. Extracurricular activities
5. Letters of recommendation
6. Interviews with medical school admissions committees

Medical school admissions for nearly all medical schools are coordinated by the American Medical College Application Service (AMCAS). Applications are submitted in the summer or early fall. Admission deadlines vary by school, by as much as 6 weeks. Check the Web sites of the medical schools that interest you to be sure you meet all of your deadlines. Medical schools interview promising candidates between October and February of the students’ senior year. If you are looking to get into a specific school, the Early Decision Program (EDP) may be the option to investigate. Many medical schools offer this program, which requires an earlier application deadline (usually August 1) and limits application to that single school until a decision has been made. If not accepted in EDP, there is still time to apply to the same school as a regular candidate, as well as any other school.

Online Resources
From the AAMC:
- Admission to US Medical Schools with links to information about how to order Medical School Admission Requirements and background on the MCAT: www.aamc.org/students/applying/about/start.htm
- Getting into Medical School, with frequently asked questions about the application process: www.aamc.org/students/considering/gettingin.htm
- Links to all accredited US and Canadian medical schools: www.aamc.org/medicalschools.htm
- The annual AAMC Tuition and Student Fees Reports compare tuition and fee ranges, medians, and averages for all US medical schools: https://services.aamc.org/tsf/TSF_Report/report_intro.cfm
- The Early Decision Program: www.aamc.org/students/applying/programs/earlydecision.htm

TIP
When you schedule your interview, request a session with a financial aid officer. Find out how the process works at that school and learn what you can about options and procedures for paying for school.
The academic pressure in medical school is consistently intense. It is important to find a balance between study and personal life; your lifestyle will be different from that in college, but the workload is manageable.

Most medical schools devote the first 2 years to classroom and laboratory instruction in the basic sciences. Many provide clinical rotations and/or teach the basic sciences (anatomy, physiology, biochemistry, histology, pathology, and pharmacology) with a strong clinical correlation. Students also learn how to take a patient history, conduct a physical examination, and make a diagnosis. They become familiar with the art of the patient interview and study psychosocial aspects of medicine.

The third year of medical school consists of the core rotations (or clerkships), in the hospital and in ambulatory settings, which give most students their first direct patient care experiences. There is some variation (eg, some schools begin clerkships in the second year), but most schools structure rotations in 6 areas:

- Psychiatry
- Pediatrics
- Obstetrics and gynecology
- Internal medicine
- Family medicine
- Surgery

During the fourth year of medical school, students complete senior clerkships and subinternships, where they have more responsibility for patient care and are permitted to take more electives. Some pursue experiences in research, work with underserved cultural groups, and international child health. Most US schools require that students successfully complete parts 1 and 2 of the United States Medical Licensing Exam (USMLE) to graduate.

After successful completion of a 4-year medical school program, students choose a specialty area and enter residency training. The length of residency varies by specialty; primary care residency in pediatrics is 3 years.
“During the ophthalmology rotation, I’d go in and look at adult eyes in the morning and not really enjoy it,” said a resident who plans to specialize in pediatric ophthalmology. “Then in the afternoon I’d look at kids’ eyes and my mouth would be hurting from smiling for three hours. It was the same stuff in adults and kids but I was having a blast doing it with the kids.”

The best general resource on medical specialties is the American Board of Medical Specialties (ABMS), an umbrella organization that represents the 24 approved medical specialty boards in the United States. Medical students looking to learn more about a specialty can locate and contact the board for that specialty through the ABMS Web site (www.abms.org).

Interest groups for the various medical specialties are becoming more common in many medical schools. Pediatrics, family medicine, anesthesia, etc., may have forums for all students with even a passing interest. They are usually open to all students from first year through senior year. If there is not an interest group at your school, speak to the clerkship director, department chair, or residency director about starting one. There are no limits to attending these interest groups, so join more than one as your interests dictate.

Other ways to become involved in pediatrics prior to your clinical years include summer externships, volunteering at the children’s hospital, physician shadowing, and helping with projects within the pediatric department. The pediatric clerkship director is usually an excellent resource for information regarding the various opportunities.

Medical students work with their advisors and with pediatric clerkship directors to examine inclinations and strengths before selecting their medical specialty. It is also at this time—generally the third year of medical school—that students decide on their career focus. This could include a career in academic medicine at a medical school or a medical school-affiliated hospital, or in an office- or hospital-based clinical practice. Each scenario offers opportunities for subspecialty concentration, teaching, and research.

While it is useful to be knowledgeable about compensation and market demand for a given specialty, this is only part of the picture. Specialty choice requires a long-term perspective. “My belief is that you have to do what will make you happy,” said one pediatric infectious disease subspecialist. “It’s hard to know what the job market is going to be ten years out, and even if it’s going to be tight, you’ve got to do what you’re most interested in.”

Students are sometimes overwhelmed by medical school debt, and make a specialty choice based primarily on income, he added. “Debt drives a lot of decisions,” he said. “I think a choice that is based on economics alone has the wrong motivation. Some specialties pay more than others, but all provide a good living. Students need to ask themselves, ‘Am I going to be intellectually stimulated enough with whatever choice I’m contemplating? Am I going to be happy two or three years down the road? Or am I doing this for the wrong reasons?’”

Current data regarding specialties are available on the Association of American Medical Colleges (AAMC) Web site. The feature Careers in Medicine: Specialty Pages can be accessed at www.aamc.org/students/cim/specialties.htm.
To Choose or Not to Choose: Combined Training Programs
The American Board of Pediatrics (ABP) has cooperative arrangements with several other specialty boards for combined training. These are rigorous programs. Students who successfully complete these programs and pass certification examinations administered by all boards involved are said to be “double boarded” or “triple boarded.” Specifics vary and can be pursued with the ABP and the other individual specialty boards (linked to the ABP Web site at www.abp.org). Options for combined training include

• Internal medicine-pediatrics (med-peds) (4 years)
• Pediatrics/dermatology (5 years)
• Pediatrics/emergency medicine (5 years)
• Pediatrics/medical genetics (5 years)
• Pediatrics/physical medicine and rehabilitation (5 years)
• Pediatrics/psychiatry/child and adolescent psychiatry (5 years)

A Few Words About Med-Peds
The ABP reported that combined internal medicine and pediatrics residency programs were the fastest-growing segment of pediatric training in 1995. While the rate of growth has since stabilized, it continues to be a very popular combined training option.

Med-peds (an abbreviation for “combined internal medicine and pediatrics”) is a rigorous 4-year residency program, with 2 years in pediatrics and 2 years in internal medicine. Those who complete a med-peds residency are eligible to sit for board certification in internal medicine and pediatrics, and to pursue a fellowship in either specialty.

“Med-peds enables me to appreciate the continuity of the disease process,” says one resident. “Disease processes don’t end with childhood. I wanted more broad training than I would be getting in pediatrics, the ability to treat patients with varying diseases at varying ages. From here I can go into hospital practice, subspecialty fellowship, private practice with primary care physicians, or a multispecialty practice. In a multispecialty practice I could just be the utility man who can cover for everyone else.”

Online Resources
From the ABMS

• Which Medical Specialist for You, a layman’s guide to medical specialties and subspecialties: www.abms.org/publications.asp
• Links and contact information to reach approved member boards, which can provide more detailed information about training in their specialties: www.abms.org (Click on “Member Boards.”)
From the **American Medical Association (AMA)**

- *Choosing a Medical Specialty*, with links to career planning resources and also the 102 specialty societies represented in the AMA House of Delegates: [www.ama-assn.org/ama/pub/category/7247.html](http://www.ama-assn.org/ama/pub/category/7247.html)

From the **AAMC**

- The *Careers in Medicine* Web site, which features online decision-making tools to choose a specialty, review career information about specialties, and finally, select and apply for a residency: [www.aamc.org/students/cim/start.htm](http://www.aamc.org/students/cim/start.htm)

- *Career Planning Resources*, a collection of links to career advice, specialty boards, and practical tools for students and residents: [www.aamc.org/students/cim/careerplanning.htm](http://www.aamc.org/students/cim/careerplanning.htm)

From the **American Academy of Pediatrics**

- The *Section on Medicine-Pediatrics* Web page features more than 50 frequently asked questions on everything from starting a job search to contract negotiation: [www.aap.org/sections/med-peds/jobsearchfaq.htm](http://www.aap.org/sections/med-peds/jobsearchfaq.htm)

From the **National MedPeds Residents’ Association**

- The *Medical Student Guide to Combined Internal Medicine and Pediatrics Residency Training* and other information about combined training in medicine and pediatrics: [www.medpeds.org/guide.htm](http://www.medpeds.org/guide.htm)
So you’ve signed on for a future in pediatrics. Good plan! Your next step is to secure training that fits your needs and temperament.

The search for a pediatric residency program requires research, networking, and persistence. Medical students work with their clerkship directors and other mentors for this purpose. Residency program directors can also be extremely helpful. To identify and contact a program director, consult the program director roster on the Web site for the Association of Pediatric Program Directors (www.appd.org).

As medical students take core rotations in the third year of medical school, they begin to refine their career goals and investigate residency opportunities. Key information can be found at

• The Accreditation Council for Graduate Medical Education (ACGME) Web site, which provides detailed information on accredited pediatric residency programs. To search, go to www.acgme.org and click on “Search Programs/Sponsors.”

• The Graduate Medical Education Directory and its companion piece, the GMED Companion, which provide detailed information on accredited GME residency programs. Consult your medical library or contact the American Medical Association (AMA) at www.ama-assn.org and click on “Bookstore.”

• FREIDA Online (Fellowship and Residency Electronic Interactive Database), also from the AMA, which covers accredited specialty, subspecialty, and combined training programs (www.ama-assn.org/ama/pub/category/2997.html).

In evaluating a residency program, consider such factors as diversity and complexity of patients, number of locations in which required rotations are conducted, availability of faculty, and resident cadre, to name a few.

Some programs offer a primary care residency option, and some will offer an accelerated advance into subspecialty training for the exceptionally qualified candidate. If you are convinced that you are destined for one of these careers, investigating these programs makes sense.

Whether you are interested in general pediatrics or a pediatric subspecialty, or are undecided on a career path, any one of the ACGME-approved programs may be right for you. Consider carefully the “accidental” qualities of the residency program: is it in a big city or rural setting; are cultural activities available, or are there more opportunities for out-of-doors experiences such as hiking and biking; is it near enough to home and friends, or is it too close for comfort? For many residency candidates, these considerations are as important as the other qualities.

“Many students will award points and keep a detailed objective score on the various aspects of the different programs in which they interview,” one program director says. “Most approved programs provide excellent training, so many program directors suggest using a more subjective approach to choosing a program.”

One of the most important factors is the size and personality of the resident cadre. Because you will be spending most of your time with other residents, be sure that you “fit in” with the residents currently in the program.
The Application Process
Most residency applications are submitted electronically. Students develop a curriculum vitae (resume), personal statement, and letter of application. Letters of recommendation from the dean and others are included with the application, along with medical transcripts and other credentials. Students work closely with their advisors’ and deans’ offices to ensure that all necessary materials are secured and prepared well in advance of the deadline.

Most allopathic medical residency programs use the Electronic Residency Application Service (ERAS®) to process residency applications. ERAS is a service that transmits applications to residency programs over the Internet. (The service is not available for non-ACGME accredited programs, or fellowship or osteopathic programs.) Candidates participate with ERAS through their deans’ offices.

Medical students are generally advised to apply to all programs in which they are interested.

The Interview
Programs typically review application materials, then offer an interview opportunity to those who seem to be the best “fit.”

Students should work closely with their clerkship directors and other mentors to prepare for the residency interviews. For example, it is useful to read the requirements for accredited residency programs (available at www.acgme.org) and ask about possible discrepancies. Plan a few essential questions.

• You will be meeting with faculty and current residents. Ask about the strengths and weaknesses of the program. Ask how shortcomings are compensated. Ask about program flexibility, call schedules, and the willingness of the program to make accommodations for the residents when they have family and personal matters that may require changes in their schedules.

• What are the policies on sick leave, maternity leave, medical liability coverage, insurance benefits, and family leave? Applicants planning to start a family might ask whether there is enough flexibility in the training program to schedule people to elective months when they will be taking their maternity leave so it doesn’t impact negatively on others in the program.

Interview preparation with mentors and advisors should include how questions such as these are best addressed.
**After Interviews, the Match**

Early in the summer of senior year, students enroll in the National Resident Matching Program (NRMP), which provides uniform dates of appointment to residency programs in the United States. The NRMP is sponsored by national medical organizations and managed by the Association of American Medical Colleges (AAMC).

The Match, which occurs each March, uses an algorithm to partner applicants’ program rankings with programs that have ranked them. The NRMP also offers a couples algorithm, which allows 2 people to enroll in the Match as a unit. Part of the drama is the “scramble,” which takes place 48 hours before results are announced. In a flurry of exchanges, medical school deans collaborate to secure positions for those who did not match.

**Online Resources**

Internet links relevant to the residency search include the following:

From the AMA

- *Transitioning to Residency: What Medical Students Need to Know*, a series of articles by the AMA Minority Affairs Consortium. Although targeted to minority students, much of the content is of interest to all applicants: www.ama-assn.org/ama/pub/category/6672.html

From the AAMC

- *Careers in Medicine*, which features online decision-making tools to choose a specialty, review career information about specialties, and select and apply for a residency: www.aamc.org/students/cim/start.htm
- *Career Planning Resources*, a collection of links to career advice, specialty boards, and practical tools for students and residents: www.aamc.org/students/cim/careerplanning.htm
- Facts about ERAS: www.aamc.org/students/eras/start.htm

From the NRMP

- General information and links: www.nrmp.org
Pediatric residency training consists of a 3-year program of core pediatric experiences and elective rotations that follows successful completion of medical school. Individuals are eligible to sit for the certification examination administered by the American Board of Pediatrics only after completion of a residency program accredited by the Residency Review Committee (RRC) for Pediatrics of the Accreditation Council for Graduate Medical Education (ACGME). It is the Pediatric RRC that sets the requirements for accredited programs.

Residency education is primarily centered in university, children’s, community, and military hospitals. As changes in the health care system result in more care being provided in the ambulatory and community environment, clinical experiences during residency in these settings are also becoming more commonplace.

Although individual residency programs may vary in setting, size, patient population, and resident number, their common goal is to provide educational experiences that prepare graduates to be competent general pediatricians. It is expected that graduates of these programs will be able to provide comprehensive, coordinated care to a broad range of children from birth through adolescence and young adulthood. To accomplish this goal, all programs must provide experience in the following areas:

- Inpatient pediatric care including children with general and subspecialty problems acute and chronic in nature
- Emergency and acute illness care in emergency department and ambulatory clinic settings
- Continuity care, during which residents take care of a group of pediatric patients longitudinally over the course of their residency, usually in a weekly clinic
- Normal/term newborn care, including longitudinal follow-up of infants discharged from the nursery
- Subspecialty care, including required rotations in neonatal and pediatric intensive care. Required months devoted to adolescent medicine and developmental/behavioral pediatrics complement a minimum of 6 months of other subspecialty elective rotations chosen from a list provided by the Pediatric RRC.

Throughout their 3 years of training, residents participate in regularly scheduled teaching/attending rounds and conferences, where issues including medical ethics, quality assessment and improvement, medical informatics, and health care financing are covered in addition to the clinical aspects of care. Pediatric residency programs also provide training in the procedural skills necessary to provide routine and critical/resuscitative care to children. And to further enhance their academic skills, residents are also required to participate in scholarly experiences such as journal club, academic conferences, and clinical and/or basic research activities.

There are 203 accredited pediatric residency programs to choose from in the United States. In some larger programs, there may exist different tracks, for example one that may place greater emphasis on primary care training or another that may focus on preparation for a career in academic medicine or research. Information on
individual programs and their educational resources is available online from the Fellowship and Residency Interactive Database (FREIDA) sponsored by the American Medical Association as well as the ACGME Web site. In addition, the American Board of Pediatrics (ABP) offers 3 special routes for pediatrician scientists who may be qualified to shorten their training by 1 year or combine research with their residency training. More information on these opportunities—Accelerated Research Pathway, Integrated Research Pathway, and Special Alternative Pathway—is available from the ABP. And lastly, for those who wish to be eligible to sit for both the ABP Certifying Examination and the American Board of Internal Medicine Certifying Examination, there are 4-year programs designated as medicine-pediatrics residency programs that fulfill the requirements of both boards. Information about medicine-pediatrics programs accredited by the ACGME can also be found on the ACGME Web site.

Regardless of the particular program, pediatric residency training is designed to confer the knowledge, skills, and attitudes required for comprehensive, longitudinal, and child-centered health care. Pediatric residents learn to consider behavioral, psychosocial, environmental, and family-unit correlates of disease. They learn to care for children who are chronically ill and manage acute events, as well as promote wellness and prevention. Because pediatric residents work with so many other members of the health care team in the management of children, they learn to be collaborative in their approach to care. Although pediatric residency training can be physically, intellectually, and emotionally challenging, it is this common devotion to the care and well-being of children that makes pediatricians among the most professionally satisfied of all physicians.
The National Board of Medical Examiners® (NBME®) and the Federation of State Medical Boards (FSMB) sponsor the United States Medical Licensing Examination™ (USMLE™).

Students and graduates of medical schools in the United States and Canada that are accredited by the Liaison Committee on Medical Education or the American Osteopathic Association Bureau of Professional Education register for the USMLE with the NBME.

Students and graduates of medical schools outside the United States and Canada register for the USMLE with the Educational Commission for Foreign Medical Graduates.

Medical students take the 3-part examination during medical school and residency. After passing all 3 parts, they are eligible to apply for their medical license.

According to the USMLE, most medical students take Step 1 of the in-training examination after the second year of medical school, Step 2 during the fourth year of medical school, and Step 3 during the first or second year of residency.

Medical licenses are granted by state boards of medical examiners. Medical students who plan to practice in another state are advised to apply for a medical license with that state’s licensing board as early as possible (generally early in the third year of residency). Links to individual state boards are on the American Medical Association (AMA) Web site (www.ama-assn.org/ama/pub/category/2543.html).

This is also the time to apply for a federal Drug Enforcement Administration number, which permits physicians to prescribe controlled substances.

Certification by the American Board of Pediatrics (ABP)

In 2003 the 78% certification rate for pediatricians exceeded the national average (72%) as well as the rate of certification among internal medicine physicians (74%).

According to the ABP, physicians must complete the following steps to sit for the board certification examination:

1. Graduate from an accredited medical school in the United States or Canada or a foreign medical school recognized by the World Health Organization.
2. Complete 3 years of training in pediatrics in an accredited residency program.
3. Verify satisfactory completion of residency training.
4. Acquire a valid, unrestricted state license to practice medicine.
5. Pass the 2-day written examination for certification.

Board certification in pediatrics may be renewed every 7 years by successfully completing the program for maintenance of certification in pediatrics, which includes passing a recertification examination.
Online Resources
From the American Academy of Pediatrics
• PREP: Pediatrics Review and Education Program contact information:
  www.aap.org/profed/prep.htm
• Career Planning: How to Prepare for the Boards, dates for scheduled board review courses,
  information about audio courses and books: www.aap.org/sections/resident/
  prepareboards.htm

From the AMA
• Getting a License—The Basics, an article by the FSMB that sketches out considerations
  for those applying for a medical license; related links provide information about
  guides to state licensure requirements and links to national organizations:
  www.ama-assn.org/ama/pub/category/
  2644.html

From the USMLE
Review steps 1, 2, and 3 of the examination
• Web site: www.usmle.org/

From the ABP
• General examination admission requirements:
  www.abp.org/abpfr1024.htm
• A description of the ABP and the subspecialty certificates it awards:
  www.abp.org/abpfr1024.htm
• A description of subspecialty certificates awarded in conjunction with other
  certifying boards, with contact information:
  www.abp.org/abpfr1024.htm
Following residency, a physician may choose to continue his or her education through subspecialty training. A medical subspecialty is an identifiable component of a specialty to which a practicing physician may devote a significant proportion of time. Special education beyond that required for general certification marks the certified subspecialist, and the American Board of Medical Specialties certifies most subspecialists. A pediatric subspecialist is an individual who, as a result of training and experience, is qualified to provide patient care and education and to conduct research in a defined or organ-specific area of medical or surgical care. This definition recognizes that pediatric subspecialists function in a wide variety of roles including direct patient services, research, and education. Currently most pediatric subspecialists practice within academic medical systems. There is a wide range of pediatric subspecialties available including age-specific generalists (neonatologists and adolescent medicine specialists), acute care specialists (critical care and emergency medicine), organ-specific specialists (cardiologists, nephrologists), and non-organ-specific specialists (endocrinology, oncology, and infectious disease). Some choose a subspecialty for the specific love of the clinical discipline; others choose post-residency training to seek a more academic career path marked by teaching and writing or find the research path to be most rewarding within their discipline. Most pediatric subspecialists are board-certified general pediatricians who are subspecialty boarded through the American Board of Pediatrics. Some physicians first achieve certification in another discipline, and then seek out additional training to apply their skills in the care of pediatric patients. The list of traditional board-certified pediatric specialties includes:

- Adolescent medicine
- Allergy/immunology
- Cardiology
- Clinical genetics
- Critical care medicine
- Dermatology
- Developmental/behavioral
- Emergency medicine
- Endocrinology
- Gastroenterology
- Hematology/oncology
- Infectious disease
- Medical toxicology
- Neonatology
- Nephrology
- Pulmonology
- Rheumatology
- Sports medicine

In addition, national specialty boards for surgery, pathology, and radiology offer certification for pediatric subspecialists in their respective disciplines.

Pediatric neurologists and psychiatrists may be certified in pediatrics/neurology or pediatrics/psychiatry after completing 2 years’ training in general pediatrics and meeting the training requirements of the American Board of Psychiatry and Neurology for certification in neurology or psychiatry with special qualification in child neurology or child psychiatry.
Surgeons in other disciplines (such as anesthesiology and pain medicine, neurological surgery, ophthalmology, otolaryngology/bronchoesophagology, orthopedics, plastic surgery, and urology) often complete additional training to specialize in care of pediatric patients.

To learn more about these options, consult the American Academy of Pediatrics Surgical Advisory Panel brochure “What is a Pediatric Surgical Specialist?” (www.aap.org/sections/sap/he3002.pdf).

**Online Resources**

From the **Accreditation Council for Graduate Medical Education**

- Program requirements for subspecialty training in pediatrics: www.acgme.org/req/PedSub_pr700.asp

From the **Journal of Pediatrics**

- Fellowship opportunities are published each year in the January issue, which provides application deadlines, duration of the fellowship, training requirements, and a contact person: www.mosby.com/jpeds (Click on “List of Fellowships.”)

From the **American Medical Association**

- **FREIDA Online** (Fellowship and Residency Electronic Interactive Database), covers accredited specialty, subspecialty, and combined training programs by institution or medical school: www.ama-assn.org/ama/pub/category/2997.html

From the **National Resident Matching Program (NRMP)**

- The NRMP conducts matches for advanced residency or fellowship programs throughout the year in 6 pediatric areas (cardiology, critical care, emergency medicine, hematology/oncology, rheumatology, surgery, and pediatric radiology): www.nrmp.org/fellow/index.html
Many of the issues of concern to pediatricians relate to access for underserved children, particularly children who live in physician shortage areas and minority children.

Rural Practice
In 1997, 51 million Americans (or one fifth of the population) lived in nonmetropolitan areas, while less than 11% of US physicians practiced in these locations. Two in 3 physician shortage areas in the United States are in rural communities.17

Despite these facts, 73% of pediatricians working in rural areas reported that they were “very satisfied” with their decision to practice in a rural area, and would make the same decision again, according to an American Academy of Pediatrics (AAP) survey. A total of 93% said they planned to continue in rural pediatrics, citing lifestyle, variety, and the opportunity for community connection as positives about rural practice.18

“When you’re the only pediatrician in the community, you get involved in a lot of things,” one rural pediatrician said. “I work with local people on school issues, Head Start, and community programs to educate kids about dating violence and domestic violence. I find myself interacting with a lot of social service agencies because I’m the only pediatrician. In rural areas you work with a lot of the same people on a lot of different issues because there are only so many people in public health.”

The AAP has advocated for financial incentives at the state and national levels to attract and retain pediatricians in underserved areas.

Chronically Ill Children
The number of chronically ill children, adolescents, and young adults is on the increase. There is a need for improved access to the appropriate pediatric care.

Culturally Effective Pediatric Care
Health status indicators for minority children are generally less favorable than they are for white children. In making that observation, the AAP Committee on Pediatric Workforce stated barriers to health services for minority children include poverty, geographic factors, lack of cultural sensitivity, racism, and other forms of prejudice. The committee pointed out that because cultural minorities are underrepresented in the health professions, there are often cultural differences that interfere with communication.19

There is evidence that increasing the numbers of minority pediatricians will help improve access to care for minority children. The AAP has called for measures to increase the diversity of the pediatrician population by encouraging more minority medical students to choose pediatrics as a career.20

Online Resources
From the AAP
• Division of Graduate Medical Education and Pediatric Workforce: www.aap.org/gme
• Committee on Pediatric Workforce: www.aap.org/workforce

From the Federal Office of Rural Health Policy
• Facts about...Rural Physicians. Health Resources and Services Administration, US Department of Health and Human Services: www.shepscenter.unc.edu/research_programs/Rural_Program/phy.html

From the National Rural Health Association
• What’s Different About Rural Health Care? www.nnrural.org/pagefile/different.html

From the AAP Special Interest Group (SIG) on Rural Health
• Purpose and activities of the SIG can be found at www.aap.org/sections/socp/sigRH.html
When it comes to keeping children healthy and safe, some of the greatest advocates are pediatricians. Members of the American Academy of Pediatrics (AAP) have access to an excellent bank of advocacy tools. These include state and federal legislative training, community service projects, and public education campaigns.

Ongoing AAP advocacy programs include

- With support and resources from the AAP Department of Federal Affairs and Division of State Government Affairs, pediatricians and chapters communicate with state and federal legislators, testify, coordinate media events, and participate in election activities. Advocacy training is offered to AAP members through the Legislative Conference and Chapter Advocacy Summit. Staff also provides strategic consultation, issue sheets/briefs, data, and background information.

- International travel grants for pediatric residents interested in completing a rotation in a third-world country

- Community Access to Child Health (CATCH) grants, which provide planning and implementation funds for innovative, community-based child health projects

- Programs in emergency preparedness

Child advocacy may be the best-known activity of the AAP, but the scope of member benefits and services extends into other areas as well. Ongoing member benefits include continuing medical education, excellent publications, and opportunities to learn and grow through participation in interest-based AAP sections and committees. Membership in the AAP is open to board-certified pediatricians and members of other groups. To learn more about becoming a member of the AAP, go to www.aap.org/member.

Online Resource
From the AAP

The annual American Association of Medical Colleges (AAMC) Medical Student Graduation Questionnaire showed that the average debt of medical students graduating in 2004 was $115,218. More than 29% of students finished school owing $150,000 or more. The AAMC estimates that about 81% of medical students carry some education debt.

According to the AAMC annual report on tuition and student fees, public school tuition and fees increased by an average of 8.7% for residents and 7.9% for nonresidents between the 2003 to 2004 and 2004 to 2005 academic years. The average increase for private schools was 4.4% for residents and 4.3% for nonresidents during the same period.

Medical students who plan to seek financial assistance should contact their college financial aid office as early as possible—ideally at the time of the admissions interview.

A Word of Caution
It is critically important to obtain qualified advice before entering into any loan repayment employment agreement. Government programs are many and varied. A firm understanding of what commitments are made and what promises have been secured is essential. Look closely at the source of funding and the fine print, and consult mentors on your faculty and in your student affairs office before entering into any commitments.

Online Resources
Please note: The links below provide general information as a starting point for research. Consult with your college financial aid officer and other qualified advisors before committing to any financial arrangement.

From the American Academy of Pediatrics Resident Section

- Career Planning: How to Manage Your Large Debts, links to several solid articles: www.aap.org/resident/managedebt.htm
- The Resident Scholarship Program: www.aap.org/resident/resscholarship.htm

From the AAMC

- The Layman’s Guide to Educational Debt Management for Residents: www.aamc.org/students/financing/debthelp/laymansguide
- (MD)²: Monetary Decisions for Medical Doctors: www.aamc.org/students/financing/md2/start.htm
- A database of state and other loan repayment/forgiveness and scholarship programs with an interactive guide to information from state health departments, medical schools, federal programs, and military agencies: www.aamc.org/students/financing/repayment
- A chart showing tuition and student fees for first-year medical school students, 2004 to 2005: https://services.aamc.org/tsf
SECTION 15: FINANCING YOUR MEDICAL EDUCATION

From the National Institutes of Health (NIH)
• Pediatric Research Loan Repayment Program
  In return for a 2-year commitment to your research career, NIH will repay up to $35,000 per year of your qualified repayable education debt plus an additional 39% of the repayments to cover your federal taxes, and may reimburse state taxes that may result from these payments:
  www.lrp.nih.gov/about/lrp-pediatric.htm

From the American Medical Student Association
• Charting a Course to Medical School: Financial Aid, a sobering look at financial aid options:
  www.amsa.org/predmed/predmedguide/financialaid.cfm
  (You must be an ASMA member to obtain the guide.)

• Education Loan Consolidation: A Compendium on Student Loan Consolidation and More, information on loan consolidation programs:
  http://easnetwork.com/eas/Consolidation_Compendium.asp

From the US Department of Health and Human Services, loan repayment programs for service in underserved communities
• National Health Service Corps, information about loan repayment programs for service in underserved communities:
  http://nhsc.bhpr.hrsa.gov

• Indian Health Service Loan Repayment Program Service Center:
  www.ihs.gov/JobsCareerDevelop/DHPS/LRP/index.asp


10. Association of American Medical Colleges. Getting into medical school. AAMC Web site. Available at: www.aamc.org/students/considering/gettingin.htm


The recommendations in this publication are provided as a source of information. Variations, taking into account individual circumstances, may be appropriate.

Please note: Inclusion in this publication does not imply an endorsement by the American Academy of Pediatrics (AAP). The AAP is not responsible for the content of the resources mentioned. Addresses, phone numbers, and Web site addresses are as current as possible, but may change at any time.

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THE FUTURE FOR PEDIATRICIANS AND THE AMERICAN ACADEMY OF PEDIATRICS

- Universal health care
- Increased efforts to prevent and reduce childhood obesity
- Expanding education for parents and pediatricians
- Greater understanding and research in human genetics
- Increased efforts to reduce prematurity
- Improvements in vaccine efficacy and delivery