

Allergist/Immunologist

Job Description:

An allergist/immunologist is a physician certified in either internal medicine or pediatrics, who has completed an additional two years of training in allergy and immunology at an accredited* training program and passed the examination given by the American Board of Allergy and Immunology (ABAI). ** [4]

Degree Requirements:

- 4 Years of Undergraduate Study
- Minimum of 3 years Medical School
- 2 years of Allergy and Immunology Training [8]

Job Settings:

Clinical, Hospital, Private Office, Teaching, Research (Medical School, Government, or Industry) [4]

Current Availability (2005):

A June 2000 report entitled, "The Allergy and Immunology Workforce" by SUNY-Albany's Center for Health Workforce Studies forecasts a severe shortage of allergists by 2010, while recent graduates are very enthusiastic about the field and their career choice.

Average:

Salary: 171,223 [4]

Residents:

Salary: 43,995 [8]

Hours/Week: 39.5 [8]

Comments/Quotes:

"I was drawn to medicine because I had an interest in biology and people. I wanted a profession that combined those, and this one challenged me intellectually and allowed me to see patients one-on-one." Yasmeen S. Bilimoria, M.D. [4]

"I chose allergy and immunology because of several factors that are unique to this specialty. It is a rapidly evolving field that offers strong intellectual stimulation; it offers direct translation of bench (research) to bedside (practice); and it affords a great opportunity to take care of children and adults in the clinical practice. There is a broad range of career options available in A/I upon completion of fellowship, including academic, private practice, bench research, etc. There is currently a tremendous demand for allergists in the job market and the working hours of the typical allergist allow for a "work-family" balance in my life." Pramod S. Kelkar, M.D. [4]

Anesthesiology

Job Description:

A physician who specializes in administering medications or other agents that prevent or relieve pain, especially during surgery. [10]

“An anesthesiologist is a specialist in Preoperative Medicine. He or she specializes in care of a patient prior to, during and after surgery. This includes evaluating and preparing a patient to undergo the rigors of surgery. The anesthesiologist plans the anesthetic for the patient and then cares for the patient during the surgical procedure. He/she monitors the patient's blood pressure, heart rate, breathing, and level of consciousness and analgesia. The anesthesiologist adjusts the anesthetic plan, medications, fluids, and other parameters to provide a safe, pain free surgical experience for the patient. He/she will take care of your medical needs during the operation so the surgeon can concentrate on the surgery. After the surgery, the anesthesiologist continues to provide the care necessary to ensure a smooth emergence from the anesthetic and pain control after your surgery”. [39]

Degree Requirements:

- Graduate from medical school
- Complete an internship
- Complete a four-year residency program in anesthesiology [11]
 - Optional 1-2 year subspecialty training: Obstetrical Anesthesia, Cardiac Anesthesia, Pediatric Anesthesia, or Pain Management. [39]

Job Settings:

Hospitals, surgical clinics, and other medical settings [11]

Current Availability (2005):

There are currently 583,000 practicing Anesthesiologists. There is a projected 19.6% increase in the need for Anesthesiologists by the year 2012. [11]

Average:

Salary: 245,000 [22]

Hours/Week: 58.7 [22]

Contacts:

Casey Brian Green, MD
Anesthesiology
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Galveston, Texas
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Anesthesiology Assistant

Job Description:

Anesthesiologist assistants (AAs) are highly skilled allied health professionals who work under the direction of licensed anesthesiologists to develop and implement anesthesia care plans. [40]

Degree Requirements:

- Bachelor's Degree
- Clinical Masters Program (Master of Science in Anesthesiology Degree)
Currently, there are three accredited training programs:
Emory (24 mo.), Case Western Reserve (27 mo.), and South University/Mercer School of Medicine (Georgia) (28 mo.) [40]

Job Settings:

Hospitals, surgical clinics, and other medical settings as a direct care team member. [11]

Average:

Salary: \$80,000 - \$90,000

Hours/Week: Typical work week, with options for on-call, evening, or weekend assignments [41]

Comments/Quotes:

Origin of Anesthesiology Assistant Position:

“In the 1960s, three anesthesiologists, Joachim S. Gravenstein, John E. Steinhaus, and Perry P. Volpitto, were concerned with the shortage of anesthesiologists in the country. After studying the educational pathway for anesthesiologists and nurse anesthetists (NAs), they created a new educational paradigm for a mid-level anesthesia practitioner that included a pre-med background in college. This person would perform the same job as the NA but would be readily able to go on to medical school if appropriate. This new professional, the anesthesiologist assistant, or AA, thus had the potential to alleviate the shortage of anesthesiologists. The concept became reality in 1969 when the first AA training program began accepting students at Emory University in Atlanta, Georgia, followed shortly thereafter by a second program at Case Western Reserve University in Cleveland, Ohio.” [40]

Difference between Nurse Anesthetist and Anesthesiology Assistant:

“Although both are considered by the Centers for Medicare & Medicaid Services (CMS) to be mid-level anesthesia providers, and both may serve as physician extenders in the delivery of anesthesia, AAs and NAs are very different with regard to their educational background. According to the Council on Accreditation of Nurse Anesthesia Educational Programs, a typical applicant to an NA program must have attained a bachelor's degree in either nursing or another appropriate area. Until recently, nurses with only an

associate's degree in nursing also were accepted. Additionally, the applicant must be licensed to practice as a registered nurse and take either the Graduate Record Exam (GRE) or the Miller Analogies Test (MAT) prior to matriculation. Finally, one year of nursing experience is required in an "acute care setting."

In order to be admitted to an AA program, the applicant must have achieved a bachelor's degree with prescribed prerequisites, these being premedical course work in general and organic chemistry, advanced college math, general and advanced biology, and physics. Applicants must then take either the (MCAT) or the (GRE). Although many applicants are from allied health backgrounds such as respiratory therapy and emergency medical technology, and have many years of clinical experience, a clinical background is not an absolute requirement if academic background is of sufficient course content and quality. Nurses who have met the prerequisites may be admitted to AA programs." [40]

School Contacts:

Case Western Reserve University
(216) 844-8077

Emory University
(404) 727-5910

South University
(912) 201-8080 [40]

Cardiology

Job Description:

Cardiology is that branch of medicine that deals with the diagnosis and treatment of heart diseases. Cardiologists investigate patients with suspected heart disease by taking a very careful, extensive history of the patient's condition, and performing a complete physical examination. [29]

Degree Requirements:

- Completion of medical school (MD)
- 3 years of residency in internal medicine
- 3-4 years of fellowship training in cardiac medical or interventional care [32]

Job Settings:

Three out of every four jobs relating to cardiology were in hospitals according to the U.S. Department of Labor. [33]

Average:

Salary: 283,298

Hours/Week: 60-80 [38]

Comments/Quotes:

“Cardiologists are members of multi-disciplinary teams and need to be good team members, communicating with colleagues in other specialties as well as to leading their own teams. They also need to be able to convey confidence to patients. Punctuality and commitment are expected as the norm.” NHS – UK [30]

Caduceus Newsletter, Week of March 13, 2005:

Dr. Patricia Murphy is an equal partner in a suburban small group cardiology practice. She is one of 3 non-invasive cardiologists. The other partners include 3 invasive cardiologists and 1 managing partner. She received her BA/MD training at Brooklyn College, which is part of the SUNY Health Science Center in Brooklyn, New York. She did her residency in Internal Medicine at New York Hospital, and did a cardiology fellowship at New York Hospital. Her role as a cardiologist is to treat patients with coronary artery disease, valvular heart disease, arrhythmias, hypertension, and cholesterol disorders. Her hospital affiliation requires considerable travelling, and for that reason, there is always someone in the practice at the hospitals. As a non-invasive cardiologist, 50% of her work is hospital-based (group admissions, consult, critical care, procedures, echocardiograms, stress tests, and nuclear cardiology), and 50% is office-based (consultation, followup, echocardiogram, electrocardiogram.)

Being in a group practice, she is on call 1 night per week and one weekend every six weeks. The advantages in her position in a group practice include the following:

- Less frequent calls
- She is able to concentrate in her areas of specialization
- She is part of a comprehensive office.

The disadvantages are:

- Hospitalized patients are cared for by more than one physician
- A democracy in the office doesn't always work

The average work week for the group includes the following:

- Office visits: Consultation (30 minutes) - 20; Follow-up visits (15 minutes) - 120
- Hospitalizations: Group's patients - 20; Consults - 35 (will include patients with heart attacks or heart stopped)
- Invasive procedures: Cardiac catheterization - 15.

"Medicine is a fun but stern taskmaster - I work 11 hours per day, sometimes 80 hours per week. The patients come first."

Each of the physicians who gave presentations during this course reported work schedules similar to this - 60 to 80 hours per week. [38]

Certified Nurse Anesthetist (CRNA)

Job Description:

“A Nurse Anesthetist, or Certified Registered Nurse Anesthetist (CRNA), is a licensed professional nurse who provides the same anesthesia services as an anesthesiologist (MD). After completing extensive education and training, CRNAs become nationally certified; they may then practice in all 50 states”. [42]

Degree Requirements:

- Bachelor's Degree
- License as a Registered Nurse
- 1 year nursing experience
- Nurse Anesthetist Program (Usually 24-36 Months) [42]

Job Settings:

“CRNAs practice in a variety of settings in the private and public sectors and in the U.S. military, including traditional hospital surgical suites and obstetrical delivery rooms, ambulatory surgery centers, pain clinics, and physicians' offices. They practice alone, in groups and collaboratively. Some CRNAs have independent contracting arrangements with physicians or hospitals”. [42]

Current Availability (2005):

CRNAs are in demand and therefore have many opportunities for general or specialty practice throughout the United States. [43]

Average:

Salary: \$113,000 [43]

Comments/Quotes/Facts:

“As anesthesia specialists, CRNAs administer approximately 65% of the 26 million anesthetics given to patients in the United States each year.” [43]

Difference between Nurse Anesthetist and Anesthesiology Assistant:

“Although both are considered by the Centers for Medicare & Medicaid Services (CMS) to be mid-level anesthesia providers, and both may serve as physician extenders in the delivery of anesthesia, AAs and NAs are very different with regard to their educational background. According to the Council on Accreditation of Nurse Anesthesia Educational Programs, a typical applicant to an NA program must have attained a bachelor's degree in either nursing or another appropriate area. Until recently, nurses with only an associate's degree in nursing also were accepted. Additionally, the applicant must be licensed to practice as a registered nurse and take either the Graduate Record Exam

(GRE) or the Miller Analogies Test (MAT) prior to matriculation. Finally, one year of nursing experience is required in an “acute care setting.”

In order to be admitted to an AA program, the applicant must have achieved a bachelor's degree with prescribed prerequisites, these being premedical course work in general and organic chemistry, advanced college math, general and advanced biology, and physics. Applicants must then take either the (MCAT) or the (GRE). Although many applicants are from allied health backgrounds such as respiratory therapy and emergency medical technology, and have many years of clinical experience, a clinical background is not an absolute requirement if academic background is of sufficient course content and quality. Nurses who have met the prerequisites may be admitted to AA programs.” [40]

Dermatology

Job Description:

“A dermatologist is trained to diagnose and treat pediatric and adult patients with benign and malignant disorders of the skin (including skin cancers, melanomas and moles), mouth, external genitalia, hair and nails, as well as a number of sexually transmitted diseases”. [16]

“Dermatology is a diverse specialty encompassing disorders and diseases of the skin, mucous membrane, hair and nails and a number of sexually transmitted diseases. Dermatologists deal with a wide variety of diseases including acne, warts, multiple inflammatory dermatoses, skin cancers, autoimmune diseases, occupational dermatoses and contact dermatitis. The treatment ranges from performing a wide variety of surgical procedures (e.g., excisions, sclerotherapy, laser surgery, liposuction, hair transplants and tissue augmentation therapies) to the care of normal skin, prevention of skin diseases and cancers and treatment of photoaging skin”. [23]

Degree Requirements:

- Undergraduate Degree
- Medical School
- 3 year accredited dermatology program.
- Board certification or licensure examination [17]

Job Settings:

- Hospital, clinical, or private practice

Current Availability (2005):

According to an October, 2001 article in the *Archives of Dermatology* the current supply of dermatologists only slightly exceeds the current published demand estimates [16]

Average:

Salary: 219,500

Hours/Week: 42 [23]

Comments/Quotes:

Details of Dermatology Residency from the “Dermatology Channel”:

The dermatology residency program should include study of basic sciences: allergy, anatomy, bacteriology, biochemistry, embryology, entomology, genetics, histology, immunology, molecular biology, mycology, oncology, parasitology, pathology, pharmacology, photobiology, physiology, serology, virology. Dermatologic microbiology, dermatopathology, and immunodermatology should be emphasized.

Experience should be gained in analysis and interpretation of biologic and histologic specimens, and in culturing microbes (i.e., fungi, bacteria, viruses).

Training must be obtained in skin allergy, immunology, and sexually transmitted diseases, and in the relevant aspects of environmental and industrial medicine, internal medicine, obstetrics/gynecology, ophthalmology, otolaryngology, pediatrics, preventive medicine, radiology, and surgery.

Knowledge and competence should be acquired in performing dermatologic surgery, laser surgery, cryosurgery, and procedures in allergy and immunology, clinical pathology, parasitology, dermatopathology, topical and systemic pharmacotherapy, and microbiology (including sexually transmitted diseases). Dermatologic surgical training must include: anesthesia, electrosurgery, cryosurgery, laser surgery, nail surgery, biopsy, and excisional surgery.

Experience in outpatient service as well as inpatient, daycare, and extended care facilities is essential for opportunities to treat serious diseases daily, perform follow-up care, and to provide consultation for patients whose skin diseases are secondary to other types of conditions.

Understanding of the many diagnostic procedures and therapeutic techniques is required, including: chemical peel, dermabrasion, hair transplantation, laser resurfacing, liposuction, sclerotherapy, and tissue augmentation. Understanding of the disease implications and therapeutic applications of electron beam, x-ray, and laser energy is necessary.

Emergency Medicine (MD)

Job Description:

“Emergency medicine specialists are medical doctors who specialize in emergency care. In many areas when people go to an emergency department, they are seen by an emergency medicine specialist. The emergency medicine specialist can diagnose and treat many medical emergencies and can refer people to another doctor for further care and treatment.” [50]

“An emergency medicine physician focuses on the immediate decision making and action necessary to prevent death or any further disability both in the pre-hospital setting by directing emergency medical technicians and in the emergency department.” [51]

Degree Requirements:

- Bachelor's Degree
- Completion of Medical School
- 3 Year Emergency Medicine Residency
- 1-2 Year Subspecialty Training if desired [51]

Current Availability (2005):

“Today there are more than 30,000 practicing emergency physicians with over 14,500 certified by the American Board of Emergency Medicine. With approximately 100 million annual emergency department visits in over 4900 hospitals, it is easy to calculate the severe shortage of qualified emergency physicians. Current projections are that this shortage will extend at least for the next 2-3 decades” [52]

Average:

Salary: \$178,296 - \$224,240 [51]

Comments/Quotes/Facts:

“The American College of Surgeons (ACS) was among the first groups of physicians to recognize the need for organized emergency services. The ACS published progressive recommendations, but no specialties were willing or able to take on the project as the concept didn't fit within the scope of any established specialty. As patient demand increased, more physicians began to staff emergency departments on their own. In 1968, this budding young group of emergency physicians joined together to found the American College of Emergency Physicians. In 1970, the first emergency medicine residency was started at the University of Cincinnati and a host of other residency programs were soon to follow. ACEP worked hard during the seventies to achieve specialty status for these new residency graduates. A core content of knowledge and skills for EM was established; a specialty journal, now known as the *Annals of Emergency Medicine* was founded; textbooks were written; an interim Residency Review Committee was initiated; and continuing medical education courses were offered. All the necessary factors were in place when in 1979, emergency medicine was recognized as medicine's newest specialty by the American Board of Medical Specialties.” [52]

Forensic Pathology

Job Description:

Forensic pathology is a specialized area of pathology. The forensic pathologist performs autopsies to determine the cause and manner of death in situations falling under the jurisdiction of the local medical examiner or coroner. These situations include, however, are not limited to violent deaths such as homicides, accidents, and suicides. Other categories are suspicious deaths, sudden and expected deaths, deaths in children and infants, prisoners, persons under the care of an institution, situations where illicit drugs or alcohol may have contributed to the death, deaths occurring during or in close proximity to a surgical procedure, deaths in individuals not under the care of a physician or when the private physician is unable or unwilling to certify the death certificate, and deaths when there is suspicion of a public health threat. Many persons fail to realize that approximately half of the deaths examined by the forensic pathologist are natural deaths occurring in the absence of injury. The forensic pathologist is also an expert witness in the court of law, testifying in a variety of civil and criminal cases involving death or injury. [52]

Degree Requirements:

- 4 years of college, to get a bachelors degree
- 4 years of medical school, to get the doctor of medicine (MD) degree
- 4 or 5 years of residency (4 for anatomic pathology only, or 5 for combined anatomic/clinical pathology, the latter track being recommended) to become eligible to take the Board exams in pathology
- 1 or 2 years of forensic pathology fellowship, to be eligible to take the subspecialty Board exam in forensic pathology [53]

Job Settings:

The forensic pathologist usually works in a local, county or state medical examiner or coroner system. [52]

Average:

Salary: ~120,000 [55]

Hours/Week:

As a forensic pathologist, what does a typical day at work consist of for you?

I usually get up in the morning at 5.30am and make my way to work arriving at around 6.30am. I spend an hour or so dealing with email messages and letters, and then around 8am go to the mortuary. At our forensic medical institute, we have 5 forensic pathologists and between 10 to 15 autopsies are performed each day. In addition to carrying out a number of autopsies, I might also perform an external examination on a number of deceased persons, and review police reports and medical records regarding

their death before advising the Coroner (a lawyer or judicial officer) as to my opinion regarding the probable cause of death. In addition to examining individuals who have died and determining a cause of death, I will also assist in evaluation of the circumstances in which they died, and any factors in which contributed to their death. After the autopsies and other examinations have been performed I would prepare a written report into each of the cases I have deal with. As with any job within an academic and service institution, there are a number of important meetings and case conferences to be held with other forensic medical and scientific staff, as well as police and the legal profession. During the afternoon I examine the sections of tissues from the body under a microscope, so that the final autopsy report can be completed and released to the Coroner's office. In many cases a cause of death cannot be ascertained until the body tissues have been examined under the microscope, and in addition, it may be necessary to wait until toxicological analysis has been carried out in order to arrive at a final cause of death. During the day I may have to give lectures to medical students, provide tutorial sessions for post graduate specialist pathology trainees, science or law undergraduates and members of the community. I may have appointments to meet with the family of a deceased person to explain to them the results of the autopsy examination and there are usually a number of small research projects that I have underway that need following up. If there are no meetings in the early evening, I usually leave work at around 6.30pm and take a number of documents home to read. [55]

Comments/Quotes:

The forensic pathologist is an expert witness, and is frequently called to testify in a court of law. The frequency of courtroom testimony depends on the population of the jurisdiction and may correlate with the number of homicide cases in the jurisdiction. Cases include both civil and criminal, and death and injury investigations. [52]

Q. What personality characteristics are required in a good forensic pathologist?

A. Varying combinations of the following ingredients:

- **A talent for and interest in science.** This should include not only biology, but physics, chemistry, and the social sciences (anthropology and psychology). For the bread-and-butter technical part of your work, you should especially have a good grasp of spatial relationships.
- **Good communication skills.** You will not only be interacting with law officers, but you'll be trying to convince judges and juries that your findings are valid.
- **Strong stomach.** You'll be routinely dealing with dismembered and/or rotting bodies. From a pure visceral standpoint there is no job more disgusting than forensic pathology.
- **Thick skin.** You *will* be periodically raked over the coals by the local media, who apparently cannot to resist the urge to armchair-quarterback

your work. You will also make many enemies among the citizenry. For instance, when you determine that Daddy killed himself, and he *wasn't* poisoned by that blond bimbo who was only interested in his money, you are going to have some very angry children buzzing around you.

- **The mind of a detective.** You will have to constantly be on guard against being fooled by malefactors smarter and more focused than you. You will have to have some insight into the heart and mind of a criminal. [53]

What is the difference between a medical examiner and a coroner?

Medical examiners and coroners are two different groups that provide a similar service to their communities. Coroners are part of an older system whose origins date back to England many centuries ago, and are usually elected lay individuals. Coroners contract with physicians to provide autopsies and medical expertise to support their investigations. In contrast, the medical examiner system is an American creation approximately a century old. Medical examiners are almost always appointed to their positions, and are physicians with training in medicolegal death investigation. [54]

General Surgeon

Job Description:

A surgeon manages a broad spectrum of surgical conditions affecting almost any area of the body. The surgeon establishes the diagnosis and provides the preoperative, operative, and postoperative care to surgical patients and is usually responsible for the comprehensive management of the trauma victim and the critically ill surgical patient. [59]

Degree Requirements:

- Completion of Medical School
- 5 Years of Residency Training
- Subspecialty: 2 Years of Additional Residency Training [59]

Current Availability (2005):

Work Setting:

Surgeons and anesthesiologists typically work in well-lighted, sterile environments while performing surgery and often stand for long periods. Most work in hospitals or in surgical outpatient centers. Many physicians and surgeons work long, irregular hours. Almost one-third of physicians worked 60 hours or more a week in 2002. Physicians and surgeons must travel frequently between office and hospital to care for their patients. Those who are on call deal with many patients' concerns over the phone and may make emergency visits to hospitals or nursing homes. [24]

Average:

Salary: \$255,438 [24]

Hours/Week: >60

Residency:

Hours/Week: 80

Salary: 1st year ~ \$30,000

5th year ~ \$60,000 [60]

Q & A with a General Surgeon:

What is Jesseph's educational background?

Jesseph attended Indiana University School of Medicine and completed his four-year residency at the Indiana University Medical Center in Indianapolis. He is board certified in general surgery.

How did Jesseph become interested in a career as a surgeon?

Jesseph's father was a doctor, which sparked his interest in medicine at an early age. However, until he attended medical school, Jesseph admits that he didn't truly understand what doctors did. He chose to practice medicine because he wanted to be of "value to other people." Other motivating factors were his interest in science, and the fact that he likes to work with his hands.

Jesseph enjoys general surgery because it is very broad. It allows him to work with all ages, all parts of the body, and many different disease processes. Dr. Jesseph may operate to remove or repair:

- hernias
- the gall bladder
- the appendix
- the colon
- the stomach
- the vascular system
- the thyroid gland
- skin lesions
- the lungs
- the esophagus

He also performs many cancer-related surgeries, such as lumpectomies and mastectomies.

What is it like to work as a general surgeon?

Jesseph shares the following observations about life as a general surgeon:

1. General surgeons work long hours, and may be paged at any time to deal with emergencies. Jesseph observes that in this career, "Your time is not your own." People get sick and become injured round the clock, and doctors need to be available to treat them.
2. The intense and sometimes irregular work schedule makes it difficult to balance work and home life.
3. General surgery is a difficult field for women who plan to raise children. Participation in this area is very low among women in medical schools.
4. General surgery "allows you to enjoy all aspects of medicine."
5. Being a surgeon requires a deep commitment. It is a profession, a way of life, a calling.

What kinds of tasks does Jesseph perform?

Jesseph examines patients, orders and interprets medical tests, prescribes medication, and performs surgery. While he likes surgery because it has a "tangible endpoint," Jesseph believes surgeons need to have a dedication beyond other doctors because they are "always responsible for the people they operate on."

In addition, Jesseph lectures first- and second-year medical students and allows senior medical students to shadow him.

What is a typical workday like for Jesseph?

Jesseph is at work by 7 or 8 a.m. to see patients and make rounds. Most of his work is done in the hospital. Although he sees patients every day, he does not operate every day.

It is not uncommon for Jesseph to arrive home around 8 or 9 p.m. Sometimes he works until midnight, and occasionally he is called into the emergency room after midnight.

Once a week he is on call for twenty-four hours. He is able to rotate being on call over the weekend and on holidays with another general surgeon.

Overall, he works about 70 hours a week.

What does Jesseph like most about his work?

Jesseph likes working with patients and getting to know them. He likes "taking care of patients and getting them back to normal."

What does Jesseph like least about his work?

Jesseph does not like the business aspects of his medical practice, such as dealing with insurance companies. He would prefer to deal only with patients.

What advice would Jesseph give high school students interested in general surgery?

Jesseph recommends that students interested in studying medicine do the following:

- Volunteer or work at hospitals or nursing homes.
- Make a point of talking to nurses and other health care professionals.
- Read about the history of medicine.
- Study science seriously

Internal Medicine

Job Description:

-The non-surgical treatment of diseases occurring in the internal organ systems of adults. Internal medicine doctors may also be referred to as Internists. A general internist usually establishes long-term relationships with their patients, acting as their general physician performing routine physical exams to referring serious or unusual cases to the appropriate specialist. [25]

-Diagnosis and treatment of a wide variety of adult diseases including diabetes, heart disease, respiratory disease, arthritis, gastrointestinal disease, cancer and infectious disease. [26]

Degree Requirements:

- Completion of medical school
- Three year internal medicine residency
- Subspecialty requires one to three additional years of training [31]

Job Settings:

Office, Clinic, Hospital, Nursing Home [29]

Average:

Salary: 150,000 – 179,000 [31]

Residents:

Salary: 45,865 – University of Maryland [27]

Internal Medicine Subspecialties: (requires an additional 1-3 years training)

Cardiology
Endocrinology
Gastroenterology
Hematology
Infectious Disease
Nephrology
Oncology
Pulmonary Disease
Rheumatology

Comments/Quotes:

“Internists are equipped to deal with whatever problem a patient brings -- no matter how common or rare, or how simple or complex. They are specially trained to solve puzzling diagnostic problems and can handle severe chronic illnesses and situations where several different illnesses may strike at the same time. They also bring to patients an understanding of wellness (disease prevention and the promotion of health), women's health, substance abuse, mental health, as well as effective treatment of common problems of the eyes, ears, skin, nervous system and reproductive organs.” [29]

Obstetrician/Gynecologist

Job Description:

Obstetricians provide medical care to women during pregnancy and childbirth. They examine patients to determine their condition, recommend diets/activities, and deliver babies providing care for mothers after childbirth. They may prescribe medicines and perform surgery.

Gynecologists diagnose and treat diseases and disorders of the female reproductive system. They review patients' medical histories, examine patients, evaluate signs/symptoms, and order lab tests. They may also prescribe medicines, recommend diet/activity programs, and perform surgery. [12]

Degree Requirements:

To become an Obstetrician/Gynecologist, one must complete four years of college, four years of medical school, and complete a four-year OB/GYN residency accredited by the Accreditation Council on Graduate Medical Education. [14]

Job Settings:

Hospitals, private or group practice, or public health organizations. [12]

Current Availability (2005):

The outlook for gynecologists/obstetricians looks good, and the number of people employed in this occupation is expected to increase over the next two to three years. [13]

Average:

Salary: 233,061

Hours/Week: >40, must be flexible to attend emergency births. [12]

Comments/Quotes:

"You have to work well under pressure, and have good decision-making ability, because a normal delivery can become complicated in a matter of minutes...You are dealing with patients who have sensitive issues, so it's important to communicate well with patients."
Jenny Westgate, Gynecologist/Obstetrician [13]

Contacts:

Kirksville College of Osteopathic Medicine
Contact: Lori Haxton, Director of Admissions
Phone: (660) 626-2237 [14]

Ophthalmology

Job Description:

An ophthalmologist provides comprehensive eye and vision care including diagnosing, monitoring, and medically or surgically treating all ocular and visual disorders. They prescribe vision services including glasses and contact lenses. [19]

Degree Requirements:

- Complete Medical School
- Participate in a 1-2 year general clinic training
- Three years in a hospital based eye residency program
- One or more years in a subspecialty fellowship [20]

Job Settings:

Hospital, clinic, or private practice.

Current Availability (2005):

According to the web publication *Envision Ophthalmology A Practical Guide to Ophthalmology as a Career Choice*, by the American Academy of Ophthalmology, "Future demand for ophthalmology, as for the other specialties, will depend on the advances of medicine and how fast new procedures and techniques can be made available to meet the needs of the public. Ophthalmology has enjoyed more than its share of scientific and technological breakthroughs in medicine. As such, there are locations throughout the country with relative shortages and others with relative surpluses of comprehensive (general) ophthalmologists and ophthalmologic subspecialists. Overall, from a manpower perspective, ophthalmology continues to be an attractive field of medicine with great opportunities." [19]

Average:

Salary: \$229,200

Hours/Week: 43.7 [21]

Comments/Quotes:

Ophthalmologists are among the most professionally satisfied physicians. This is due in large part to the broad scope of ophthalmic practice, which includes medicine and surgery, treatment of pediatric and adult patients, and provision of primary care as well as highly specialized treatment. Also, because of the nature and wide prevalence of eye problems, the patient's relationship with an ophthalmologist continues over many years, often throughout the patient's life. [20]

Pathology Assistant

Job Description:

A pathologists' assistant is an intensively trained allied health professional who provides anatomic pathology services under the direction and supervision of a pathologist. Pathologists' assistants interact with pathologists in same manner that physicians' assistants carry out their duties under the direction of physicians in surgical and medical practice. Pathologists' Assistants contribute to the overall efficiency of the laboratory or pathology practice in a cost effective manner by performing a variety of tasks, consisting primarily of gross examination of surgical pathology, specimens, and performance of autopsies. [56]

Degree Requirements:

- Bachelor's Degree in Biology or related field
- 2 year Pathologist Assistant training [57]

Job Settings:

Along side a forensic pathologist who usually works in a local, county, or state mdcial examiner or coroner system. [52]

Current Availability (2005):

Since there are few programs available many Universities offering a Pathologist Assistant Program show that their graduates are consistently placed. [58]

Average:

Salary: \$65-70,000 [58]

Accredited Training Programs:

- Duke University - MHS, 2 years
Dr. Kenneth Broda, Program Director
Pamela Vollmer, PA(ASCP), Associate Director
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- 203.582.8795
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Leo Kelly, MHS, Clinical Coordinator
(contact for employment opportunities)
203.932.5711 x4758

Ray Schneider - student liaison
Norwalk Hospital
Dept. of Pathology
24 Stevens St.
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(203)-852-2657
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- Quinnipiac University - MHS, 2 years
Scott Farber, Graduate Admissions Director
275 Mount Carmel Ave
Hamden, CT 0651
- University of Maryland - MS, 2 years
Raymond Jones, PhD, Program Director
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Pathology B 107A
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- Wayne State University - BS, 2 years
Peter Frade, PhD, Program Director
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lbudev@dmc.org and
dianemoric@wayne.edu

- Ohio State University - MS, 2 years
Charles Hitchcock, MD, PhD, Program Director

Gretchen Staschiak, Pathology
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417 East Doan Hall
410 West 10th Avenue
Columbus, OH 43210
(614)-293-4875
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- Rosalind Franklin University of Medicine and Science - MS, 2 years
John Vitale, MHS, Program Director & Clinical Coordinator
Pathologists' Assistant Department
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Trina A. Sherlitz, PT, MS, Clinical Coordinator
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Karen Skish - student liaison

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karenskish@comcast.net [56]

Pediatrician

Job Description:

Providing care from birth to early adulthood, pediatricians are concerned with the health of infants, children, and teenagers. They specialize in the diagnosis and treatment of a variety of ailments specific to young people and track their patients' growth to adulthood. Like most physicians, pediatricians work with different healthcare workers, such as nurses and other physicians, to assess and treat children with various ailments, such as muscular dystrophy. Most of the work of pediatricians, however, involves treating day-to-day illnesses that are common to children—minor injuries, infectious diseases, and immunizations—much as a general practitioner treats adults. Some pediatricians specialize in serious medical conditions and pediatric surgery, treating autoimmune disorders or serious chronic ailments. [45]

Degree Requirements:

- High school diploma
 - College degree
 - Four years of medical school
 - Three years on-site general pediatrics training (interning and residency in hospital)
- [43]

Subspecialties

- Adolescent Medicine
- Neonatal-Perinatal Medicine
- Pediatric Cardiology
- Pediatric Critical Care Medicine
- Pediatric Emergency Medicine
- Pediatric Endocrinology
- Pediatric Gastroenterology
- Pediatric Hematology-Oncology
- Pediatric Infectious Diseases
- Pediatric Nephrology
- Pediatric Pulmonology
- Pediatric Rheumatology
- Pediatric Sports Medicine

Job Settings:

General:

Academic, clinical, and or hospital

Current Availability (2005):

According to the American Academy of Pediatrics, opportunities for pediatricians have increased and will continue to increase with the growth of managed care. [48]

Average:

Salary: \$116,550
Hours/Week: <70 [47]

Comments/Quotes/Facts:

Dr. Greene on becoming a pediatrician:

Although the preparation for becoming a physician doesn't officially begin until college, it unofficially begins much earlier. Every decision for excellence, from [high school](#) onwards, impacts your chances of getting into medical school. The college or university you attend will be considered when applying for medical school -- the more prestigious the school the better. During college you can either complete a pre-med major or a major in almost anything else. My major was actually in history with a specialty in the history and the philosophy of science. Princeton did not facilitate double majors, but I had enough chemistry courses to have been a chemistry major as well. Whatever your major, you must take courses in the core premedical sciences. These include organic chemistry, physical chemistry, physics, biology, and probably calculus. Your grades in these core courses will be particularly important for medical school admission. They will also help prepare you for the MCATs (the standardized testing which plays a significant role in medical school admissions.) To have your medical school application seriously considered, outstanding grades and MCAT scores are important. Once your application is considered, one of the things that will be looked for is your exposure to the world of health and medicine during your undergraduate years. Particularly favorable are a track record of medical research and volunteering in a medical setting. For pediatrics it is especially useful if the volunteer work you have done is with children.

With four difficult years of undergraduate education completed, and an acceptance into medical school, you will settle in for four probably even more difficult years of education. The first two years are primarily focused on the study of basic sciences such as anatomy, physiology, pathology, pharmacology, microbiology, immunology, etc. The second two years are focused on the clinical sciences of medicine, surgery, neurology, psychiatry, obstetrics/gynecology, and of course pediatrics. [46]

Pediatrics accounts for 19.8% of the specialties in the US. [44]

For more information about pediatrics:
Gary@becomingapediatrician.com [43]

Physician's Assistant (PA)

Job Description:

"PAs are formally trained to provide diagnostic, therapeutic, and preventive health care services, as delegated by a physician. Working as members of the health care team, they take medical histories, examine patients, order and interpret laboratory tests and x-rays, and make diagnoses. They also treat minor injuries by suturing, splinting, and casting. PAs record progress notes, instruct and counsel patients, and order or carry out therapy. In 46 States and the District of Columbia, physician assistants may prescribe medications. PAs may also have managerial duties. Some order medical and laboratory supplies and equipment and may supervise technicians and assistants." [45]

Degree Requirements:

- At least 2 Years of College associated with health care experience
- 2 Year Physician's Assistant Program [44]
 - o Most applicants have a Bachelor's Degree or a Master's Degree

ACCREDITED PA PROGRAMS — 137. Programs are accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA, Web site, www.arc-pa.org). The ARC-PA is recognized by the Council for Higher Education Accreditation (CHEA). [46]

Job Settings:

"According to the American Academy of Physician Assistants, almost 90 percent of certified PAs were in clinical practice in 2003. More than half of jobs for PAs were in the offices of physicians or other health practitioners. About a quarter were in hospitals. The rest were mostly in outpatient care centers, the Federal government, educational services, and employment services." [44]

"Physician assistants (PAs) are found in all areas of medicine. They practice in the areas of primary care medicine - that is family medicine, internal medicine, pediatrics, and obstetrics and gynecology -- as well in surgery and the surgical subspecialties." [46]

Current Availability (2005):

"Physician assistants held about 63,000 jobs in 2002. The number of jobs is greater than the number of practicing PAs because some hold two or more jobs. For example, some PAs work with a supervising physician, but also work in another practice, clinic, or hospital." [44]

Average:

Salary: \$78,257

Hours/Week: 32-40 [46]

Comments/Quotes/Facts:

Origin of Physician Assistant Program:

In the mid-1960s, physicians and educators recognized there was a shortage and uneven distribution of primary care physicians. To expand the delivery of quality medical care, Dr. Eugene Stead of the Duke University Medical Center in North Carolina put together the first class of PAs in 1965. He selected Navy corpsmen who received considerable medical training during their military service and during the war in Vietnam but who had no comparable civilian employment. He based the curriculum of the PA program in part on his knowledge of the fast-track training of doctors during World War II. [46]

“What a physician assistant does varies with training, experience, and state law. In addition, the scope of the PA's practice corresponds to the supervising physician's practice. In general, a physician assistant will see many of the same types of patients as the physician. The cases handled by physicians are generally the more complicated medical cases or those cases which require care that is not a routine part of the PA's scope of work. Referral to the physician, or close consultation between the patient-PA-physician, is done for unusual or hard to manage cases. Physician assistants are taught to "know our limits" and refer to physicians appropriately. It is an important part of PA training.” [46]

Psychiatrist

Job Description:

Psychiatrists help patients deal with mental illnesses such as substance abuse, anxiety disorders, or depression. Some mental illnesses have a biological cause, such as a lack of the proper chemicals in the brain. Other mental illnesses are caused by an event, such as the death of a loved one. Psychiatrists differ from psychologists and doctors because they have both medical and psychological training. Thus, they can prescribe drugs when necessary, but also know how to counsel patients.

When psychiatrists get new patients, they begin by gathering information about them. They meet with patients and ask them about their current and any previous mental health problems. They review the patient's medical history and family background to look for a biological cause of the problem. Psychiatrists may talk with family members to learn more about the patient's life. In addition, they may consult with other mental health specialists who have worked with the patient. Psychiatrists may use lab tests to help make a diagnosis.

After analyzing patients' health and examining their mental state, psychiatrists make a treatment plan. They treat mental illness in many ways. Psychotherapists talk about issues with patients to help solve problems. Some psychiatrists prescribe medications. Other psychiatrists use a combination of talk and drug therapy. In some cases, psychiatrists admit patients to hospitals. [49]

Degree Requirements:

- complete a bachelor's degree;
- graduate from medical school;
- complete an internship;
- pass a state licensing exam;
- complete a three-year residency program in psychiatry;
- pass additional exams to become board certified;
- have strong interpersonal skills; and
- be self-motivated. [49]

Job Settings:

General:

Academic, clinical, and or hospital

Most Common:

Psychiatrists' offices

Hospitals [49]

Current Availability (2005):

It is a fact that there is a serious shortage of child and adolescent psychiatrists in the United States. Other medical and non-medical disciplines work with behavioral and emotional aspects of children and adolescents, but Child and Adolescent Psychiatrists are very special because they have an enormous repertoire of diagnostic and treatment

options that they can make available to those in need. These options are tailored to each specific patient, family, or community. [50]

Average:

Salary: \$130,930

Hours/Week: > 40 [49]

Comments/Quotes/Facts:

Mental illness is extremely common - far more prevalent than most people realise. Research suggests that 1 person in 4 will experience some kind of mental health problem in the course of a year¹. This kind of illness therefore ranks alongside cardiovascular disorders and cancer as one of the nation's biggest health problems. Mental health problems can take many forms including depression, schizophrenia, eating disorders, anxieties, phobias, drug and alcohol abuse, post-traumatic stress disorder, and dementia. [51]

What do Psychiatrist treat?

There is enormous variety within psychiatry. You could be treating people suffering from numerous mental health problems including:

- depression
- learning disabilities
- alcoholism or drug addiction
- eating disorders
- phobias, such as fear of heights or open spaces
- post-traumatic stress disorder
- anxiety
- personality disorders

or helping patients to cope with:

- marital or family problems
- bereavement
- memory impairment
- Alzheimer's Disease
- the mental health problems of children and teenagers
- criminal proceedings and Court appearances [51]

Radiology

Job Description:

A radiologist diagnoses and treats diseases utilizing radiologic imaging procedures in adults and children. Physicians practicing in the field of radiology most often specialize in diagnostic radiology, radiation oncology, or radiological physics. A diagnostic radiologist utilizes x-ray, radionuclides, ultrasound, and electromagnetic radiation to diagnose and treat disease. A radiation oncologist deals with the therapeutic applications of radiant energy and its modifiers and the study and management of disease, especially malignant tumors. A radiological physicist deals with the diagnostic and therapeutic applications of roentgen rays, gamma rays from sealed sources, ultrasonic radiation, and radio-frequency radiation, as well as the equipment associated with their production and use, including radiation safety. [35]

Subspecialties:

- Abdominal Radiology
- Cardiothoracic Radiology
- Endovascular Surgical Neuroradiology
- Musculoskeletal Radiology
- Neuroradiology
- Nuclear Radiology
- Pediatric Radiology
- Vascular and Interventional Radiology [35]

Degree Requirements:

- Completion of medical school (MD)
- 5 years of residency in radiology with a minimum of 4 years spent in diagnostic radiology

Current Availability (2005):

Radiology has experienced a shortage of diagnostic radiologists over the past few years; however, research published in the February 2004 issue of the American Journal of Roentgenology suggests the workforce crisis may be easing. [35]

Average:

Salary: 230,000 [36]

Comments/Quotes:

"If you are considering a career in Clinical Radiology, a good understanding of general medicine and surgery is paramount. In the past, a higher examination such as MRCP or MRCS was often needed to secure one of the highly competitive Specialist Registrar posts. As we move towards Foundation Years and Modernising Medical careers, there will be an increasing emphasis on student electives, audit/research projects in Radiology, demonstrable links with Imaging Departments during Foundation Years, an

intercalated BSc or some other mark of distinction. Above all you will need enthusiasm, good eyesight and the ability for hard work! The rewards are high with a career where your skills are valued both by your clinical colleagues and your patients. Many doctors now seek flexibility within their working lives and a better work/life balance. The Royal College of Radiologists is at the forefront of work to facilitate such opportunities both during training and once qualified and is soon to publish specialty specific advice on Improving Working Lives.” The Royal College of Radiologists [37]