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Preface

This booklet is prepared as a joint effort of the Offices of Student Affairs and Career Counseling and our Jefferson clinical departments especially for our junior and senior students. Timely counseling for students seeking curricular choices as well as suggestions for postgraduate positions remains a key commitment for all of us. Departments were requested to submit the names of their faculty who are interested in counseling students interested in residency training in their field of medicine. The names, phone numbers, and geographic locations are contained in this booklet. In addition, there is a departmental statement describing the specialty.

For more information regarding graduate medical education it is suggested that you visit the Office of Student Affairs and Career Counseling/Graduate Medical Education web site located at **<http://www.jefferson.edu/jmc/osacc/career/>**. This site will provide you with several resources regarding residency programs, the National Resident Matching Program (NRMP), the Electronic Residency Application Service (ERAS), a timeline to guide you along the senior year, and a variety of other information to help you in your career choices.

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Anesthesiology

Anesthesiologists are involved in patient care in three main areas: 1) operating room anesthesia, 2) critical care medicine, and 3) pain control.

The great majority of Anesthesiology's effort is in the operating room. There, the anesthesiologist renders the patient insensitive to surgical pain. In doing so, extremely potent drugs are used which markedly affects the patient's physiology. Most noticeably affected, are the cardiovascular and respiratory systems. Operative care of the patient requires monitoring and maintenance of physiologic functions. This may require pharmacologic intervention, controlled respiration, and adjustment of fluid infusions. A great technology has developed around Anesthesiology to help in precise measurement of physiologic changes.

Some anesthesiologists are involved in the care of critically ill surgical patients. The American Board of Anesthesiology offers a Certificate of Special Qualifications in Critical Care Medicine. The involvement in postoperative care is a logical extension of the operating room care provided by the anesthesiologist. Patient involvement is usually in management of cardiovascular and pulmonary problems.

Involvement of anesthesiologists into the treatment of pain problems is also a logical extension. Both acute and chronic pain problems are addressed by anesthesiologists. This area of Anesthesiology is very attractive to the physician who wishes to have more long term involvement with patients.

Training requirements in Anesthesiology start with a clinical base year which is best fulfilled by a medical or rotating type of internship. Surgical and pediatric years are also acceptable. Three years of clinical Anesthesiology are required. The third year may focus on a special area. Research activity is also allowed in the third year.

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Dermatology

Dermatology ranks among the top medical specialties as the physician's satisfaction as a career choice is concerned. This is, in part, due to the fact that dermatology is a varied specialty that encompasses many of the exciting aspects of internal medicine, surgery, pathology, medical genetics, and human biology. For example, cutaneous surgery has become an integral part of the dermatology practice, and lasers are an established tool to treat skin diseases. In addition to clinical dermatology, this specialty provides excellent opportunities to develop an academically oriented career emphasizing research on specific skin diseases as well as on cutaneous biology in general. Indeed, dermatology is a fertile soil for clinical and basic research due to the fact that the knowledge of molecular basis of skin diseases and the treatment options in many cases is still inadequate.

There are well over 100 Jefferson graduates practicing dermatology throughout the country. Jefferson's Department of Dermatology and Cutaneous Biology is among the ninety or so approved residency programs providing postgraduate training in dermatology. Most residency positions are filled through a national matching program, and M.D.s are accepted to these positions contingent upon completion of a PGY-1 year in an approved clinical internship, such as internal medicine, general surgery, family practice, obstetrics and gynecology, and pediatrics, or a transitional year. The total number of residency positions in the U.S., approximately 290 per year, is able to accommodate only about 50% of all applicants. We will be happy to assist you in your career planning.

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Emergency Medicine

Emergency Medicine is the medical specialty with the principal mission of evaluating, managing, treating and preventing unexpected illness and injury.

Anyone may unexpectedly require medical care at any time. Emergency medical care must therefore be available 24 hours a day as an essential component of all health care delivery systems.

Emergency medicine encompasses a unique body of knowledge, outlined in the “Core Content for Emergency Medicine.”¹ Emergency physicians provide rapid assessment and treatment of any patient with a medical emergency. In addition, they are responsible for the initial assessment and care of any medical condition that a patient believes requires urgent attention, and they provide medical care for individuals who lack access to other avenues of care.

The specialty of emergency medicine is practiced in a variety of hospital and non-hospital settings. Emergency physicians have a role as both direct providers and coordinators of patient care. As a result, they possess a deep understanding of the logistics of medical care. They are uniquely positioned to play a pivotal role in the planning, development, implementation, and evaluation of effective and efficient health care systems.

Emergency medicine exists to provide access for all to the unplanned but needed health care. It is American’s health care safety net.

References: ¹American College of Emergency Physicians: “Core content for Emergency Medicine,” Annals of Emergency Medicine, 1991;20:920-934.

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Family Practice

Family Practice is the youngest of the major specialties, and currently ranks third behind medicine and surgery in the number of residents training in the field. Approximately 12% of all residents in the country are in family medicine. 452 approved residencies in Family Medicine are available throughout all 50 states. These residencies represent a huge diversity in clinical settings ranging from rural community hospitals to urban university hospitals such as the program at Thomas Jefferson University.

The specialty of Family Practice was created in 1969 to respond to the need for skilled, well-training family physicians to provide primary care throughout the country. Originally, significant emphasis was given to the concept of training physicians to practice in rural areas. In the past decade, however, the need for well-trained primary care physicians in every area of the country has become evident. For example, the need for primary care physicians to care for an urban, poor population is dramatic. An estimated 800 residents per year are required to meet the growing demands of a changing health care environment. As the specialty grows, the concept of training physicians to be specialists in delivering primary care continues to evolve. Increasingly, the efficacy of having a family physician that specializes in handling whatever health problems emerge in a family has become apparent.

One basic reality identified by educators in the field of Family Practice is the need to embrace a medical model, a model that considers biological, psychological, sociological, and cultural aspects of illness in an integrative fashion. This model demands that the physician be knowledgeable and comfortable with both physiologic and psychological aspects of care. There is a clear need for outstanding clinical skills.

Family Practice (continued)

Family Practice is a broad-based specialty. Quality family physicians must have expertise in many aspects of preventive care, management of common chronic problems such as hypertension diabetes and osteoarthritis, as well as in the diagnostic evaluation of symptomatic individuals. Family doctors care for patients throughout the life cycle including providing obstetric and newborn care in many parts of the country.

Recent changes in the health care system have led to an increasing need for quality primary caretakers. Family Practice residency programs are helping to meet this need.

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Internal Medicine (continued)

Internal Medicine

Internal Medicine is a primary care program in which the PGY-I is exposed to the broad field of Internal Medicine which includes general internal medicine and all of the subspecialties of internal medicine.

A general internal medicine residency training program prepares the individual for a career in the primary care of the adult. It is also a prerequisite for the further training in subspecialties of internal medicine such as Cardiology, Endocrinology, Gastroenterology, Hematology, Infectious Diseases, General Internal Medicine, Neoplastic Diseases, Nephrology, Pulmonary and Rheumatology.

The educational focus of the internal medicine training program is designed to allow optimum exposure to all facets of internal medicine in order to prepare for the individual for a position of leadership as a practitioner, consultant subspecialist or academician.

The residents' clinical experience occurs at Thomas Jefferson University Hospital, the Wilmington VA Medical Center, Methodist Hospital, and the offices of internists throughout the tri-state area.

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Neurology

Neurology is the branch of medicine concerned with the diagnosis and treatment of diseases of the nervous system, i.e., the brain, spinal cord, peripheral nerves and muscle. Patients with neurological disease present at all ages with a variety of challenging and compelling problems. Careful clinical analysis of patients with nervous system disease allows for a very precise localization and characterization of the disorder. The resident learns to perform a comprehensive and detailed neurological history and examination; and to understand the rationale for a wide range of neurodiagnostic studies including: lumbar puncture; computerized tomography, magnetic resonance imaging, angiography, myelography, electroencephalography, electromyography, and evoked potentials as they apply to individual patients. All major subspecialties of Neurology are covered in clinical rotations over the three-year period of residency training. Time is provided for elective rotations as well to permit the resident to pursue individual interests. There is particular emphasis on contemporary neurotherapeutics throughout the program, reflecting the rapid recent growth of therapeutic choices in clinical neurology. Didactic instruction is also provided in the basic neurosciences during the three year training period, ensuring a solid knowledge base upon which the graduate of the program can build in the future.

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NEUROSURGERY

Neurosurgery is a specialty that requires one year of general surgery plus five years of neurosurgery following graduation from medical school. Competition for neurosurgical positions is quite keen, inasmuch as about half of the applicants are accepted into approved training programs. In spite of this, students with good grades, ambition, and a very strong interest in neurosurgery that can be substantiated are generally accepted.

Neurosurgery is becoming increasingly desirable as a result of the recent developments in neuroradiology with the CAT scan, MR scan, interventional radiology, pet scanning, etc. From a technical point of view, neurosurgery has always enjoyed a reputation as a demand specialty. Now with the microscope, stereotactic localization, and the resurgence of stereotactic surgery, this long-held impression is more true now than ever.

Neurosurgery is a great specialty filled with enthusiastic people who are well trained and truly do one of the most interesting surgical subspecialties.

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Nuclear Medicine

Residency training in nuclear medicine requires one year of AMA approved training in medicine, pathology or radiology prior to entry into the nuclear medicine residency. The duration of nuclear medicine residency approved by the AMA is two years. Upon completion of successful training, trainees become board eligible in the nuclear medicine specialty.

The field of nuclear medicine consists of in vitro tracer kinetic studies, in vivo kinetic studies, in vivo imaging (the most common type of NM practice), therapeutic uses of unsealed isotope sources, and researches using various radioactive tracers.

Nuclear Medicine procedures are based upon physiologic, metabolic and functional nature rather than anatomical information used in U-S, C-T and MRI. There are ample opportunities for basic and clinical researches in addition to clinical practice. Radioimmuno-detection and radioimmunotherapy using radiolabeled monoclonal antibodies, the continuous development of new radiopharmaceuticals, single photon emission computer tomography (SPECT), and positron emission topography (PET) are exciting developments in nuclear medicine in recent years.

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Obstetrics and Gynecology

The field of Obstetrics and Gynecology encompasses comprehensive health care for women. The obstetrician-gynecologist provides primary health services for women including education and preventive care, treatment for routine and complex gynecologic and obstetric problems, and consultative services to other physicians and para-medical personnel in problems relative to the reproductive and the lower urinary systems. The Obstetric/Gynecology specialist must have a comprehensive understanding of the embryology, genetics, physiology, endocrinology, and pathology of the fetus and female reproductive system in order to provide care to the female from pre-menarche to post-menopause. Residency programs in Obstetrics and Gynecology are structured to provide the medical, obstetrical and surgical skills required of the consultant obstetrician-gynecologist. As these skills are absorbed, the judgmental processes for patient care will be developed in the physician.

Residency programs consist of four years of postgraduate education, and are governed by the Accreditation Council for Graduate Medical Education on recommendation by the Residency Review Advisors for Obstetrics and Gynecology (RRC).

Programs in Obstetrics and Gynecology stress training in both hospital based and ambulatory care settings and include experience in: both routine Obstetrics and Gynecology; maternal-fetal medicine; immediate care of the newborn; urogynecology, pelvic surgery; pelvic pathology; reproductive endocrinology, infertility; family planning; genetics; medical ethics; gynecologic oncology including chemotherapy, radiation therapy, psychosexual and psychosomatic counseling; and a host of diagnostic and therapeutic procedures.

Graduates of approved residency programs are eligible to apply for the examination process leading to board certification in Obstetrics and Gynecology, which consists of two exams. Part 1 is offered in late June, immediately upon completion of the residency program, and is a written examination. Part 2 is an oral examination given in December after the completion of two years of specialty practice and the preparation of a patient case list. Current board certification is of limited duration and must be renewed at 10 years intervals.

Obstetrics/Gynecology (continued)

At present, there are four recognized sub-specialties in Obstetrics and Gynecology: Gynecological Oncology, Reproductive Endocrinology, Maternal-Fetal Medicine, and Urogynecology/Pelvic Surgery. Preparation for certification in a subspecialty is via a three year post-residency fellowship in a program accredited by the appropriate division of the American Board of Obstetrics and Gynecology. Satisfactory completion of such training confers eligibility to take the examination for sub-certification of special competence in that field. Fellowship training currently not leading to certification is also available in some centers in: infectious diseases, and pelvic and fetal sonography.

Resident and fellow graduates may enter clinical practice or academic medicine according to their training. Academic careers may focus on basic science, clinical research, public health, student and resident education or some combination.

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Ophthalmology

Although Ophthalmology is sometimes regarded as a highly specialized field, the comprehensive ophthalmologist is, in fact, a primary care physician. Patients who consult an ophthalmologist usually are self-referred and range in age from the newborn to the geriatric. The ophthalmologist, like other primary care physicians, has the opportunity to get to know and follow patients and their families, allowing for continuity of care.

Most ophthalmologists practice a mixture of medicine and surgery, ranging from lens prescriptions and standard medical treatment to the most delicate and precise surgical procedures. The average American ophthalmologist will see over one hundred patients in a regular work week and will perform two major surgical procedures, the most common being cataract extraction. Ophthalmologists have always ranked among the most professionally satisfied physicians. This is probably due to the opportunity to practice comprehensive ophthalmology in both the medical and surgical fields, the broad diversity of the patient population and the option to become sub-specialized if one desires.

Like many other specialties, ophthalmology has undergone considerable sub-specialization. This usually requires a fellowship of one or two years. The common areas of sub-specialization include Cornea, Vitreoretinal Disease, Glaucoma, Neuro-ophthalmology, Ophthalmic Pathology, Ophthalmic Plastic Surgery and Pediatric Ophthalmology. Many of the graduating Wills Eye Hospital residents will take a fellowship. The percentage varies from year to year.

Obtaining residency positions in ophthalmology is very competitive. Nationally, approximately 90 to 95% of applicants obtained a first year position in the 2001 Match. Experience has shown that no single factor assures an applicant success in obtaining a residency. Academic performance is certainly one factor. This is measured by college grade point average, medical school class rank and grades and Step I Board scores. Letters of recommendation, particularly the Dean's Letter, are important. Applications are screened to select those to be interviewed. Some programs interview most applicants, while others are very selective. A good interview can overcome deficiencies in other areas and a bad interview can dim an otherwise fine application. It should be emphasized that each residency program weighs these factors differently, some placing more emphasis on academic, some on research as well as other factors. Ophthalmology uses a computerized matching system to determine the selections.

Our specialty, like many others, has undergone considerable change over the past few years. Government regulations, rapid technological advances, out-patient surgery and the predicted over supply of ophthalmologists have had a significant impact on the specialty. Nevertheless, it is an exciting and satisfying field and we have every reason to believe that it will continue to remain so.

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Orthopaedic Surgery

INTRODUCTION

The Thomas Jefferson University Hospital Orthopaedic Educational Program offers a well-balanced program of four years in orthopaedic surgery.

ORGANIZATION

The Thomas Jefferson University Hospital Educational Program is directed by Richard H. Rothman, M.D., Ph.D., who is the Chairman of the Department of Orthopaedic Surgery of Jefferson Medical College and Director of the Rothman Institute. Peter F. Sharkey is the Residency Director and Chairman of the Resident Selection Committee, and is responsible for the curriculum of the orthopaedic residency program.

Accomplishing a unique restructuring of the orthopaedic residency program, which has been in existence since 1946, the Department of Orthopaedic Surgery has selected five hospitals through which the residents will rotate. The parent institution is Thomas Jefferson University Hospital. The affiliated hospitals are Bryn Mawr Hospital, Lankenau Hospital, Alfred I. duPont Institute, and Lehigh Valley Hospital.

Founded in 1824, Thomas Jefferson University is one of the larger medical teaching centers in the United States. Thomas Jefferson University Hospital is the principal teaching hospital of the Jefferson Medical College and the College of Health Professions. It offers facilities for the education of medical students, residents and fellows for all fields of medicine and surgery.

The bed complement is 697 of which 100 beds are designated for the adult orthopaedic service. In addition, the hospital contains the only Spinal Cord Injury Center (SCI) for the Delaware Valley area. A helipad, located on a campus rooftop, is used for the transport of patients to the SCI and other critical care services. The campus also contains a basic science facility, student commons and housing, and a library having 95,000 volumes and a journal collection of 1,600.

Orthopaedic Surgery (continued)

The Rothman Institute is the largest facility in the Delaware Valley for reconstructive surgery of the spine, hip, and knee.

The parent institution performs over 8,000 orthopaedic operative procedures annually. The unique relationship between Thomas Jefferson University Hospital and its affiliated hospitals affords residents exposure to general orthopaedics and numerous subspecialties in urban tertiary care settings.

The affiliates round out the program in terms of the level of care, patient population, and settings. Lankenau Hospital, a community hospital in Philadelphia, is known for its strength both in sports medicine and trauma. Bryn Mawr Hospital, a suburban hospital located in Bryn Mawr, offers residents exposure to a wide variety of orthopaedic problems with an emphasis on joint reconstruction. Alfred I. duPont Institute in Wilmington, Delaware, is the leading pediatric orthopaedic institution in the East. Lehigh Valley Hospital provides residents with additional experience in the treatment of trauma related injuries.

PHILOSOPHY

The Department of Orthopaedic Surgery's philosophy involves the total commitment to excellence in patient care, education, and research. In its selection of the six hospitals and the recruitment of highly skilled faculty, the Department upholds its commitment to excellence. Those subspecialties in which the Department enjoys a leadership position include the following:

Adult Hip Reconstruction	Pediatric Orthopaedic Surgery
Adult Knee Reconstruction	Shoulder Surgery
Basic Science and Research	Scoliosis and Spinal Deformity
Cervical Spine Surgery	Spinal Cord Injury
Foot and Ankle Surgery	Sports Medicine
Hand Surgery and Rehabilitation	

The basic tenets of the residency program are the dedication to excellence in patient care, diversification of the clinical conferences, and stimulation of interest in clinical and basic sciences.

CLINICAL ROTATIONS

The residency is a four year clinical program, usually following an initial postgraduate year of general surgery. Six residents are selected annually. The first clinical year of orthopaedics is spent mainly at the core hospital, Jefferson with two months dedicated to office orthopaedics and two months at Bryn Mawr Hospital. The second clinical year includes rotations on the hand surgery service and foot and ankle service at Thomas Jefferson University Hospital, and it also includes four-month rotations at two of the affiliated hospitals. Four months of the third year are spent on a pediatric orthopaedic rotation at the duPont Institute. The last clinical year is spent as a chief resident with rotations at the core hospital. With advancement in the clinical program, residents are expected to assume greater responsibility for patient care in the operating room and during the preoperative evaluation and postoperative management.

Orthopaedic Surgery (continued)

CONFERENCES

There is a balanced program of both didactic and group participation conferences. Conferences held weekly or bi-weekly include the following:

- Grand Rounds
- Patient Management
- Anatomy Conference
- Basic Science Conference
- Fracture Conference
- Metabolic Bone Disease Conference
- Operative Technique Conference
- Pediatric Orthopaedic Conference
- Spine and Joint Surgery Conference
- Spinal Cord Injury Conference
- Morbidity and Morality Conference
- Subspecialty Journal Clubs
- Sports Medicine Conference
- Total Joint Conference
- Foot and Ankle Conference
- Hand Surgery Conference
- Musculoskeletal Tumor Conference

The residents actively participate at all levels of this conference program and take an active role in the education of the medical students who rotate through the orthopaedic service. The Department of Orthopaedic Surgery emphasizes the importance of the residents' responsibility for instructing medical students.

A program of "Visiting Professors" has been instituted to bring scholars of national stature to our Department.

RESEARCH

Residents are expected to complete at least one and usually two research projects by the end of their residency. Both basic science and clinical research projects are stressed. The Jefferson Orthopaedic Society meeting, held annually in November, is an excellent forum for these papers to be presented and also critiqued by our many visiting professors. Residents also serve on the editorial board of the Jefferson Orthopaedic Journal and endeavor to publish original papers, representing their research projects.

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Otolaryngology

The field of Otolaryngology involves the structures above the clavicle. Specifically, this field focuses on: hearing, sinonasal function, taste, and voice. The role of this specialty is to either prevent deterioration of the above functions or restore them in patients of all age groups by medical or surgical means.

Otolaryngology, as any other field of medicine, emphasizes anatomy, pharmacology, pathophysiology, biochemistry, immunology, allergy and neurology relevant to the head and neck. It is a good mixture of medicine and surgery with significant diversity enough to allow individuals to specialize in just one aspect of the field. These subspecialties include: allergy, neurotology, facial plastics, pediatric otolaryngology, rhinology, and head and neck oncology.

At the end of training, the Otolaryngologist is expected to be a well-rounded physician, with a good base of knowledge, critical and constructive in his or her thinking process. In addition, compassion and human understanding are emphasized.

DEPARTMENT OF PATHOLOGY, ANATOMY, AND CELL BIOLOGY

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Pathology

The practice of pathology involves application of modern technology to the scientific study of diseases processes. Morphological observations are made at the gross, light microscopic and electron microscopic level, and specialized laboratory tests utilize a variety of techniques from disciplines such as chemistry, immunology, and microbiology. New scientific developments are being continually introduced into practice of pathology to enhance diagnostic capabilities. These include techniques such as use of DNA probes to identify viruses and bacteria as well as the use of monoclonal antibodies to identify cell surface antigens by flow altered gene expression in neoplasm, flow cytometry or tumor markers by immunohistochemistry.

The general field of pathology includes many subspecialty areas. Most pathologists obtain their basic certification from the American Board of Pathology in Anatomic and Clinical Pathology. Anatomic Pathology includes surgical pathology, cytopathology and autopsy pathology. Clinical Pathology, sometimes called Laboratory Medicine, encompasses clinical chemistry, hematopathology, immunology, microbiology, blood banking, and immunoematology. Residency training also includes instruction in cytogenetics and histocompatibility (HLA) testing. Because many pathologists' practices include responsibility for directing large laboratories, training in management are important aspects of all programs.

Certification by The American Board of Pathology in anatomic and clinical pathology requires four years of training in an approved program following graduation from medical school.

Pathology (continued)

Many pathologists take additional training in a subspecialty following completion of their basic residency. Subspecialty certification requires one or two years of additional training in an approved program. The American Board of Pathology grants special qualification certificates in ten areas: blood banking/transfusion medicine, chemical pathology, dermatopathology, forensic pathology, hematopathology, immunopathology, medical microbiology, neuropathology, pediatric pathology, molecular pathology and cytopathology.

Pathologists practice in a variety of environments. Most pathologists work in community hospitals where practice includes combined anatomic pathology with direction of the clinical laboratories. In medical schools, most pathologists select one or two subspecialty area for their practice and conduct related research programs. Academic pathologists are also involved in teaching programs for undergraduate medical students and residents, and they collaborate in presenting conferences with all of the clinical departments. Some pathologists direct independent laboratories (not-hospital-associated) or provide services to several different hospitals. Others restrict their activities to subspecialty areas such as forensic pathology, serving as medical examiners or blood banking. Pathology is a broad specialty that many different types of practice opportunities. Many medical students are attracted to the field of pathology because it offers the unique opportunity for the in-depth scientific study of the entire spectrum of medical and surgical diseases, applications research and applied genetics.

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Pediatrics

This is an exciting time for child health professionals. The dimensions of child health care are expanding in all directions, and on all fronts. Advances in such crucial areas as neonatology, immunology and genetic disease have produced dramatic improvements in diagnosis and treatment. Basic research in these and other areas promises to continue that progress in the future.

In general pediatrics, the psychosocial aspects of pediatric care are being explored and understood as never before. To a certain extent, this "new" pediatrics is a result of the previous breakthroughs in immunization and other fields. When pediatrics was an infant discipline, children died from a wide variety of causes, most of which have now been brought under control.

Pediatrics (continued)

Today, the largest killer of children from birth through fourteen years of age is accidents. Birth defects, metabolic-endocrine disease, hereditary diseases, oncology and chronic diseases have assumed a much greater proportion of the pediatrician's or pediatric subspecialist's time. This kind of a change in the threats posed to children has naturally dictated a change in the way health care is taught and practiced.

This change in emphasis relating to pediatric care is already reflected in the way child health professionals deal with patients and the kinds of problems they are being asked to consider. A recent survey of pediatricians, conducted by the American Academy of Pediatrics showed an increase within the last several years, in the frequency of patient visits involving school health problems, behavioral difficulties and psychosocial counseling as well as the diseases historically associated with the practice of pediatrics.

Unfortunately, many pediatric training programs have been slow to recognize these expanding interests. More than 40 years ago, in 1951, the American Board of Pediatrics advised that pediatric training centers must increasingly assume the responsibility for the day-to-day teaching of these newer areas of clinical training.

The "new" general pediatrics places increased emphasis on preventive medicine. It views child health care as a continuing process, not as a series of acts or examinations performed at prescribed intervals. It demands increased involvement by health professionals in all aspects of child health. The subspecialties offer exciting opportunities in academic medicine or clinical practice. General pediatric training offers a very broad-base training. This training can lead to the practice of general pediatrics in an urban or rural setting; or it can lead to one of the many pediatric subspecialties that includes cardiology, neurology, gastroenterology, infectious disease, endocrinology, neonatology, allergy and immunology, pulmonary, hematology, psychiatry and adolescent medicine. Opportunities as practitioners or academicians in all these fields are great.

This is an exciting time. The demands and the challenges are great. But the potential rewards, both for children and for the child health professional, are even greater.

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PSYCHIATRY

A psychiatrist is a physician who specializes in the diagnosis, treatment, and prevention of illnesses of the brain and of the mind. Psychiatrists are uniquely qualified to assess both the mental and physical aspects of behavioral, cognitive and emotional disturbances. Their medical education has given them a full working knowledge of the many causes for a patient's feelings and symptoms. Armed with this understanding, psychiatrists can make a complete, accurate diagnosis and then recommend and provide treatment.

Psychiatrists are trained to integrate the treatment of the biological, psychological and sociocultural aspects of human illness. Attention to the patient's inner emotional experiences and to meanings of patients' illness are particularly emphasized in our field of medicine.

A good psychiatric residency combines state-of-the-art medical training in all of the relevant biomedical issues relevant to mental life, while simultaneously including intensive training in psychological approaches to the mind. Psychiatrists must master psychopharmacology, including understanding how medications may treat brain functions controlling affective, cognitive, and psychotic thought processes.

A general psychiatry residency is four years. The first, or internships year (PG-I) at Jefferson and many other programs consists of six months of medicine, neurology and emergency medicine, and six months of inpatient psychiatry. The next three years (PG-II-IV) are divided between rotations in outpatient clinics treating adults (as well as some children and adolescents), rotating through general and specialized inpatient, psychiatry units, crisis management, and consultation-liaison to medical and surgical specialties. A psychiatrist residency should include a balance between inpatient and outpatient experiences and rotations in a variety of clinical settings. Clinical settings should expose residents to a broad range of cultural, racial and economic diversity. Many residencies also offer elective research and scholarly activities in a variety of areas with faculty mentoring.

Psychiatry (continued)

Areas of subspecialization in psychiatry include: child and adolescents, substance abuse, geriatrics, forensics, consultation-liaison, and administration. Each of these areas have fellowships and/or specialty boards that oversee training standards.

Meeting with Dr. Silberman, our Residency Director; Dr. Cohen, our Medical Student Director; Dr. Vergare, our Chairman; and other faculty members is a helpful next step in finding your way through the maze of residency programs. Those on our Career Planning Committee are actively involved with residency education issues and are active at the national level in organizations that focus on many of the specialty interest in psychiatry. Call or drop by their offices to set up a mutually convenient time to talk.

A “Directory of Psychiatry Residency Training Programs” is available in the Scott Memorial Library and is also available from the Office of Education, American Psychiatric Association (APA), 1000 Wilson Boulevard, Ste. 1825, Arlington, VA 22209-3901.

As you identify residency programs that interest you, you can send away for program descriptions and application materials. Most programs also have information available through a web page. Also, you might ask those programs for the names of some of their PGY III or IV residents and make telephone appointments with one or two residents per program to query them about the nature of the program and their satisfaction with it. What is the level of collegiality among the residents and with the faculty? Are most residents happy? Are they having balanced learning experiences? You might ask them to briefly tell you about a couple of interesting patients they have treated. If they only mention drugs and biologic tests or, at the other extreme, only psychoanalytic concepts, or any other single paradigm, be wary. Residents in well-balanced programs will tend to spontaneously mention biological, psychological, and sociocultural aspects of the evaluation and treatment of their patients.

Our Residency Office will be pleased to provide you with names and phone numbers of our Chief Resident and several other Jefferson Psychiatry residents, who you may wish to call or meet with to discuss our program and other programs that they considered. When you develop an interest in one or two particular residency programs, we advise you to take a psychiatry elective at those programs early in your senior year. Dr. Cohen and other faculty can advise you on where and how to arrange electives at Jefferson and elsewhere.

If you believe you may have interest in a subspecialty area, we suggest you apply to general psychiatry residencies in departments that have active programs and mentors in your subspecialty area of interest. A solid background in your subspecialty area of interest during residency with faculty mentoring will lay a better foundation to be accepted into the fellowship program of your choosing and to have a “running start” when you begin the fellowship. For example, Child and Adolescent Psychiatry is a psychiatric subspecialty, consisting of a two year Fellowship which may begin after internship and at least two years of a general psychiatry residency are completed.

We have addressed the most common questions students ask us on these topics. However, we would be pleased to meet with you to discuss your particular interests and questions in more depth.

DEPARTMENT OF RADIATION ONCOLOGY

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Radiation Oncology

The Department of Radiation Oncology provides a four-year residency in Radiation Oncology beginning in PG-II. Two or three month rotations are completed at Thomas Jefferson University Hospital and Wills Eye Hospital that allow the resident to gain expertise in the management of a variety of patients requiring ionizing radiation. Special areas of excellence include intra-operative radiation therapy, stereotactic radiotherapy, 3-D conformal radiation, brachytherapy, hyperthermia, and multi-modality cancer therapy. In addition, there are rotations in medical physics, radiobiology, and medical oncology. Students with interest in any aspect of oncology are encouraged to spend elective time in the department to gain greater information regarding this specialty. Residents are given an opportunity to participate in national clinical research programs as well as individual clinical or laboratory projects. A pediatric radiation oncology rotation is scheduled at St. Jude Hospital in Memphis, Tennessee, and a gynecologic brachytherapy rotation is available at the Mallinkrodt Institute of Radiology at Washington University School of Medicine.

DEPARTMENT OF RADIOLOGY

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DIAGNOSTIC RADIOLOGY

As is evident to any reader of the weekly clinical pathologic conferences in the New England Journal of Medicine, radiology has assumed an increasingly important role in clinical medicine. In the past, radiology was confined to plain film examination of the chest, abdomen, skull, spine, and extremities as well as barium contrast examination of the G.I. tract, and intravenous contrast studies of the G.U. system. Today, new imaging modalities and procedures have considerably expanded the role of radiology in diagnosis, treatment, and screening.

Radiology consists of a group of subspecialties. Although radiologists in private practice may cover many or most aspects of these specialties, they do specialize to some extent. Specialization is most evident in academia where it is necessary for research, publication, and teaching. Specialization may be divided according to imaging modality or organ system.

Neuroradiologists perform and interpret cerebral arteriography, CT (Computed Tomography) and MR (Magnetic Resonance) of the head and spine, and myelography.

Cardiovascular/Interventional radiologists perform catheterization and angiography of arteries and veins to diagnose tumors, vascular obstructions, aneurysms, bleeding sites, and many other abnormalities. They also perform a variety of procedures to non-surgically treat conditions that formerly required major surgery. These procedures include the injection of substances through catheters to stop arterial bleeding or interrupt blood flow to tumors, injection of drugs to lyse thrombi, angioplasty and stent placement in occluded vessels, decompression of biliary tract obstructions, decompression and stenting of urinary tract obstructions, etc.

Ultrasound examinations can diagnose cysts, tumors, fluid collections, aneurysms, and other lesions in the abdomen and other portions of the body. It has become one of the most important techniques available for prenatal diagnosis of abnormalities of the fetus. Ultrasound radiologists also perform interventional procedures, such as percutaneous drainage of abscesses, and percutaneous biopsies of abdominal masses.

Radiology (continued)

Computed Tomography (CT) can detect subtle soft tissue densities that are not apparent on plain film radiography. The x-ray beam is analyzed by a computer after exiting the body. CT has found many uses in the study of virtually all parts of the body.

Mammography is capable of detecting breast cancer at a nonpalpable stage several years before it could be found on physical examination. This leads to significantly improved breast cancer survival. It has been estimated that 40% of all breast cancer deaths could be eliminated through periodic mammographic screening.

Nuclear medicine studies the functional morphology of the body by means of uptake of radioactive isotopes. Diseases which lend themselves well to diagnosis by nuclear medicine include pulmonary embolism, bone metastasis, and myocardial ischemia.

Magnetic Resonance Imaging (MRI) is a relatively new and complex technique that analyzes the magnetic relaxation properties of various tissues in the body. After placing the patient in a very strong magnetic field and then perturbing the magnetized nuclei of the body by use of a radiofrequency pulse, emitted radiofrequency energy from different parts of the body can be reconstructed by a computer to create an image. These images can be created in any plane desired; the imaging information often indicates not only the anatomic nature of the tissue, but its metabolic status as well.

Pediatric radiology basically involves the same tests and modalities as does adult radiology. It does, however, involve different diseases and is therefore a valid subspecialty.

The qualities necessary to make a good radiologist include acute visual perception and ability to make a differential diagnosis. Since a good portion of residency training includes radiologic physics, ability in the physical sciences is also important.

The period of radiology residency is four years. The American Board of Radiology now requires a clinical internship year prior to starting the residency program.

Following the residency, one or two-year fellowships are available in subspecialty areas such as pediatric radiology, cardiovascular/interventional radiology, neuroradiology, ultrasound/CT/MRI for those desiring greater knowledge in these areas.

The job market in radiology is very good. Most radiologists enter hospital practice or group practice. Among the medical and surgical specialties, radiologists fall in the upper range as far as monetary compensation.

DEPARTMENT OF REHABILITATION MEDICINE

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Physical Medicine and Rehabilitation

Physical Medicine and Rehabilitation is the branch of medicine emphasizing the prevention, diagnosis, treatment, and rehabilitation of disorders, particularly those of the neuromusculoskeletal, cardiovascular, and pulmonary systems, which may produce temporary or permanent impairment. Physiatry is unique among medical fields in that its area of expertise is the functioning of the whole patient, as compared with a focus on an organ system or systems. Practitioners of Physical Medicine and Rehabilitation are called physiatrists (pronounced *fizz ee at' trist*).

In addition to management used in general medical practice, physiatrists use therapeutic exercise, heat water, electricity, bracing, therapeutic injections, prosthetic and adaptive devices to treat patients of all ages. Physiatrists also attend specifically to physiologic adaptation to disability and to preventing complications or deterioration secondary to disabling conditions. The goal of the physiatrists is to provide medical care and training to patients with pain, weakness, numbness, or loss of function so that they can obtain maximal physical, psychological, social, and vocational potential. In addition to physical, pharmacological and psychosocial treatment, physiatrist supplements their clinical skills with electrodiagnostic studies (nerve conduction, needle electromyography and evoked potentials). The physiatrist often works with a team of health professionals including physical therapists, occupational therapists, vocational counselors, psychologists, and speech – language pathologists. The physiatrist becomes an expert in team leadership and dynamics.

A minimum of four years of graduate medical education is required for board certification in Physical Medicine and Rehabilitation. One year of this training is devoted to the development of fundamental clinical skills. Most PM&R residencies are three-year programs and offer positions at the PGY-2 level, which means that the medical student must seek a transitional/preliminary year elsewhere. Some residencies offer a four-year program, which integrates the first year of basic clinical training into their curriculum. Thomas Jefferson University has a fully accredited PM&R residency training program. For more information, interested students should contact one of the above advisors or take a look at the following websites: www.aapmr.org or www.physiatry.org.

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Codes for Specialty: (CR) - Colorectal, (CT) - Cardiothoracic, (G) - General (P) - Pediatric, (PL) - Plastic, (T) - Thoracic, (TP) - Transplant, (V) - Vascular.

GENERAL SURGERY

A decision to pursue a career in General Surgery means at the outset a minimum of five years vigorous training in a general surgical residency program, most surgeons who have gone on to pursue successful surgical careers would agree that this is time extremely well spent. During those years when residents may spend up to 80 to 100 hours a week in a hospital, the resident has the opportunity to see a wide range of challenging surgical problems both in and out of the operating room. There will probably be no other point in his career where he or she will have the opportunity to oversee such challenges with high quality supervision. In the proper setting, long hours soon become routine and as the rewards of performing complicated surgical procedures as a senior surgical resident accrue in the fourth and fifth years, a very satisfying sense of achievement cannot be denied.

General surgical practice either in a private or academic setting can certainly be an equally rewarding period. Most surgeons would agree that there is tremendous immediate and tangible satisfaction in the successful outcome of a well-performed surgical procedure. Surgical decision making, both in and out of the operating room, is both an art and a science and demands a constant updating of current knowledge as well as the ability to put that knowledge to practical clinical use. Once again, the hours are long but the rewards are great.

In these days of financial turmoil in the medical world as well as of reorganization and delivery of health care, medical students are often plagued by doubts as to what direction in which they ought to continue their future training in medicine. None one of us really knows the financial lot or the practice setting of what the general surgeon will be ten or twenty years from now. However, what we do know, is that as the science and art of clinical surgery are further refined, the rewards of surgical practice in terms of satisfaction as-well-as patient appreciation will remain great if not greater. These are rewards that are unique to our field and rewards that are likely to remain unscathed by future economic and political events. The foundation of Surgery is solid and the future is bright.

DEPARTMENT OF UROLOGY

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Urology

The content of urologic surgical practice is not only broad in its own right, but interfaces with a variety of other disciplines: nephrology, oncology, endocrinology, behavioral science, and neurology. During the last two decades, a notable shift from OR to the outpatient office has occurred in the diagnosis and treatment of such problems as male sexual dysfunction, voiding disorders, and benign prostatic hyperlasia. Technology is a hallmark of current urologic practice.

Traditionally, urologists have been distinguished by their use of diagnostic and therapeutic instrumentation of the genitourinary tract. Recent developments in the field of urologic instrumentation such as extracorporeal shock wave lithotripsy, laparoscopy, chemotherapy, thermotherapy, and laser techniques have replaced open surgery in the treatment of various urologic disorders. Nevertheless, abdominal and retroperitoneal surgery is a prominent feature in the treatment of urologic cancers and in reconstruction of the urinary tract. Therefore, the student planning a career in urology will recognize the important roles of basic science, clinical medicine, urotechnology, and surgical technique in the diagnosis and treatment of urologic pathology.

Future manpower trends in urology portend favorably in one's career choice. Despite the diffusion of urologic treatment into primary care and other specialties, the role of the urologist will be demanded particularly as the field of geriatric medicine emerges. The total number of urology residency positions currently available requires that students gain early exposure to urology during their clinical rotations and submit applications to residency programs in a timely manner. As a constantly evolving field, urology provides both the practitioner and academician with challenges and rewards of treating patients by a variety of modalities.

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