

**The Residency in Surgery
The George Washington University**

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GOALS AND OBJECTIVES

I. Definition of and training goals for General Surgeons.

The American Board of Surgery states in its Booklet of Information that the goal of a surgical residency is to "prepare the resident to function as a qualified practitioner of surgery at the high level of performance expected of a board-certified specialist." It goes on to note that the "purpose of graduate medical education in surgery is to provide a broad understanding of human biology as it relates to disorders of a surgical nature and the technical knowledge and skills to be applied by a specialist in Surgery."

The Accreditation Council for Graduate Medical Education describes the specialty of General Surgery in its Special Requirements for Resident Education as a "discipline having a central core of knowledge embracing anatomy, metabolism, immunology, nutrition, pathology, wound healing, shock and resuscitation, intensive care and neoplasia. The General Surgeon is one who has specialized knowledge and skill relating to the diagnosis, preoperative, operative and postoperative management in the following areas of primary responsibility:

Alimentary tract; abdomen and its contents; breast, skin and soft tissue; head and neck; vascular system; endocrine system; surgical oncology; comprehensive management of trauma; and complete care of critically ill patients ,with surgical conditions in the ER, ICU and Trauma/Burn Units.”

The General Surgeon must have a broad understanding and have had exposure to these **additional components:**

Pediatric, plastic, general thoracic, and transplant surgery.

The Surgeon must also have understanding of the management of the more common problems in:

Cardiac, gynecologic, neurologic, orthopedic, and urologic surgery, and of the administration of anesthetic agent

II. Goals and objectives for learning during the residency and expectations at the completion of training.

The general goals of the Residency in Surgery at the George Washington University are as follows.

During training the resident will:

1. Learn to integrate principles of basic sciences with clinical experiences.
2. Develop a broad understanding of the role of surgery and its interaction with other medical disciplines.
3. Attain progressive responsibility from initial patient care through complete patient management.
4. Foster effective interdisciplinary collaborative relationships.
5. Develop the ability to function as a teacher and consultant.
6. Foster continuing education to promote lifelong individual initiative and creative scholarship.
7. Be prepared to use research technology and skills in conducting studies that assist in solving surgical problems.
8. Develop professional leadership and management skills.
9. Develop an understanding of the economic, legal, and social challenges of contemporary and future surgery.

At the conclusion of training a resident should be able to:

1. Manage surgical disorders based on a thorough knowledge of basic and clinical science.
2. Demonstrate appropriate skill in those surgical techniques required of a qualified surgeon.
3. Demonstrate the use of critical thinking when making decisions affecting the life of a patient and the patient's family.

4. Make sound ethical and legal judgements appropriate for a surgeon.
5. Collaborate effectively with colleagues and other health professionals.
6. Teach and share knowledge with colleagues, residents, students, and other health care providers.
7. Teach patients and their families about the patient's health needs.
8. Demonstrate a commitment to scholarly pursuits through the conduct and evaluation of research.
9. Demonstrate an acceptance of the value of life-long learning as a necessary prerequisite to maintaining surgical knowledge and skill.
10. Demonstrate leadership in the management of complex programs and organizations.
11. Provide cost-effective care to surgical patients and families within the community.

III. Goals and Objectives for each post graduate year (PGY) for the Integrated Institutions: George Washington University, Holy Cross Hospital, and the Veterans Administration Medical Center

A. PGY 1 – Intern Year

At the end of the first year, the resident should be able to:

1. Exhibit dedication to the principles of professional preparation in surgery that emphasize the primacy of the patient as the focus for surgical intervention.
2. Demonstrate initial progress in attaining competency in basic and clinical sciences by appropriate regular study, reading, literature review and participation in teaching conferences.
3. Explain basic ethical principles inherent in surgical practice.
4. Perform a comprehensive history and physical examination. This should include recognition of surgical indications, preoperative medical problems and anesthesia related issues.
5. Share data obtained from a comprehensive history and physical examination with colleagues in an organized, clear, concise and logical manner in both written and oral forms.
6. Competently manage typical bedside patient care devices such as intravenous pumps, patient controlled analgesia pumps, nasogastric and drain suction units, chest tubes, pulse oximeters, central venous lines, and pulmonary artery catheters.

7. Demonstrate independence in performing selected diagnostic and therapeutic procedures including but not limited to blood sampling and venipuncture, nasogastric placement, arterial blood sampling, suture and drain removal, open wound management, urinary catheter placement.
8. Demonstrate competence when performing selected clinical procedures under supervision including but not limited to arterial and central venous line placement, endotracheal intubation, chest tube placement, and diagnostic peritoneal lavage.
9. Demonstrate the proper use of sterile techniques when performing or assisting with operative procedures.
10. Demonstrate basic skills in surgery including instrument usage, suturing, and performing the basic procedures on the services rotated to.
11. Demonstrate the ability to teach patients and their families about disease processes and their health.
12. Recognize responsibility for and develop skill in teaching medical students and other residents and health care providers.
13. Develop and implement plans for study, reading, and research that promote personal and professional growth.
14. Use available library and computer resources to survey current surgical literature.
15. Demonstrate the leadership principles that relate to management of patient care.
16. Demonstrate understanding of the socioeconomic, cultural, and managerial factors inherent in providing cost-effective health care.
17. Develop and present a scholarly review of a surgical topic.

B. PGY 2 – Junior Resident

At the end of the second year, the resident should be able to:

1. Exhibit continued dedication to the practice of surgery and patient care, recognizing the patient as a member of a family and/or other group(s).
2. Demonstrate continued progress in attaining competency in basic and clinical sciences by appropriate and regular study, reading, literature review and participation in teaching conferences.
3. Perform a focused and efficient history and physical examination with increasing recognition of patterns of disease presentation and present findings and plans accurately and coherently.

4. Competently manage more complex patients in the pre and postoperative settings with increased independence, including the specialties of pediatric surgery and transplant surgery.
5. Demonstrate competence when performing selected surgical procedures under direct supervision.
6. Gain experience in the broad areas of general surgical practice in the community, managed care and VA settings in addition to the University hospital.
7. Manage initial care of traumatized and burn injured patients and contribute effectively to the continued care of these patients in the emergency room, operating rooms, intensive care units, wards and clinics.
8. Demonstrate increasing ability to teach patients and their families about disease processes and their health, providing appropriate information to patients scheduled for surgical intervention.
9. Use available data from basic and social sciences when planning pre-operative, intra-operative and post-operative care for newly admitted patients.
10. Relate scientific and research findings to care of patients.
11. Discuss with team members the ethical aspects of surgical intervention.
12. Function in an effective collaborative role with faculty and other residents.
13. Teach medical and other health care students and junior residents about the management of surgical patients.
14. Demonstrate progress toward achievement of goals for personal and professional growth and development including choosing an area for concentration in the research year and making preliminary inquiries.
15. Utilize a problem solving approach in planning care for patients and families.
16. Recognize the different settings and socioeconomic environments in which health care may be provided.
17. Develop cost consciousness in the use of diagnostic and therapeutic technology.
18. Develop and present a scholarly presentation on a surgical topic.

C. PGY 3 –Transitional Year

At the end of the third year, the resident should be able to:

1. Manage patients having complicated surgical conditions.
2. Demonstrate the technical skill required of a first assistant to the operating surgeon.

3. Manage patients with basic conditions and problems in cardiothoracic surgery.
4. Manage patients in the critical care settings of the emergency room and the intensive care units.
5. Use critical thinking in making decisions about patient management.
6. Collaborate with patient and family when planning operative procedures and postoperative care.
7. Provide pre and postoperative teaching to patients and families.
8. Analyze resources available for providing continuing learning experiences.
9. Continue to demonstrate appropriate skill in teaching medical students, junior residents and health care professionals.
10. Explain to patients and families the costs involved in surgical care being planned.
11. Evaluate current research and its relationship to surgical practice.
12. Be prepared for a minimum of one year of intensive, concentrated research in a surgically related area of inquiry.

D. PGY 4 – Research

At the end of the fourth year, the resident should:

1. Have completed a minimum of one year of intensive, concentrated research in a surgically related area of inquiry.
2. Be able to demonstrate the ability to conduct experimental research studies in the laboratory and in clinical settings.
3. Be able to read the medical literature critically and evaluate the design, conduct and significance of published studies.
4. Develop a deeper understanding of a particular area of interest and to perform meaningful and significant research in that area resulting in regional and national presentations and publications.
5. Have developed fairly firm career and specialty practice goals and plans for attaining those goals.
6. Have completed a broad review of general surgical topics using textbooks, graded learning programs and exam study guides.

7. Be prepared to take an increasing leadership role in the surgical team with primary responsibility for managing a surgical service and teaching junior resident, medical students and other health care professionals.

E. PGY 5 – Senior Year

At the end of the fifth year, the resident should be able to:

1. Assist junior residents in assuming, planning and managing pre and postoperative care for patients with common surgical disorders.
2. Provide initial assessment and care of more complex patients in the emergency room and clinic and develop appropriate treatment plans.
3. Perform more complex surgery under appropriate supervision.
4. Provide complete follow up care until the patient is fully recovered.
5. Manage major general surgical hospital services and guide junior residents in making decisions about findings of physical examinations and management of pre and postoperative care for patients.
6. Collaborate with residents, faculty and other health care professionals to provide comprehensive health care for patients.
7. Evaluate standards for surgical practice.
8. Work toward achievement of identified goals for personal and professional growth.
9. Assume a leadership role in planning and improving the care of patients in a variety of settings.
10. Function as the primary liaison with surgical service faculty.
11. Assume increasing administrative functions related to patient care, service management, resident education, and patient and teaching conferences
12. Assume the focal role in the initial evaluation, resuscitation, and management of acutely ill patients and trauma victims.
13. Present cases at teaching conferences and professor rounds with a clear and concise discussion of the key issues in the case and the related literature.
14. Develop and present a formal scholarly presentation on a surgical topic before a large audience.

15. Be a role model for junior residents and students, demonstrating excellence in patient care, concern for the patient and their family's emotional and psychological well-being, interacting smoothly with other services, working to provide educational insights for themselves and their colleagues, and devoting themselves to the practice and learning of the surgical arts and sciences.

F. PGY 6 – Chief Year

At the end of the sixth year, the resident should be able to:

1. Supervise junior residents in the care of patients with complex surgical conditions.
2. Demonstrate a high level of scientific, clinical and technical knowledge about all aspects of surgical science and general surgery.
3. Assume independent responsibility for all aspects of general surgical patient care.
4. Operate independently with the high level of technical skill and clear intraoperative decision making abilities expected of a general surgeon.
5. Demonstrate effective decision making in the management of care for all types of surgical patients and their families.
6. Discuss with junior residents and medical students the ethical and psychosocial issues related to surgical practice.
7. Demonstrate to junior residents the collaborative role of the surgeon in the practice of surgery in the community.
8. Evaluate the teaching skills of junior residents and provide guidance for improving these skills.
9. Provide leadership to medical students and junior residents in the management of complex patient care.
10. Evaluate the cost-effectiveness of present and future surgical care of patients and families.
11. Demonstrate skills in the development and administration of medical and educational activities including teaching conferences and rounds, lecture series, and patient discussions.

IV. Goals and Objectives for Affiliated and Associated Institutions

A. Children's National Medical Center (CNMC)

The resident receives training in all aspects of pediatric surgery including trauma and burns.

At the end of the rotations in pediatric surgery, **PGY-1** and **PGY-2**, the resident should be able to:

1. Manage patients with basic conditions and problems in pediatric surgery (PGY-1) and then manage more complex patients pre- and post-operatively with increasing independence (PGY-2).
2. Perform a comprehensive history and physical examination for the pediatric population.
3. Understand the fundamental differences in neonatal, infant and pediatric physiology from adult.
4. Demonstrate understanding of the basic and clinical sciences appropriate to the care of a neonate including ventilator management, fluid and nutrition management.
5. Manage initial care of traumatized and burn injured patients in the emergency room, ICU, operating room and rehabilitation.
6. Demonstrate ability to educate patients and families and recognize the need to include family within the medical decision-making process.
7. Gain experience in the broad aspects of pediatric surgery through didactic lectures, conferences, and clinic.

B. Johns Hopkins Medical Institution

The resident receives comprehensive training in the field of transplant surgery focusing on liver, kidney and pancreas transplantation.

At the end of the rotation at the **PGY-2** level, the resident should be able to:

1. Manage basic conditions and problems in transplant surgery.
2. Demonstrate understanding of basic immunology and the pathophysiology of transplant rejection.
3. Recognize, diagnose, and treat rejection in the transplant patient.
4. Demonstrate understanding of the mechanism of action, side effects, and therapeutic monitoring of the most common immunosuppressive agents.
5. Demonstrate competence in performing more complex procedures during donor and recipient surgeries including understanding operative technique and indications.

6. Demonstrate understanding of selection criteria for transplant recipient and donor (living and cadaveric).
7. Demonstrate understanding of the local, regional and national distribution of organs within donor pool.
8. Demonstrate an understanding of the socioeconomic and cultural factors in providing health care to these patients.

C. INOVA Fairfax Hospital

Residents receive comprehensive training in trauma resuscitation, evaluation, non-operative and operative care, and ICU management of the multi-system injured patient.

At the end of the **PGY-2** rotation in trauma, residents should be able to:

1. Manage all aspects of trauma resuscitation and initial work-up to evaluate injured patients.
2. Demonstrate understanding of shock, hemostasis, and immunologic response to injury
3. Demonstrate competence in performing procedures including but not limited to endotracheal intubation, chest tube placement, diagnostic peritoneal lavage, F.A.S.T., placement of invasive lines (arterial lines, Swan-Ganz catheters), trauma bay thoracotomy
4. Provide teaching to patients, families, interns and medical students.
5. Develop fund of knowledge in the field of trauma through didactic lectures, case presentations, and clinic.
6. Understand the multi-disciplinary approach to the evaluation and care of the trauma patient from the field to discharge and rehabilitation.

V. Goals and Objectives for Surgical Subspecialty Rotations

A. Cardiothoracic Surgery, PGY-1 and PGY-3

At the completion of rotations in Cardiothoracic Surgery, the resident should be able to:

1. Manage patients with basic and complex conditions in Cardiothoracic Surgery.
2. Understand the anatomy and physiology of the chest wall, pleura, lungs, upper alimentary tract and the cardiovascular systems.

3. Perform a comprehensive history and physical with emphasis on particular topics including but not limited to risk factors for cardiovascular disease, risk factors for upper alimentary carcinoma, risk factor assessment for cardiac morbidity.
4. Understand advanced technology including but not limited to extracorporeal circulation and bypass, thoracoscopic techniques.
5. Develop a fund of knowledge in Cardiothoracic Surgery through conferences, didactic lectures, presentations, and clinics.
6. Perform endoscopic procedures as they relate to Cardiothoracic Surgery including esophagoscopy, bronchoscopy, and mediastinoscopy.
7. Develop working relationships with other disciplines including Critical Care, Gastroenterology, Cardiology and Pulmonary consultants.

B. Burns, PGY-1 and PGY-2 (at the Children's National Medical Center)

Residents gain experience in burn care and management during rotations at the Children's National Medical Center. At the completion of the rotations at CNMC, the resident should be able to:

1. Manage the initial resuscitation in the ED and understand the metabolic and immunologic response to thermal injury as it relates to the depth of the burn.
2. Understand airway management including the recognition and treatment for respiratory tract burns.
3. Manage critical care issues including ventilator management; fluid management including understanding the Parkland formula; escharotomies; and fasciotomies.
4. Understand initial management of burn management with topical agents.
5. Understand the surgical techniques in excision and grafting including use of xenografts and allografts, skin substitutes and artificial materials.
6. Understand the roles of the multi-disciplinary team to restore and maintain function: nutrition, physical and occupational therapists

C. Anesthesiology, PGY-1

At the completion of the rotation, the resident should be able to:

1. Assess anesthetic risk and understand the ASA classifications.
2. Understand the physiology of the respiratory and cardiovascular systems.
3. Manage an airway including but not limited to mask ventilation; endotracheal, nasotracheal, and fiberoptic intubation; laryngeal mask airway.
4. Perform various anesthetic modalities: local, regional and general.
5. Understand multiple anesthetic agents, their side effects, and intra-operative monitoring.
6. Understand acute pain management intra- and post-operatively.
7. Understand complications of anesthesia including but not limited to aspiration pneumonia, malignant hyperthermia, hepatotoxicity, MI

D. Neurological Surgery, Urology, Orthopedic Surgery, PGY-1

After month long rotations in each of these surgical subspecialties, the rotation should be able to:

1. Manage basic problems in each of these fields including but not limited to neoplastic, infectious, traumatic.
2. Perform a comprehensive history and physical as it pertains to each specific organ system.
3. Understand the anatomy and physiology of each organ system.

CURRICULUM

BASIC SCIENCE CONFERENCE: TWO-YEAR CYCLE OF TOPICS

The Basic Science Conference Series represents one of our major on-going comprehensive teaching sessions. The conferences and curriculum are under the direction of the Program Director. The curriculum is designed to cover all major areas of General Surgery over a repeating two-year cycle. Thus, each categorical resident should be exposed to the comprehensive materials three times during their six years of training. Attendance is mandatory. The topics covered are mirrored after all of the areas covered in the ABSITE examination and the ABS Written Boards. The format of these conferences is that of a resident presentation with heavy emphasis on discussion, in the presence of a faculty member serving as moderator.

The following are the defined areas of study and practice in General Surgery.

1. Basic science physiology
 - a. cell biology
 - b. embryology, growth and development
 - c. nutrition and metabolism
 - d. wound healing
 - e. immunology: basic concepts
 - f. oncology: basic concepts, tumor biology, chemotherapy, radiation
 - g. surgical infection and microbiology
 - h. anesthesiology
2. Physiology of organ systems
 - a. nervous system
 - b. cardiovascular
 - c. respiratory
 - d. gastrointestinal: motility, exocrine function, endocrine, absorption
 - e. genitourinary

- f. musculoskeletal
- g. endocrine
- h. hematologic

Selected Topics

1. Head and neck tumors
2. Endocrine
 - a. thyroid
 - b. parathyroid
 - c. adrenal
 - d. pituitary
 - e. MEN syndromes
3. Breast
 - a. screening modalities for breast cancer
 - b. benign disease
 - c. carcinoma: in situ vs. invasive
 - d. surgical therapies, (neo-) adjuvant therapies
4. Esophagus
 - a. functional evaluations
 - b. diverticula of esophagus
 - c. gastroesophageal reflux disease
 - d. neoplasms: benign, malignant
5. Stomach
 - a. peptic ulcer disease, gastritis
 - b. Mallory-Weiss syndrome
 - c. post-gastrectomy syndromes
 - d. morbid obesity
 - e. neoplasms: benign, malignant
6. GI Bleeding
 - a. upper vs. lower GI bleeding
 - b. localization studies
 - c. non-operative, radiologic intervention

- d. surgical therapies
- 7. Small Bowel
 - a. small bowel obstruction
 - b. Crohn's disease, regional enteritis
 - c. neoplasms: benign, malignant
- 8. Mesenteric ischemia
- 9. Colon and Rectum
 - a. inflammatory bowel disease
 - b. diverticular disease
 - c. volvulus, prolapse, Ogilvie's
 - d. functional disorders
 - e. neoplasms: benign, malignant
 - f. hemorrhoids, fistulas, fissures, pilonidal disease
- 10. Liver
 - a. neoplasms: benign
 - b. neoplasms: malignant, primary vs. metastatic
 - c. portal hypertension
- 11. Gallbladder and Biliary tree
 - a. cholelithiasis
 - b. cholecystitis: acute, chronic
 - c. cholangitis: ascending, sclerosing, secondary to stricture
 - d. neoplasms: gallbladder, cholangiocarcinoma
 - e. obstructive jaundice: interventional radiology methods vs. endoscopic vs. surgical
- 12. Pancreas
 - a. pancreatitis: acute, chronic
 - b. neoplasms: benign, malignant, endocrine, exocrine
 - c. abscess, pseudocyst
- 13. Spleen
 - a. hematologic disorders
 - b. neoplasms: benign, malignant
 - c. trauma: splenectomy vs. splenorrhaphy
- 14. Hernia

- a. inguinal-femoral
 - b. umbilical, ventral, incisional
 - c. open vs. laparoscopic, mesh
15. Cardiothoracic
- a. neoplasms of thorax: benign, malignant
 - b. coronary artery disease
 - c. valvular heart disease
 - d. congenital disease
16. Vascular
- a. carotid artery disease: extracranial
 - b. aneurysms: abdominal
 - c. peripheral vascular disease
 - d. venous diseases: insufficiency, DVT
 - e. arterio-venous access: hemodialysis
17. Trauma and Burns
- a. initial management and resuscitation
 - b. head injury
 - c. thoracoabdominal injury: blunt vs. penetrating
 - d. vascular injury
 - e. musculoskeletal, urologic, orthopedic injuries
 - f. Parkland formula
18. Surgical Critical Care
- a. fluids and electrolytes, acid-base disorders
 - b. shock: hypovolemic, cardiogenic, neurogenic, distributive (sepsis); Swan-Ganz catheters and invasive monitoring
 - c. ventilator management: volume vs. pressure controlled
 - d. cardiovascular pharmacology
 - e. multi-system organ failure
 - f. injury and critical illness scoring systems
19. Transplantation
- a. kidney: living donor vs. cadaveric
 - b. liver

c. pancreas

20. Pediatric surgery

- a. fluids, electrolytes, nutrition
- b. critical care of neonate, infant, child
- c. trauma and burns
- d. masses and tumors
- e. embryology: thorax, abdomen; congenital anomalies

21. Plastic and reconstructive surgery

- a. grafts, flaps,
- b. maxillofacial fractures,
- c. hand
- d. wound healing
- e. pressure sores

22. Urology

- a. trauma
- b. benign disorders
- c. neoplasms: benign, malignant
- d. cystoscopy, urologic endoscopy

23. Orthopedic surgery

- a. trauma
- b. benign disorders, total joint replacement
- c. neoplasms: benign, malignant
- d. arthroscopic techniques

24. Neurologic surgery

- a. trauma
- b. management of increased intracranial pressure
- c. brain death evaluation

25. Gynecology

- a. benign disorders
- b. neoplasms: benign, malignant
- c. trauma: pregnant patient

26. Endoscopy

- a. upper: esophagoscopy, EGD, ERCP -- diagnostic, ±therapeutic
- b. lower: proctoscopy, sigmoidoscopy, colonoscopy -- diagnostic, ±therapeutic
- c. bronchoscopy, mediastinoscopy

SENIOR CASE CONFERENCE

The Senior Case Conference is designed for PGY-3 residents and above with particular attention paid to Senior and Chief residents. An attending surgeon who conducts questioning in an oral boards format runs the conference. Topics for discussion are at the discretion of the attending. This conference focuses on a number of issues of resident development: professionalism and personal conduct; medical knowledge; patient care including but not limited to focused history and physical examination, pre-operative management, surgical treatment, post-operative management, and informed decision-making; and command of scientific literature and evidence-based medicine. It also provides residents exposure to conditions that simulate oral boards and gives the opportunity to practice and improve their own test-taking skills on a weekly basis.

INTERN CONFERENCE

The intern conference is a series of practical lectures given by Senior and Chief residents to acquaint the intern with the basics of ward management so that they become efficient and proficient in caring for the peri-operative patient. The focus is on more practical issues that relate specifically to the intern as they make the transition from student to physician. Following interactive lectures in the earlier part of the year, interns prepare their own conferences during their last four months of the intern year. This allows them to become more adept at presenting material in a clear, concise manner to their peers. This helps them to further develop their fund of knowledge through their own comprehensive review.

MORBIDITY & MORTALITY CONFERENCE/SERVICE REPORT

The Morbidity and Mortality Conference or Service Report is presented weekly by the most senior resident on the service. At George Washington University Hospital, the university teams

are headed by either a Chief or Senior resident while the Private Practice service is headed by a PGY-3 resident. The residents are responsible for compiling a list of all procedures performed during the prior week as well as providing a detailed account of complications. The primary responsibility rests with the resident who leads the particular service. The resident is expected to know the history, surgical intervention including intra-operative findings, and surgical pathology. Residents are questioned by faculty on the complications and any other pertinent issues related to patient care. Residents are expected to conduct the conference to demonstrate that they not only have command of their individual services, but also have a command of the surgical basic science and literature. The conference serves to test their professionalism, fund of knowledge, patient care skills, and their communication skills.

GRAND ROUNDS

Our Grand Rounds series of lectures are organized by one of the Chief residents. Approximately two-thirds of the speakers are invited speakers from institutions around the Washington-Baltimore area and across the nation. The remaining speakers are surgery, medicine, critical care, pathology, and other faculty from the George Washington University. These topics are arranged and decided upon between the speaker and the Chief resident, and usually focuses on the principal components of General Surgery training. These lectures give the residents the opportunity to hear cutting edge research in the basic science and clinical aspects of surgery. It also provides an invaluable view of surgery as it is conducted at other institutions and regions of the country. There are also endowed, named lectureships on thoracic surgery, inflammatory bowel disease, and general surgery allowing the department to invite the leaders in surgery to our institution.

INTER-DISCIPLINARY CONFERENCES

Vascular, Surgery/GI, Trauma, Endocrine, Tumor Board

These conferences allow the residents to interact with other residents, fellows, and faculty and understand the roles of other disciplines in the care of the surgical patient. It also allows the resident the opportunity to present interesting cases to a mixed audience and to be aware of the varied perspectives these other specialists bring to a discussion, to appreciate the multi-

disciplinary approach to problem-solving. It is a unique educational experience that exposes the residents to the literature of the other specialties so that their own fund of knowledge is broadened.

Conference	Specialties Represented in addition to Surgery
Vascular	Cardiology, Interventional Radiology
Surgery/GI	Gastroenterology, Radiology
Trauma	Emergency Medicine, Radiology, Anesthesiology, Sub-specialty Surgery
Endocrine	Otolaryngology, Endocrine, Internal Medicine, Radiology
Tumor Board	Medical Oncology, Radiation Oncology, Radiology, Pathology

JOURNAL CLUB

The Journal Club is held monthly and organized by one of the residents in the research year. These meetings are held at an attending's home. Primary responsibility for presenting the paper is given to the interns who present the initial purpose of the study in question, methods, and results. More senior residents then critique the paper and open the floor for discussion. The attending serves as the moderator to focus the discussion and help to crystallize points to be gleaned from the manuscripts. This forum allows the residents to start reading the literature critically from scientific, epidemiological, and statistical viewpoints. This conference also allows the residents time away from the hospital environment and provides an educational opportunity in a more relaxed, social manner.

RESEARCH EXPERIENCE

The residents engage in a minimum of one year of full-time, concentrated research. Residents may choose from a number of laboratories at the George Washington University or pursue research fellowships in the area or at other institutions. Residents engage in research in their own areas of interest; the conduct of their studies is followed by their personal research preceptors. Residents are encouraged to submit their manuscripts to a number of competitions: an intra-departmental award for research (DePalma Award), university-wide research competition in basic and clinical sciences, Washington DC-area competitions sponsored by the

American College of Surgeons, and national competitions. Residents also have the opportunity to attend a research course given by the Association of Academic Surgery.

PROFESSIONAL ORGANIZATIONS AND MEMBERSHIPS

The Washington Chapter of the American College of Surgeons is a very active group and provides a number of unique opportunities for our residents as well as those in the other Washington DC programs. These programs include: All-City Grand Rounds (twice a year), Basic Science Review Course (before the ABSITE), Advanced Operative Strategies Course for Chief residents, and All Surgeons Day. These serve as excellent opportunities for residents to interact with their peers in other residencies, to present their interesting cases and their research, and hear lectures on the latest in surgical management. Many of our own residents have served as the resident representative on the Young Surgeons Committee and have been involved in the planning of these events. The resident not only gains leadership skills, but also can provide a needed resident perspective and feedback as the educational programs are organized.

TEACHING METHODS

THE IN-PATIENT EXPERIENCE

The in-patient experience is centered around supervised patient care and constant communication between the attending surgeon and all members of the surgical team. This takes place in the form of daily ward rounds; consultations from the medical specialties, the emergency department and in the ICU; and in daily discussions on patient progress and management. There is particular emphasis on the development of differential diagnoses, diagnostic strategies, and non-operative versus operative management. Senior and Chief residents develop particular skills in performing consultations: assessing the nature of the surgical issues, communicating with the referring physician and team, cooperating with housestaff of other specialties, and providing the patient and family with useful information and support. The Senior and Chief residents also take active roles in teaching and supervising their team that can include medical students (3rd and 4th year), interns, and junior residents. Through this experience, residents gain a comprehensive understanding of the in-patient management of their own and consultative patients, develop a fund of knowledge, review the literature as needed, develop professionalism and communication skills with other professionals and patients as well as understanding the larger scope of medical care.

THE OUT-PATIENT EXPERIENCE

Residents are required to attend clinic with both full-time and voluntary faculty. They regularly see patients pre- and post-operatively to learn the importance of continuity of care. There is emphasis on the resident who examines and evaluates the patient in clinic to perform the operative case and then manage in the post-operative care in conjunction with the attending surgeon. Senior and Chief residents often interview and examine patients independently and present their findings to the attending surgeon. Junior residents and students are usually accompanied by faculty while performing examinations. Residents also gain exposure to the process required to obtain pre-operative medical evaluations, radiologic or laboratory testing, scheduling cases and understanding insurance approval for particular procedures. Residents also work with other health professionals in clinic including nurse practitioners who offer their own

expertise in the care of the surgical patient. The goal is for the resident to gain exposure on out-patient management of surgical conditions as well as develop an understanding of cost-effective management. Residents also learn procedures that can be performed on an out-patient basis and learn basic office operative skills.

OPERATIVE EXPERIENCE

Residents gain formal training on operative skills and techniques in the operating room. There is emphasis on the resident learning from the attending surgeon. The attending can critique and evaluate the resident throughout the entire procedure, providing individual attention and immediate feedback. There are some opportunities for Chief residents to act as the teaching assistant, taking the attending or interns and junior residents through cases. There is graded responsibility in the operating room with the Senior and Chief residents performing more complex cases for more advanced surgical conditions.

The WISE lab provides the residents opportunities to perform and perfect surgical techniques on inanimate and animal models. Both open and laparoscopic techniques can be performed. A simulation-based center is available at the Holy Cross Hospital, an integrated institution, where residents can practice laparoscopic techniques.

EVALUATION METHODS

GLOBAL PERFORMANCE RATINGS

Residents are required to meet with the Program Director on a semi-annual basis to review any resident concerns, to review the evaluations from faculty, and review case logs. The Program Director completes standardized 6-month evaluation forms that are reviewed by the resident and then signed by the Program Director and resident.

Faculty evaluate each resident at the conclusion of each rotation with particular emphasis on medical knowledge, patient care, professionalism, technical abilities, practice-based learning, and systems-based learning. Any unsatisfactory or borderline evaluation is brought to the immediate attention of the Program Director and requires a meeting between the Program Director and resident.

Medical students also evaluate their resident teachers at the conclusion of their core surgical rotation as a third year clerk. These evaluations are compiled and analyzed by the School of Medicine and Health Sciences and results reviewed by the Program Director and the Director for Undergraduate Surgical Education. Residents receive a copy of their student evaluations. Again, any unsatisfactory evaluation is brought to the attention of the Program Director.

GENERAL PERFORMANCE EVALUATION: SURGICAL EDUCATION COMMITTEE

The Surgical Education Committee is composed of members of the full-time and voluntary faculty as well as key faculty from the integrated institutions. One Chief resident is chosen annually to serve on the committee. The committee meets regularly to review the goals and objectives at the start of each academic year and make changes or amendments as needed. Individual resident performance is reviewed with particular emphasis on residents who are experiencing difficulty. This may require assigning a faculty mentor with whom the resident meets regularly with focused attention on a resident's deficiencies (i.e. fund of knowledge, professionalism, presentation skills). Faculty uses this forum to review examination performance (ABSITE, Mock Oral Boards).

ABSITE: WRITTEN EXAMINATION

All residents are required to take the ABSITE every year. Results are returned to residents with an outline of key words and phrases to questions they answered incorrectly. Scores are reviewed by the Program Director. Residents who achieve a score below 35% are required to meet with the Program Director and create a strategy to improve test performance. Repeated low scores may lead to probation or expulsion from the residency.

MOCK ORAL BOARDS

Mock Oral Boards are held semi-annually and required for the Senior and Chief residents. The exercise is designed to simulate Oral Boards conditions with residents answering questions with two examiners, in 2-3 rooms. Following the examination, all residents and faculty congregate in the conference room for a debriefing session. Faculty review each question with emphasis on the key points the resident should have discussed. Residents are required to seek out their faculty examiners on a personal basis in the days following the examination to discuss specific strengths and weaknesses and areas for improvement. This exercise tests their fund of knowledge, professionalism, poise, communication skills, evidence-based medicine, patient care and informed consent.

REVIEW OF CASE LOGS AND PROCEDURES

It is one of the primary responsibilities of the residents to keep an updated log to include their operative cases, their management of critically ill patients, and the non-operative management of the injured patient. These logs are reviewed on a semi-annual basis with the Program Director during the mandatory 6-month evaluation. At that time, residents are advised to ensure the breadth of their operative experience and to be cognizant of deficient areas.

EVALUATION OF FACULTY AND TRAINING PROGRAM

Residents are required to complete evaluations of each rotation and complete a comprehensive faculty evaluation annually. The Residency coordinator collects the evaluations and ensures the residents' anonymity. The Program Director reviews these evaluations. Faculty receive a summary evaluation and changes are made as needed following a discussion between the faculty member and the Program Director.

INTEGRATION OF THE ACGME OUTCOME PROJECT CORE COMPETENCIES

I. Patient Care

- a. Clinical teaching: skill – informed decision-making, develop and carry out patient management plans
- b. Clinical experiences: skill -- informed decision-making, develop and carry out patient management plans, counsel and educate patient and family
- c. Performance feedback: skill -- develop and carry out patient management plans, caring and respectful behaviors, work within a team
- d. Procedure or Case logs: skill – competency in medical procedures
- e. Oral Exam: skill – informed decision-making
- f. 360° Global Evaluation: skill – work within a team
- g. *Standardized Patient: skill – caring and respectful behaviors, performance of routine physical examination, counsel and educate patient and family*
- h. *Chart Stimulated Recall: skill – informed decision-making, develop and carry out patient management plans*

II. Medical Knowledge

- a. Clinical teaching: skill – knowledge and application of basic sciences
- b. Clinical experiences: skill – investigatory and analytic thinking, knowledge and application of basic sciences
- c. Departmental conferences, lectures or discussions including Basic Science, Senior Case, Intern, Inter-disciplinary Conferences, Journal Club, Grand Rounds: skill – interpret and apply evidence-based medicine, self-improvement and life-long learner
- d. ABSITE examination (written): skill -- knowledge and application of basic sciences
- e. Oral Exam : skill -- investigatory and analytic thinking, knowledge and application of basic sciences
- f. Attend local conferences and seminars with the American College of Surgeons: skill – investigatory and analytic thinking, knowledge and application of basic sciences, life-long learner
- g. *Chart Stimulated Recall: skill – investigatory and analytic thinking*

III. Practice-based Learning and Improvement

- a. ABSITE examination (written): skill – use of evidence from scientific studies
- b. Oral Exam: skill -- use of evidence from scientific studies
- c. 360° Global Evaluation: skill – use of information technology, facilitate learning of others
- d. Attend weekly Grand Rounds: skill – facilitate learning of others
- e. Procedure or Case logs: skill – use of information technology
- f. Concentrated year of research: skill – application of research and statistical methods
- g. *Chart Stimulated Recall: skill – use of evidence from scientific studies, analyze own practice for needed improvements, application of research and statistical methods*
- h. *Standardized Patient: skill – analyze own practice for needed improvements*

IV. Interpersonal and Communication Skills

- a. Clinical teaching: skill – listening skills, creation of therapeutic relationship with patients
- b. Clinical experiences: skill – listening skills, interaction with other services (consultants)
- c. 360° Global Evaluation: skill -- listening skills, creation of therapeutic relationship with patients
- d. *Standardized Patient: skill -- listening skills, creation of therapeutic relationship with patients*
- e. *OSCE: : skill -- listening skills, creation of therapeutic relationship with patients*

V. Professionalism

- a. Clinical teaching: skill – respectful, ethically sound practice
- b. Clinical experiences: skill – respectful, altruistic, ethically sound practice, sensitive to cultural, age, gender and disability issues
- c. Oral Exam: skill -- sensitive to cultural, age, gender and disability issues
- d. 360° Global Evaluation: skill -- sensitive to cultural, age, gender and disability issues, ethically sound practice
- e. *Standardized Patient: skill – respectful, ethically sound practice*
- f. *OSCE: skill – respectful, altruistic, sensitive to gender, age, culture, disability*

VI. Systems-based Practice

- a. ABSITE examination (written): skill – knowledge of practice and delivery system

- b. 360° Global Evaluation: skill – understand interaction of their practices with the larger system, advocate for patients within health care system
- c. Departmental conferences and lectures on billing and coding (mandatory): skill -- knowledge of practice and delivery system, practice cost-effective care
- d. Departmental conferences and lectures on medical-legal issues including risk management, the medical record as a legal document: skill -- knowledge of practice and delivery systems, understand interaction of their practices with the larger system
- e. *OSCE: skill – advocate for patients within health care system*
- f. *Standardized Patient: skill – advocate for patients within health care system*
- g. *Tufts Managed Care Institute on Principles of Managed Care (CD-ROM): skill – knowledge of practice and delivery systems, practice cost-effective care, understand interaction of their practices with the larger system*

The items noted in italicized print are the assessment tools that we are developing and will begin implementing in the new hospital in September 2002. We will be utilizing the state-of-the art Educational Center to develop Surgical Standardized Patients and OSCEs. The center is comprised of twelve patient rooms with two video cameras so that residents may be evaluated by a faculty member from a control room. Checklists are generated for the standardized patient and the faculty member to complete to assess resident performance. We are also developing a series of exercises for Chart Stimulated Recall utilizing hand-held personal digital assists (PDAs). These exercises will allow faculty to rapidly assess the residents on their patient care, medical knowledge, and practice-based learning at the bedside. In the new hospital, printers with infrared sensors will allow us to generate immediate feedback to the resident as they work through a clinical scenario. The new Educational Center is also equipped with two simulated operating rooms. Programs will be purchased to teach residents procedures through virtual reality technology and will augment our WISE lab facility at GW where animal models are used and the G.A.T.E. facility at HCH with inanimate models.