RADIOLOGY LEARNING OBJECTIVES

Preamble

Correct diagnosis and appropriate management of the surgical patient often depend on timely diagnostic imaging techniques. Therefore, the General Surgery resident must understand and appreciate the appropriate indications for and the merits of the available imaging procedures. Furthermore, he/she should be able to interpret the resultant images in order to facilitate appropriate and timely patient management.

General Objectives

Upon completion of the Radiology rotation, the General Surgery resident is expected to:

- Demonstrate knowledge, clinical and technical skills and decision-making capabilities with respect to diagnostic imaging pertinent of the practice of General Surgery
- Understand and appreciate the role of the radiologist as a member of an interprofessional healthcare team

Specific Objectives

At the completion of the Radiology rotation, the General Surgery resident will have acquired the following competencies and will function effectively as:

Medical Expert

- Establish and maintain clinical knowledge, skills and attitudes appropriate to the Radiology rotation
  - Apply knowledge of the clinical fundamental biomedical sciences relevant to the Radiology rotation

The resident in General Surgery is required to attain sufficient knowledge as follows:

Basic/General Areas

- Radiation physics and radiobiology with respect to the following:
  - Conventional radiology
  - CT
  - MRI
  - Ultrasound
  - Diagnostic nuclear medicine (optional)
- Principles of the above imaging techniques, including:
  - Areas of application
  - Indications
  - Contraindications
  - Limitations
- Radiation hazards

Specific Applications

- Conventional radiology, including:
  - Plain abdominal radiographs
  - Chest radiographs
  - Gastrointestinal contrast imaging
  - Biliary imaging, including:
    - ERCP
    - PTC
  - Mammography and needle localization techniques
  - Urologic imaging, including:
    - IVP
    - Cystography
  - Angiography
  - Venography
- CT, including:
  - Head
  - Chest
  - Abdomen/pelvis
  - CT angiography
- MRI, including:
  - Chest
  - Abdomen
  - Pelvis (rectal cancer assessment)
  - MRCP
- Breast
- Soft tissues
- Ultrasound, including:
  - Upper abdomen
  - Pelvis
  - Breast
  - Transrectal ultrasound (rectal cancer assessment)
  - Doppler studies (vascular assessment)
  - Thyroid
- Diagnostic nuclear medicine (optional), including:
  - Ventilation/perfusion scanning
  - Gastric emptying scanning
  - Tagged-RBC scanning
  - Bone scanning
  - Bone density studies
  - Gallium scanning
  - WBC scanning
- **Perform a complete and appropriate assessment of the patient**
  - Select medically appropriate investigations in a resource-effective and ethical manner
  - Demonstrate effective clinical problem solving and judgment, including interpreting available data and integrating information to generate differential diagnoses and management plans
- **Demonstrate proficient and appropriate use of procedural skills**
  - Demonstrate effective, appropriate and timely performance of diagnostic procedures relevant to the Radiology rotation
  - Ensure appropriate informed consent is obtained for procedures
  - Appropriately document and disseminate information related to procedures performed

Having completed the Radiology rotation, the General Surgery resident will be able to demonstrate knowledge and competence in interpretation of the following:
- Chest radiographs
- Plain abdominal radiographs
- Radiographs of the axial and appendicular skeleton
- Gastrointestinal contrast imaging
- Biliary imaging, including:
  - ERCP
  - PTC
- Mammograms
- CT, including:
  - Head
  - Chest
  - Abdomen/pelvis
  - CT angiograms
  - Spine
- MRI, including:
  - Head
  - Abdomen
  - MRCP
  - Pelvis
- Diagnostic ultrasound (optional)
- **Seek appropriate consultation from other health professionals**
  - Demonstrate insight into his/her own limitations of expertise by self-assessment
  - Demonstrate effective, appropriate and timely consultation of another health professional as needed for optimal care of the patient

**Communicator**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

- **Develop rapport, trust and ethical therapeutic relationships with patients and families**
  - Respect patient confidentiality, privacy and autonomy
  - Listen effectively
- **Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues and other professionals**
  - Seek out and synthesize relevant information from other sources such as the patient’s family, caregivers and other professionals
- **Accurately convey relevant information and explanations to patients and families, colleagues and other professionals**
  - Deliver information to the patient and family, colleagues and other professionals in a humane and understandable manner
• Convey effective oral and written information
  ▪ Maintain clear, accurate, appropriate and timely records of clinical encounters and procedures involving the patients
  ▪ Maintain an accurate, complete and up-to-date electronic database (log) of procedures performed during the Radiology rotation
  ▪ Effectively present verbal reports of clinical encounters and medical information during the Radiology rotation

**Collaborator**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

• **Participate effectively and appropriately in an interprofessional healthcare team**
  ▪ Recognize and respect the diversity of roles, responsibilities and competences of other professionals in the management of the patient
  ▪ Work with others to assess, plan, provide and integrate care of the patient

**Manager**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

• **Manage his/her professional and personal activities effectively**
  ▪ Set priorities and manage time to balance professional responsibilities, outside activities and personal life
  ▪ Employ information technology effectively (e.g. electronic surgical procedure database)

• **Serve in leadership roles, as appropriate**
  ▪ Participate effectively at teaching rounds and other meetings

**Health Advocate**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

• **Respond to the needs of the patient**
  ▪ Identify the health needs of an individual patient

**Scholar**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

• **Maintain and enhance professional activities through ongoing learning**
  ▪ Pose an appropriate learning question
  ▪ Access and interpret the relevant evidence
  ▪ Integrate new learning into development as a general surgeon

• **Critically evaluate medical information and its sources and apply this appropriately to clinical decisions**
  ▪ Critically appraise the evidence in order to address a clinical question
  ▪ Integrate critical appraisal conclusions into clinical care

**Professional**

At the completion of the Radiology rotation, the General Surgery resident will be able to:

• **Demonstrate a commitment to patients through ethical practice**
  ▪ Exhibit appropriate professional behaviors, including honesty, integrity, commitment, compassion, respect and altruism
  ▪ Appropriately manage conflicts of interest
  ▪ Recognize the principles and limits of patient confidentiality
  ▪ Maintain appropriate relations with patients

• **Demonstrate a commitment to physician health**
  ▪ Balance personal and professional priorities
  ▪ Strive to heighten personal and professional awareness and insight