Goals and Objectives: Breast Cancer Service  
Department of Radiation Oncology

The breast cancer service provides training in the diagnosis, management, treatment, and follow-up care of patients with breast-related malignancies. This includes the clinical management of cases involving:

- Ductal carcinoma in situ (DCIS) of the breast
- Early stage invasive cancer receiving breast conservation therapy
- Early stage invasive cancer receiving mastectomy
- Locally advanced and inflammatory breast cancer receiving mastectomy
- Management of local-regional recurrence of breast cancer
- Treatment of metastatic breast cancer and the role of radiation
- Assessment and management of complications of radiation therapy for breast cancer.

Methods for Residents to Learn Core Competencies:

1) Patient Care. Residents must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
   - Supervised contouring and radiation plan evaluation and approval of patients undergoing external beam radiation
   - Supervised treatment of patients undergoing interstitial implants for breast cancer when applicable.
   - Supervised clinic participation in the initial consultation, simulation, on-treatment visits, and follow-up visits of patients with breast cancer.
   - Attendance at site-specific multi-disciplinary breast cancer tumor board.
   - Attendance and participation in site-specific breast cancer resident case conferences.

2) Medical Knowledge. Residents must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care.
   - Attendance at breast cancer didactic lectures.
   - Attendance at multi-disciplinary breast cancer tumor boards with medical and surgical oncology, pathology, and diagnostic imaging present.
   - Participation in the simulation, treatment planning, and procedures involved with the clinical treatment of patients with breast cancer.
   - Self-directed study of the resident teaching files of recommended site-specific articles, lectures, and patient treatment planning case examples in ARIA.

3) Practice-based Learning and Improvement. Residents must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning.
   - Meetings at the beginning, middle and end of rotation with the attending physician to identify strengths and weaknesses and set learning and improvement goals.
   - Review of outcomes of the rotation with program director
   - One-on-one mentoring between attending physicians and residents on site-specific rotations.
- Presentation of patients at weekly site-specific chart rounds.
- Presentation of patients when applicable to morbidity and mortality conference.
- Participation in mock oral board examination at end of rotation.

4) Interpersonal and Communication Skills. Residents must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.
- Participation in discussions with patients and their families.
- Functioning in clinic with a team including nursing, nutrition and social work.
- Presentation of patients at breast cancer site-specific chart rounds.

5) Professionalism. Residents must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles.
- Timely and accurate creation of patient notes for medical records.
- Education and certification in Health Insurance Portability and Permanence Act.
- Feedback from 360 degree evaluations in clinic from nursing and patients.

6) Systems-based Practice. Residents must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
- Working in a multi-disciplinary cancer treatment setting with medical and surgical oncology.
- Communication with referring physicians / advanced practice providers, consultants in diagnostic imaging, pathology, or other services.
- Coordination of patient care with nurse navigation or social work regarding referrals to other providers, transportation, cost, or psychological issues.
- Appropriate referral for nutrition consultation.
- Completion of medical necessity forms, insurance or disability forms, and other ancillary documentation.

**Breast Cancer Resident Competency Objectives:** Objectives for achieving competencies during clinical rotations will be tailored to the level of postgraduate training of the resident:

**I. Patient Care:**

**PGY-2 and PGY-3**
- Be familiar with the anatomy, epidemiology and risk factors for breast cancer.
- Be able to perform a history and physical exam including an examination of the breast and regional lymph nodes.
- Be able to direct an initial staging and diagnostic work-up of a patient with breast cancer.
- Know the AJCC cancer staging.
- Be able to utilize imaging results (mammography, ultrasound, MRI) and pathologic findings in the medical decision making for breast cancer.
- Be familiar with the roles of surgery for diagnosis and for breast conserving surgery or mastectomy, and reconstruction procedures.
• Be familiar with the role of systemic therapy in early stage breast cancer.
• Be familiar with factors used in the selection of patients for breast conservation.
• Counsel patients regarding treatment options, recommendations, process of treatment, side effects as well as rare risk or complications. Be able to obtain informed consent from patients and their families.
• Know the CT contouring guidelines for breast and regional nodal CTV and PTV
• Demonstrate basic understanding and proficiency in the external beam radiation simulation and treatment planning process. Be familiar with 3D, IMRT, and proton radiation techniques for simulating and treating the intact breast, chest wall postmastectomy, regional supraclavicular and axillary lymph nodes, and electron boost.
• Know the key DVH parameters for target coverage 95% receiving 95%, heart mean and V20, and lung V20 used in plan evaluation.
• Know the common dose and fractionation schedules for early stage breast cancer.
• Attend the site-specific multi-disciplinary tumor board each week.
• Be able to present a complete history and physical examination to the attending physician in clinic and write up notes in a timely fashion.
• Demonstrate knowledge of acute toxicity scoring and treatment of acute radiation toxicities. Assess patient weekly for toxicity of therapy and adjust skin care regimen as needed.
• Be proficient in the treatment of metastases to bone, brain or CNS, including ability to design and set-up treatment fields, prescribe dose, evaluate dose plans, assess set-up and weekly quality assurance portals.
• Ability to manage acute toxicities of palliative radiation fields, such as steroid implementation and tapers for CNS disease, skin care, and to manage pain and fatigue.
• Have a general knowledge of the patterns of failure and survival after breast cancer treatment.

PGY-4 and PGY-5
• Discuss and understand the natural history and treatment options for early stage (DCIS, T1-T2) and locally advanced (T3-T4) breast cancer.
• Synthesize a radiation care plan for a patient after full assessment
• Be familiar with major randomized trials and understand issues regarding the role of radiation vs. no radiation following breast-conserving surgery or mastectomy.
• General understanding of the major Penn pathways for breast cancer.
• Diagnosis, work-up, management and treatment of locally advanced and inflammatory invasive breast cancer.
• Knowledge of the indications for chemotherapy and/or endocrine therapy in the treatment of breast cancer, the current regimens or drugs being used, the mechanism of action of systemic agents, and the sequencing of radiation and chemotherapy.
• The role of neoadjuvant chemotherapy and indications for radiation after neoadjuvant chemotherapy after lumpectomy or mastectomy.
• Exhibit advanced knowledge of radiation simulation and treatment planning for challenging cases of large breast size, left-sided, pectus excavatum, patients with reconstruction postmastectomy, and internal mammary node irradiation.
• Know how the key DVH parameters are the same or different for 3D, IMRT or protons planning.
• Be familiar with and know the management of common late side effects of radiation including breast-related symptoms, chest wall complications, pneumonitis, lymphedema, and neuropathy.
• Ability to diagnose and manage local-regional recurrence after breast conservation therapy or mastectomy, including knowledge of surgical or medical treatment options and radiation techniques.

II. Medical Knowledge:
PGY-2 and PGY-3
• Be familiar with the pertinent peer-reviewed medical literature pertaining to radiation therapy with respect to surgical management, systemic therapy, psychosocial issues, epidemiology and genetics, biology.
• Be familiar with the pertinent peer-reviewed medical literature pertaining to radiation therapy with respect to margins, dose, fractionation, use of a boost, and prognostic factors.
• Know the current clinical trials open.

PGY-4 and PGY-5
• Know the major randomized trials of breast-conserving surgery and radiation vs. mastectomy; breast-conserving surgery +/- radiation; whole breast +/- regional node irradiation; whole breast versus partial breast radiation; and intraoperative radiation.
• Demonstrate a basic knowledge base in the areas of interpreting a pathology report, radiology, medical oncology (chemotherapy and hormonal therapy), surgery, cancer rehabilitation, pain management and palliative medicine

III. Practice-Based Learning and Improvement:
PGY-2 and PGY-3
• Proficiency in the multidisciplinary care of breast cancer patients in cooperation with colleagues in medical oncology, surgery, pathology, diagnostic radiology, and in multidisciplinary conferences.

PGY-4 and PGY-5
• Proficiency in the quality assurance process in breast cancer treatment including dosimetry, dose plan assessment and optimization, and portal film assessment.
• Ability to discuss and critique the breast cancer medical literature in the conference series, including didactic conference, case conference, morbidity and mortality conference, or journal club
• Ability to critically review the medical literature as it pertains to breast cancer management and to apply new research findings to clinical practice.

IV. Interpersonal and Communication Skills:
PGY-2 and PGY-3
- Ability to express empathy and caring in communications with patients and families
- Ability to clearly discuss the radiation consent of simulation and common and rare side effects to patients and families, peers and colleagues

PGY-4 and PGY-5
- Ability to clearly explain the rationale and treatment options for radiation therapy to patients and families colleagues, peers, and ancillary personnel (nurses, therapists, dosimetrists, physicists)
- Ability to assess and discuss patient’s psychosocial or end of life issues

V. Professionalism:
PGY-2 and PGY-3
- Maintain a professional appearance that is neat, clean and appropriate in dress
- Demonstrates a respectful demeanor towards patients and families, peers, colleagues
- Fulfill commitments to patients needs in a timely manner
- Complete documentation in a thorough and timely manner
- Attend to clinical responsibilities punctually and efficiently

PGY-4 and PGY-5
- Demonstrate sensitivity to ethnic, social and psychological concerns
- Maintain ethical principles in personal behavior and in interactions with patients and colleagues

VI. Systems-Based Practice:
PGY-2 and PGY-3
- Be able to coordinate radiation treatment for breast cancer with other modalities of surgery and medical oncology.
- Understand how patient’s insurance issues and residence may affect access, coverage or choice of treatment modality or location.
- Gain ability to assess psychosocial needs and to refer the patient to appropriate services for social, psychological or financial assistance
- Gain proficiency with departmental and hospital-based computer data systems and medical records

PGY-4 and PGY-5
- Ability to coordinate the patient’s comprehensive cancer care and other medical needs (social work, physical therapy, etc.) during their radiation therapy
- Coordinate care including scheduling additional studies, requesting surgical referral, requesting medical oncology evaluation, or scheduling of reconsultation on completion of chemotherapy.
- Function as an integral member of the multidisciplinary breast team.