

Goals and Objectives: Head and Neck Cancer Service Department of Radiation Oncology

The head and neck cancer service provides training in the diagnosis, management, treatment, and follow-up care of head and neck malignancies, including malignancies of the base of skull, nasopharynx, middle ear, oropharynx, hypopharynx, larynx, oral cavity, major and minor salivary glands, thyroid gland, soft tissue and bone malignancies, skin surface of the head and neck and unknown primary carcinomas. The majority of the clinical training is in patients with an epithelial histopathology. Training in both curative and palliative malignancies of the head and neck is also provided. Significant attention and training in the diagnosis and management of the acute side-effects of radiotherapy and combined chemoradiotherapy complications is emphasized. Follow-up care provides training in the diagnosis and management of sub-acute and late treatment complications. Technical skills in the head and neck examination including techniques in indirect laryngoscopy, flexible fiberoptic nasopharyngoscopy and in the placement of surface, planar and interstitial brachytherapy implants are emphasized. These clinical skills are acquired in the context of the multidisciplinary care of head and neck cancer patients and require a comprehensive knowledge base in the areas of pathology, radiology, surgery, medical oncology, oral and maxillofacial dentistry, nutrition, speech and swallow physical therapy, psycho-oncology, physical rehabilitation, pain management and palliative medicine. In this capacity, training is also provided in developing effective inter-discipline professional relationships and communication to foster quality and efficient clinical care. The head and neck cancer service will also provide training in learning to transition to the role and responsibilities as an independent practicing physician and radiation oncologist during the training service. This will be achieved through graduated independent but supervised responsibilities throughout the training with a strong emphasis on developing sound and independent decision-making skills.

I. Patient Care:

1. Diagnosis, work-up, management and treatment of post-operative head and neck cancers:
 - a. Residents will be required to acquire knowledge of the indications for surgery and systemic therapy in the treatment of head and neck cancer. This includes knowledge of the surgical approach and anatomic nature of the resection. This also includes knowledge of the common systemic therapy agents, both chemotherapy and targeted biologic agents, currently being used; knowledge of these agents include an understanding of the major mechanisms of action and toxicity alone and in combination with concurrent radiotherapy.
 - b. Residents will be required to acquire the ability to utilize the surgical findings and the nature of the surgical resection to guide post-operative treatment recommendations. This includes knowledge of newer organ-preserving surgical techniques such as supracricoid partial laryngectomy and robotic laser and non-laser surgical techniques.
 - c. Residents will be required to acquire the ability to utilize pathologic findings and radiologic (CT, MRI) findings in the treatment recommendations for post-operative head and neck cancer.

- d. Residents will acquire a comprehensive and practical knowledge base of cross-sectional, surface and mucosal head and neck anatomy to facilitate effective treatment planning. This will include knowledge of evolving non-surgical definitions of anatomic nodal groups in the neck. Residents will learn to integrate mucosal anatomy (including the associated histopathology) with cross-sectional imaging as a strategy to develop a three-dimensional appreciation of head and neck anatomy to facilitate complex treatment planning techniques including the use of intensity modulated radiotherapy.
- e. Residents will develop proficiency in the use of both 2D and 3D CT-based non-IMRT treatment simulation and planning for radiation therapy to the head and neck using single en face field, AP-PA and oblique parallel-opposed pairs and the standard 3-field technique including knowledge of technical and dosimetric issues relating to how the fields may be matched. Residents will also understand the anatomic site-specific issues related to organ motion in the head and neck. The ability to assess the appropriate 2D and 3D field arrangement as indicated is emphasized. Residents will develop the ability to assess dose distributions and to understand how to safely prescribe radiation dose to the head and neck.
- f. Residents will develop proficiency in the use of 3D-IMRT coplanar and non-coplanar radiotherapy techniques to the head and neck. This will include a practical experience in the use of current treatment planning systems to understand the strengths and weaknesses of this technique compared to traditional radiotherapy techniques. Residents will be expected to jointly work with the planning dosimetrist and / or physicist to develop and to critically evaluate iterative treatment plans during the planning process.
- g. Residents will develop proficiency in the set-up of non-IMRT and IMRT radiotherapy fields with an understanding of the weekly variation in set-up accuracy and precision. Residents will assess with supervision weekly quality assurance portal films making decisions regarding treatment adjustments as indicated.
- h. Residents will develop proficiency in the assessment and treatment of acute radiation toxicities through active care of patients during their radiotherapy treatment.
- i. Residents will develop proficiency in the follow-up care of treated head and neck cancer patients including the assessment and treatment of sub-acute and late radiation treatment effects. Residents will develop an understanding for the appropriate indications for follow-up surveillance and diagnostic investigations
- j. Residents will acquire knowledge of the patterns of failure for common head and neck cancers.
- k. Residents will acquire knowledge and skills of specialized treatment techniques, including IMRT (as outlined above), superficial orthovoltage skin radiotherapy techniques, stereotactic radiosurgery, fractionated stereotactic radiotherapy and surface, intracavitary, planar and volume interstitial temporary brachytherapy implants. Residents will learn the issues related to the coordinated intra-operative placement of the various brachytherapy implants. Residents will also acquire knowledge and experience in the prescription of these specialized

- radiotherapy skills including the relative strengths and weakness of each technique to guide its appropriate application.
2. Diagnosis, work-up, management and treatment of definitive head and neck cancers.
In addition to the above listed proficiencies:
 - a. Residents will develop an understanding of the natural treatment responses observed with definitive radiotherapy, concurrent chemoradiotherapy, evolving approaches including induction chemotherapy and concurrent biologic therapies and exposure to patients treated on study protocols.
 - b. Residents will acquire knowledge and experience in the integrated delivery of chemotherapy with radiotherapy.
 3. Diagnosis, work-up, management and treatment of recurrent and metastatic head and neck cancers:
 - a. Residents will acquire knowledge and experience of the various systemic therapeutic options, including the use of targeted biologic agents, for local-regional recurrent and metastatic head and neck cancers.
 - b. Residents will acquire knowledge and experience in the selective application of re-irradiation with or without combined placement of a brachytherapy implant in the management of local-regional recurrent head and neck cancers.
 - c. Residents will acquire knowledge, experience and proficiency in the use of palliative radiotherapy in the treatment of distant metastatic head and neck cancers, including ability to design and set-up treatment fields, prescribe dose, evaluate dose plans and assess set-up and weekly quality assurance portals. Residents will also acquire knowledge and experience in the indications where a clinical set-up for the administration of palliative radiotherapy will be appropriate.
 - d. Residents will acquire the ability to pharmacologically manage symptoms of metastatic head and neck cancer including side-effects from palliative radiotherapy. These include proficiency in the use of steroids, pain analgesia with both narcotic and non-narcotic agents including co-analgesics and the use of anti-emetics.

II. Medical Knowledge:

1. Residents will acquire knowledge of the pertinent peer-reviewed medical literature pertaining to the diagnosis and management of all stages of each type of head and neck cancer, including major randomized clinical trials and important institutional series, in the following disciplines:
 - a. radiation therapy
 - b. surgical management
 - c. systemic therapy
 - d. palliation, pain management and rehabilitation
 - e. psychosocial issues
 - f. head and neck cancer biology
 - g. epidemiology and genetics
2. Residents will develop the ability to apply this knowledge base acquired from the medical literature in the management of head and neck cancer patients.

3. Residents will develop the ability to critically review the medical literature as it pertains to head and neck cancer management and apply new research findings to clinical practice.

III. Practice-Based Learning and Improvement:

1. Residents will develop proficiency in the quality assurance process in head and neck cancer treatment including dosimetry, dose plan assessment and optimization, and portal film assessment.

2. Residents will develop the ability to discuss and critique the pertinent medical literature in the conference series, including didactic conference, case conference, morbidity and mortality conference, journal club.

3. Residents will develop proficiency in the multidisciplinary care of head and neck cancer patients in cooperation with colleagues in gynecologic oncology, surgery, pathology, diagnostic radiology, and in multidisciplinary conferences.

4. Residents will develop sound and clear decision-making skills to guide treatment decisions.

IV. Interpersonal and Communication Skills:

1. Residents will develop the ability to clearly explain the rationale, procedures, potential side effects and follow-up care after radiation therapy for head and neck cancer treatment to patients and families, colleagues, peers, and ancillary personnel (nurses, therapists, dosimetrists, physicists).

2. Residents will develop the ability to clearly discuss the disease process of each type of head and neck cancer, treatment options and outcomes for the various stages to patients and families, peers and colleagues.

3. Residents will develop the ability to assess and discuss a patient's psychosocial or end of life issues.

4. Residents will develop the ability to express empathy and caring in communications with patients and families.

V. Professionalism:

1. Residents will maintain a professional appearance that is neat, clean and appropriate in dress and demeanor.

2. Residents will learn to demonstrate sensitivity to ethnic, social and psychological concerns of this female patient population.

3. Residents will demonstrate ethical principles in personal behavior and in interactions with patients and colleagues.

4. Residents will fulfill commitments to patients needs in a timely manner.

5. Residents will complete documentation in a thorough and timely manner.

6. Residents will attend to clinical responsibilities punctually and efficiently.

7. Residents will demonstrate a respectful demeanor towards patients and families, peers, colleagues and staff.

VI. Systems-Based Practice:

1. Residents will acquire the ability to coordinate appointments with other physicians, or schedule appropriate tests as indicated with an understanding of the patient's insurance issues and geographical preferences.
2. Residents will acquire the ability to assess psychosocial needs and to refer the patient to appropriate services for social, psychological or financial assistance.
3. Residents will acquire the ability to coordinate the patient's comprehensive cancer care and other medical needs during their radiation therapy.
4. Residents will develop proficiency with departmental and hospital-based computer data systems and medical records databases.
5. Residents will develop an understanding of billing and codes associated with brachytherapy and external beam radiotherapy.

The above stated goals and objectives are to be reviewed by the resident prior to the start of the rotation.