Case Scenario #1 Larynx

56 year old white female who presented with a 2 month history of hoarseness treated with antibiotics, but with no improvement. In the last 3 weeks, she has had a 15 lb weight loss, fatigue and dysphagia. Physical exam revealed a palpable right level 2 lymph node, 2cm, with no other abnormalities.

4/29 MRI Face/Neck: Infiltrating tumor in the right piriform sinus with extension to the epiglottis and false cords, which is obliterating the airway at the laryngeal ventricle. Partial right sided invasion of cartilage and hyoid bone. Extension through the left piriform sinus. Enlarged right submandibular, jugular digastric and upper cervical lymph nodes, 2.0cm, and left jugulodigastric lymph node, 1.6cm. Nodule in the right tonsillar pillar.

5/3 Direct laryngoscopy: Bulky mass lesion occupying the right sided epiglottis extending into the piriform sinuses and aryepiglottic fold and right arytenoid. No movement of the right hemilarynx. Postcricoid is not involved. Bilateral true vocal cord not involved. Tumor did cross the posterior commissure to the postcricoid region and into the right piriform recess. Biopsies taken.

5/3 Bx Epiglottis: Invasive, moderately differentiated squamous cell carcinoma

5/11 PET Scan: Large supraglottic mass in the neck extending down to the vocal cord level with strong concern of invasion of the thyroid cartilage on the right and perhaps also post-cricoid extension. Metastatic bilateral neck lymphadenopathy. No evidence of distant metastasis.

6/15 Right hemithyroidectomy, total laryngectomy. Bilateral selective neck dissection levels IIA, IIB, III and IV. Right pectoralis major myocutaneous flap reconstruction of neopharynx.

6/15 Pathology: Total laryngectomy and hemithryoidectomy: Invasive, moderately differentiated squamous cell carcinoma. 4.0 cm mass centered in the epiglottis, predominantly involves the right larynx, but also involves the left portion of the larynx and the left piriform sinus. Involves the pre-epiglottic space. Tumor involves the subglottic tissues in the area of the right true cord. Does not invade cartilage, but abuts it. Margins are not involved. Biopsies of the bilateral piriform mucosa, oropharynx, tongue, and trachea negative for carcinoma. Lymph nodes: Metastatic squamous cell carcinoma in 2/10 right level II nodes, 1/3 right level III nodes (1.5cm with extranodal metastasis), 0/4 right level IV nodes, 0/9 left level III nodes, 0/10 left level II nodes, 0/1 left level IV node, 0/7 left level IV nodes (total 3/43 positive lymph nodes).

Radiation oncology consult: 56 year old white female with squamous cell carcinoma of the supraglottic larynx, s/p total laryngectomy and bilateral neck dissection. Management options were discussed and it was felt she would best be served by definitive chemoradiation. The patient completed 6600 cGy 6mv

IMRT to H&N/Epiglottis at 200 cGy per day times 33 fractions from 8/23 through 10/7 concurrent with Erbitux.

Case Scenario 1 Worksheet

Primary Site:	**Morphology:**		**Grade:**
Stage/ Prognostic Factors			
CS Tumor Size		CS SSF 9	988
CS Extension		CS SSF 10	988
CS Tumor Size/Ext Eval		CS SSF 11	988
CS Lymph Nodes		CS SSF 12	988
CS Lymph Nodes Eval		CS SSF 13	988
Regional Nodes Positive		CS SSF 14	988
Regional Nodes Examined		CS SSF 15	988
CS Mets at Dx		CS SSF 16	988
CS Mets Eval		CS SSF 17	988
CS SSF 1		CS SSF 18	988
CS SSF 2		CS SSF 19	988
CS SSF 3		CS SSF 20	988
CS SSF 4		CS SSF 21	988
CS SSF 5		CS SSF 22	988
CS SSF 6		CS SSF 23	988
CS SSF 7	988	CS SSF 24	988
CS SSF 8	988	CS SSF 25	988
Summary Stage 2000			
Clinical AJCC TNM Stage		Pathologic AJCC TNM Stage	

Treatment			
Diagnostic Staging Procedure			
Surgery Codes		**Radiation Codes**	
Surgical Procedure of Primary Site		Radiation Treatment Volume	
Scope of Regional Lymph Node Surgery		Regional Treatment Modality	
Surgical Procedure/ Other Site		Regional Dose	
Systemic Therapy Codes		Boost Treatment Modality	
Chemotherapy		Boost Dose	
Hormone Therapy		Number of Treatments to Volume	
Immunotherapy		Reason No Radiation	
Hematologic Transplant/Endocrine Procedure		Radiation/Surgery Sequence	
Systemic/Surgery Sequence			

Case Scenario #2 Larynx

54 year old male referred to clinic after having some voice changes in the past couple of months. He states his voice has gotten progressively worse. Physical exam reveals no palpable abnormalities. He denies throat clearing or globus sensation.

6/5 Flexible Endoscopic Nasopharyngolaryngoscopy: The exam revealed no gross lesions from the anterior nasal opening to the glottis. There was normal true vocal cord motion with patent airway. However, there is a large raised and erythematous lesion on the right true vocal cord that takes approximately 2/3 of the cord. The lesion is encroaching into the right ventricle that was friable and invading into the right ventricle. Bilateral false vocal cords appear normal. Biopsies taken of the right true vocal cord and right ventricle.

6/5 Biopsy of the right true vocal cord: Minimally invasive squamous cell carcinoma in a background of carcinoma in situ. Biopsy of the right ventricle: Respiratory mucosa and submucosa and skeletal muscle with chronic inflammation. Negative for in situ and invasive carcinoma.

6/20 CT Chest: There are innumerable small and tiny pulmonary nodules that are relatively dense, likely calcified granulomata.

6/20 CT Soft Tissue Neck: Small defect of the right vocal cord, likely secondary to biopsy. Remainder of the vocal cord demonstrates mild enhancement. Measures approximately 1.4cm. The enhancement extends superiorly to the lateral wall of the right laryngeal ventricle. This enhancement does not cross the midline nor involve the arytenoid cartilage. The findings are suggestive of right true vocal cord malignancy with laryngeal ventricle infiltration. There is no pathologic lymphadenopathy in the neck soft tissue by size criteria.

Oncology consult: The patient has surgical and non-surgical options with one modality, given its early presentation. There is no indication for chemotherapy.

Radiation treatment summary: 6525 cGy using 6MV to the larynx at 225 cGy per day in 29 fractions from 9/16 through 10/28.

Case Scenario 2 Worksheet

Primary Site:	**Morphology:**		**Grade:**
Stage/ Prognostic Factors			
CS Tumor Size		CS SSF 9	988
CS Extension		CS SSF 10	988
CS Tumor Size/Ext Eval		CS SSF 11	988
CS Lymph Nodes		CS SSF 12	988
CS Lymph Nodes Eval		CS SSF 13	988
Regional Nodes Positive		CS SSF 14	988
Regional Nodes Examined		CS SSF 15	988
CS Mets at Dx		CS SSF 16	988
CS Mets Eval		CS SSF 17	988
CS SSF 1		CS SSF 18	988
CS SSF 2		CS SSF 19	988
CS SSF 3		CS SSF 20	988
CS SSF 4		CS SSF 21	988
CS SSF 5		CS SSF 22	988
CS SSF 6		CS SSF 23	988
CS SSF 7	988	CS SSF 24	988
CS SSF 8	988	CS SSF 25	988
Summary Stage 2000			
Clinical AJCC TNM Stage		Pathologic AJCC TNM Stage	

Treatment			
Diagnostic Staging Procedure			
Surgery Codes		**Radiation Codes**	
Surgical Procedure of Primary Site		Radiation Treatment Volume	
Scope of Regional Lymph Node Surgery		Regional Treatment Modality	
Surgical Procedure/ Other Site		Regional Dose	
Systemic Therapy Codes		Boost Treatment Modality	
Chemotherapy		Boost Dose	
Hormone Therapy		Number of Treatments to Volume	
Immunotherapy		Reason No Radiation	
Hematologic Transplant/Endocrine Procedure		Radiation/Surgery Sequence	
Systemic/Surgery Sequence			

Case Scenario #3 Thyroid

69 year old male who has a 6 month history of a right neck mass which has increased in size. Physical exam revealed an enlarged 3.0cm submandibular lymph node with other areas of firmness, probably lymph nodes.

9/7 CT Neck: Enlarged 3cm lymph node in the neck at the submandibular region on the right. Prominent nodes in the upper anterior mediastinum below the thyroid. Nodular strictures in the thyroid with prominence of the right lobe extending towards the retrosternal space. Etiology of the lymphadenopathy on the right side is indeterminate, concerning for the possibility of metastasis vs. squamous cell carcinoma or lymphoma.

9/14 FNA of the right neck performed.
9/14 Cytology FNA right neck: Positive for malignancy, favor squamous cell carcinoma

9/30 PET Scan: Lymphadenopathy with increased metabolic activity at the level of the angle of the right mandible, deep to the sternocleidomastoid muscle, consistent with metastasis. Metabolically active right lobe of the thyroid. No other areas of concern.

10/10 Core biopsy right neck performed
10/10 Pathology, core biopsy right neck: Poorly differentiated carcinoma invading the fibrous tissue. Lymphvascular invasion is present. IHC staining supports the diagnosis of carcinoma and suggest primary lung carcinoma. No diagnostic support for squamous cell carcinoma. Additional possible site for primary tumor origin includes thyroid although negative staining for thyroglobulin makes this site less likely.

11/2 Thyroid Ultrasound: 2.4 cm right thyroid nodule, ill-defined, hypoechoic and solid located in the superior pole of the thyroid.
11/2 FNA thyroid nodule performed
11/2 Cytology FNA thyroid nodule: Consistent with medullary thyroid carcinoma. IHC staining is positive for TTF1, CEA, Synaptophysin, and Chormogrannin

11/11 CT Chest/Abdomen/Pelvis: Negative for distant metastasis

12/2 Total Thyroidectomy with recurrent laryngeal nerve monitoring. Central compartment neck dissection including bilateral paratracheal lymph node dissection and anterior central neck dissection. Right selective neck dissection, levels 2-5 with preservation of spinal accessory nerve and sacrifice of the internal jugular vein. Left selective neck dissection, levels 2-5, with preservation of the spinal accessory nerve and internal jugular vein.

12/2 Pathology/Total Thyroidectomy: Medullary thyroid carcinoma, 3.5cm, extensively involving the right lobe demonstrating extrathyroidal extension into the adipose tissue. Tumor noted in the soft

tissue, in the isthmus and right recurrent laryngeal nerve. Focal lymphvascular invasion. 22/130 lymph nodes positive (5 right paratracheal, 7 anterior compartment, 1 left level V, 1 retropharyngeal, 3 right levels IIA/III, 5 right level IV)

12/10 Levothyroxine, 122mcg administered

Radiation Oncology: Locally extensive thyroid cancer s/p resection with bilateral lymph node dissections. Treatment options were discussed. Medical oncologist saw patient this morning and there is no need for systemic chemotherapy. 6600 cGy using 6MV IMRT to high risk planning target volume (PTV) at 200 cGy per day in 30 fractions and 5400 cGy using 6MV IMRT to lowest PTV at 180 cGy per day in 30 fractions from 2/10 through 3/23 (of the following year).

Case Scenario 3 Worksheet

Primary Site:	**Morphology:**		**Grade:**
Stage/ Prognostic Factors			
CS Tumor Size		CS SSF 9	988
CS Extension		CS SSF 10	988
CS Tumor Size/Ext Eval		CS SSF 11	988
CS Lymph Nodes		CS SSF 12	988
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CS SSF 1		CS SSF 18	988
CS SSF 2	988	CS SSF 19	988
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CS SSF 6	988	CS SSF 23	988
CS SSF 7	988	CS SSF 24	988
CS SSF 8	988	CS SSF 25	988
Summary Stage 2000			
Clinical AJCC TNM Stage		Pathologic AJCC TNM Stage	

Treatment			
Diagnostic Staging Procedure			
Surgery Codes		**Radiation Codes**	
Surgical Procedure of Primary Site		Radiation Treatment Volume	
Scope of Regional Lymph Node Surgery		Regional Treatment Modality	
Surgical Procedure/ Other Site		Regional Dose	
Systemic Therapy Codes		Boost Treatment Modality	
Chemotherapy		Boost Dose	
Hormone Therapy		Number of Treatments to Volume	
Immunotherapy		Reason No Radiation	
Hematologic Transplant/Endocrine Procedure		Radiation/Surgery Sequence	
Systemic/Surgery Sequence			