

Quiz 1 Grade

1. This data item records the grade of a solid primary tumor before any treatment whether surgical resection or initiation of any treatment including neoadjuvant.
 - a. Grade Post-Therapy
 - b. Grade Pathological
 - c. Grade Clinical
 - d. None
2. This data item records the grade of a solid primary tumor that has been resected and for which no neoadjuvant therapy was administered.
 - a. Grade Post-Therapy
 - b. Grade Pathological
 - c. Grade Clinical
 - d. None
3. This data item records the grade of a solid primary tumor that had been resected following neoadjuvant therapy.
 - a. Grade Post-Therapy
 - b. Grade Pathological
 - c. Grade Clinical
 - d. None
4. A patient had a routine colonoscopy and was found to have lesion on the right side of the colon. A biopsy of the tumor was taken. Final Diagnosis: moderately differentiated adenocarcinoma, colon at 135 cm from the anus. The patient then had a right hemicolectomy. Final pathologic diagnosis: poorly differentiated adenocarcinoma.
 - Grade Clinical 2
 - Grade Pathological 3
 - Grade Post-Therapy
5. A patient presents for a colonoscopy with biopsy. A 6.0 cm tumor was found in the upper rectum and a biopsy confirmed adenocarcinoma. An MRI showed that the tumor extended into the surrounding peri-rectal adipose tissue, but there was no indication of lymph node involvement. The patient opted for neoadjuvant treatment followed by a total mesorectal excision. Final pathologic diagnosis was adenocarcinoma moderately differentiated (G2), treatment effect present.
 - Grade Clinical 9
 - Grade Pathological 9
 - Grade Post Therapy 2

6. A patient had a large mass in the left breast. A mammogram showed a 6 cm mass highly suspicious for malignancy. A core needle biopsy of the tumor was performed. Final pathologic diagnosis infiltrating ductal carcinoma with features of comedocarcinoma. Nottingham score 7. The patient had neoadjuvant chemotherapy followed by a lumpectomy and axillary node dissection. Final Diagnosis: Invasive ductal carcinoma, comedo type, Scarff-Bloom-Richardson grade 2.
- Grade Clinical 2
 - Grade Pathological 9
 - Grade Post Therapy 2
7. A patient had a mammography which showed a 2.0 cm tumor. A biopsy of the tumor showed intraductal and lobular carcinoma in situ. The patient then had a lumpectomy. The final diagnosis intermediate grade intraductal carcinoma and invasive lobular carcinoma Nottingham Grade 2 present within the same tumor. Patient then received chemotherapy.
- Grade Clinical 9
 - Grade Pathological 2
 - Grade Post Therapy _____
8. A patient with a history of elevated PSA presents for biopsy of the prostate. Final pathologic diagnosis prostatic adenocarcinoma, Gleason Score 3+2=5. Treatment was discussed with the patient and the patient opted for active surveillance.
- Grade Clinical 1
 - Grade Pathological 9
 - Grade Post Therapy _____
9. A patient with biopsy proven prostatic adenocarcinoma Gleason score 7 (3+4) presented for a robotic assisted prostatectomy. Final Diagnosis: moderately differentiated adenocarcinoma, Gleason 6 (3+3).
- Grade Clinical 2
 - Grade Pathological 2
 - Grade Post Therapy _____

Quiz 2 ICD-O-3

1. 2018 Final pathologic diagnosis: acinar adenocarcinoma in the upper lobe, right lung.

Primary Site	2018 Histology	2017 Histology
C34.1	8551/3	8550/3

2. 2018 Final pathologic diagnosis: poorly differentiated invasive micropapillary carcinoma of the left breast at 1 o'clock.

Primary Site	2018 Histology	2017 Histology
C50.4	8507/3	8507/3

3. 2018 Final pathologic diagnosis: lateral wall or oropharynx, squamous cell carcinoma, positive for HPV

Primary Site	2018 Histology	2017 Histology
C10.2	8085/3	8070/3

4. 2018 Final pathologic diagnosis: TAH-BSO, left ovary, serous carcinoma, high grade

Primary Site	2018 Histology	2017 Histology
C56.9	8461/3	8441/3

5. 2018 Final pathologic diagnosis: Prostate, acinar adenocarcinoma

Primary Site	2018 Histology	2017 Histology
C61.9	8140/3	8140/3

Quiz 3 Sentinel & Regional Lymph Nodes Data Item

A patient presents for mammography which revealed a 3 cm mass in the left breast. Patient then had a core biopsy which revealed MD invasive ductal carcinoma. On 02/01/2018 a lumpectomy with sentinel lymph node biopsy was done. The sentinel lymph node was positive so the surgeon proceeded with an axillary lymph node dissection. Malignancy was seen in 1 sentinel node and 2 axillary nodes. A total of 3/15 lymph nodes were positive for metastasis.

Date of Sentinel Lymph Node Biopsy	20180201
Sentinel Lymph Nodes Examined	98 or 01
Sentinel Lymph Nodes Positive	01
Date Regional Lymph Node Dissection	20180201
Regional Lymph Nodes Positive	03
Regional Lymph Nodes Examined	15 or 98

A patient presents for mammography which revealed a 3 cm mass in the left breast. Patient then had a core biopsy which revealed MD invasive ductal carcinoma. On 02/01/2018 a lumpectomy with sentinel lymph node biopsy was done. No sentinel lymph nodes were identified. The surgeon then proceeded with an axillary lymph node dissection. A total of 1/15 lymph nodes were positive for metastasis.

Date of Sentinel Lymph Node Biopsy	20180201
Sentinel Lymph Nodes Examined	00
Sentinel Lymph Nodes Positive	98
Date Regional Lymph Node Dissection	20180201
Regional Lymph Nodes Positive	01
Regional Lymph Nodes Examined	15

A patient presented for their yearly physical. Upon examination, there was a suspicious looking mole on the patient's right shoulder. A surgical excision was performed on 1/13/18. Final diagnosis was superficial spreading melanoma. A PET/CT scan was done on 1/23/18 which showed enlarged right axillary lymph nodes suspicious for metastasis. The patient then had a wide re-excision done as well as a sentinel node biopsy and axillary lymphadenectomy. The final diagnosis showed residual melanoma with 2/4 sentinel nodes and 8/27 axillary nodes positive for metastatic melanoma.

Date of Sentinel Lymph Node Biopsy	99999999
Sentinel Lymph Nodes Examined	04
Sentinel Lymph Nodes Positive	02
Date Regional Lymph Node Dissection	99999999
Regional Lymph Nodes Positive	10
Regional Lymph Nodes Examined	31

Quiz 4 Radiation Data Items

Case 1

The patient is a 70-year-old gentleman with a history of adenocarcinoma of the prostate, Gleason score 3+3 equals 6 in 1/10 cores, presenting PSA of 5.8, staged T1c, clinical stage T1c N0. This is a low-risk prostate cancer. IPSS was 18. He now completes definitive radiotherapy for his prostate cancer as described below.

Site Treated: Prostate

Radiation Dose Delivered: 7920 cGy

Dose Per Fraction: 180 cGy

Fractionation Schedule: Daily

Energy: 10 MV Photons

Field arrangement: Rapid Arc

Radiation therapy technique: IMRT/IGRT

Immobilization: Vacloc, full bladder, empty rectum

Concurrent Therapy: None

Radiation treatment dates: 11/02/2016 through 1/9/2016

Elapsed Time: 68 days

Starting Weight: 250.9 pounds

Completion Weight: 250.7 pounds

Treatment tolerance: Radiation therapy was completed as described above. During the course of external radiation treatment he had some occasional loose stool, but did not need to use Imodium. He did have a hemorrhoid flare and this was treated conservatively. He developed some fatigue, but otherwise tolerated therapy quite well.

Impression: Radiation therapy now completes with minimal radiation side effects, as described above.

	Phase 1	Phase 2	Phase 3
Radiation Primary Treatment Volume	64		
Radiation Treatment Modality	02		
Radiation to Draining Lymph Nodes	00		
External Beam Radiation Planning Technique	05		
Dose per Fraction	00180		
Number of Fractions	044		
Total Dose <i>in Phase</i>	007920		
Number of Phases of Radiation Treatment to this Volume	01		
Radiation Treatment Discontinued Early	01		
Total Dose	007920		

Case 2

The patient is a 60-year-old male who has an adenocarcinoma of the prostate, both lobes, low-risk group, clinical stage T1c N0 M0, Gleason score 6, PSA of 5.8, low-volume disease.

We discussed role of radiation therapy with the patient. The patient could be successfully treated either with external beam radiation therapy alone or Iodine-125 seed implant as a monotherapy, provided his prostate volume is below 55-60 cubic centimeters. The patient is very much interested in the Iodine-125 seed implant as a monotherapy. We discussed side effects, complications, especially possibility of prolonged catheterization including self-catheterization.

DESCRIPTION OF PROCEDURE: After obtaining a satisfactory level of general anesthesia, the patient was placed in a dorsal lithotomy position. Proper timeout was done. Rectum was then suctioned. The patient was then prepped and draped in usual manner. Foley catheter was inserted into the bladder. Foley bulb was inflated with 10 mL of saline. After draining the bladder, we installed a mixture of contrast and saline 60 mL into the bladder. Catheter was clamped so that mixture will stay in place. We then elevated the scrotum with a wet towel. Transrectal ultrasound probe was inserted into the rectum. Probe was fixed with a fixating device. Transperineal grid was placed over the probe. Then according to preplan, we inserted needles through the perineal grid, through the perineal skin, into the prostate. Position of each needle was confirmed with fluoroscopy as well as ultrasound. We placed total of 17 needles. After placing those needles, we inserted radioactive iodine-125 seed using Mick's gun. Position of each seed was also confirmed with ultrasound and fluoroscopy. We placed a total of 78 seeds. Each seed had a strength of 0.380 mCi. The prescribed dose was 145 Gy. After placing the seeds, we removed all the needles. The patient returned to supine position. Catheter was unclamped. There was no blood in the urine. The patient was then sent to recovery room in satisfactory condition.

	Phase 1	Phase 2	Phase 3
Radiation Primary Treatment Volume	64		
Radiation Treatment Modality	10		
Radiation to Draining Lymph Nodes	00		
External Beam Radiation Planning Technique	88		
Dose per Fraction	14500		
Number of Fractions	001		
Total Dose	014500		
Number of Phases of Radiation Treatment to this Volume	01		
Radiation Treatment Discontinued Early	01		
Total Dose	014500		

Case 3

The patient presents with a recent diagnosis of squamous cell carcinoma of the cervix, invasive, moderately differentiated, stage IIB involving both parametrium with PET-positive bilateral pelvic sidewall lymph node as well as a left common iliac lymph node metastases.

The patient received concomitant chemoradiation therapy including 3 intracavitary high-dose rate brachytherapy. She started this concomitant chemoradiation therapy on 01/07/2015 and completed on 02/25/2016. During this time interval, she also received 3 intracavitary high-dose rate brachytherapy. Initially, she received 4500 cGy in 25 fractions over 36 elapsed calendar days to the whole pelvis via 4-field technique using 15 Mv photon beam. She then received bilateral pelvic sidewall boosts consisting of 1000 cGy in 5 fractions over 9 elapsed calendar days via AP/PA port, again using 15 Mv photon beam. She underwent 3 intracavitary high-dose rate brachytherapy treatments, which she received on 02/05/2016 and 02/09/2016 and 02/17/2016. During each high-dose rate brachytherapy treatment, she received 840 cGy to point A, giving the total of point A dose of 2520 cGy in 3 fractions. The entire course was completed in 45 elapsed calendar days. She participated in the outback clinical trial. She received this entire course of radiation therapy per GOG outback clinical trial.

She tolerated this therapy fairly. Examination under anesthesia during her last brachytherapy procedure revealed significant response with almost complete resolution of disease in both parametrium as well as over the cervix. The patient lost a total of 4 pounds during this entire course.

	Phase 1	Phase 2	Phase 3
Radiation Primary Treatment Volume	71	06	71
Radiation Treatment Modality	02	02	09
Radiation to Draining Lymph Nodes	06	06	00
External Beam Radiation Planning Technique	01	01	88
Dose per Fraction	00180	00200	00840
Number of Fractions	025	005	003
Total Dose	004500	001000	002520
Number of Phases of Radiation Treatment to this Volume	03		
Radiation Treatment Discontinued Early	01		
Total Dose	008020		

Case 4

The patient is a 77-year-old with a prior left-sided breast cancer treated with a mastectomy and radiation, who developed a recent right-sided breast cancer. This was discovered on a mammogram, and the patient had a biopsy confirming a right-sided breast cancer. She had a wire-guided lumpectomy and sentinel node biopsy. There was a micrometastatic deposit in 1 of 6 lymph nodes and a 1.9-cm primary with negative margins. The patient was not a candidate for chemotherapy due to cardiomyopathy, perhaps secondary to prior chemotherapy, and she was referred for radiation.

I suggested a hypofractionated course of radiation, and she concurred.

The patient was simulated on 03/31/2016. A Vac-Lok bag was made for immobilization and reproducibility, and a CT scan was done for 3D treatment planning purposes. A 3D plan was devised to treat the right breast with both 6 mV photons and 10 MV photons with multiple segments per field with multileaf collimation made for dose homogeneity. A daily dose of 2.66 Gy was planned. The patient returned on 04/08/2016 for initiation of treatment. She completed 16 fractions of whole breast treatment on 05/02/2016.

An electron beam cone was set up, specifically to treat the lumpectomy site while blocking the pacemaker. This was calculated with 16 MeV electrons at the 90% isodose line using a custom cutout with a daily dose of 2 Gy planned for 4 fractions. This boost was checked on the treatment table on 05/03/2016 and then initiated the same day. She received 4 boost treatments through 05/06/2016. The patient received a total dose of 50.56 Gy delivered between 04/08/2016 and 05/06/2016.

	Phase 1	Phase 2	Phase 3
Radiation Primary Treatment Volume	40	41	
Radiation Treatment Modality	02	04	
Radiation to Draining Lymph Nodes	00	00	
External Beam Radiation Planning Technique	04	01	
Dose per Fraction	00266	00200	
Number of Fractions	016	004	
Total Dose	004256	000800	
Number of Phases of Radiation Treatment to this Volume	02		
Radiation Treatment Discontinued Early	01		
Total Dose	005056		

Case 6

The patient is a 40-year-old with a T1 N1 breast cancer. She has very dense breast tissue on mammography and felt a density in the left upper central breast. On ultrasound, a mass was noted and a biopsy did show an invasive ductal breast cancer. An MRI showed only a solitary lesion, but the patient opted for bilateral mastectomies. The left mastectomy did show the 1.4-cm primary with 1 of 5 sentinel nodes. There was no extracapsular extension.

The patient had an Oncotype return back in the lower risk range and medical oncology did not recommend chemotherapy. Arimidex was recommended and at this point the patient was referred for radiation.

The patient was seen and simulated on 05/04/2016. A Vac-Lok bag was made for immobilization and a CT scan was done for 3D treatment planning purposes. A 3D plan was devised to treat the left breast with medial and lateral tangents with multiple segments per field to improve dose homogeneity; 6 MV photons were utilized, and a 0.5-cm layer bolus was to be given every other day.

Concurrent with the tangent fields an AP/PA supraclavicular field was angled slightly and directed at the supraclavicular and axillary area. There were 10 MV photons and 15 MV photons given AP and PA with shaped field blocking made with multileaf collimation. A daily dose of 1.8 Gy was planned for the supraclavicular and axillary fields as well.

The patient then returned on 05/10/2016 for initiation of treatment. She completed 28 fractions on 06/17/2016. A total dose of 50.4 Gy was delivered to the entire treatment volume.

The patient tolerated treatment well. She continued normal activity including work while she was being treated. She did have a bit of fatigue. Her skin had developed some patchy pigmentation early on and then more confluent pigmentation and erythema towards the end of treatment.

	Phase 1	Phase 2	Phase 3
Radiation Primary Treatment Volume	42		
Radiation Treatment Modality	02		
Radiation to Draining Lymph Nodes	04		
External Beam Radiation Planning Technique	04		
Dose per Fraction	00180		
Number of Fractions	028		
Total Dose	005040		
Number of Phases of Radiation Treatment to this Volume	01		
Radiation Treatment Discontinued Early	01		
Total Dose	005040		

Quiz 5 Stage Data Items

Instructions

Use your AJCC 8th edition staging manual or staging forms to complete the quiz below. The codes for T and N suffix are below. If you do not have your manual or staging forms, please complete the bolded data items.

AJCC TNM T Suffix

- Use code (m) for Multiple synchronous tumors OR For thyroid differentiated and anaplastic only, multifocal tumors
- (s) For thyroid differentiated and anaplastic only, Solitary tumor
- Leave this field blank if multiple tumors are not present.

AJCC TNM N Suffix

- (sn) Sentinel node procedure with or without FNA or core needle biopsy
- (f) FNA or core needle biopsy only
- Leave this field blank if sentinel node biopsy or FNA was not completed

Case Scenario 1

A patient presents for annual screening and is found to have a suspicious mole. The mole is excised 1/1/18 and found to be malignant melanoma. Breslow's depth was .7mm. Ulceration was present. Margins were negative. No palpable lymph nodes were present.

On 1/15/18 a sentinel lymph node procedure was performed. 4 lymph nodes were removed. Micrometastasis measuring less than 0.1mm in a single lymph node. 3 lymph nodes were negative for metastasis.

The patient returned 1/21/18 for a wide excision that was negative for residual melanoma.

- Pathology
 - Wide excision: Negative for residual melanoma
 - Sentinel node biopsy:
 - 4 lymph nodes removed. Micrometastasis measuring less than 0.1mm in a single lymph node. 3 lymph nodes negative for metastasis.

Data Item	Value
Clinical T	cT1b
Clinical T Suffix	
Clinical N	cN0
Clinical N Suffix	
Clinical M	cM0
Clinical Stage	3
Pathologic T	pT1b
Pathologic T Suffix	
Pathologic N	pN1a
Pathologic N Suffix	(sn)
Pathologic M	cM0
Stage Group	IIIB

Scenario 2

A patient presents for mammography which revealed a 3 cm mass in the left breast. The patient had a core biopsy on 1/11/18. Additional work-up was negative for metastasis.

Pathology from core biopsy:

- Invasive ductal carcinoma
- Nottingham Grade 2
- ER and PR positive
- Her 2 negative
- Oncotype DX Score 7

On 02/01/2018 a lumpectomy with sentinel lymph node biopsy was done.

Pathology:

- Invasive ductal carcinoma
- Nottingham Grade 2
- Tumor Size: 3.1cm
- Secondary tumor adjacent to the first tumor measures .7cm
- Sentinel node biopsy
 - 1 of 2 positive for malignancy. Size of metastasis 5mm.
- Axillary node dissection
 - 3 of 15 nodes positive for malignancy

Data Item	Value
Clinical T	cT2
Clinical T Suffix	
Clinical N	cN1
Clinical N Suffix	(sn)
Clinical M	cM0
Clinical Stage	2A
Pathologic T	pT2
Pathologic T Suffix	(m)
Pathologic N	pN2a
Pathologic N Suffix	
Pathologic M	cM0
Stage Group	2A