

The background is a solid light purple color. Overlaid on this are several overlapping circles of varying shades of purple, ranging from light lavender to a deeper, more saturated purple. In the upper right quadrant, there is a white speech bubble with a black outline. The bubble has a tail pointing towards the bottom right.

# RADIATION THERAPY

The good, the bad and the ugly

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# Case 1 ~ Solitary Lung

77-year-old married, white, non-Hispanic female presents with an enlarging right upper lobe lung nodule. Biopsy proved Squamous Cell Carcinoma. Patient is not a surgical candidate due to her comorbidities and decision made to proceed with SBRT.

5/15/23 CT Chest: Interval increase in a right upper lobe nodule now measuring 1.7 cm (previously 1.3 cm). This is suspicious for a slow-growing lung cancer. Recommend PET Scan.

5/24/23 PET Scan: Right upper lobe nodule measuring 1.6 cm has an SUV of 3.4. Hilar and mediastinal lymph nodes are below blood pool. No distant metastatic disease.

6/1/23 CT-Guided biopsy of 1.7 cm right upper lobe nodule = Well differentiated Squamous Cell Carcinoma (S23-1224). PD-L1 = 15%.

Course: C1 SBRT RUL

Treatment Site	Ref. ID	Energy	Dose/Fx	#Fx	Dose Corre (cGy)	Total Dose (cGy)	Start Date	End Date	Elapsed Days
RUL SBRT	RUL	6X	750	8 / 8	0	6,000	7/6/2023	7/17/2023	11

Clinical Treatment Plan: SBRT

Treatment Site	Ref. ID	Energy	Dose/Fx	#Fx	Dose Corre (cGy)	Total Dose (cGy)	Start Date	End Date	Elapsed Days
RUL SBRT	RUL	6X	750	8 / 8	0	6,000	7/6/2023	7/17/2023	11

Clinical Treatment Plan: SBRT

<a href="#">Type of Therapy</a>	R
<a href="#">Course</a>	F
<a href="#">Date Therapy Started</a>	07/06/2023
<a href="#">Date Radiation Ended</a>	07 / 17 / 2023 Date Flag: Valid; not required
<a href="#">Radiation Treatment Discontinued Early</a>	01 Completed as prescribed
<a href="#">Therapy Facility</a>	90233 MULTI FACILITY 1
<a href="#">Location of Radiation</a>	1 All radiation treatment at this facility
<a href="#">Number of Phases</a>	01 1 phase
<a href="#">Total Dose (Across All Phases)</a>	6000
<a href="#">Phase I Rad Primary Tx Volume</a>	30 Lung or bronchus
<a href="#">Phase I Rad to Draining Lymph Node</a>	00 No radiation treatment
<a href="#">Phase I Rad Tx Modality</a>	02 External beam, photons
<a href="#">Phase I External Beam Planning Technique</a>	06 Stereotactic radiotherapy or radiosurgery, NOS
<a href="#">Phase I Dose per Fraction</a>	750
<a href="#">Phase I Number of Fractions</a>	8
<a href="#">Phase I Total Dose</a>	6000
<a href="#">Phase I Therapy Local Hospital Id</a>	90233 MULTI FACILITY 1
<a href="#">Treatment Notes</a>	<p>RUL received 6000 cGy in 8 fx at 750 cgy/fx using 6X via SBRT per Dr. Maury Povich at Facility 1 between 7/6/23 - 7/17/23.</p> <p>TS 2/5/24</p>

## Case 2: Lung with boost

75-year-old married, black, non-Hispanic male presents with c/o cough and SOA. Imaging notes and RLL mass 'concerning' for primary lung malignancy. Patient underwent bronchoscopy with FNA of Station 11 which was positive for adenocarcinoma. CTG biopsy of RLL mass was also positive for PD Adenocarcinoma.

06/19/2023 CT chest: There is a 3.2 x 1.5 cm spiculated nodule in the right hilum which appears to involve the proximal right lower lobe bronchus.

IMPRESSION: There is a spiculated masslike density in the right infrahilar region of the right lower lobe which appears to be just posterior to the right mainstem bronchus and involving the right lower lobe bronchial. This is seen best on axial image number 82. This is concerning for primary lung malignancy. This may be amenable to bronchoscopic evaluation. Nuclear medicine PET scan may also be utilized. There is diffuse emphysema and areas of nodular airspace disease involving the right lower lobe and the right middle lobe consistent with pneumonia.

6/20/2023 Robotic navigational assisted bronchoscopy with radial probe endobronchial ultrasound, transbronchial needle aspiration, transbronchial lung biopsies, brushings, bronchoalveolar lavage, bronchial washings.

6/20/2023 (CY23-1234) Right lower lobe, BAL & brushings: Atypical cells suspicious for adenocarcinoma.

Lymph Node Station 7: Negative for malignant cells

Lymph node, Station 11: Positive for malignant cells, adenocarcinoma.

6/21/23 (S23-4321) Lung, Right Lower Lobe, Biopsy: Poorly differentiated Adenocarcinoma.

Course: C1 RLL  
Treatment Site: RLL 60Gy  
Ref. ID: RLL  
Energy: 6X-FFF  
Dose/Fx (cGy): 200  
#Fx: 30 / 30  
Dose Correction (cGy): 0  
Total Dose (cGy): 6,000  
Start Date: 7/17/2023  
End Date: 8/25/2023  
Elapsed Days: 39

FFF | Flattening-Filter-Free

Course: C1 RLL  
Treatment Site: RLL boost  
Ref. ID: RLL Boost  
Energy: 6X-FFF  
Dose/Fx (cGy): 200  
#Fx: 3 / 3  
Dose Correction (cGy): 0  
Total Dose (cGy): 600  
Start Date: 8/28/2023  
End Date: 8/30/2023  
Elapsed Days: 2

**From completion note as well:** Volumetric modulated arc therapy was employed using 6x-FFF photons. Daily pretreatment image guidance with CBCT was performed. The patient received 6000 cGy in 30 daily fractions of 200 cGy each, followed by a boost field receiving 600 cGy in 3 fractions.

Clinical Treatment Plan: IMRT/VMAT/Rapid Arc

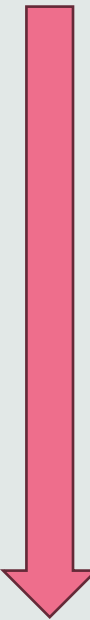
**\*Don't confuse FFF (Flattening Filter-Free) with FIF (Field-ion Field / 3D conformal therapy! FFF is used to flatten beams or create uniform fields in conformal and intensity-modulated radiation therapy (IMRT) but reduces the dose rate.**

Type of Therapy	R
Course	F
Date Therapy Started	07/17/2023
Date Radiation Ended	08/30/2023 Date Flag: Valid; not required
Radiation Treatment Discontinued Early	01 Completed as prescribed
Therapy Facility	90233 MULTI FACILITY 1
Location of Radiation	1 All radiation treatment at this facility
Number of Phases	02 2 phases
Total Dose (Across All Phases)	6600

Phase I Rad Primary Tx Volume	30 Lung or bronchus
Phase I Rad to Draining Lymph Node	00 No radiation treatment
Phase I Rad Tx Modality	02 External beam, photons
Phase I External Beam Planning Technique	05 Intensity modulated therapy
Phase I Dose per Fraction	200
Phase I Number of Fractions	30
Phase I Total Dose	6000
Phase I Therapy Local Hospital Id	90233 MULTI FACILITY 1
Treatment Notes	RLL received 6000 cgy in 30 fx at 200 cgy/fx using 6X via IMRT between 7/17/23 - 8/25/23. RLL boost at 600 cgy in 3 fx at 200 cgy/fx using 6X via IMRT between 8/28/23 - 8/30/23 for total dose of 6600 cgy. All treatment performed by Dr. Maury Povich at Facility 1. TS 2/5/24

Phase II Rad Primary Tx Volume	30 Lung or bronchus
Phase II Rad to Draining Lymph Node	00 No radiation treatment
Phase II Rad Tx Modality	02 External beam, photons
Phase II External Beam Planning Technique	05 Intensity modulated therapy
Phase II Dose per Fraction	200
Phase II Number of Fractions	3
Phase II Total Dose	600
Phase II Therapy Local Hospital Id	90233 MULTI FACILITY 1
Treatment Notes	RLL received 6000 cgy in 30 fx at 200 cgy/fx using 6X via IMRT between 7/17/23 - 8/25/23. RLL boost at 600 cgy in 3 fx at 200 cgy/fx using 6X via IMRT between 8/28/23 - 8/30/23 for total dose of 6600 cgy. All treatment performed by Dr. Maury Povich at Facility 1. TS 2/5/24

**Use the highest value when you have two or more planning techniques in the completion notes (not including codes 88, 98, 99)**



Phase N Planning Technique	
Value	Description
00	No radiation treatment
01	External beam, NOS
02	Low energy x-ray/photon therapy
03	2-D therapy
04	Conformal or 3-D conformal therapy
05	Intensity modulated therapy
06	Stereotactic radiotherapy or radiosurgery, NOS
07	Stereotactic radiotherapy or radiosurgery, robotic
08	Stereotactic radiotherapy or radiosurgery, Gamma Knife?
09	CT-guided online adaptive therapy
10	MR-guided online adaptive therapy
88	Not applicable
98	Other, NOS
99	Unknown

## Case 3: Metastatic Lung

56-year-old single, white, Hispanic, female presents with a painful lower back lesion which biopsy proved as metastatic adenocarcinoma from a lung primary. Imaging revealed a 5.0 cm right upper lobe mass, multiple right hilar lymphadenopathy, left adrenal, subcutaneous soft tissue nodules and multiple brain lesions c/w metastatic disease. Decision made for palliative systemic therapy with palliative radiation therapy.

1/30/23 CT C/A/P: CT scan of the chest with IV contrast demonstrating 4.8 cm mass in the posterior and medial right upper lobe with confluent right hilar adenopathy. CT scan of the abdomen and pelvis with IV contrast demonstrating 2.5 cm left adrenal mass.

2/14/23 PET:

1. 5 cm FDG avid mass within right upper lobe, most compatible with primary lung malignancy.
2. Right hilar lymphadenopathy is mildly FDG avid, concerning for metastasis.
3. Left adrenal mass is significantly FDG avid, likely metastatic.
4. FDG avid soft tissue nodules within left posterior lower back and left medial gluteal region, likely metastatic.
5. Partially solid and cystic FDG avid mass within left posterior lower thigh, likely metastatic. It has a component of fluid and gas, which may represent a component of necrosis and/or infection.
6. Suggestion of 2.2 cm FDG avid mass within left frontal lobe with surrounding vasogenic edema, not well characterized on this exam, but concerning for metastasis. Recommend evaluation with MRI brain with/without IV contrast.

2/20/23 MRI Brain: There are at least 10 metastatic lesions in the brain with the largest occurring in the left measuring 26 mm. The metastasis is associated with surrounding vasogenic edema and mass effect resulting in sulcal effacement without midline shift or herniation.

3/5/23 Skin, Left Lower Back/Trunk: Metastatic adenocarcinoma, favor lung primary.

**Course: C1 LOWER BACK**  
**Treatment Site: LOWER BACK**  
**Ref. ID: PTV\_BACK**  
**Energy: 18X/6X**  
**Dose/Fx (cGy): 800**  
**#Fx: 1 / 1**  
**Dose Correction (cGy): 0**  
**Total Dose (cGy): 800**  
**Start Date: 3/29/2023**  
**End Date: 3/29/2023**  
**Elapsed Days: 0**

**Course: C2 WHOLE BRAIN**  
**Treatment Site: WHOLE BRAIN**  
**Ref. ID: PTV\_WB**  
**Energy: 6X**  
**Dose/Fx (cGy): 300**  
**#Fx: 10 / 10**  
**Dose Correction (cGy): 0**  
**Total Dose (cGy): 3,000**  
**Start Date: 3/30/2023**  
**End Date: 4/12/2023**  
**Elapsed Days: 13**

**Course: C3 LT LEG 3D**  
**Treatment Site: LT LEG 3D**  
**Ref. ID: PTV\_LeftLeg**  
**Energy: 6X**  
**Dose/Fx (cGy): 800**  
**#Fx: 1 / 1**  
**Dose Correction (cGy): 0**  
**Total Dose (cGy): 800**  
**Start Date: 4/4/2023**  
**End Date: 4/4/2023**  
**Elapsed Days: 0**

**Clinical Treatment Plan: 3D technique**



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Course: C1 LOWER BACK  
Treatment Site: LOWER BACK  
Ref. ID: PTV\_BACK  
Energy: 18X/6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 3/29/2023  
End Date: 3/29/2023  
Elapsed Days: 0

Course: C2 WHOLE BRAIN  
Treatment Site: WHOLE BRAIN  
Ref. ID: PTV WB  
Energy: 6X  
Dose/Fx (cGy): 300  
#Fx: 10 / 10  
Dose Correction (cGy): 0  
Total Dose (cGy): 3,000  
Start Date: 3/30/2023  
End Date: 4/12/2023  
Elapsed Days: 13

Course: C3 LT LEG 3D  
Treatment Site: LT LEG 3D  
Ref. ID: PTV\_LeftLeg  
Energy: 6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 4/4/2023  
End Date: 4/4/2023  
Elapsed Days: 0

Clinical Treatment Plan: 3D technique

## Case Therapy Edit Form (Radiation - STORE Opt)

987-65-4321, KING KONG

[Phase I Rad Primary Tx Volume](#)

90 Skin

[Phase I Rad to Draining Lymph Node](#)

00 No radiation treatment

[Phase I Rad Tx Modality](#)

02 External beam, photons

[Phase I External Beam Planning Technique](#)

04 Conformal or 3-D conformal therapy

[Phase I Dose per Fraction](#)

800

[Phase I Number of Fractions](#)

1

[Phase I Total Dose](#)

800

[Phase I Therapy Local Hospital Id](#)

90201 TRAINING DATABASE

[Treatment Notes](#)

Phase 1: Skin of lower back received 800 cgy in 1 fx using 18X/6X on 3/29/23.

[Therapy Clinical Trial Number](#)

0 None or unknown



# Phase 2

Course: C1 LOWER BACK  
Treatment Site: LOWER BACK  
Ref. ID: PTV\_BACK  
Energy: 18X/6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 3/29/2023  
End Date: 3/29/2023  
Elapsed Days: 0

Course: C2 WHOLE BRAIN  
Treatment Site: WHOLE BRAIN  
Ref. ID: PTV WB  
Energy: 6X  
Dose/Fx (cGy): 300  
#Fx: 10 / 10  
Dose Correction (cGy): 0  
Total Dose (cGy): 3,000  
Start Date: 3/30/2023  
End Date: 4/12/2023  
Elapsed Days: 13

Course: C3 LT LEG 3D  
Treatment Site: LT LEG 3D  
Ref. ID: PTV\_LeftLeg  
Energy: 6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 4/4/2023  
End Date: 4/4/2023  
Elapsed Days: 0

Clinical Treatment Plan: 3D technique

## Case Therapy Edit Form (Radiation - STORE Opt)

987-65-4321, KING KONG

<a href="#">Phase II Rad Primary Tx Volume</a>	12 Brain
<a href="#">Phase II Rad to Draining Lymph Node</a>	00 No radiation treatment
<a href="#">Phase II Rad Tx Modality</a>	02 External beam, photons
<a href="#">Phase II External Beam Planning Technique</a>	04 Conformal or 3-D conformal therapy
<a href="#">Phase II Dose per Fraction</a>	300
<a href="#">Phase II Number of Fractions</a>	10
<a href="#">Phase II Total Dose</a>	3000
<a href="#">Phase II Therapy Local Hospital Id</a>	90201 TRAINING DATABASE
<a href="#">Treatment Notes</a>	<p>Phase 1: Skin of lower back received 800 cgy in 1 fx using 18X/6X on 3/29/23.</p> <p>Phase 2: WBI at 3000 cgy in 10 fx at 300 cgy/fx using 6X between 3/30/23-4/12/23.</p>

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Course: C1 LOWER BACK  
Treatment Site: LOWER BACK  
Ref. ID: PTV\_BACK  
Energy: 18X/6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 3/29/2023  
End Date: 3/29/2023  
Elapsed Days: 0

Course: C2 WHOLE BRAIN  
Treatment Site: WHOLE BRAIN  
Ref. ID: PTV WB  
Energy: 6X  
Dose/Fx (cGy): 300  
#Fx: 10 / 10  
Dose Correction (cGy): 0  
Total Dose (cGy): 3,000  
Start Date: 3/30/2023  
End Date: 4/12/2023  
Elapsed Days: 13

Course: C3 LT LEG 3D  
Treatment Site: LT LEG 3D  
Ref. ID: PTV\_LeftLeg  
Energy: 6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 4/4/2023  
End Date: 4/4/2023  
Elapsed Days: 0

Clinical Treatment Plan: 3D technique

## Case Therapy Edit Form (Radiation - STORE Opt)

987-65-4321, KING KONG

[Phase III Rad Primary Tx Volume](#)

[Phase III Rad to Draining Lymph Node](#)

[Phase III Rad Tx Modality](#)

[Phase III External Beam Planning Technique](#)

[Phase III Dose per Fraction](#)

[Phase III Number of Fractions](#)

[Phase III Total Dose](#)

[Phase III Therapy Local Hospital Id](#)

[Treatment Notes](#)

91 Soft tissue

00 No radiation treatment

02 External beam, photons

04 Conformal or 3-D conformal therapy

800

1

800

90201 TRAINING DATABASE

Phase 1: Skin of lower back received 800 cgy in 1 fx using 18X/6X on 3/29/23.  
Phase 2: WBI at 3000 cgy in 10 fx at 300 cgy/fx using 6X between 3/30/23-4/12/23.  
Phase 3: Left leg soft tissue met received 800 cgy in 1 fx using 6X on 4/4/24.  
All treatments were delivered via 3D conformal therapy between 3/29/23-4/4/23 per Maury Povich MD at Facility A.

Course: C1 LOWER BACK  
Treatment Site: LOWER BACK  
Ref. ID: PTV\_BACK  
Energy: 18X/6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 3/29/2023  
End Date: 3/29/2023  
Elapsed Days: 0

Course: C2 WHOLE BRAIN  
Treatment Site: WHOLE BRAIN  
Ref. ID: PTV WB  
Energy: 6X  
Dose/Fx (cGy): 300  
#Fx: 10 / 10  
Dose Correction (cGy): 0  
Total Dose (cGy): 3,000  
Start Date: 3/30/2023  
End Date: 4/12/2023  
Elapsed Days: 13

Course: C3 LT LEG 3D  
Treatment Site: LT LEG 3D  
Ref. ID: PTV\_LeftLeg  
Energy: 6X  
Dose/Fx (cGy): 800  
#Fx: 1 / 1  
Dose Correction (cGy): 0  
Total Dose (cGy): 800  
Start Date: 4/4/2023  
End Date: 4/4/2023  
Elapsed Days: 0

Clinical Treatment Plan: 3D technique

## Case Therapy Edit Form (Radiation - STORE Opt)

987-65-4321, KING KONG

<a href="#">Type of Therapy</a>	R
<a href="#">Course</a>	F
<a href="#">Date Therapy Started</a>	03/29/2023
<a href="#">Date Radiation Ended</a>	04 / 12 / 2023 Date Flag: Valid; not required
<a href="#">Radiation Treatment Discontinued Early</a>	01 Completed as prescribed ▼
<a href="#">Therapy Facility</a>	FACILITY A 🔍
<a href="#">Location of Radiation</a>	1 All radiation treatment at this facility ▼
<a href="#">Number of Phases</a>	03 3 phases ▼
<a href="#">Total Dose (Across All Phases)</a>	800 🔍

Code only the information in phase 1. Do not add all phases together because they are different sites!

## 9 Multiple Metastatic Sites Treated Concurrently.

### Clinical

65-year-old male smoker presents with Stage IV adenocarcinoma of the lung and multiple symptomatic sites of metastases:

- Proximal right humerus, lytic, painful, but not thought to be at risk of fracture.
- Left hip, minimal radiographic changes but positive on bone scan and painful.
- Mid-shaft right femur, minimal pain but judged to be at risk for path fracture
- T7 lesion with no fracture but extension of tumor into spinal canal and rapid onset of lower extremity weakness.

### Treatment

1. Treatment to thoracic spine was initiated evening of Saturday, 11/10/2018 and continued until 11/21/2018. Unblocked photon field, 3000 cGy in 10 fractions
2. 11/12/2018 to 11/23/2018: Treatment to right femur, unblocked photon field, 3000 cGy in 10 fractions
3. 11/12/2018 to 11/16/2018: Left hip treated with conformal fields designed to spare adjacent bowel, bladder, and soft tissues. 2000 cGy in 5 equal fractions.
4. 11/12/2018 to 11/16/2018: Right humerus, open square field, 2000cGy in 5 equal fractions.

### Coding Logic

- #4: The earliest date of treatment in the first course.
- #5: The last date of treatment in the first course even though it may not be associated with any of the radiation phases that have been documented here.
- #6: Four distinct volumes treated with each treatment represented by a distinct phase.
- #8 Record the maximum dose to first volume/phase. Do not add doses to different treatment volumes.
- #9: Chronology is the primary determinant of phase. The spine was treated first

Seg	#	Field	Code/Definition
Summary	1	Rad/Surg Sequence	0 No radiation and/or sur
	2	Reason No Rad	0 Radiation was administered
	3	Location of Rad	1 All treatment at this facility
	4	Date Started	11/10/2018
	5	Date Ended	11/23/2018
	6	Number of Phases	04 '4 or more phases'
	7	Discontinued Early	01 Completed
	8	Course Total Dose	003000
Phase 1	9	Volume	81 Spine
	10	Rad to Nodes	00 No RT to nodes
	11	Modality	02 External beam, photons
	12	Planning Technique	03 2-D therapy
	13	Number of Fractions	10
	14	Dose per Fraction	00300
	15	Total Phase 1 Dose	003000
Phase 2	16	Volume	88 Extremity Bone, NOS
	17	Rad to Nodes	00 No RT to nodes
	18	Modality	02 External beam, photons
	19	Planning Technique	03 2-D therapy
	20	Number of Fractions	010
	21	Dose per Fraction	00300
	22	Total Phase 2 Dose	003000
Phase 3	23	Volume	84 Hip
	24	Rad to Nodes	00 No RT to nodes
	25	Modality	02 External beam, photons
	26	Planning Technique	04 Conformal or 3-D
	27	Number of Fractions	05
	28	Dose per Fraction	00400
	29	Total Phase 3 Dose	002000

### 6. Phase Order Rules:

- a. First phase first. Phases should be summarized first in chronological order.
- b. If multiple phases start on the same date, then list the phases in order from highest 'Total Phase Dose' to lowest 'Total Phase Dose',
- c. If multiple phases start on the same date and have the same Total Phase Dose, then any order is acceptable.
- d. If there are more than three phases you only need to document the first three (additional phases will not be reported to NCDB) but be sure to record the actual total number of phases.

## Case 4: Endometrium

**Course:** C1 PELVIS/INDOME  
**Treatment Site:** PELVIS/ENDOME  
**Ref. ID:** PTV\_PELVIS 50.4  
**Energy:** 6X-FFF  
**Dose/Fx (cGy):** 180  
**#Fx:** 28 / 28  
**Dose Correction (cGy):** 0  
**Total Dose (cGy):** 5,040  
**Start Date:** 1/5/2023  
**End Date:** 2/13/2023  
**Elapsed Days:** 39

From completion note as well: Pt completed 28 planned fractions of external beam radiotherapy over the course of 39 elapsed days. Radiotherapy was delivered via volumetric modulated arc therapy, utilizing 6 MV photons.

**Clinical Treatment Plan:** IMRT/VMAT/Rapid Arc

68-year-old married, black, Hispanic female with c/o PMB. Endometrial biopsy proved FIGO grade 1 Endometroid Adenocarcinoma. Patient elected for TAHBSO with FIGO stage IIB Endometrioid Adenocarcinoma, Grade 1. XRT recommended.

**11. Coding Volume when the Site of Cancer Organ has been Removed:**

- a. In most cases code the volume to the organ removed. After prostatectomy, code the volume to prostate. If the whole pelvis is treated after prostatectomy, hysterectomy or cystectomy, code the volume to the organ of origin and lymph nodes to pelvic.
- b. Important clarification: Brachytherapy after hysterectomy is a grey area. We advise that if the vaginal apex is treated with brachytherapy after hysterectomy for cervical or uterine cancer, code the volume to 72 – Vagina because that is the target organ for treatment.



Course: C1 PELVIS/INDOME  
 Treatment Site: PELVIS/ENDOME  
 Ref. ID: PTV\_PELVIS 50.4  
 Energy: 6X-FFF  
 Dose/Fx (cGy): 180  
 #Fx: 28 / 28  
 Dose Correction (cGy): 0  
 Total Dose (cGy): 5,040  
 Start Date: 1/5/2023  
 End Date: 2/13/2023  
 Elapsed Days: 39

From completion note as well: Pt completed 28 planned fractions of external beam radiotherapy over the course of 39 elapsed days. Radiotherapy was delivered via volumetric modulated arc therapy, utilizing 6 MV photons.

**Clinical Treatment Plan: IMRT/VMAT/Rapid Arc**

Do not confuse 'FFF'  
 with 'FIF'!

# 11. Coding Volume when the Site of Cancer Organ has been Removed:

- In most cases code the volume to the organ removed. After prostatectomy, code the volume to prostate. If the whole pelvis is treated after prostatectomy, hysterectomy or cystectomy, code the volume to the organ of origin and lymph nodes to pelvic.
- Important clarification: Brachytherapy after hysterectomy is a grey area. We advise that if the vaginal apex is treated with brachytherapy after hysterectomy for cervical or uterine cancer, code the volume to 72 – Vagina because that is the target organ for treatment.

Type of Therapy	R
Course	F
Date Therapy Started	01/15/2023
Date Radiation Ended	02/13/2023 Date Flag: Valid; not required
Radiation Treatment Discontinued Early	01 Completed as prescribed
Therapy Facility	90233 MULTI FACILITY 1
Location of Radiation	1 All radiation treatment at this facility
Number of Phases	01 1 phase
Total Dose (Across All Phases)	5040

Phase I Rad Primary Tx Volume	71 Uterus or Cervix
Phase I Rad to Draining Lymph Node	00 No radiation treatment
Phase I Rad Tx Modality	02 External beam, photons
Phase I External Beam Planning Technique	05 Intensity modulated therapy
Phase I Dose per Fraction	180
Phase I Number of Fractions	28
Phase I Total Dose	5040
Phase I Therapy Local Hospital Id	90233 MULTI FACILITY 1
Treatment Notes	Endometrium/Pelvis was treated to 5040 cgy in 28 fx using 180 cgy/fx via 6X via IMRT per Maury Povich MD at Facility 1.



## 16 Gyn-Brachytherapy + External Beam Radiotherapy (EBRT)

### Clinical

67 y/o patient, G2P2, presented with postmenopausal bleeding with positive findings on endometrial bx. Patient underwent TAH/BSO with pelvic lymphadenectomy, pT3b, pN0 w/ +margins, and then concurrent RT/cisplatin followed by carboplatin + paclitaxel.

### Treatment

- 1/7/21-2/11/21, Whole pelvis RT w/ 6X/IMRT, 180 cGy x 25 fx<sup>6</sup> to 45 Gy.
- 2/13/21-3/18/21, Vaginal cuff HDR brachytherapy via Ir-192 seeds, 600 cGy x 2 fx for a total of 1200 cGy.

### Coding Logic

- #8: You cannot add dose from a brachytherapy phase with dose from EBRT phase.
- #9: When possible, phases are captured in chronological order based on phase start date. If a primary site in the pelvic region is surgically resected, code the primary irradiated volume to the primary site
- #10: RT treatment summary tells us that the whole pelvis was irradiated. This includes regional lymph nodes.
- #15 180 x 25 = 4500
- #16: When intracavitary HDR brachytherapy is administered to the vaginal cuff for endometrial or cervical cancer, post TAH/BSO, primary irradiated volume is vagina (72) because the vaginal surface is the organ at risk for recurrence. Note that in this setting, the effective range of the treatment is limited to the vaginal wall. This is an exception to general rule of coding to the organ of origin and a code 71 would be technically correct, just less informative.
- 21-22: If dose per fraction and total dose is given in cGy, code it as such in the abstract for that phase.

Seg	#	Field	Code/Definition
Summary	1	Rad/Surg Sequence	3 Radiation after surgery
	2	Reason No Rad	0 Radiation was administered
	3	Location of Rad	1 All RT at this facility
	4	Date Started	01/07/2021
	5	Date Ended	03/18/2021
	6	Number of Phases	02
	7	Discontinued Early	01 Completed
	8	Course Total Dose	999998
Phase 1	9	Volume	71 Uterus or Cervix
	10	Rad to Nodes	06 Pelvic lymph nodes
	11	Modality	02 External beam, photons
	12	Technique	05 IMRT
	13	Number of Fractions	025
	14	Dose per Fraction	00180
	15	Total Phase 1 Dose	004500
Phase 2	16	Volume	72 Vagina
	17	Rad to Nodes	00 No RT to draining LNs
	18	Modality	09 Brachytherapy, intracavitary, HDR
	19	Technique	88 NA
	20	Number of Fractions	02
	21	Dose per Fraction	00600
	22	Total Phase 2 Dose	001200
Phase 3	23	Volume	00 No Radiation
	24	Rad to Nodes	
	25	Modality	
	26	Technique	
	27	Number of Fractions	
	28	Dose per Fraction	
	29	Total Phase 3 Dose	

03-15-23, 10:46 AM

Please review NAACCR Data Item (1504, 1514 and 1524) Phase I-II-III Radiation Primary Treatment Volume:

Per coding instructions, bullet #5:

Note that for many of the treatment volumes, the same code should be used when the anatomic structure is targeted or when the surgical bed of the resected anatomical structure is targeted.

For example, when prostate cancer is treated with radiation alone, code 64 will be the Primary Treatment Volume. Similarly, when prostate cancer is treated with radiation after radical prostatectomy, code 64 will be the Primary Treatment Volume (this portion is unclear in the post), please clarify. \$

## Case 5: Thyroid I-131

44-year-old single, black, non-Hispanic male with multinodular goiter s/p total thyroidectomy with multifocal invasive papillary carcinoma, follicular variant, confined to thyroid. Pt presents to Facility A for I-131 treatment.

### PROCEDURE: NM THERAPY ABLATION THYROID CANCER

DATE: 7/8/2023

COMPARISON: None

INDICATIONS: thyroid cancer

RADIONUCLIDE: 155 mCi I-131 Capsule(s) - P.O.

#### FINDINGS:

The patient is post-thyroidectomy for papillary thyroid cancer.

The rationale and technique of I 131 ablation was discussed with the patient, including precautions related to reduction of exposure to self and others. The importance of hydration and maintaining salivary function over the next 72 hours was emphasized.

The remote possibility of radiation induced malignancy was discussed. The importance of returning for the I 131 whole body scan was emphasized.

The patient is post-hysterectomy and has a plan at home.

The patient's questions are answered. Consent was granted. The appropriate paperwork was signed.

I 131 151 mCi was administered p.o. without incident.

#### IMPRESSION:

Uneventful I 131 ablation for thyroid malignancy.

### PROCEDURE: NM I131 POST THERAPY SCAN

COMPARISON: HARDIN MEMORIAL HOSPITAL, NM, NM THERAPY ABLATION THYROID CANCER  
8/24/2023, 14:00.

INDICATIONS: papillary thyroid ca

FINDINGS: Prominent tracer uptake is noted within the thyroid bed. No abnormal tracer uptake is identified elsewhere to suggest metastatic disease.

IMPRESSION: No evidence of metastatic disease.

<u>Type of Therapy</u>	R
<u>Course</u>	F
<u>Date Therapy Started</u>	07/08/2023
<u>Date Radiation Ended</u>	07/08/2023 Date Flag: Valid; not required
<u>Radiation Treatment Discontinued Early</u>	01 Completed as prescribed
<u>Therapy Facility</u>	90233
<u>Location of Radiation</u>	1 All radiation treatment at this facility
<u>Number of Phases</u>	01 1 phase
<u>Total Dose (Across All Phases)</u>	999998

### PROCEDURE: NM THERAPY ABLATION THYROID CANCER

DATE: 7/8/2023

COMPARISON: None

INDICATIONS: thyroid cancer

RADIONUCLIDE: 155 mCi I-131 Capsule(s) - P.O.

FINDINGS:

The patient is post-thyroidectomy for papillary thyroid cancer.

The rationale and technique of I 131 ablation was discussed with the patient, including precautions related to reduction of exposure to self and others. The importance of hydration and maintaining salivary function over the next 72 hours was emphasized.

The remote possibility of radiation induced malignancy was discussed. The importance of returning for the I 131 whole body scan was emphasized.

The patient is post-hysterectomy and has a plan at home.

The patient's questions are answered. Consent was granted. The appropriate paperwork was signed.

I 131 151 mCi was administered p.o. without incident.

IMPRESSION:

Uneventful I 131 ablation for thyroid malignancy.

### PROCEDURE: NM I131 POST THERAPY SCAN

COMPARISON: HARDIN MEMORIAL HOSPITAL, NM, NM THERAPY ABLATION THYROID CANCER 8/24/2023, 14:00.

INDICATIONS: papillary thyroid ca

FINDINGS: Prominent tracer uptake is noted within the thyroid bed. No abnormal tracer uptake is identified elsewhere to suggest metastatic disease.

IMPRESSION: No evidence of metastatic disease.

<u>Phase I Rad Primary Tx Volume</u>	98 Other
<u>Phase I Rad to Draining Lymph Node</u>	00 No radiation treatment
<u>Phase I Rad Tx Modality</u>	13 Radioisotopes, NOS
<u>Phase I External Beam Planning Technique</u>	88 Not Applicable
<u>Phase I Dose per Fraction</u>	99998
<u>Phase I Number of Fractions</u>	1
<u>Phase I Total Dose</u>	999998
<u>Phase I Therapy Local Hospital Id</u>	90233 MULTI FACILITY 1
<u>Treatment Notes</u>	7/8/23: Patient received I-131 per Maury Povich MD at Facility I. TS 2/5/24

## 5 Thyroid Cancer Treated with Radioiodine

### Clinical

- Thirty-seven-year-old female
- Painless lump in her right lower neck (level VI)
- Ultrasound guided needle biopsy
- Follicular carcinoma, clinical T1bN0M0.

### Treatment

- Thyroidectomy, pathologic T2N0M0
- Radiation treatment is delivered with a single injection of 150 millicuries of radioiodine (I-131) on August 7, 2018.

### Coding Logic

- #5: Our recommendation is to consider the injection of a radioisotope as the treatment and thus to set the Date Finished equal to the Date Started.<sup>2</sup> STORE makes a similar recommendation for brachytherapy treatments; however, with some brachytherapy procedures, the radioactive seeds are left in place for two or three days then removed. In those situations, code the date of removal as the Date Finished.
- #9: Technically I-131 may be effective wherever there are thyroid cancer cells in the body, so there is no specific anatomic treatment volume here. Therefore, we recommend coding radioisotope treatments as “98 Other”. You might think another reasonable option would be to code the volume as “93 Whole Body”. Traditionally, however, the code 93 (Whole Body) has been reserved for whole body treatment with external beam radiation such as is done prior to bone marrow transplantation. So, for the sake of historic consistency, our preference is “98 Other”.
- #8, 14, 15: These dose fields are coded as 99998 and 999998 because dose was not prescribed in cGy or Gy.

<sup>2</sup> Like other radioisotopes, I=131 “decays” with a “half-life”. That means that, from any given point in time, only half as much will remain after an elapsed time equal to the half-life. The half-life of I-131 is 8.06 days. With a typical injection it will be between 21 and 24 months before the last I-131 atom spits out its radiation.

- #12: We code this to “88 Not applicable” because with I-131 and other systemic isotopes there is no planning in the conventional sense. The physician selects a dose level based on risks of residual disease and the risk of complications.

Seg	#	Field	Code/Definition
Summary	1	Rad/Surg Sequence	3 Radiation after surgery
	2	Reason No Rad	0 Radiation was administered
	3	Location of Rad	1 All RT at this facility
	4	Date Started	08/07/2018
	5	Date Ended	08/07/2018
	6	Number of Phases	01
	7	Discontinued Early	01 Completed
	8	Course Total Dose	999998
Phase 1	9	Volume	98 Other
	10	Rad to Nodes	00 No RT to draining nodes
	11	Modality	13 Radioisotopes, NOS
	12	Planning Technique	88 Not applicable
	13	Number of Fractions	1
	14	Dose per Fraction	99998
	15	Total Phase 1 Dose	999998
Phase 2	16	Volume	00 No Treatment
	17	Rad to Nodes	
	18	Modality	
	19	Planning Technique	
	20	Number of Fractions	
	21	Dose per Fraction	
	22	Total Phase 2 Dose	
Phase 3	23	Volume	
	24	Rad to Nodes	
	25	Modality	
	26	Planning Technique	
	27	Number of Fractions	
	28	Dose per Fraction	
	29	Total Phase 3 Dose	

## IN SUMMARY....

- Learn what your facility has to offer. Every facility has different machines available.
- Summarize and text the completion note. You want to know exactly what was done by reviewing your text including modality, technique, cGy and dates.
- Use the Appendix R in the STORE manual (The CTR Guide to Coding Radiation Therapy Treatments) or go to CAForum/Store forum.
- Still can't figure it out? Send me an email or a call. 😊



## Summary of Radiation Coding Rules

1. **First Course of Treatment:** The first course of treatment includes all treatments recorded in the treatment plan and administered to the patient before disease progression or recurrence.
2. **Fraction:** One radiation treatment to one target volume.
3. **Target Volume:** The anatomic content being treated, for example, primary lung tumor and adjacent regional nodes. Note that space occupied by the target volume may diminish (hopefully by shrinking) as treatment progresses, but that alone does not change the phase. However, if the anatomic content being treated changes (i.e. the field is modified to exclude some of the lymph node regions), a new phase begins.
4. **Treatment Volume:** The three-dimensional space around and including the target volume that is receiving therapeutic doses of radiation. A change in target volume (because of tumor shrinkage) does not by itself mean a new phase.
5. **Phase:** A phase of treatment is a set of treatments delivered with a unique combination of target volume, treatment fraction size, treatment modality, and treatment technique. Phases can be delivered sequentially or simultaneously. A new phase begins when there is a change in any of these four parameters.
6. **Phase Order Rules:**
  - a. First phase first. Phases should be summarized first in chronological order.
  - b. If multiple phases start on the same date, then list the phases in order from highest 'Total Phase Dose' to lowest 'Total Phase Dose'.
  - c. If multiple phases start on the same date and have the same Total Phase Dose, then any order is acceptable.
  - d. If there are more than three phases you only need to document the first three (additional phases will not be reported to NCDB) but be sure to record the actual total number of phases.
7. **Unknown Modality:** If patient had treatment but Modality details are not available code Modality to 98.
8. **When a Patient Has No Treatment:**
  - a. Non-SEER facilities code Phase I Volume to 00. Leave other fields blank.
  - b. SEER Facilities code Modality to 00. Leave other fields blank.
  - c. Code the Reason for No Radiation field. It is not required by EDITS but it might be useful to future researchers.
9. **First Untreated Phase:**
  - a. Non-SEER facilities code Volume to 00. Leave other fields blank.
  - b. SEER Facilities code Modality to 00. Leave other fields blank.
10. **Adding Doses**
  - a. If multiple phases are directed at the same target volume using an external beam modality, you can add the doses.

- b. If multiple phases are directed at the same target volume using brachytherapy you can add the doses.
- c. If treatment uses a mix of external beam and brachytherapy you cannot add doses. Code Course Total Dose to 999998.

### 11. Coding Volume when the Site of Cancer Organ has been Removed:

- a. In most cases code the volume to the organ removed. After prostatectomy, code the volume to prostate. If the whole pelvis is treated after prostatectomy, hysterectomy or cystectomy, code the volume to the organ of origin and lymph nodes to pelvic.
- b. Important clarification: Brachytherapy after hysterectomy is a grey area. We advise that if the vaginal apex is treated with brachytherapy after hysterectomy for cervical or uterine cancer, code the volume to 72 – Vagina because that is the target organ for treatment.

### 12. When Treatment is Interrupted

- a. Treatment may be interrupted as part of a plan, or because of unplanned circumstances.
- b. For treatment dates code the first date of the first treatment to the volume and the last date of treatment given after the interruption. This is consistent with the definition of course.

### 13. Avoid Isotope Confusion

- a. With the exception of electronic brachytherapy (Modality Code 12), most brachytherapy (codes 07-11) is delivered with radioactive isotopes. Generally, this is in the form of seeds or rods of radioactive metal, radium and cobalt historically, cesium and iridium today, that are inserted in to tissue (interstitial) or body cavities (intracavitary).
- b. Codes 13 to 16 are modalities specifically described as radioisotopes but not as brachytherapy. Most commonly these are available in liquid form and inserted into the blood stream or a body cavity.
- c. A common coding mistake is to use modality code 13 – Radioisotopes, NOS, when the record shows, for example, intracavitary treatment to the vagina, cervix, uterine canal, or some combination. Yes, radioisotopes were used but no, that is not the correct code. You should use a brachytherapy code, high dose rate (HDR) if the isotope is iridium, low dose rate if it is cesium or iodine.
- d. Eye plaque brachytherapy is a form of surface brachytherapy and should be coded Brachytherapy, NOS (Modality Code 07).



# THANK YOU!

## **Questions?**

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