Supplementary Information

Supplementary Table 1. Dose volume limits for Hypofractionated Radiation (15 Fractions)

Serial Tissues	Vol (cc)	Vol Max (Gy)	Max Point Dose (Gy)*	Endpoint (≥Grade 3)	
Spinal cord	<5	39	42.3	myelitis	
Esophagus	<5	51.3	55.3	stenosis/fistula	
Brachial Plexus	<3	44.5	50.6	neuropathy	
Heart/Pericardium	<15	39.5	48.9	pericarditis	
Great Vessels	<10	48.9	54.3	aneurysm	
Trachea and Large Bronchus	<5	39.5	45.6	stenosis/fistula	
Rib	<5	48.9	52.2	pain or fracture	
Skin	<10	49	55.4	ulceration	
Parallel Tissues	Vol (cc)	Vol Max (Gv)	Other Constraints	Endnoint (>Grade 3)	

Parallel Tissues	Vol (cc)	Vol Max (Gy)	Other Constraints	Endpoint (≥Grade 3)	
	1500	15.5	Mean dose < 18 Gy	Basic Lung Function	
Lung (Right and Left minus GTV)	1000	16.3	V-18 <37%	Pneumonitis	

^{*} Maximum point dose is defined as the highest dose to 0.035 cc of tissue within the critical structure.

Supplementary Table 2. Association Between Progression at 12 Months and Patient, Pathological and Treatment Characteristics

	No Progression (n = 5)	Progression (n = 26)	Odds Ratio (95% CI)	p-value	
Patient Characteristics				_	
Age (per increase in 5 years)	59.6 ± 2.3	71.3 ± 2.4	1.83 (0.94, 3.57)	0.08	
Gender					
Female	2 (40)	6 (23)	1.0 (reference)	0.44	
Male	3 (60)	20 (77)	2.22 (0.30, 16.56)		

Smoking history				
<30 Pack-years	1 (20)	8 (31)	1.0 (reference)	0.60
≥30 Pack-years	4 (80)	17 (65)	0.53 (0.05, 5.55)	
Tumor Characteristics				
Stage				
I-III	4 (80)	18 (69)	1.0 (reference)	0.81
IV	1 (20)	6 (23)	1.33 (0.12, 14.38)	
Histology				
Adenocarcinoma	4 (80)	7 (27)	1.0 (reference)	0.25
Squamous	1 (20)	13 (50)	7.43 (0.69, 79.96)	
Other	0 (0)	6 (23)	*	
Location – Right/Left				
Central	1 (20)	5 (19)	1.0 (reference)	1.00
Right	2 (40)	11 (42)	1.10 (0.08, 15.15)	
Left	2 (40)	10 (38)	1.00 (0.07, 13.87)	
Location – Upper/Lower				
Central	1 (20)	5 (19)	1.0 (reference)	0.98
Upper	4 (80)	16 (62)	0.80 (0.07, 8.91)	
Lower	0 (0)	5 (19)	*	
Treatment Characteristics				
PTV (per increase of 50cc)	622 ± 135	498 ± 59	0.93 (0.79, 1.10)	0.39
Dose Level				
50 Gy	1 (20)	8 (31)	1.0 (reference)	0.58
55 Gy	3 (60)	9 (35)	0.37 (0.03, 4.37)	
60 Gy	1 (20)	9 (35)	1.12 (0.06, 21.09)	
Days of Treatment				
≤20 Days	4 (80)	19 (73)	1.0 (reference)	0.75
>20 Days	1 (20)	7 (27)	1.47 (0.14, 15.54)	

* Odds Ratio not available as there are no patients that are in the not progressed group

Supplementary Table 3: Costs Associated with 60/15 IGRT/IMRT, 60/30 3D, 60/30 IGRT/IMRT

	Description	60/15 IMRT	60/30 3D	60/30 IMRT	2014 OPPS	2014 MPFS	Line totals		
CPT/HCPCS							60/15 IMRT	60/30 3D	60/30 IMRT
99205	MD office visit	1	1	1	\$0.00	\$171.00	\$171.00	\$171.00	\$171.00
99211	MD facility visit	1	1	1	\$91.00	\$0.00	\$91.00	\$91.00	\$91.00
77290	Simulation - Complex	1	1	1	\$305.00	\$81.00	\$386.00	\$386.00	\$386.00
77334	Treatment Device	1	6	1	\$209.00	\$65.00	\$274.00	\$1,644.00	\$274.00
77300	Dose Calc	9	6	6	\$112.00	\$32.00	\$1,296.00	\$864.00	\$864.00
77295	3D Simulation	0	1	0	\$1,015.00	\$224.00	\$0.00	\$1,239.00	\$0.00
77263	Treatment Planning	1	1	1	\$0.00	\$167.00	\$167.00	\$167.00	\$167.00
77470	Special treatment	1	1	1	\$405.00	\$109.00	\$514.00	\$514.00	\$514.00
77301	IMRT Treatment Plan	1	1	1	\$1,015.00	\$418.00	\$1,433.00	\$0.00	\$1,433.00
77338	MLC Device	1	1	1	\$305.00	\$225.00	\$530.00	\$0.00	\$530.00
77336	Continuing Physics	3	6	6	\$112.00	\$0.00	\$336.00	\$672.00	\$672.00
77280	Simulation-Simple	1	1	1	\$112.00	\$37.00	\$149.00	\$149.00	\$149.00
77014	Cone beam CT	15	0	30	\$0.00	\$44.00	\$660.00	\$0.00	\$1,320.00
77418	IMRT treatment del	15	0	30	\$500.00	\$0.00	\$7,500.00	\$0.00	\$15,000.00
77413	6-10Mev trmt del	0	30	0	\$188.00	\$0.00	\$0.00	\$5,640.00	\$0.00
77427	Weekly trmt mgmt	3	6	6	\$0.00	\$187.00	\$561.00	\$1,122.00	\$1,122.00
77417	Port Film	3	6	6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
					Grand	Totals	\$ 14,068.00	\$ 12,659.00	\$ 22,693.00