



	0	2	4	6	8	10
No. at risk	3940	3184	1885	1024	525	238
Cum Incidence %		12	27	34	39	43
95% Conf Interval		(11,13)	(25,28)	(32,36)	(37,41)	(41,45)

FIGURE E1. Cumulative incidence of enrollment in TSP group from the time of surgery (R0 cases).

TABLE E1. Recurrence rates, second lung primary tumors, and extrathoracic primary tumors and survivorship enrollment (excluding patients with carcinoid tumors)

	Non-TSP	TSP
Recurrence	[2547]	[1054]
Yes	534	76
Recurrence location (n = 610)		
Distant	287	37
Locoregional	150	25
Distant + locoregional	97	14
Second lung primary malignancy	[2555]	[1046]
Yes	319	131
Clinical stage of second lung primary (n = 450)		
IA	259	106
IB	11	5
II	16	3
IIIA	16	6
IIIB/C/IV	17	10
Treatment of second lung primary		
Local (surgery or radiation)	274	114
Local and systemic	19	6
Systemic	10	6
Observation	16	5
Second extrathoracic malignancy	[2578]	[1023]
Yes	211	60
Site of second extrathoracic malignancy (n = 271)		
Prostate/kidney/urologic	47	16
Breast	28	9
Thyroid	29	5
Other	107	35

Each outcome was analyzed separately with regard to TSP enrollment at the time of outcome; thus, the number of patients in TSP is different depending on outcome. [] Indicates total patients in TSP or non-TSP analyzed for each outcome. *TSP*, Thoracic Survivorship Program.

TABLE E2. Multivariable extended Cox model for recurrence

Characteristic	HR	95% CI	P value
Survivorship	0.91	0.65-1.26	.6
Age at surgery	1.00	0.99-1.00	.4
Smoking status			
Former/current	—	—	
Never	1.49	1.32-1.69	<.001
Sex			
Female	—	—	
Male	1.20	1.02-1.42	.028
ASA			
ASA I/II	—	—	
ASA III/IV	0.95	0.78-1.15	.6
Prior cancer			
N	—	—	
Y	0.98	0.81-1.18	.8
FEV1	1.00	0.99-1.00	.3
Diffusion	1.00	0.99-1.00	.3
Induction			
No	—	—	
Yes	1.28	0.95-1.72	.11
Procedure			
Bilobectomy	—	—	
Lobectomy	0.77	0.47-1.27	.3
Pneumonectomy	0.62	0.29-1.30	.2
Sublobar	1.19	0.75-1.89	.5
Approach			
Open	—	—	
VATS	0.93	0.73-1.18	.5
Tumor location			
Left	—	—	
Right	0.79	0.66-0.95	.012
Pathology			
Adeno	—	—	
Carcinoid	0.36	0.26-0.50	<.001
Other/Large/Pleuro	0.91	0.65-1.28	.6
Small cell	0.61	0.27-1.36	.2
Squamous	0.53	0.42-0.67	<.001
pStage8			
IA	—	—	
IB	1.87	1.35-2.59	<.001
II	3.21	2.40-4.30	<.001
IIIA	4.56	3.37-6.16	<.001
z0	0.61	0.22-1.70	.3
Adjuvant therapy			
Chemorad	—	—	
None	0.86	0.62-1.20	.4
Systemic (chemo/immuno)	0.97	0.72-1.31	.8
XRT	1.12	0.74-1.71	.6
Year of surgery	1.00	0.96-1.04	>.9

The model included a time-varying covariate to reflect variable time to TSP enrollment. *HR*, Hazard ratio; *CI*, confidence interval; *ASA*, American Society of Anesthesiology Physical Status Classification System; *FEV1*, forced expiratory volume in 1 second; *VATS*, video-assisted thoracic surgery; *XRT*, radiotherapy.

TABLE E3. Multivariable extended Cox model for second lung primary tumors

Characteristic	HR	95% CI	P value
Survivorship	0.98	0.87-1.11	.8
Age at surgery	1.01	0.99-1.02	.4
Smoking status			
Former/current	—	—	
Never	0.45	0.28-0.74	.002
Sex			
Female	—	—	
Male	0.78	0.63-0.98	.033
ASA			
ASA I/II	—	—	
ASA III/IV	1.07	0.89-1.29	.4
Prior cancer			
N	—	—	
Y	1.02	0.86-1.22	.8
FEV1	0.99	0.99-1.00	.071
Diffusion	1.00	0.99-1.00	.3
Induction			
No	—	—	
Yes	1.15	0.86-1.55	.3
Procedure			
Bilobectomy	—	—	
Lobectomy	1.27	0.65-2.47	.5
Pneumonectomy	0.40	0.13-1.21	.10
Sublobar	1.57	0.87-2.87	.14
Approach			
Open	—	—	
VATS	1.17	0.86-1.59	.3
Tumor location			
Left	—	—	
Right	1.23	1.05-1.44	.011
Pathology			
Adeno	—	—	
Carcinoid	0.25	0.14-0.46	<.001
Other/Large/Pleo	1.07	0.73-1.57	.7
Small cell	0.71	0.40-1.26	.2
Squamous	1.15	0.98-1.35	.082
pStage8			
IA	—	—	
IB	0.81	0.65-1.02	.075
II	0.65	0.43-0.97	.034
IIIA	0.68	0.50-0.91	.011
z0	0.21	0.05-0.88	.032
Adjuvant therapy			
Chemorad	—	—	
None	0.90	0.40-1.99	.8
Systemic (Chemo/ Immuno)	0.99	0.44-2.26	>.9
XRT	0.64	0.21-1.94	.4
Year of surgery	1.07	1.05-1.10	<.001

The model included a time-varying covariate to reflect variable time to TSP enrollment. *HR*, Hazard ratio; *CI*, confidence interval; *ASA*, American Society of Anesthesiology Physical Status Classification System; *FEV1*, forced expiratory volume in 1 second; *VATS*, video-assisted thoracic surgery; *XRT*, radiotherapy.

TABLE E4. Multivariable extended Cox model for extrathoracic second primary malignancy

Characteristic	HR	95% CI	P value
Survivorship	1.31	1.04-1.66	.023
Age at surgery	1.03	1.01-1.04	<.001
Smoking status			
Former/current	—	—	
Never	0.96	0.67-1.36	.8
Sex			
Female	—	—	
Male	1.21	0.93-1.57	.15
ASA			
ASA I/II	—	—	
ASA III/IV	0.84	0.59-1.21	.4
Prior cancer			
N	—	—	
Y	1.18	0.90-1.54	.2
FEV1	0.99	0.98-1.00	.002
Diffusion	1.01	1.01-1.02	<.001
Induction			
No	—	—	
Yes	0.80	0.51-1.25	.3
Procedure			
Bilobectomy	—	—	
Lobectomy	0.63	0.24-1.65	.3
Pneumonectomy	0.32	0.07-1.42	.13
Sublobar	0.64	0.24-1.68	.4
Approach			
Open	—	—	
VATS	0.92	0.76-1.13	.4
Tumor location			
Left	—	—	
Right	1.08	0.86-1.35	.5
Pathology			
Adeno	—	—	
Carcinoid	1.07	0.76-1.51	.7
Other/Large/Pleo	1.22	0.71-2.09	.5
Small cell	0.68	0.16-2.89	.6
Squamous	0.93	0.69-1.25	.6
pStage8			
IA	—	—	
IB	0.91	0.63-1.30	.6
II	0.80	0.55-1.17	.2
IIIA	0.71	0.40-1.28	.3
z0	0.53	0.20-1.41	.2
Adjuvant therapy			
Chemorad	—	—	
None	0.80	0.40-1.63	.5
Systemic (Chemo/ Immuno)	1.00	0.42-2.39	>.9
XRT	1.60	0.63-4.10	.3
Year of surgery	1.05	1.01-1.08	.005

The model included a time-varying covariate to reflect variable time to TSP enrollment. *HR*, Hazard ratio; *CI*, confidence interval; *ASA*, American Society of Anesthesiology Physical Status Classification System; *FEV1*, forced expiratory volume in 1 second; *VATS*, video-assisted thoracic surgery; *XRT*, radiotherapy.

TABLE E5. Multivariable extended Cox model for overall survival

Characteristic	HR	95% CI	P value
Survivorship	0.42	0.33-0.52	<.001
Age at surgery	1.04	1.03-1.05	<.001
Smoking status			
Former/current	—	—	
Never	0.99	0.81-1.20	.9
Sex			
Female	—	—	
Male	1.26	1.08-1.47	.003
ASA			
ASA I/II	—	—	
ASA III/IV	1.31	1.08-1.58	.007
Prior cancer			
N	—	—	
Y	1.20	1.04-1.40	.015
FEV1	1.00	1.00-1.00	.2
Diffusion	0.98	0.98-0.99	<.001
Induction			
No	—	—	
Yes	0.83	0.68-1.00	.054
Procedure			
Bilobectomy	—	—	
Lobectomy	1.39	0.97-1.99	.077
Pneumonectomy	1.30	0.80-2.12	.3
Sublobar	1.59	1.13-2.24	.008
Approach			
Open	—	—	
VATS	1.02	0.87-1.19	.8
Tumor location			
Left	—	—	
Right	0.97	0.86-1.08	.6
Pathology			
Adeno	—	—	
Carcinoid	0.75	0.60-0.94	.012
Other/Large/Pleuro	1.08	0.81-1.45	.6
Small cell	0.83	0.62-1.12	.2
Squamous	1.19	0.97-1.45	.093
pStage8			
IA	—	—	
IB	1.49	1.30-1.72	<.001
II	1.53	1.32-1.77	<.001
IIIA	1.90	1.56-2.32	<.001
z0	1.03	0.60-1.76	>.9
Adjuvant therapy			
Chemorad	—	—	
None	0.77	0.61-0.97	.026
Systemic (Chemo/ Immuno)	0.74	0.57-0.97	.030
XRT	1.15	0.78-1.70	.5
Year of surgery	0.95	0.92-0.98	.001

The model included a time-varying covariate to reflect variable time to TSP enrollment. HR, Hazard ratio; CI, confidence interval; ASA, American Society of Anesthesiology Physical Status Classification System; FEV1, forced expiratory volume in 1 second; VATS, video-assisted thoracic surgery; XRT, radiotherapy.

TABLE E6. Multivariable extended Cox model for disease-free survival

Characteristic	HR	95% CI	P value
Survivorship	0.57	0.47-0.69	<.001
Age at surgery	1.02	1.02-1.03	<.001
Smoking status			
Former/current	—	—	
Never	1.28	1.15-1.42	<.001
Sex			
Female	—	—	
Male	1.20	1.04-1.38	.010
ASA			
ASA I/II	—	—	
ASA III/IV	1.19	1.02-1.40	.031
Prior cancer			
N	—	—	
Y	1.12	0.99-1.28	.082
FEV1	1.00	1.00-1.00	.10
Diffusion	0.99	0.99-0.99	<.001
Induction			
No	—	—	
Yes	1.03	0.84-1.28	.7
Procedure			
Bilobectomy	—	—	
Lobectomy	0.94	0.59-1.50	.8
Pneumonectomy	0.88	0.46-1.67	.7
Sublobar	1.26	0.86-1.83	.2
Approach			
Open	—	—	
VATS	0.95	0.80-1.13	.6
Tumor location			
Left	—	—	
Right	0.91	0.80-1.03	.13
Pathology			
Adeno	—	—	
Carcinoid	0.60	0.46-0.79	<.001
Other/Large/Pleuro	1.02	0.80-1.30	.9
Small cell	0.73	0.54-0.99	.045
Squamous	0.96	0.78-1.19	.7
pStage8			
IA	—	—	
IB	1.52	1.33-1.73	<.001
II	1.86	1.63-2.12	<.001
IIIA	2.46	2.04-2.95	<.001
z0	0.83	0.49-1.43	.5
Adjuvant therapy			
Chemorad	—	—	
None	0.81	0.61-1.07	.14
Systemic (Chemo/ Immuno)	0.82	0.60-1.13	.2
XRT	1.14	0.82-1.57	.4
Year of surgery	0.98	0.94-1.01	.15

The model included a time-varying covariate to reflect variable time to TSP enrollment. HR, Hazard ratio; CI, confidence interval; ASA, American Society of Anesthesiology Physical Status Classification System; FEV1, forced expiratory volume in 1 second; VATS, video-assisted thoracic surgery; XRT, radiotherapy.