Figure legends.

Figure 1A-C. Kaplan-Meier curves for overall survival, cancer-specific survival, and time to diagnosis of relapse.

Figure 2A-C. Kaplan-Meier curves for propensity matched overall survival, cancer-specific survival, and time to diagnosis of relapse.

Online Supplemental Figure 1. Overall CONSORT diagram for surveillance imaging after resection for pathologic Stage I lung cancer.

Online Supplemental Figure 2. Kaplan-Meier curves for overall survival based on treating surgeon.

Online Supplemental Figure 3. Consort Diagram of Diagnosis, Treatment, and Survival of Successive Malignancy Utilizing CT or CXR for Postoperative Surveillance. (There are 8 CT patients and 6 CXR patients who had no treatment, refused or had unknown treatment status).

Online Supplemental Table 1. Recent guidelines for radiographic surveillance following resection for NSCLC.[9,11-13]

Agency (Year)	Recommendations
American Association for Thoracic Surgery (2012)[11]	High-resolution CT for first 4 years (with baseline CT at 6 months and scans at least every 6 months for first 3 years), then annual low-density CT annually thereafter
American College of Chest Physicians (2013)[9]	Chest CT every 6 months for 2 years, annually thereafter
European Society of Medical Oncology (2010)[12]	CT every 6 months for 2 years, annually thereafter
National Comprehensive Cancer Network (2012)[13]	Helical chest CT with or without contrast every 6-12 months for 2 years, chest CT without contrast annually thereafter

Online Supplemental Table 2. Findings from surveillance studies of NSCLC survivors.[4-6,14-20]

Reference	Patients and Comparison	Findings
Benamore et al. (Canada, 2007)[15]	n = 75, stage IIB-III, routine CXR and CT vs. routine CXR with CT done on clinical suspicion	No significant difference in disease-free or overall survival
Chiu et al. (Taiwan, 2003)[16]	n = 73, stage I-IV, follow-up with concurrent CXR and low-dose CT (LDCT)	Majority of relapses were detected by LDCT. LDCT more sensitive than CXR
Hanna et al. (Canada, 2014)[14]	n = 271, stage I-IV, follow-up with concurrent CXR and minimal-dose CT (MnDCT)	Majority of relapses were detected asymptomatically. MnDCT more sensitive than CXR. Asymptomatic relapses had greater rate of curative treatment and longer survival
Lamont et al. (USA, 2002)[6]	n = 124, stage I-III, follow-up with CT and CXR	Majority of relapses were detected by follow-up CT
Lou et al. (USA, 2013)[5]	n = 1294, stage I-II, follow-up with CT	Majority of relapses were detected by follow-up CT
Nakamura et al. (Japan, 2010)[17]	n = 1389, stage I-IIIB, follow-up by pulmonologists with CXR and CT vs. thoracic surgeons with CXR	No significant difference in survival for stage I, CXR/CT group had longer survival for stage II-III
Virgo et al. (USA, 1995)[18]	n = 182, stage I-IIIA, intensive vs. non-intensive follow-up	No significant difference in survival
Walsh et al. (USA, 1995)[4]	n = 358, stage I-IIIB	Asymptomatically detected relapses not associated with longer survival
Westeel et al. (France,	n = 192, stage I-IV, follow-up with CXR, CT and bronchoscopy	Asymptomatically detected relapses associated with longer survival

2000)[19]		
Younes et al. (Brazil, 1999)[20]	n = 130, stage I-IIIB, routine CXR and CT vs. symptom-prompted follow-up	No significant difference in disease-free or overall survival

Online Supplemental Table 3. Regression analysis for cancer-specific survival.

Covariate	Hazard Ratio	95% CI	*p* value
Imaging (CXR vs. CT)	0.686	0.396 – 1.187	0.178
Age	1.041	1.015 – 1.069	0.002
Charlson index	1.282	1.030 – 1.595	0.026
Resection (sublobar vs. non-sublobar)	1.893	1.040 – 3.443	0.037
Tumor T-stage (1 vs. 2a)	0.719	0.379 – 1.361	0.311
Tumor size	1.032	0.774 – 1.375	0.831
Histology (non-BAC vs. BAC)	1.863	0.738 – 4.702	0.188
Adjuvant therapy (absent vs. present)	0.633	0.321 – 1.246	0.186
Gender (male vs. female)	1.078	0.663 – 1.753	0.762
Race (non-Caucasian vs. Caucasian)	0.873	0.368 – 2.069	0.757

Online Supplemental Table 4. Matched groups from propensity score analysis. (C-statistic 0.640).

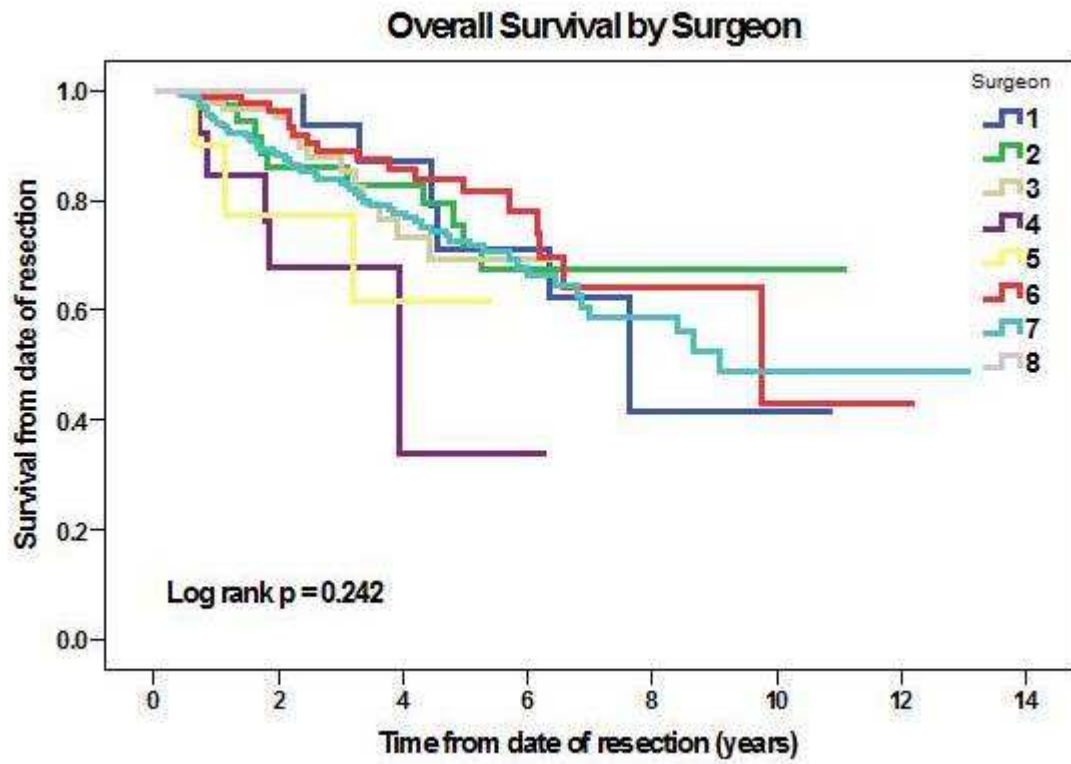| Characteristic	CT (n = 174)	CXR (n = 174)	*p* value
Age (mean ± SD)	66 ± 10	68 ± 10	0.134
Charlson index (mean ± SD)	0.90 ± 0.94	0.89 ± 1.01	0.956
T2a tumor	56 (32%)	47 (27%)	0.291
Resection (sublobar)	33 (19%)	33 (19%)	1.0
Adjuvant therapy	10 (6%)	10 (6%)	1.0

Online Supplemental Table 5. Theoretical Sample Size Calculation for a Clinical Trial of Stage IA or Stage IIIA Non-Small Cell Lung Cancer (NSCLC) Based on 3-Year Accrual and Additional 5-year Follow-up

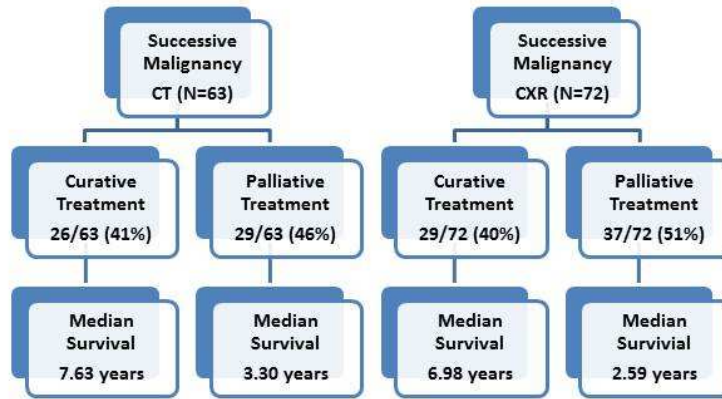| Median survival in control group	Power	Assumed improvement in median survival	Sample size per group	Assuming 10% attrition	Assuming 20% attrition
119*	0.8	20%	1380	1534	1725
119*	0.9	20%	1847	2053	2309
23[#]	0.8	20%	464	516	580
23[#]	0.9	20%	621	690	863

*Median Survival Pathologic Stage IA NSCLC
[#]Median Survival Pathologic Stage IIIA NSCLC
(Median survival based on Goldstraw et al. The IASLC Lung Cancer Staging Project: proposals for the revision of the TNM stage groupings in the forthcoming (seventh) edition of the TNM Classification of malignant tumours. J Thorac Oncol. 2007 Aug;2(8):706-14.)

Overall Survival by Surgeon