Association of Lymph Node Sampling Criteria on Pathologic Nodal Upstaging, Short-Term Recurrence-Free Survival, and Overall Survival in Patients with Non-Small Cell Lung Cancer

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Background

-*General* lymph node (LN) sampling: ACS CoC "3+1": ≥3 mediastinal (N2) and ≥1 hilar (N1) station
-*Lobe-specific* lymph node sampling: European Society of Thoracic Surgeons (ESTS)
-Oncologic outcomes across anatomic lobes and clinical stages of disease unknown

Research Objectives

-Evaluate association of LN sampling criteria on pathologic nodal upstaging, recurrence-free survival (RFS), overall survival (OS) in NSCLC pts

Figure 1: Overview of Lymph Node Sampling Criteria
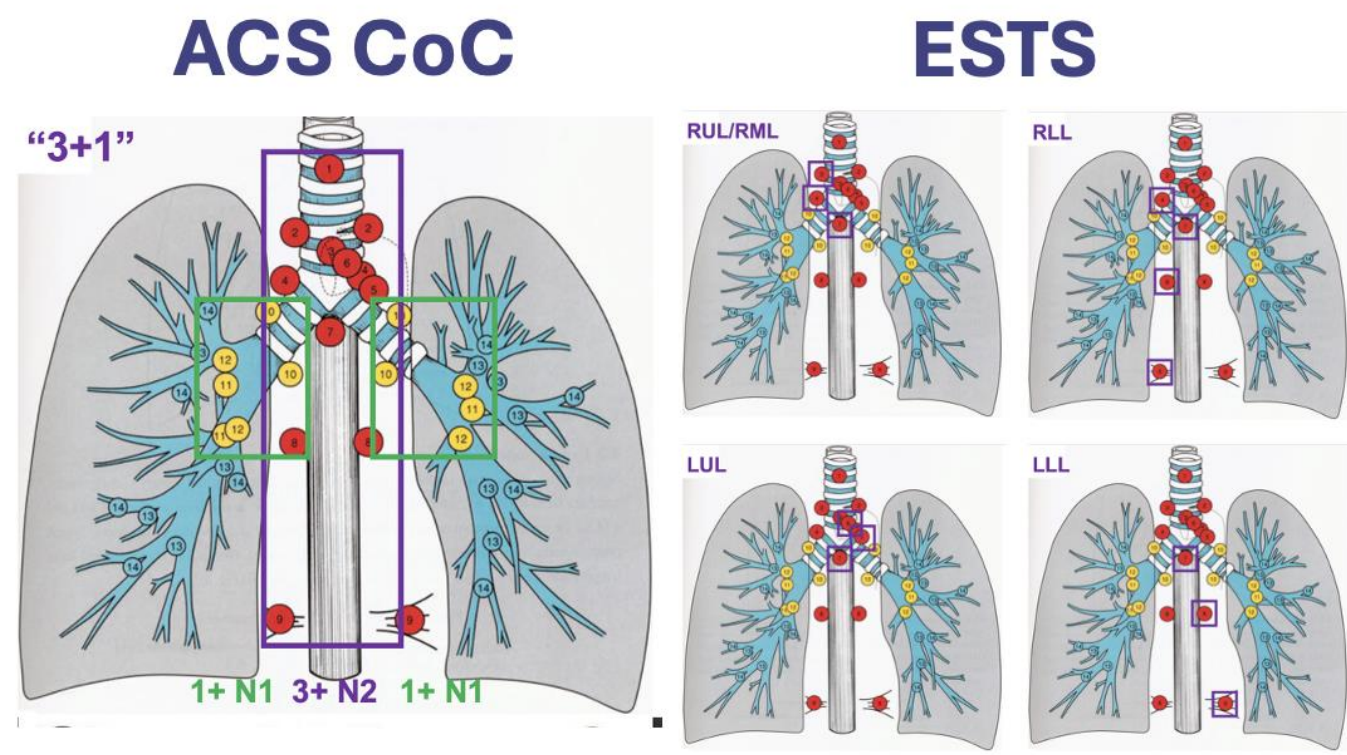
Methods

-Retrospective analysis of 968 Stage I-III NSCLC resections from NM EDW 2018-2023
-ACS CoC vs ESTS vs neither criteria
-Primary outcome: pathologic nodal upstaging
-Secondary outcomes: RFS, OS
-Statistics: Logistic regression, Fine & Gray modeling, Cox modeling

Table 1: Selected Characteristics of Patients by LN Sampling Criteria

	None (n=427)	ACS CoC (n=416)	ESTS (n=125)	P Value
Age	67.5 (10.5)	69.3 (8.7)	67.9 (9.9)	0.020
Current smoker	30 (8.1%)	57 (16.0%)	21 (19.4%)	<0.001
NA chemo	25 (5.9%)	49 (11.8%)	15 (12.0%)	0.006
NA immuno	10 (8.0%)	11 (2.6%)	31 (7.5%)	0.003
AdenoCA	281 (67.7%)	317 (76.8%)	87 (69.6%)	<0.001
High grade	49 (13.1%)	85 (21.1%)	21 (17.9%)	<0.001
Stage I	347 (81.3%)	302 (72.6%)	83 (66.4%)	0.002
Lobectomy	186 (43.8%)	244 (58.8%)	82 (66.1%)	<0.001

Figure 2: Risk-Adjusted Rates of Pathologic Nodal Upstaging
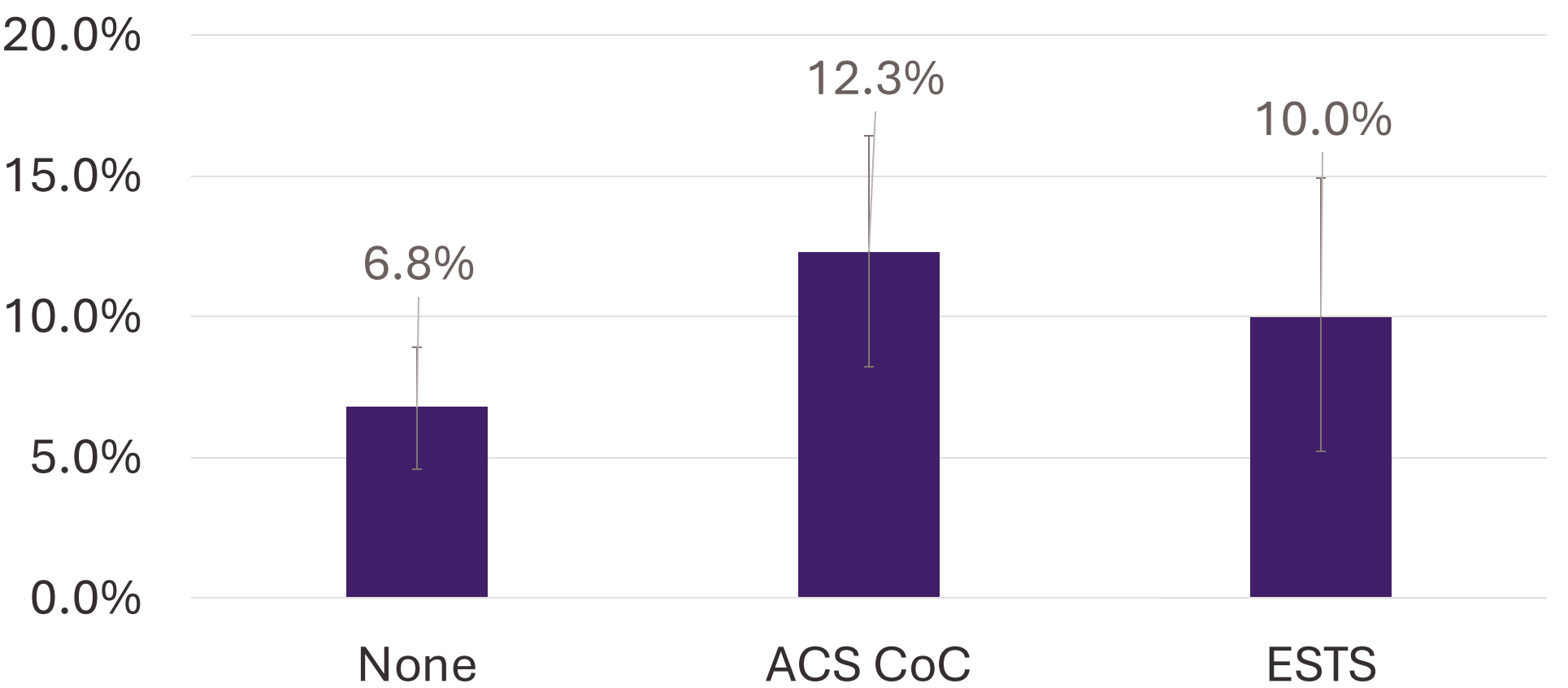
Covariates adjusted for in models: age, BMI, neoadjuvant chemotherapy, neoadjuvant immunotherapy, anatomic location, histology, clinical T stage, clinical N stage, tumor size, op approach, op extent

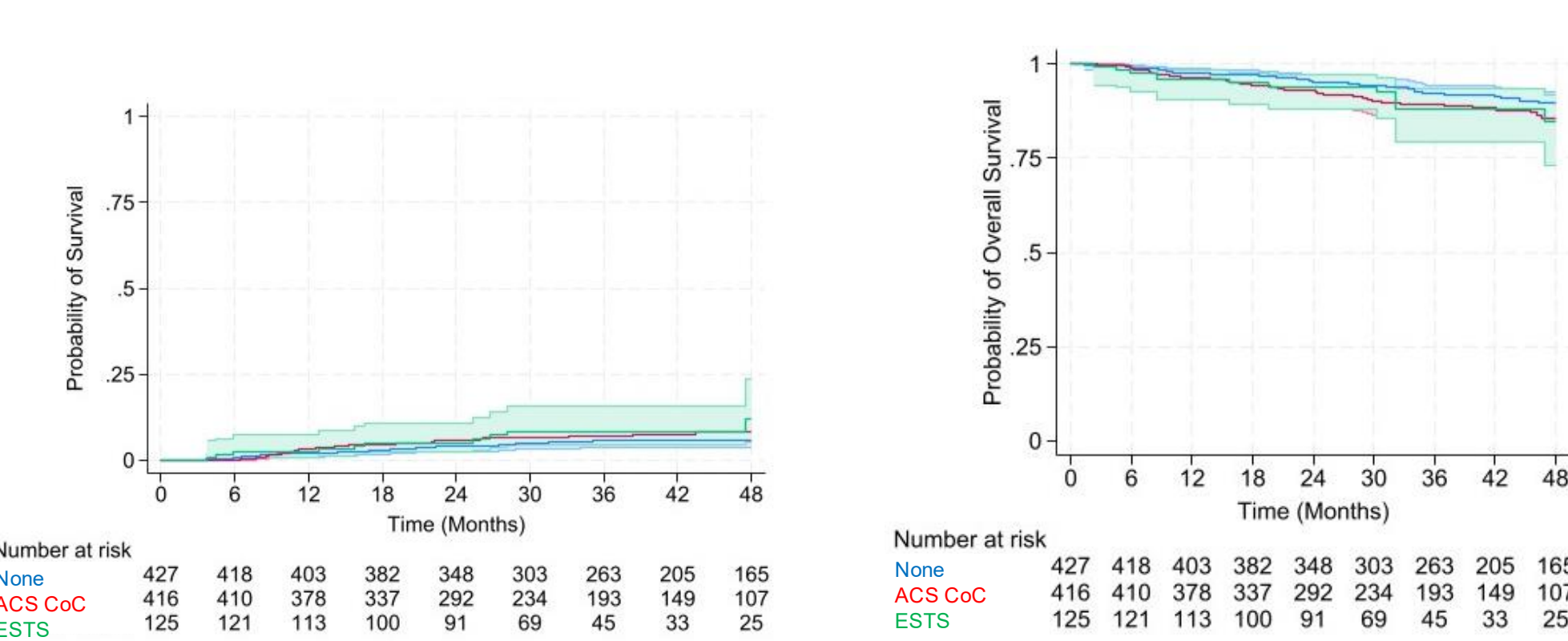## Figure 3: RFS and OS, by Lymph Node Sampling Criteria

Table 2: Multivariable Fine & Gray (RFS) and Cox (OS) Models

LN Sampling Criteria	RFS		OS	
	aSHR (95% CI)	3-yr Recurrence Rate (95% CI)	aHR (95% CI)	3-year OS (95% CI)
None	0.79 (0.34-1.83)	5.9% (3.9-8.8%)	0.63 (0.36-1.11)	94.1% (91.2-96.1%)
ACS CoC	REF	6.9% (4.7-10.1%)	REF	93.1% (89.9-95.3%)
ESTS	0.48 (0.17-1.37)	8.5% (4.5-15.8%)	0.62 (0.31-1.27)	91.5% (84.2-95.6%)

Conclusions

-Pathologic nodal upstaging: general = lobe-specific > neither criteria

-No differences in RFS or OS by sampling criteria

-General LN sampling criteria may be sufficient for optimizing oncologic outcomes