NSCLC Cancer Quality-Directed Program Components*

A. Screening/Risk Reduction

1. Low-dose CT should be available for select high-risk smokers and former smokers[1]
2. Smoking cessation options available for any/all interested patients

B. Clinical Presentation/Work-Up

1. Multidisciplinary evaluation of suspicious findings, including thoracic surgeon, radiologist, and pulmonologist representation with experience in diagnosis of lung cancer
2. For Stage I/II disease, pts should undergo invasive mediastinal staging (mediastinoscopy) followed by bronchoscopy then surgical resection (all during the same anesthetic procedure)

	Sensitivity	Specificity
CT*	50%-70%	63%-86%
PET-CT*	50%-85%	74%-93%
Mediastinoscopy	≈78%	100%
Videomediastinoscopy	≈89%	100%
EBUS	≈89%	100%
EUS	≈89%	100%
Combination EUS/EBUS	≈91%	100%

*Approximate ranges based on published studies.[2-7]

3. Decisions about optimal diagnostic steps/biopsy should be made by multidisciplinary team of radiologist, interventional radiologist, pulmonologist, and thoracic surgeon with experience in diagnosis of lung cancer
4. Pathologist establishes histologic subtype with enough tissue left for molecular testing (where appropriate)[8]; plan in place to re-biopsy if additional tissue is necessary to complete work-up
   - Mediastinal lymph nodes are falsely overstaged by PET-CT in approximately 25% of patients[2]
   - Mediastinal lymph nodes are falsely understaged by PET-CT in approximately 13% of patients[9,10]

C. Evaluation

1. Determination of surgical resection, surgical staging, and pulmonary resection should be done by a board-certified thoracic surgeon with experience with lung cancer surgery
2. At least six nodes are removed during surgical resection, 3 from N1 and 3 from N2 stations
3. FDG/PET scan and brain MRI with contrast
4. Clinical staging incorporates newest AJCC Guidelines (8th edition)

AJCC 7th Edition Lung Cancer Staging Guidelines[11]

T Component		N0	N1	N2	N3	M1a* Any N	M1b† Any N
T1	T1a ≤2 cm	IA	IIA	IIIA	IIIB	IV	IV
	T1b >2 but ≤3 cm	IA	IIA	IIIA	IIIB	IV	IV
T2	T2a >3 but ≤5 cm	IB	IIA	IIIA	IIIB	IV	IV
	T2b >5 but ≤7 cm	IIA	IIB	IIIA	IIIB	IV	IV
T3	T3 >7 cm	IIB	IIIA	IIIA	IIIB	IV	IV
	T3 *Invasion*	IIB	IIIA	IIIA	IIIB	IV	IV
	T3 *Satellite*	IIB	IIIA	IIIA	IIIB	IV	IV
T4	T4 *Ipsilateral Nodule*	IIIA	IIIA	IIIB	IIIB	IV	IV
	T4 *Invasion*	IIIA	IIIA	IIIB	IIIB	IV	IV

AJCC 8th Edition Lung Cancer Staging Guidelines[12,13]

T Component*		N0	N1	N2	N3	M1a† Any N	M1b‡ Any N	M1c§ Any N
T1	T1a ≤1 cm	IA1	IIB	IIIA	IIIB	IVA	IVA	IVB
	T1b >1-2 cm	IA2	IIB	IIIA	IIIB	IVA	IVA	IVB
	T1c >2-3 cm	IA3	IIB	IIIA	IIIB	IVA	IVA	IVB
T2	T2a *Central, Visceral Pleura*	IB	IIB	IIIA	IIIB	IVA	IVA	IVB
	T2a >3-4 cm	IB	IIB	IIIA	IIIB	IVA	IVA	IVB
	T2b >4-5 cm	IIA	IIB	IIIA	IIIB	IVA	IVA	IVB
T3	T3 >5-7 cm	IIB	IIIA	IIIB	IIIC	IVA	IVA	IVB
	T3 *Invasion*	IIB	IIIA	IIIB	IIIC	IVA	IVA	IVB
	T3 *Satellite*	IIB	IIIA	IIIB	IIIC	IVA	IVA	IVB
T4	T4 >7 cm	IIIA	IIIA	IIIB	IIIC	IVA	IVA	IVB
	T4 *Ipsilateral Nodule*	IIIA	IIIA	IIIB	IIIC	IVA	IVA	IVB
	T4 Invasion	IIIA	IIIA	IIIB	IIIC	IVA	IVA	IVB

5. Advanced or metastatic non-squamous: standardly test for EGFR, ALK, and PD-L1[14]
6. Advanced or metastatic squamous: standardly test for PD-L1; consider EGFR and ALK in never smokers, small biopsy specimens, or cases of mixed histology
7. Results of all biomarker testing should be returned prior to making any shared clinical decisions

D. Treatment Planning

1. Early integration of palliative care
2. Determination of the appropriateness of XRT should be made by board-certified rad oncs with experience performing lung cancer XRT (as either definitive treatment and/or palliative)[8]
3. Role for neoadjuvant chemo or concurrent chemoradiation for select patients with stage IIIA; adjuvant chemo for resectable stage IIIA[15]; role for definitive concurrent chemoradiation followed by durvalumab for unresectable stages IIIA,B,C[14]
4. Role for mutation-directed TKI for EGFR+, ALK+, ROS1+ advanced or metastatic NSCLC[14,16]
5. Plasma-based testing for T790M mutation for patients who progress on first-line EGFR TKI; consider tissue-based testing rebiopsy if plasma- is negative
6. If driver mutation negative and PD-L1 ≥50%, pembro alone or pembro+platinum doublet chemo or atezo+bev+platinum doublet chemo for non-squamous and pembro alone or pembro+platinum doublet chemo for squamous as first-line therapy for stage IV NSCLC
7. If driver mutation negative and PD-L1 <50%, pembro+platinum doublet chemo, atezo+bev+platinum doublet chemo, platinum doublet chemo, non-platinum doublet chemo, or single agent chemo for non-squamous and pembro+platinum doublet chemo, platinum doublet chemo, non-platinum doublet chemo, or single agent chemo for squamous as first-line therapy for stage IV NSCLC[14]
8. All patients should standardly receive education by a member of the multidisciplinary cancer care team on NSCLC, staging, prognosis, their treatment plan, possible side effects, and response expectations prior to initiation of therapy
9. All patients should have access to a member of the multidisciplinary cancer care team who can answers questions regarding financial aspects of their treatment plan, including but not limited to the need for prior authorizations and out-of-pocket costs

E. Surveillance

1. Standard protocol in place for H&P and chest CT ± contrast…followed by annual low-dose non-contrast chest CT after a period of 2-5 years (based on stage at diagnosis)
2. Method for survivorship care plans in place for locally advanced NSCLC patients treated with curative intent

*Where not otherwise noted, proposed criteria originated from recommendations in the NCCN NSCLC Clinical Practice Guidelines.[17]

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