oncology exchange fall 2024

Dr. Alex Whitley

Certified by the American Board of Radiology, Membership of American Society for Therapeutic Radiology and Oncology, American Society of Clinical Oncology, American College of Radiation Oncology and American Brachytherapy Society

Dr. Mohammad Jafri

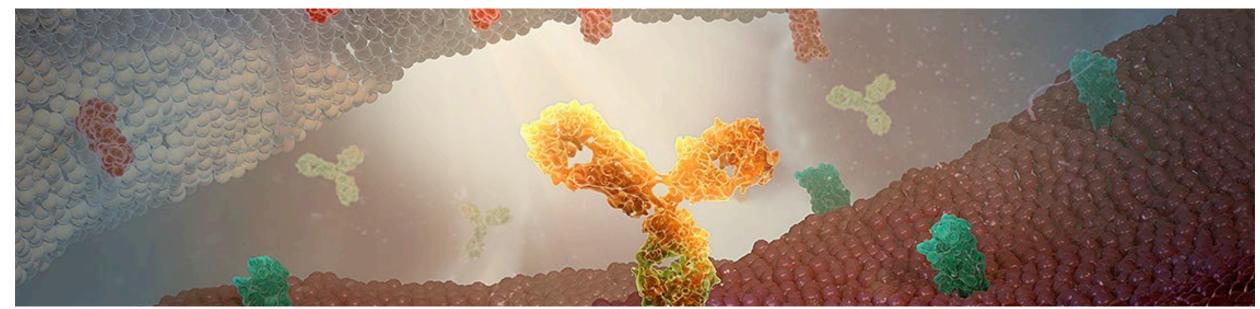
DeTar Cancer Center, Victoria, TX





Roundtable Discussion:

Working Together to Advance Guideline-Recommended Care for Early-Stage NSCLC



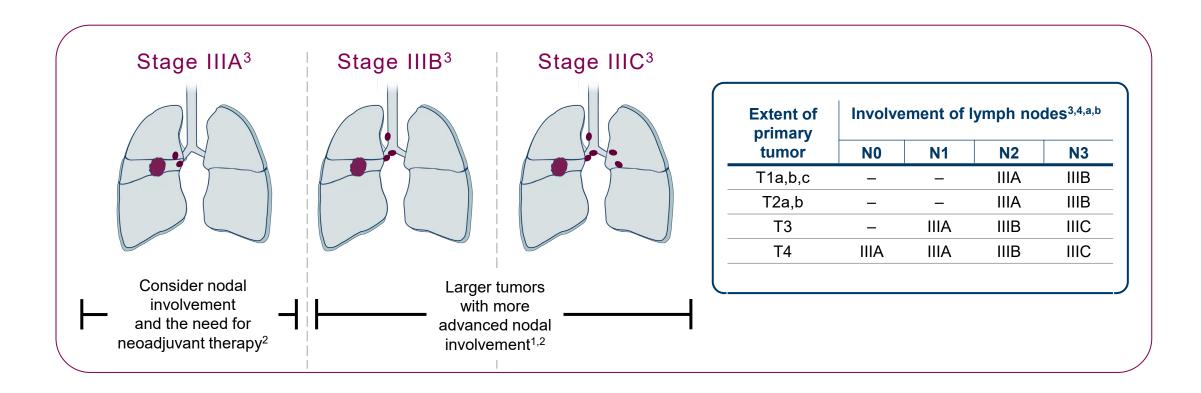
Disclaimer

- This presentation is supported by AstraZeneca
 - This presentation is intended to provide educational information on the importance of MDT collaboration and care coordination for patients with early-stage NSCLC, and to review Stage II and/or Stage III NSCLC cases
 - This presentation does not discuss or promote any investigational or approved drugs and does not refer to drugs by their brand name or commercial entities
 - The information in this program is consistent with FDA guidelines, and the program is not CME accredited and may not be used for CME accreditation



Treatment and Management of Early-Stage NSCLC

Stage I and Stage II NSCLC Is Generally Considered Resectable, but Eligibility for Surgery Varies Across Stage III Disease^{1,2}



All possible combinations are not presented in these images.

AJCC, American Joint Committee on Cancer; N, node; NSCLC, non-small cell lung cancer; T, tumor.

^{1.} Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer V.10.2024. ©National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed September 25, 2024. To view the most recent and complete version of the guideline, go online to NCCN.org. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way. 2. Daly ME, et al. *J Clin Oncol.* 2022;40(12):1356-1384. 3. Rami-Porta R, et al. *CA Cancer J Clin.* 2017;67(2):138-155. 4. Amin MB, et al., eds. *AJCC Cancer Staging Manual.* 8th ed. Springer; 2017.





^aStage I and II disease presentations are not included in this table. ^bBased on the 8th edition of the AJCC guidelines.

NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) Recommend Pretreatment Evaluation for Patients With Early-Stage NSCLC^a

Evaluate for perioperative therapy (Stage IB through Stage IIIB [T3, N2])

PFTs (if not previously done)

Bronchoscopy

Pathologic mediastinal lymph node evaluation^b

Brain MRI with contrast^{c,d}

MRI with contrast of spine + thoracic inlet for superior sulcus lesions abutting the spine, subclavian vessels, or brachial plexus^e

FDG-PET/CT scanf (if not previously done)

^aUnless otherwise noted, these recommendations apply to patients with Stage IA through IIIB (T3, N2) disease and IIB-IIIA disease with separate pulmonary nodules. ^bMethods for evaluation include mediastinoscopy, mediastinotomy, EBUS, EUS, and CT-guided biopsy. An EBUS-TBNA negative for malignancy in a clinically (FDG-PET/CT and/or CT) positive mediastinum should undergo subsequent mediastinoscopy prior to surgical resection. ^cIf MRI is not possible, CT of head with contrast. ^dRecommended for patients with Stage II-IIIB (T3, N2) disease; optional for those with Stage IB disease. ^eRecommended for patients with Stage IIB (T3 invasion, N0) or Stage IIIA (T4 extension, N0-1; T3, N1; T4, N0-1) disease. ^fFDG-PET/CT performed skull base to mid-thigh. Positive FDG-PET/CT scan findings for distant disease need pathologic or other radiologic confirmation. If FDG-PET/CT scan is positive in the mediastinum, lymph node status needs pathologic confirmation.

CT, computed tomography; EBUS, endobronchial ultrasound; EUS, endoscopic ultrasound; FDG-PET, fluorodeoxyglucose-positron emission tomography; MRI, magnetic resonance imaging; N, node; NCCN, National Comprehensive Cancer Network; NSCLC, non-small cell lung cancer; PFT, pulmonary function test; T, tumor; TBNA, transbronchial needle aspiration.

Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer V.10.2024. © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed September 25, 2024. To view the most recent and complete version of the guideline, go online to NCCN.org. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way.



Assessment of Technical Resectability and Medical Operability Helps Inform Treatment Modality Selection in Early-Stage NSCLC

Technical Resectability

Technical resectability is dependent on tumor-related factors^{1,2}

Potential resection outcomes include:

- Complete surgical resection (R0) with clear surgical margins being feasible
- Incomplete surgical resection (R1 and R2) with evidence of cancer remaining after surgery

Accurate preoperative staging to determine the size, position, and invasiveness of the primary tumor and degree of nodal involvement may potentially allow for R0 resection¹⁻⁴

Medical Operability

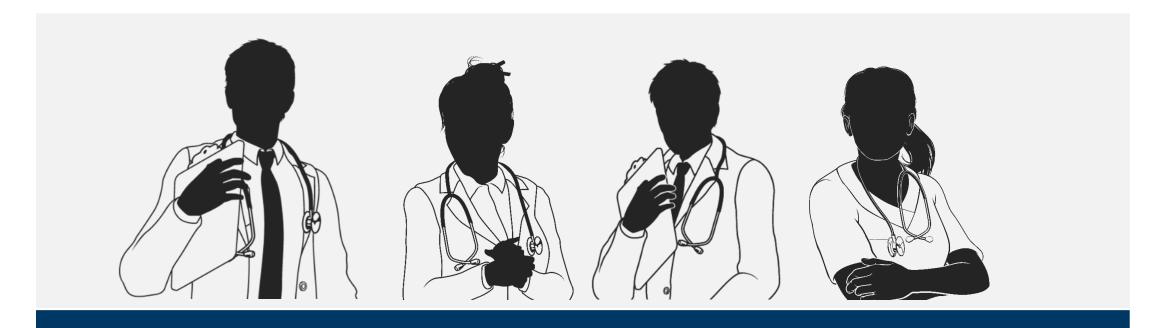
A patient who is deemed medically operable can tolerate surgery and there are acceptable postoperative risks¹

Medical operability evaluation typically includes assessment of 1:

- Age and performance status
- Extent of lymph node involvement
- Comorbidities
- Cardiac risk and pulmonary function

Medical operability evaluation helps to predict postoperative function and quality of life¹





- In your practice, which specialists are typically involved in discussions of a patient's technical resectability and medical operability?
- What clinical characteristics do they typically weigh most heavily when determining resectability and operability?



NCCN Guidelines® Recommend Biomarker Testing for Patients With Early-Stage NSCLC^a



Stage IB-IIIA,
 Stage IIIB (T3, N2)





- EGFR mutations
- ALK rearrangements
- PD-L1 status

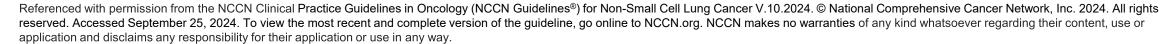




TISSUE SPECIMEN:

Diagnostic biopsy OR surgical resection

ALK, anaplastic lymphoma kinase; EGFR, epidermal growth factor receptor; N, node; NCCN, National Comprehensive Cancer Network; NSCLC, non-small cell lung cancer; PD-L1, programmed death-ligand 1; T. tumor.

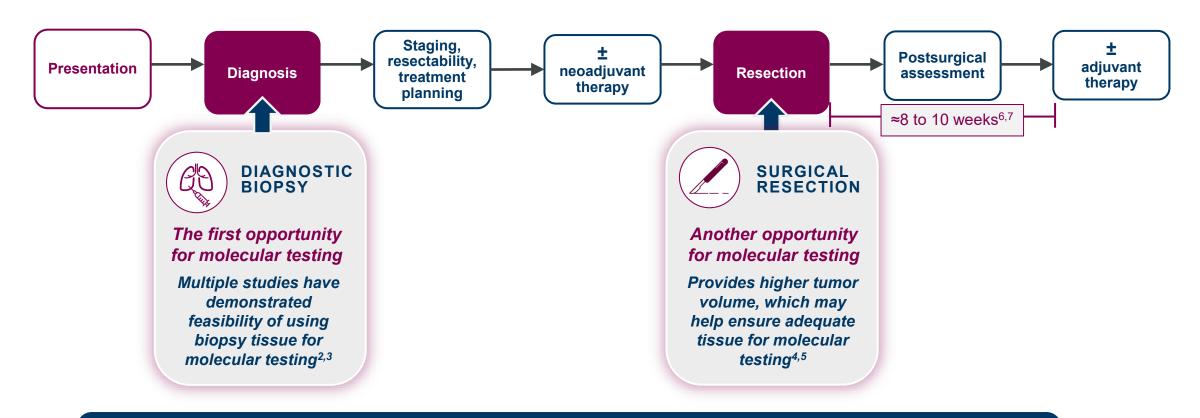






^aThe NCCN Guidelines for Non-Small Cell Lung Cancer provide recommendations for certain individual biomarkers that should be tested and recommend testing techniques but do not endorse any specific commercially available biomarker assays or commercial laboratories.

Opportunities for Biomarker Testing¹ Using an Example of a Patient Journey for Resectable NSCLC



Preoperative molecular testing using a biopsy sample is of growing importance, as treatment plans are starting to be made prior to surgery⁸

NSCLC, non-small cell lung cancer.

^{1.} National Cancer Institute. Non-Small Cell Lung Cancer Treatment (PDQ®)—Health Professional Version. Accessed July 16, 2024. https://www.cancer.gov/types/lung/hp/non-small-cell-lung-treatment-pdq.

2. Coley SM, et al. *Cancer Cytopathol*. 2015;123(5);318-326. 3. Schmid-Bindert G, et al. *PLoS One*. 2013;8(10):e77948. 4. Lim C, et al. *Curr Oncol*. 2017;24(2):103-110. 5. Aisner D, Marshall CB. *Am J Clin Pathol*. 2012;138(3):332-346. 6. Owen D, Chaft JE. *J Thorac Dis*. 2018;10(suppl 3):S404-S411. 7. Salazar MC, et al. *J AMA Oncol*. 2017;3(5):610-619. 8. Kidane B, et al. *J Thorac Cardiovasc Surg*. 2023;166(3):637-654.



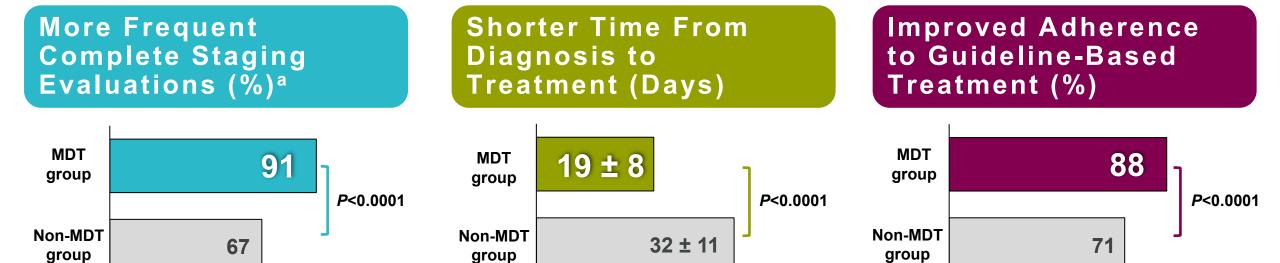


- When do you typically initiate biomarker testing for your eligible patients with early-stage NSCLC?
- Which specialist(s) typically order testing? Do you have a standardized process?
- How do you proceed with biomarker testing in instances where the tumor sample is small, or insufficient tumor tissue is collected?

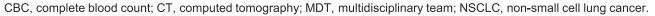


The MDT May Play a Crucial Role in Ensuring Optimal Treatment Planning and Outcomes for Patients With NSCLC

A retrospective analysis compared quality and cost of care outcomes for a cohort of 13,254 propensity-matched patients with Stage I-III NSCLC who were followed between 2008-2013, half of whom (N=6627) had prospective MDT care coordination and half of whom (N=6627) did not. The study found that the patients in the MDT group had:



^aComplete Staging Evaluation included a minimum of a CT of the chest, including the upper abdomen and adrenal glands, endobronchial ultrasound /mediastinoscopy or positron emission tomography, or both, bronchoscopy, CBC, electrolyte profile, further evaluation of any specific symptoms and imaging specific for superior sulcus tumors when indicated.



Freeman RK, et al. *Ann Thorac Surg.* 2015;100(5):1834-1838.



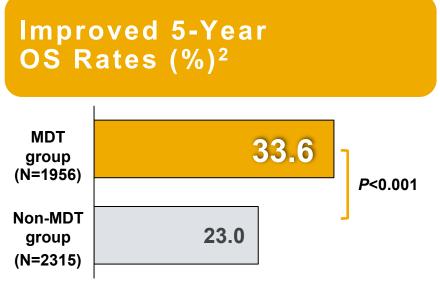


The MDT May Play a Crucial Role in Ensuring Optimal Treatment Planning and Outcomes^a for Patients With NSCLC (Cont'd)^{1,2}

Lower 3-Year Recurrence Rates¹

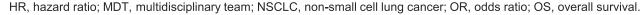
in patients with lung cancer enrolled in an MDT program (N=1179) compared to those not enrolled (N=865)

OR=0.51 (95% CI: 0.32-0.79)



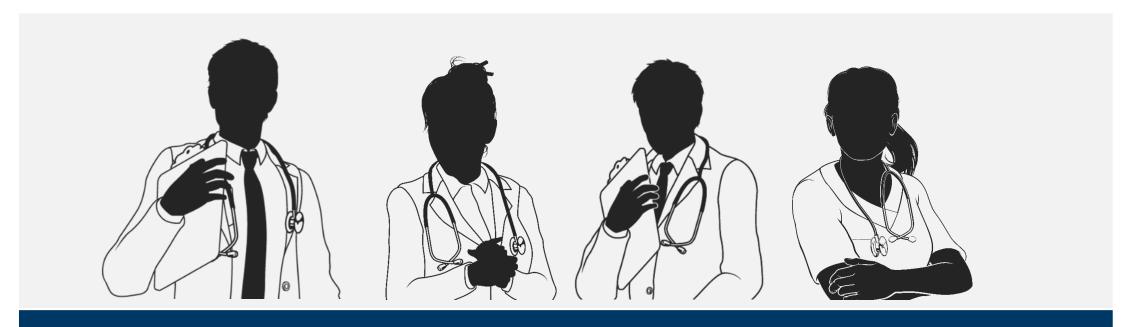
Propensity-matched HR=0.65 (95% CI: 0.54-0.77)

^aTwo retrospective longitudinal analyses of data captured by the Stony Brook Cancer Center Registry compared health outcomes for patients with Stage I-Stage IV lung cancer (NSCLC, SCLC) who were or were not enrolled in an MDT program.^{1,2} A 10-year (2006-2015) analysis by Nemesure et al (2020) included 2044 patients from the Registry (MDT group, N=1179; non-MDT group, N=865).¹ A 15-year (2002-2016) analysis by Bilfinger et al (2018) included 4271 patients from the Registry (MDT group, N=1956; non-MDT group, N=2315).²



^{1.} Nemesure B, et al. Cancer Epidemiol. 2020;68:101804. 2. Bilfinger TV, et al. Clin Lung Cancer. 2018;19(4):346-351.





- If you have an established MDT, how has implementing it impacted your practice workflow and NSCLC patient outcomes thus far?
- Are there any other changes you wish to see in the future?
- If you do NOT have an MDT, what would need to change in your practice/institution in order to establish one?



Case Scenario: Stage III NSCLC

Alana Presented to His PCP With a Prolonged Productive Cough



CASE DETAILS

Age and gender: 67-year-old male

Smoking history: Former smoker, 40 pack-year history

Presenting Prolonged productive cough that did not improve

symptom(s): with OTC treatment

Comorbidities: Hypertension, asthma

PS: ECOG PS=1

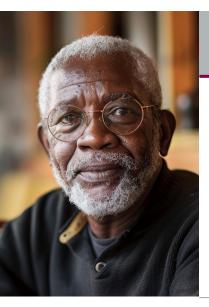
Imaging: X-ray revealed a single mass in the lung

concerning for malignancy

Next steps: The PCP referred Alan to a pulmonologist



Alan's Pulmonologist Ordered a PET/CT and Performed PFTs and a Bronchoscopy



CASE DETAILS

PET/CT: CT: 5.2 × 3.1-cm mass in RUL of lung,

invading chest wall

PET: SUVmax of primary mass=12.1;

SUVmax of hilar node and mediastinal node=9.4 and 7.2.

both suspicious for malignancy;

no distant metastases



PFT results: DLCO 70%, FEV₁ 70%

Bronchoscopy Revealed multistation N2 disease

with EBUS: (stations 4, 7 positive for malignancy)

Next steps: The pulmonologist referred Alan to a medical oncologist

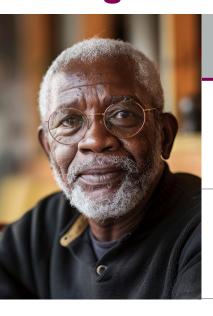




- In your practice, what is the typical referral pattern for patients suspected of having NSCLC?
- Are there any other tests you would have ordered for Alan at this point in his care?



Alan's Medical Oncologist Diagnosed Him With EGFR/ALKwt Stage IIIB NSCLC



CASE DETAILS

Brain MRI: Negative for intracranial metastasis

Staging/histology: Stage IIIB (T3N2M0) NSCLC, nonsquamous adenocarcinoma

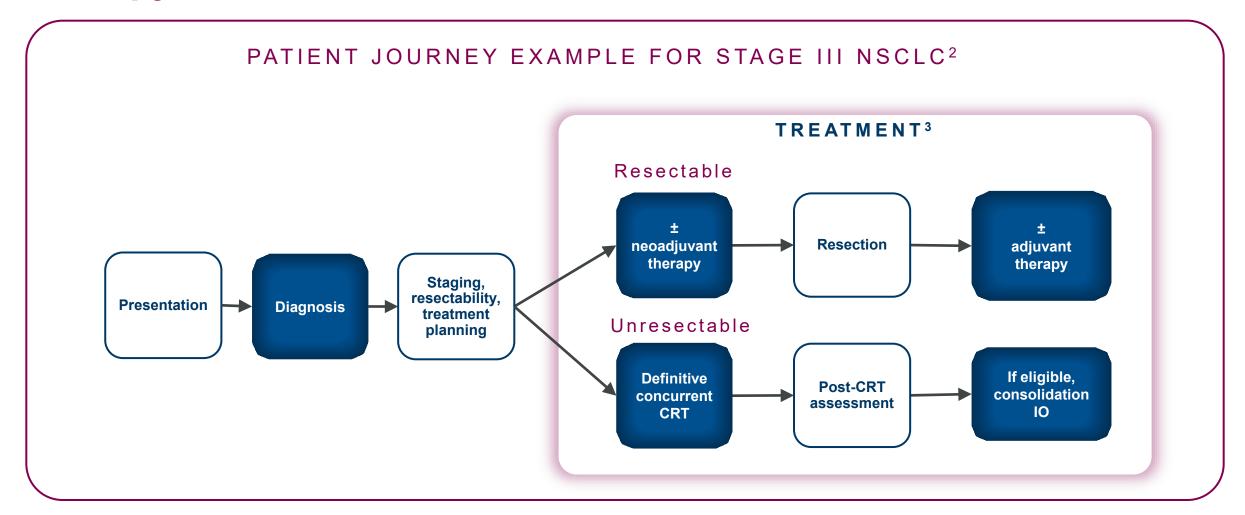
Biomarker results: EGFR/ALK negative, PD-L1=40%

Next steps:

The medical oncologist brought Alan's case to the tumor board to discuss technical resectability, medical operability, and to determine a treatment plan



An MDT Approach Helps to Ensure Guideline-Recommended Therapy for Patients With NSCLC¹



CRT, chemoradiation therapy; IO, immunotherapy; MDT, multidisciplinary team; NSCLC, non-small cell lung cancer.

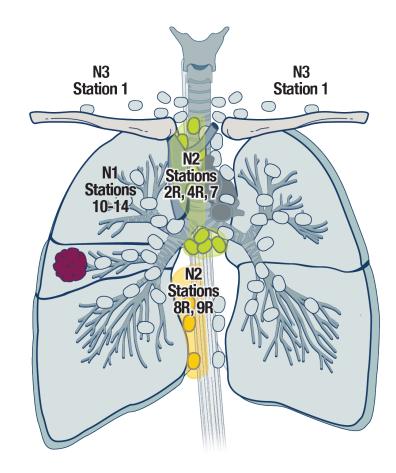
^{1.} Postmus PE, et al. *Ann Oncol.* 2017;28(suppl 4):iv1-iv21. 2. National Cancer Institute Non-Small Cell Lung Cancer Treatment (PDQ®)—Health Professional Version. Accessed September 25, 2024. https://www.cancer.gov/types/lung/hp/non-small-cell-lung-treatment-pdq. 3. Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer V.10.2024. © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed September 25, 2024. To view the most recent and complete version of the guideline, go online to NCCN.org. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way.





Management of N2 Disease Is Controversial and Requires a Multidisciplinary Team¹

- Lymph node involvement impacts resectability²
- Decisions regarding resectability should be evaluated within a multidisciplinary team¹ and should consider whether:
 - Nodes are bulky (≈ >2 cm)³
 - Tumors have spread beyond the nodal capsule²
 - There is multistation N2 disease4



N, node.

^{1.} Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer V.10.2024. © National Comprehensive Cancer Network, Inc. 2024. All rights reserved. Accessed September 25, 2024. To view the most recent and complete version of the guideline, go online to NCCN.org. NCCN makes no warranties of any kind whatsoever regarding their content, use or application and disclaims any responsibility for their application or use in any way. 2. Shamji FM, et al. *Thorac Surg Clin.* 2021;31(4):379-391. 3. Glatzer M, et al. *Transl Lung Cancer Res.* 2021;10(4):1960-1968.

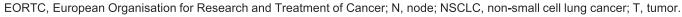
4. Martins RG, et al. *J Natl Compr Canc Netw.* 2012;10(5):599-613.



EORTC Is Aiming to Build Consensus on Stage III NSCLC Resectability to Support Clinical Decision-Making^{a-c}

	N0	N1	N2 SINGLE- STATION	N2 MULTISTATION	N2 BULKY	N2 INVASIVE
T1-2	Not Stage III	Not Stage III	Potentially resectable	?	?	Unresectable
T3 SIZE	Not Stage III	Resectable	Potentially resectable	\bigcirc	Unresectable	Unresectable
T3 SATELLITE	Not Stage III	Potentially resectable	Potentially resectable	?	Unresectable	Unresectable
T3 INVASION	Not Stage III	Potentially resectable	?*	?	Unresectable	Unresectable
T4 SIZE	Potentially resectable	Potentially resectable	?	?	Unresectable	Unresectable
T4 SATELLITE	Potentially resectable	?*	?	Unresectable	Unresectable	Unresectable
T4 INVASION	?*	?*	?	Unresectable	Unresectable	Unresectable

^aTable adapted from an international EORTC survey on resectability of Stage III NSCLC. ^bA question mark assigned to a TN combination indicates a lack of consensus (ie, <75% agreement) among the entire group of respondents. ^cThe 4 TN combinations denoted by a question mark and asterisk ("?*") were considered "potentially resectable" by survey respondents who are thoracic surgeons.









- How do you typically manage patients with Stage III N2 disease?
- How have your treatment decisions for these patients changed over time?
- At this point in Alan's journey, is there any other information you/your team would need to know before making a decision on resectability?



Alan's MDT^a Discussed His Case at a Tumor Board

RADIOLOGIST

Reviewed imaging results (brain MRI was negative for metastases)

PULMONOLOGIST

Reviewed lung function and PFTs; no cause for concern



Summarized Alan's diagnosis and final staging (Stage IIIB [T3N2M0] NSCLC) and reviewed NCCN Guidelines-recommended therapies

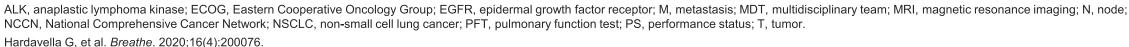
PATHOLOGIST

Presented histology (nonsquamous adenocarcinoma) and noted that the patient did not have any actionable EGFR or ALK mutations

THORACIC SURGEON

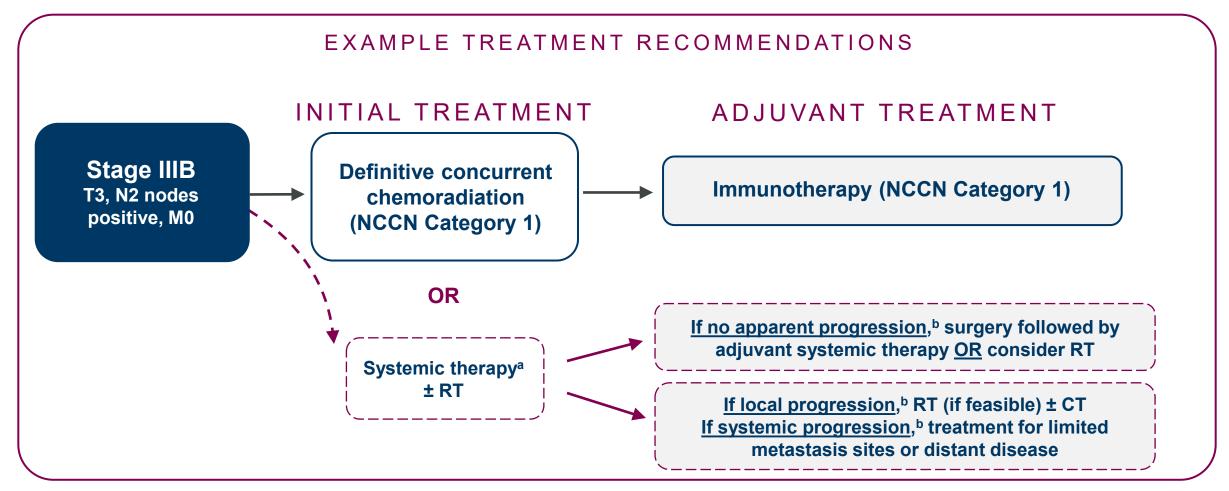
Discussed Alan's medical operability and technical resectability statuses. ECOG PS and PFTs informed operability, while the presence of multistation N2 disease informed tumor resectability. Alan was deemed medically operable but technically unresectable

^aEvery MDT is different and the above does not necessarily include all relevant team members.





NCCN Guidelines Recommendations: Initial and Adjuvant Treatment Options for Stage IIIB (T3N2M0) NSCLC



^aSelected patients with N2 disease (fit, single-station, non-bulky N2, requiring only lobectomy) may be considered for systemic therapy followed by surgery. ^bChest CT with contrast and/or FDG-PET/CT to evaluate progression.

ALK, anaplastic lymphoma kinase; CT, chemotherapy; EGFR, epidermal growth factor receptor; FDG, fludeoxyglucose-18; M, metastasis; N, node; NCCN, National Comprehensive Cancer Network; NSCLC, non-small cell lung cancer; PET/CT, positron emission tomography/computed tomography; RT, radiation therapy; T, tumor; wt, wild-type.

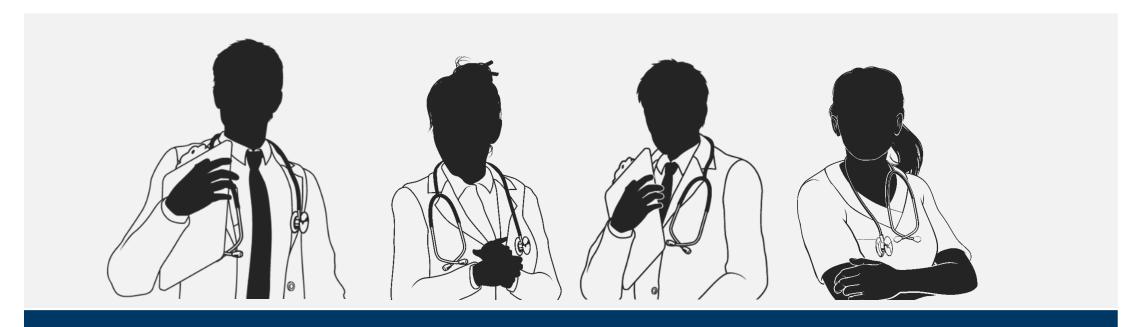
Adapted with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer V.10.2024. © 2024 National Comprehensive Cancer Network, Inc.

All rights reserved. The NCCN Guidelines® and illustrations herein may not be reproduced in any form for any purpose without the express written permission of NCCN. To view the most recent and complete

version of the NCCN Guidelines, go online to NCCN.org. The NCCN Guidelines are a work in progress that may be refined as often as new significant data becomes available.







- In your practice, when are radiation oncologists and thoracic surgeons brought into treatment/management conversations for patients with Stage III NSCLC?
- How do medical and radiation oncologists typically coordinate care and monitoring for NSCLC progression after CRT/prior to starting IO?
- How might you discuss a treatment plan with Alan and his caregiver(s)?
- What concerns do patients typically raise during these conversations? How do you respond to these concerns?



Case Scenario: Stage II NSCLC

Nancy^a Presented With a Severe Nonproductive Cough During a Consultation With Her PCP



CASE DETAILS

Age and gender: 68-year-old female

Smoking history: Former smoker (10 pack-years, discontinued 20 years ago)

Presenting Severe nonproductive cough, unresponsive to 2 rounds

symptom(s): of antibiotics, dyspnea on exertion

Comorbidities: Hypertension, asthma

PS: ECOG PS=1

Next steps: Nancy's PCP ordered a PET/CT scan and referred her to a pulmonologist for evaluation



Nancy's Pulmonologist Reviewed the PET/CT Results and Performed PFTs and a Bronchoscopy



CASE DETAILS

PET/CT: CT: 4.5 × 5.1-cm cavitating mass in

LUL of lung

PET: SUVmax of primary mass=6.5;

SUVmax of hilar node=2.2, suspicious for malignancy;

no distant metastases



PFT results: DLCO 80%, FEV₁ 80%

Bronchoscopy No mediastinal involvement; 10L node was biopsied and found

with EBUS: to be negative

The pulmonologist sent the remaining biopsy sample to a pathologist Next steps: and referred Nancy to a medical oncologist, who ordered a brain MRI

and scheduled a tumor board meeting



Nancy's MDT^a Discussed Her Case at a Tumor Board

RADIOLOGIST

Reviewed imaging results (brain MRI was negative for metastases)

PULMONOLOGIST

Reviewed lung function and PFTs; no cause for concern



MEDICAL ONCOLOGIST

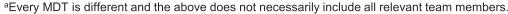
Summarized Nancy's diagnosis and final staging (Stage IIB [T3N0M0] NSCLC) and reviewed NCCN Guidelines-recommended therapies

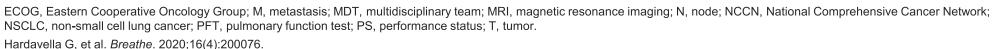
PATHOLOGIST

Presented histology (nonsquamous adenocarcinoma) and informed the team that biomarker testing was not performed due to insufficient tumor sample

THORACIC SURGEON

Discussed Nancy's medical operability and technical resectability statuses. ECOG PS and PFTs informed operability, while the lack of mediastinal involvement and presence of N1 disease informed resectability. Nancy was deemed medically operable and her tumor resectable via lobectomy





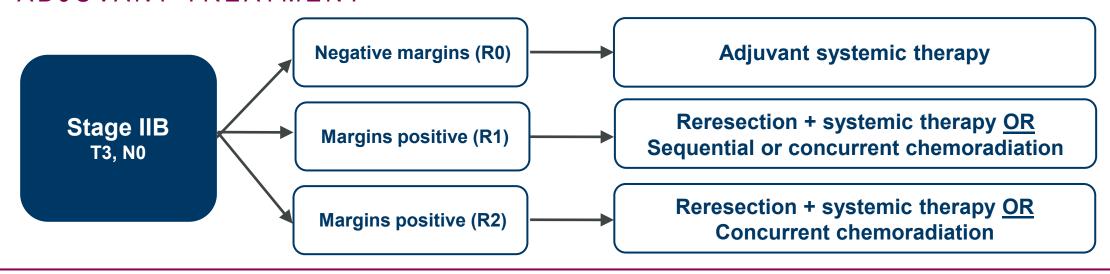


NCCN Guidelines Recommendations for Medically Operable and Technically Resectable Stage IIB (T3N0M0) NSCLC

INITIAL TREATMENT

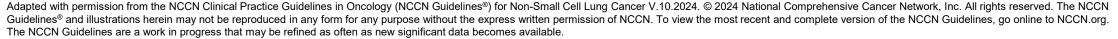
- Neoadjuvant IO + CT should be strongly considered for patients who are eligible for IO and have tumors ≥4 cm or have positive LNs
- Surgical exploration and resection + mediastinal LN dissection or systemic LN sampling after preoperative systemic therapy, if planned

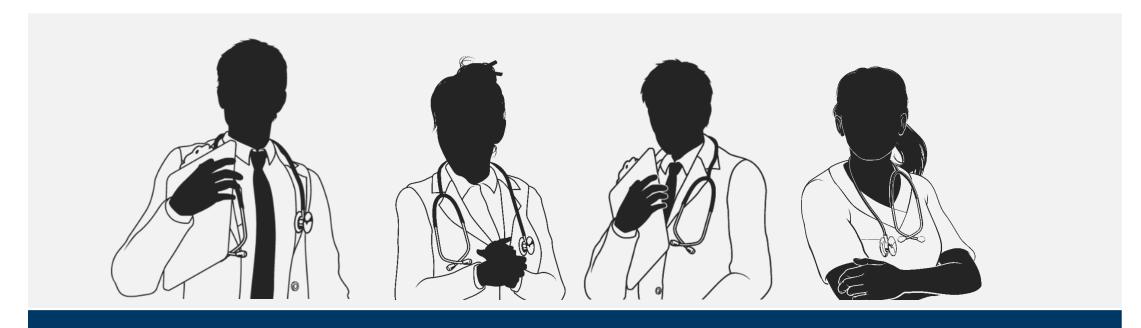
ADJUVANT TREATMENT



CT, chemotherapy; IO, immunotherapy; LN, lymph node; N, node; NCCN, National Comprehensive Cancer Network; NSCLC, non-small cell lung cancer; R0, zero residual tumor; R1, microscopic residual tumor; R2, macroscopic residual tumor; T, tumor.







- How might you proceed with a treatment plan when a patient's biomarker status is unknown? Would you perform a repeat biopsy to obtain more tissue?
- When recommending a surgical approach, might you consider adding neoadjuvant treatment or plan for perioperative treatment?
 - Which clinical factors weigh most heavily on the decision to use these modalities?
- If Nancy were to undergo resection, how might you proceed with adjuvant treatment if she were to achieve R0 vs R1 vs R2 status?





AstraZeneca is committed to conducting business with the highest standards of integrity and professionalism. If you have any comments that could improve the delivery of our promotional educational programs, please contact AstraZeneca at 1-800-236-9933.

This concludes our presentation.



Q&A



oncology exchange fall 2024

Clinical Session