



Guidelines for the Management of
Lung Cancer

Quick Reference Version



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**Quick Reference
Version**



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Guidelines for the Management of Lung Cancer

Presentation

Lung cancer is the third most common cancer in Canada, and the leading cause of cancer deaths. Patients with lung cancer may present with various symptoms, which mimic other pulmonary disorders, and often mimic the 'smoker's cough' that precedes cancer in many smokers. Typically, a change in pulmonary symptoms is the most suspicious sign of lung cancer. Common presenting symptoms include cough, chest pain, rust-coloured or purulent sputum, hemoptysis or dyspnea. Some patients may present without clinical symptoms, just an abnormal chest x-ray. These patients often have the best prognosis, and careful evaluation and follow-up of these patients is crucial.

Management

Management of lung cancer begins with referral from the family physician to the local surgeon or surgical oncologist for appropriate surgery (for patients who are reasonable surgical candidates with early stages of the disease). Patients who have hemoptysis, a change in their cough, or persistent pneumonia, require further investigations for malignancy. Clinical staging of *non-small cell lung cancer* is integral to management decisions. Staging may be achieved during surgical resection (for continuing management decisions in earlier stage cancers), or may be achieved by clinical examination and diagnostic imaging (for more advanced disease). Radiation therapy and/or chemotherapy may be considered for initial treatment or later if the cancer relapses. *Small cell lung cancer* is generally split into limited or extensive stages, based upon the clinical decision of the radiation oncologist. Staging is a clinical decision, not based upon disease pathology.

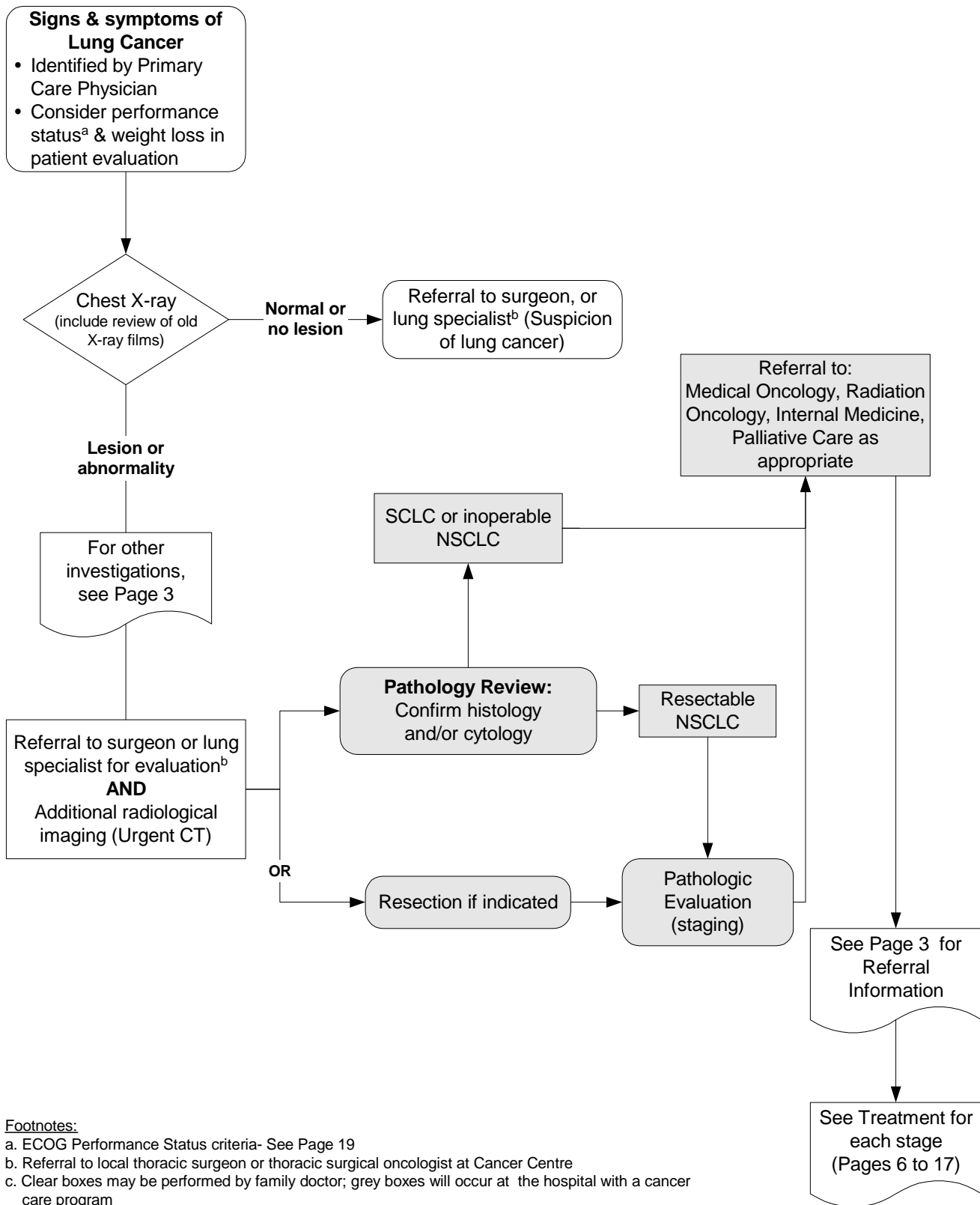
Supportive care of lung cancer patients can be as important as managing the tumour. Local management of bronchial obstruction, superior vena cava (SVC) syndrome and dyspnea may be achieved through good tumour control. Other cancer-related symptoms also require good management as they occur. For information on management of symptoms and distress, please visit the *Cancer Care Nova Scotia* website (www.cancercare.ns.ca) for appropriate supportive care guidelines.

Guidelines

To follow the guideline care pathways in the following pages, begin with the staging of a patient, then go to the appropriate treatment page(s) for the stage of disease. Recurrences, metastases and surveillance are also discussed in the pages noted below. Management of non-small cell lung cancer precedes management of small cell lung cancer in these care pathways.

Practice guidelines are intended to assist health care professionals with decisions throughout the spectrum of the cancer experience. Guidelines should never replace specific decisions for individual patients, and do not substitute for the shared decisions between any patient and doctor (or other health professional) which are unique to each circumstance. However, guidelines do provide evidence-based background information, consensus-based recommendations for similar problems, and a context for each individual decision. A full-text version of this guideline is also available on the *Cancer Care Nova Scotia* website. Both versions of this guideline will be revised, from time to time, as new evidence becomes available.

Diagnosis and Referral of Lung Cancer- Overview



Footnotes:

- a. ECOG Performance Status criteria- See Page 19
- b. Referral to local thoracic surgeon or thoracic surgical oncologist at Cancer Centre
- c. Clear boxes may be performed by family doctor; grey boxes will occur at the hospital with a cancer care program

Investigations for the Diagnosis and Staging of Lung Cancer

Referral Information:

A letter of referral is the minimal requirement for a referral. A referral need not be delayed due to delays in scheduling tests or delayed reporting of tests

QEII Health Sciences Centre:

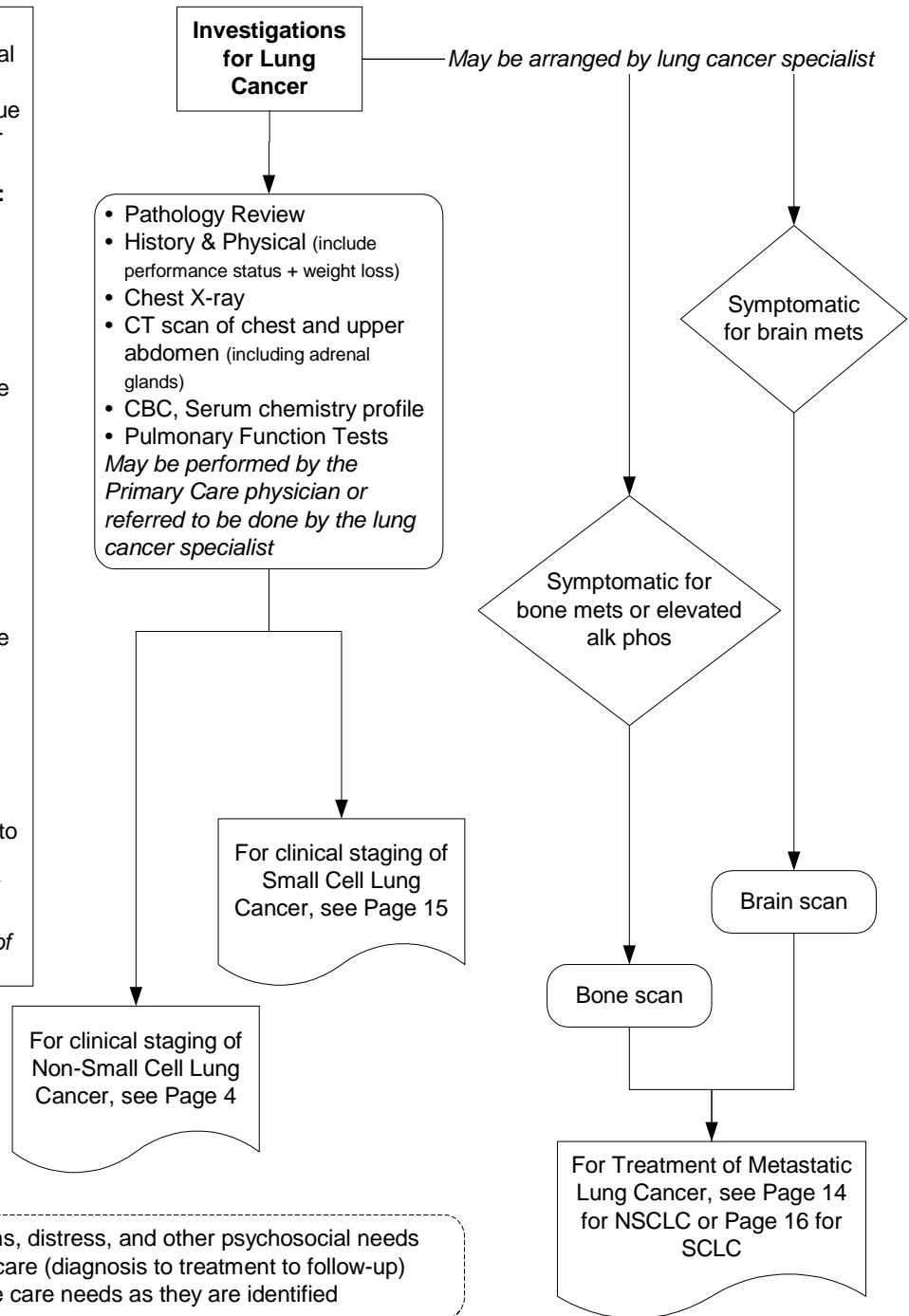
- Fax referrals to the Nova Scotia Cancer Centre Referrals Office at 902-473-6079 (tel. 902-473-6050 or 902-473-6098).
- For urgent referrals, page the appropriate specialist on call through the Locating service (902-473-2220).

Cape Breton Cancer Centre:

- Direct referrals to the Referrals/Booking office at 902-567-7774 (fax 902-567-7911).
- For urgent referrals, page the appropriate specialist on call through the Locating service (902-567-8000)

Referral Information:

- Letter of Referral*
 - Pathology Reports*
 - Operative Reports (relevant to the cancer)*
 - Diagnostic Imaging Reports*
- * Specific information which is necessary for proper triage of referrals



Staging of Non-Small Cell Lung Cancer- TNM Staging Diagram

M 0				Primary Tumour (T)	
Criteria	≤ 3cm	Endo-bronchial location	c. Local invasion	d. Other	
T 4 (a & c) or d	b.	—	Mediastinum/ trachea/ heart/ great vessels/ esophagus/ vertebral body/ carina	Malignant pleural/pericardial effusion or satellite tumour nodule(s) within the ipsilateral primary-tumour lobe	
T 3 (a & c) or b or d	any	Main bronchus (< 2cm distal to the carina)	Chest wall (incl. superior sulcus tumour)/diaphragm/ mediastinal pleura/ perietal pericardium	Atelectasis/ obstructive pneumonitis of the entire lung	
T 2 any of a,b,c,d	any	Main bronchus (≥ 2cm distal to the carina)	Visceral pleura	Atelectasis or obstructive pneumonitis that extends to the hilar region but does not involve the entire lung	
T 1 a & b & c	> 3cm	No invasion proximal to the lobar bronchus	Surrounded by lung or visceral pleura	—	
Stage IV M1 (any T, any N)					
Stage III B					
Stage III A					
Stage II B					
Stage II A					
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Staging of Non-Small Cell Lung Cancer- Nodal Status

REGIONAL NODAL STATIONS FOR LUNG CANCER STAGING

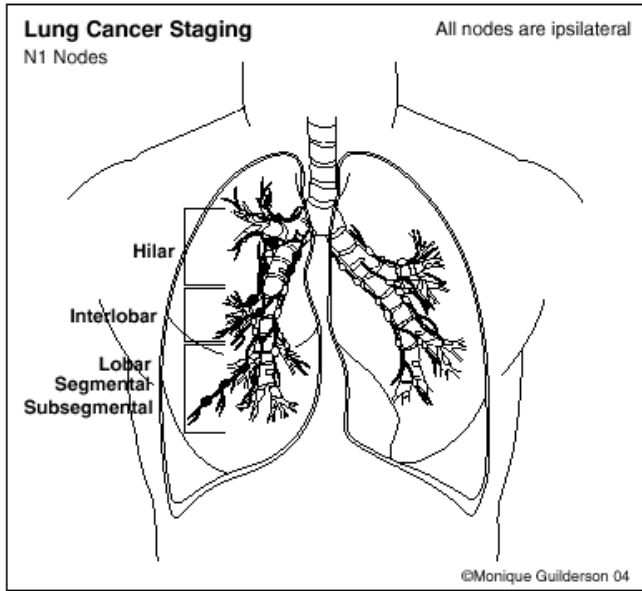


Diagram 2.

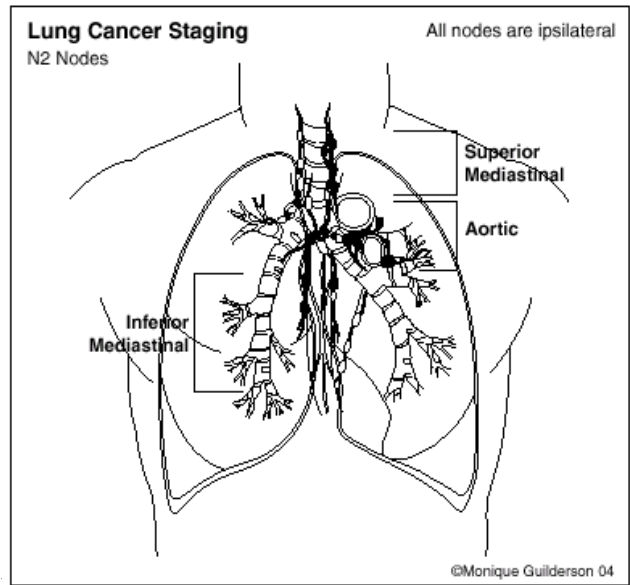


Diagram 3.

N1 Nodes
 (outside mediastinal pleura)
 Hilar (ipsilateral)
 Interlobar
 Lobar
 Segmental
 Subsegmental

N2 Nodes
 (inside mediastinal pleura)
Superior Mediastinal Nodes (ipsilateral)
 Highest mediastinal
 Upper Paratracheal
 Pre- and Retrotracheal
 Lower Paratracheal (including Azygos Nodes)
Aortic Nodes
 Subaortic (A_P Window)
 Para-aortic (ascending aorta or phrenic)
Inferior Mediastinal Nodes (ipsilateral)
 Subcarinal
 Paraesophageal (below carina)
 Pulmonary Ligament

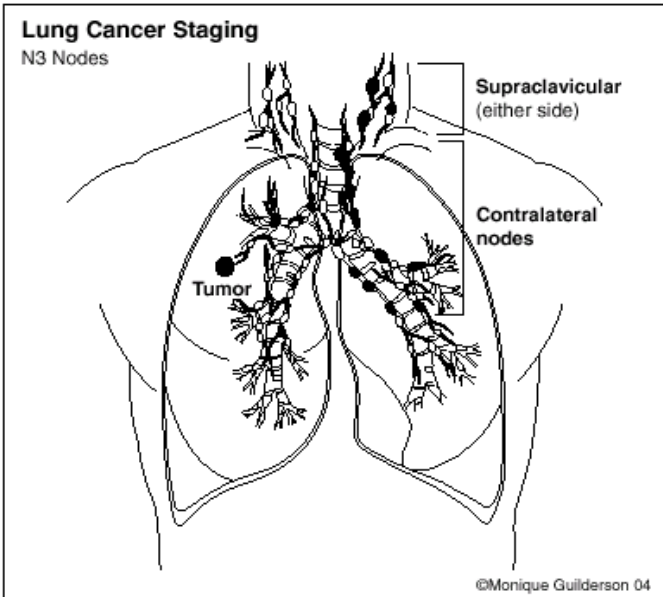


Diagram 4.

N3 Nodes
 Supraclavicular
 Scalene
 Mediastinal (contralateral)
 Hilar (contralateral)

Treatment of Non-Small Cell Lung Cancer- Clinical Stage I & IIA

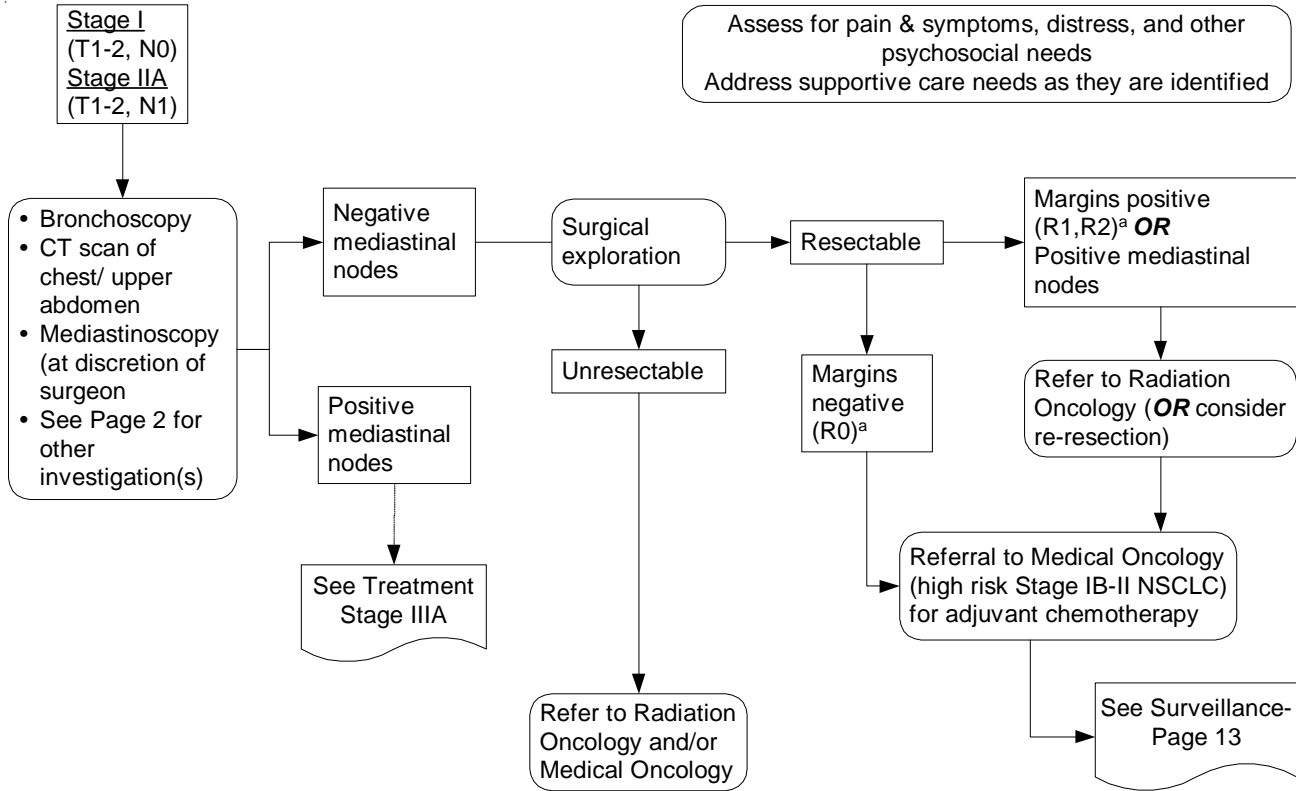
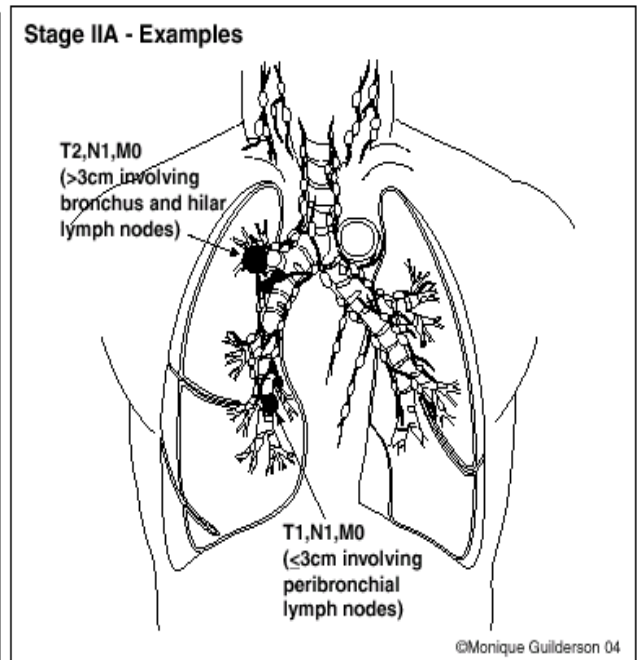
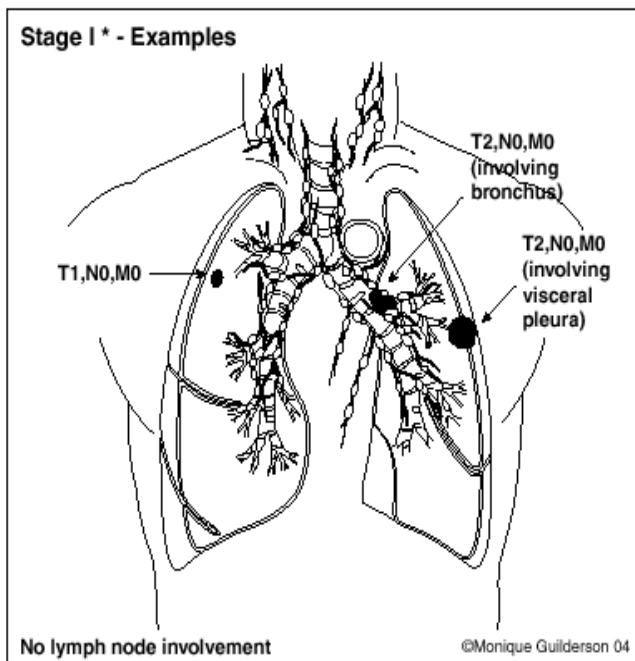


Diagram 5.

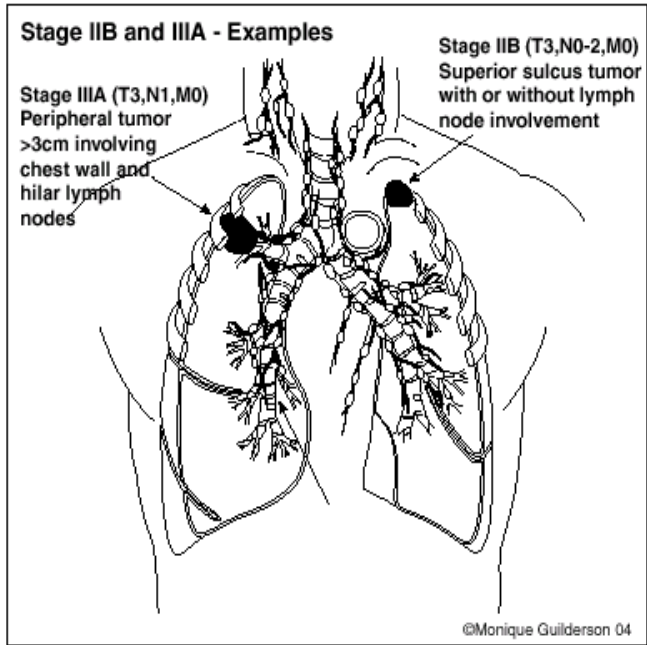
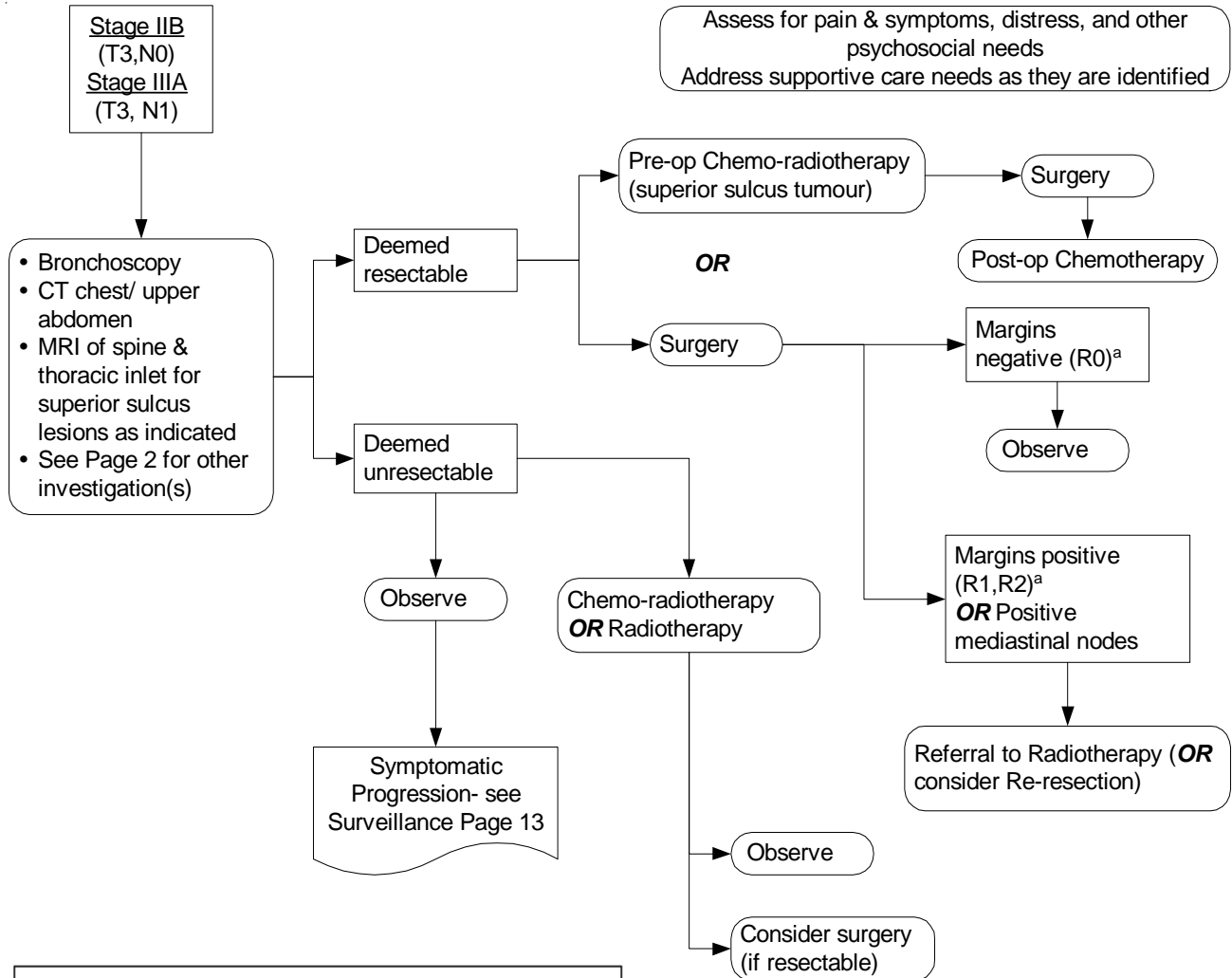
Diagram 6.



Footnote:

a. R0 = no residual tumour, R1 = microscopic residual tumour, R2 = macroscopic residual tumour

Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIB & IIIA



Footnote:
a. R0 = no residual tumour, R1 = microscopic residual tumour, R2 = macroscopic residual tumour

Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIIA (cont'd)

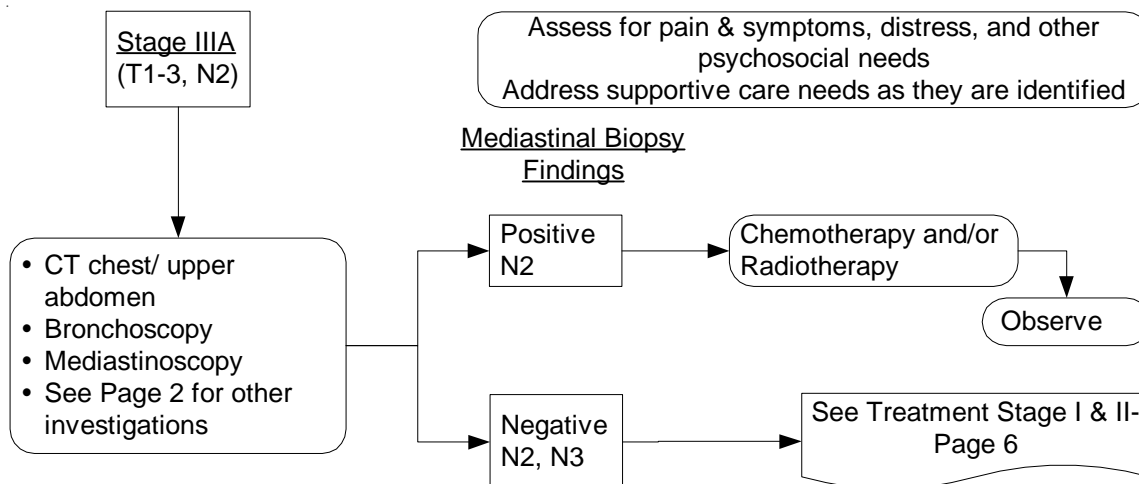
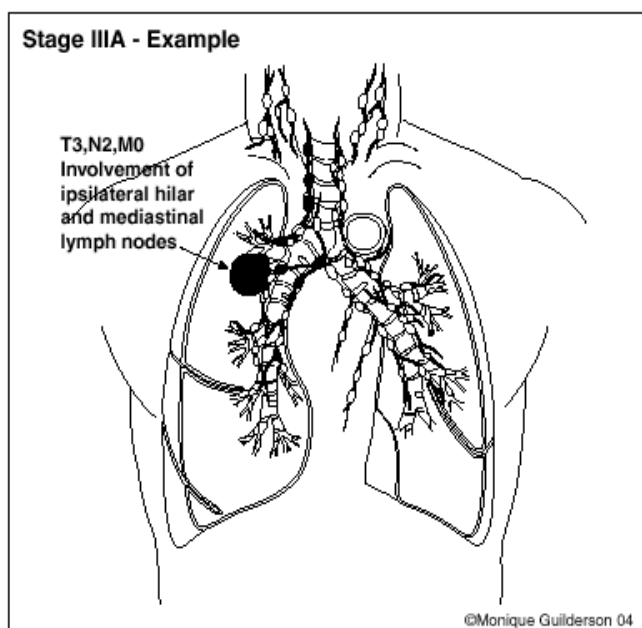


Diagram 8.



Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIIB

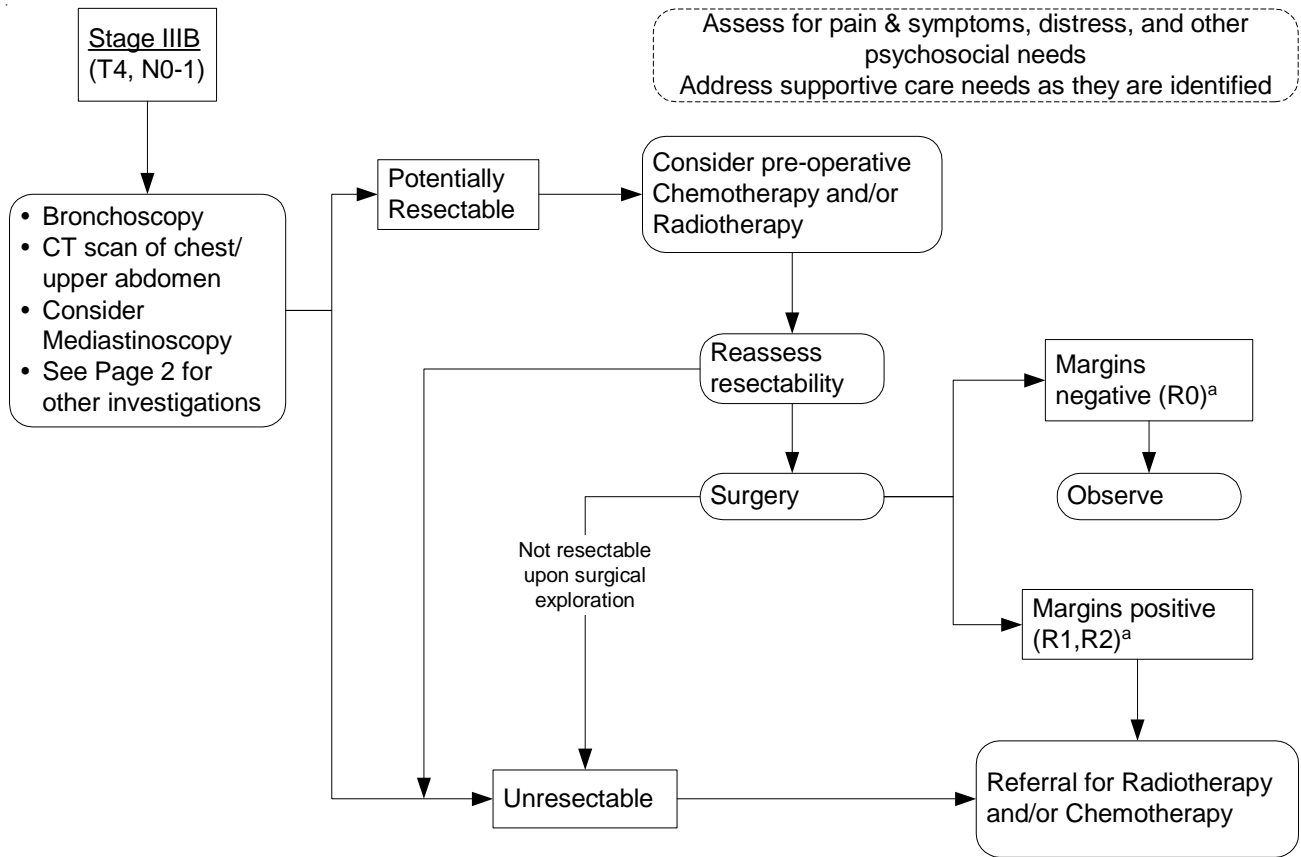
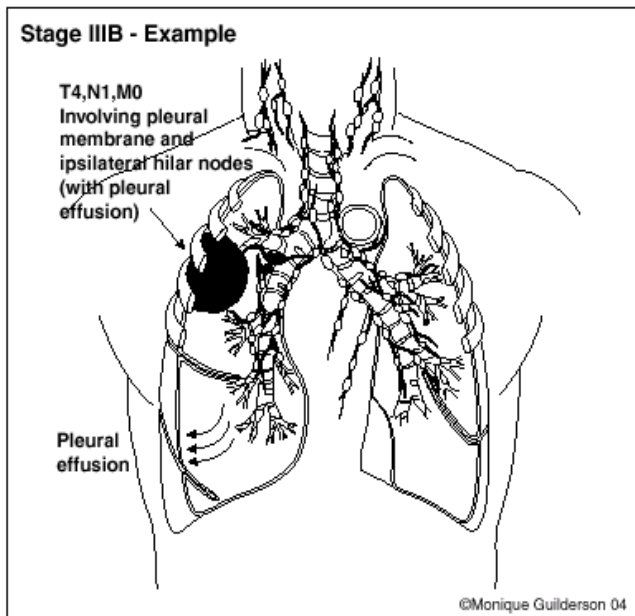


Diagram 9.



Footnote:

a. R0 = no residual tumour, R1 = microscopic residual tumour,
R2 = macroscopic residual tumour

Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIIB (cont'd)

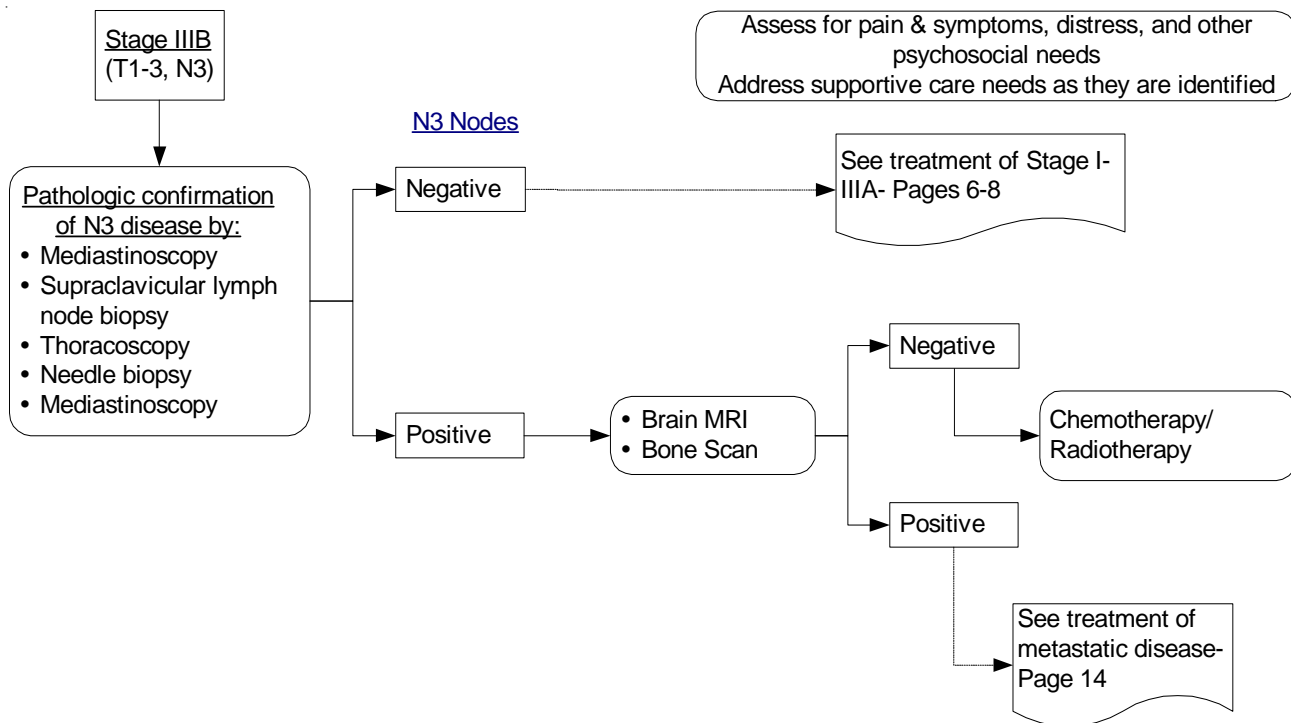
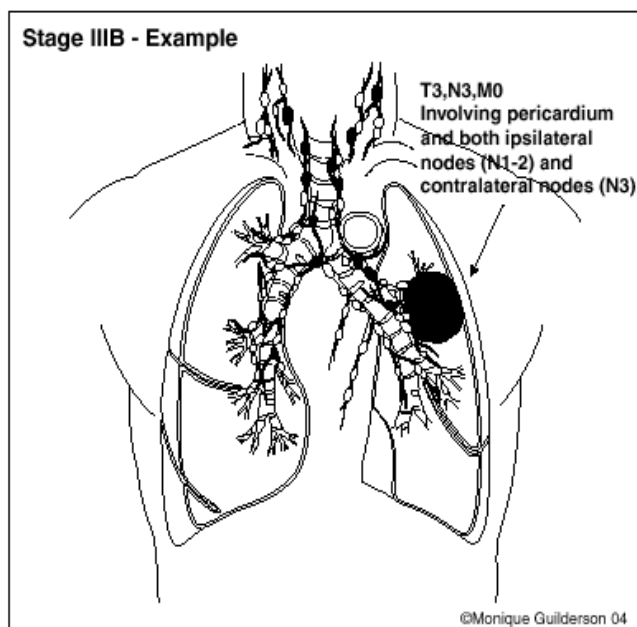


Diagram 10.



Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIIB (cont'd)

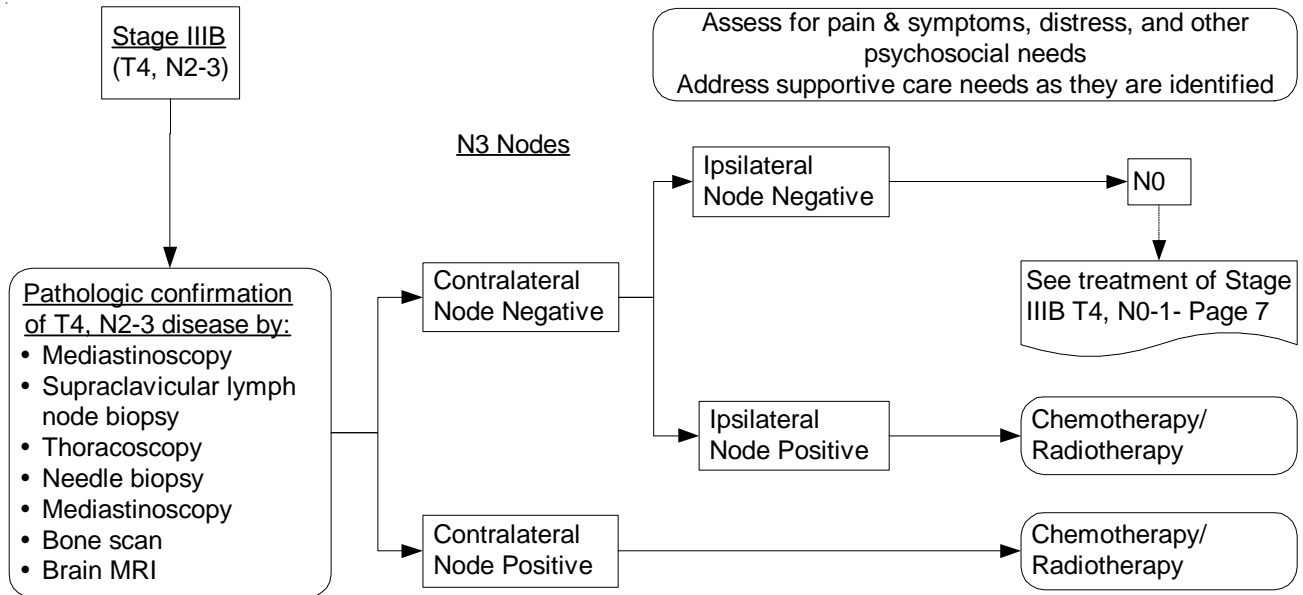
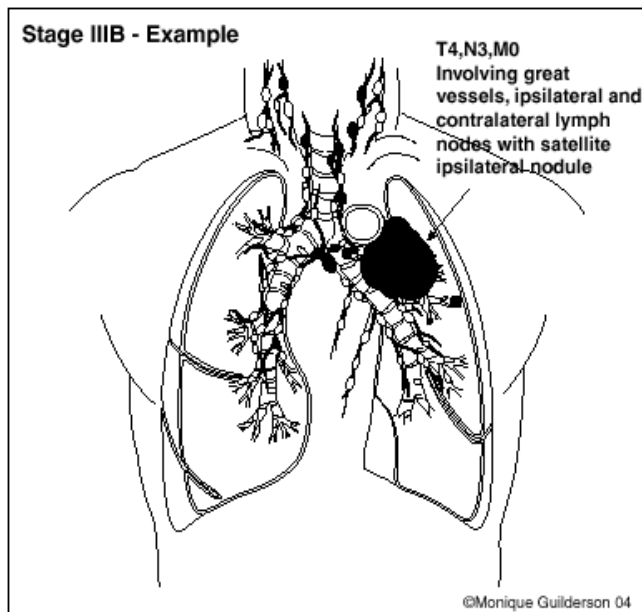
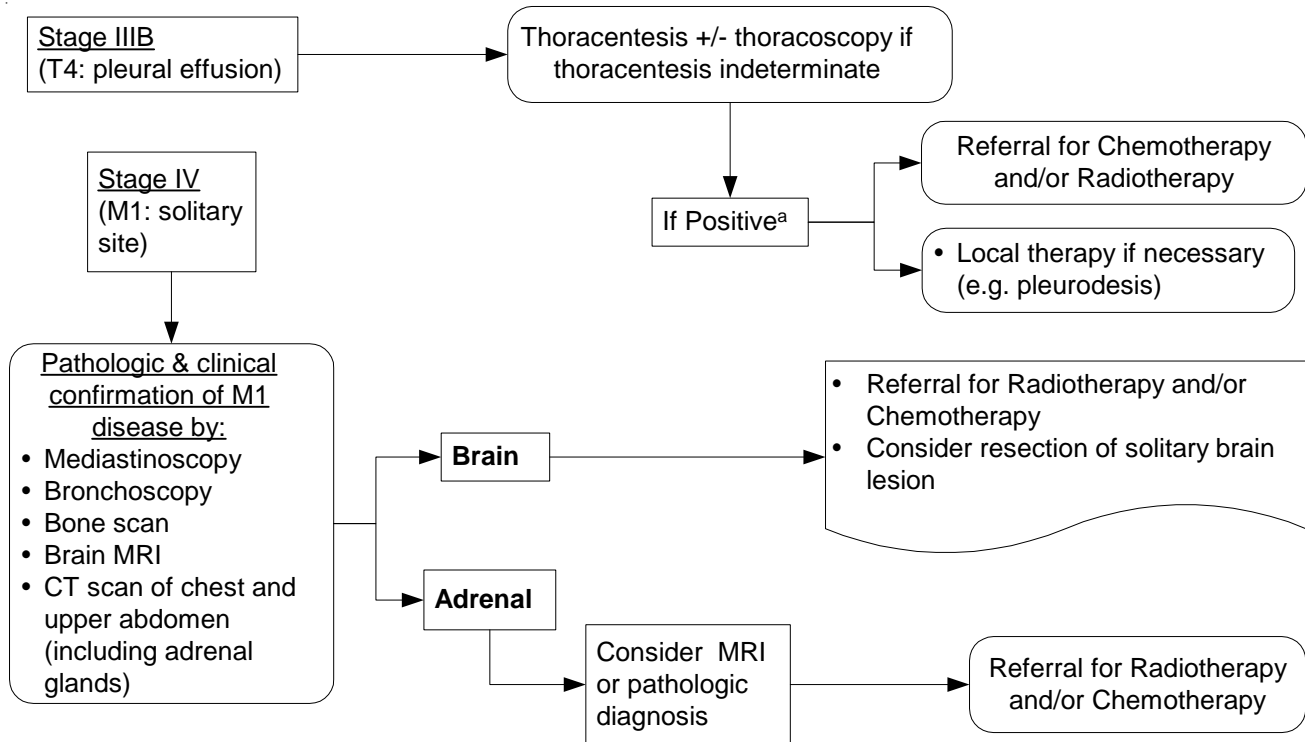


Diagram 11.



Treatment of Non-Small Cell Lung Cancer- Clinical Stage IIIB & IV



Assess for pain & symptoms, distress, and other psychosocial needs
Address supportive care needs as they are identified

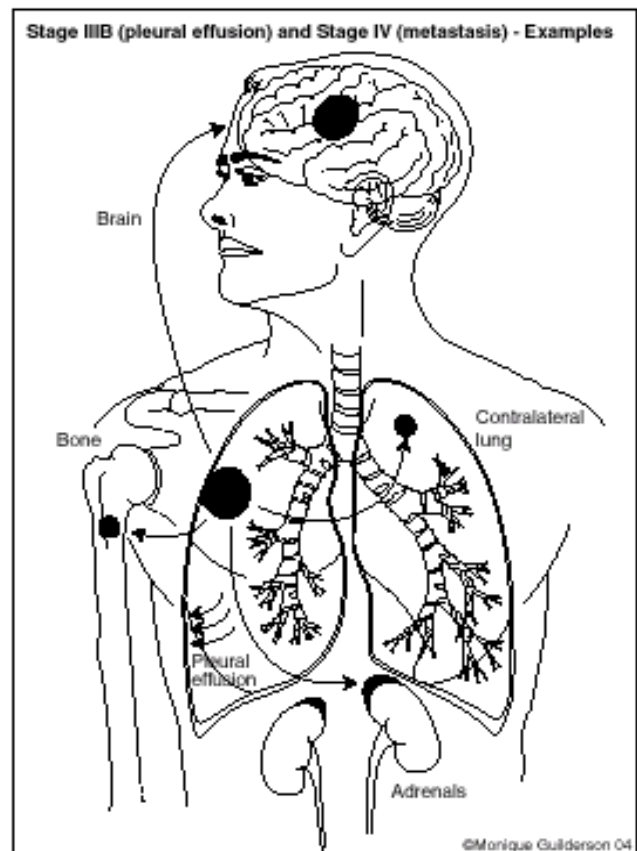
Stage IV
M1: disseminated

Referral for Radiotherapy and/
or Chemotherapy
See treatment of recurrence
and metastasis (Pages 32,33)

Diagram 12.

Footnote:

a. Most pleural effusions associated with lung cancer are due to tumour. There are few patients in whom multiple cytopathologic examinations of pleural fluid are negative for tumour. Fluid is non-bloody and not an exudate. When these elements and clinical judgement dictate the effusion is not related to the tumour, the effusion should be excluded as a staging element and the patient should be staged T1, T2 or T3



Surveillance and Treatment of Recurrent Non-Small Cell Lung Cancer

Surveillance

- In asymptomatic patients, clinical assessment + chest X-ray every 6 mo for 3 yr, then annually
- Smoking cessation counselling

Assess for pain & symptoms, distress, and other psychosocial needs
Address supportive care needs as they are identified

- Locoregional recurrence:**
- Endobronchial obstruction:
- External-beam Radiotherapy
 - Laser/stent/other surgery
 - Brachytherapy
- Resectable local recurrence:
- Re-resection
 - External-beam Radiotherapy
- Superior vena cava (SVC) obstruction:
- External-beam Radiotherapy
 - Stent
- Severe hemoptysis:
- Bronchoscopy (to assess for intervention)
 - External-beam Radiotherapy
 - Brachytherapy
 - Laser
 - Embolization
 - Surgery

Evidence of disseminated disease

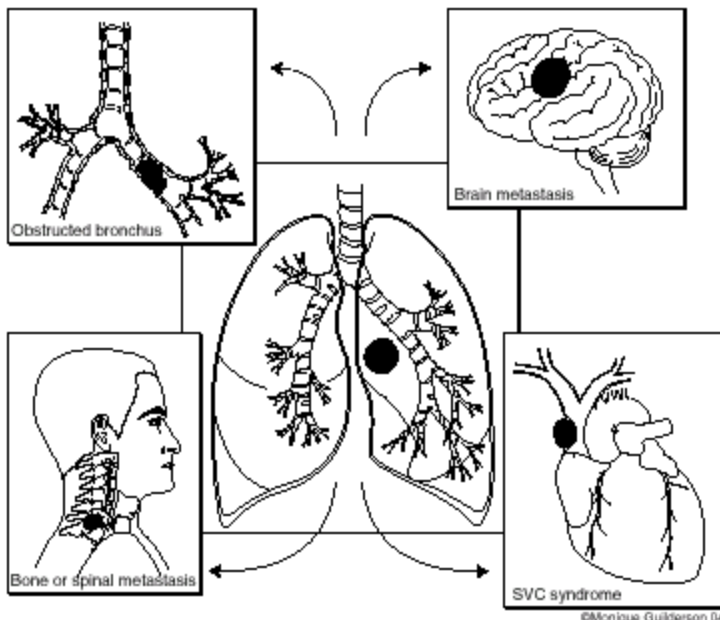
See treatment of recurrence and metastasis (Page 14)

Solitary metastasis

See treatment of recurrence and metastasis (Page 14)

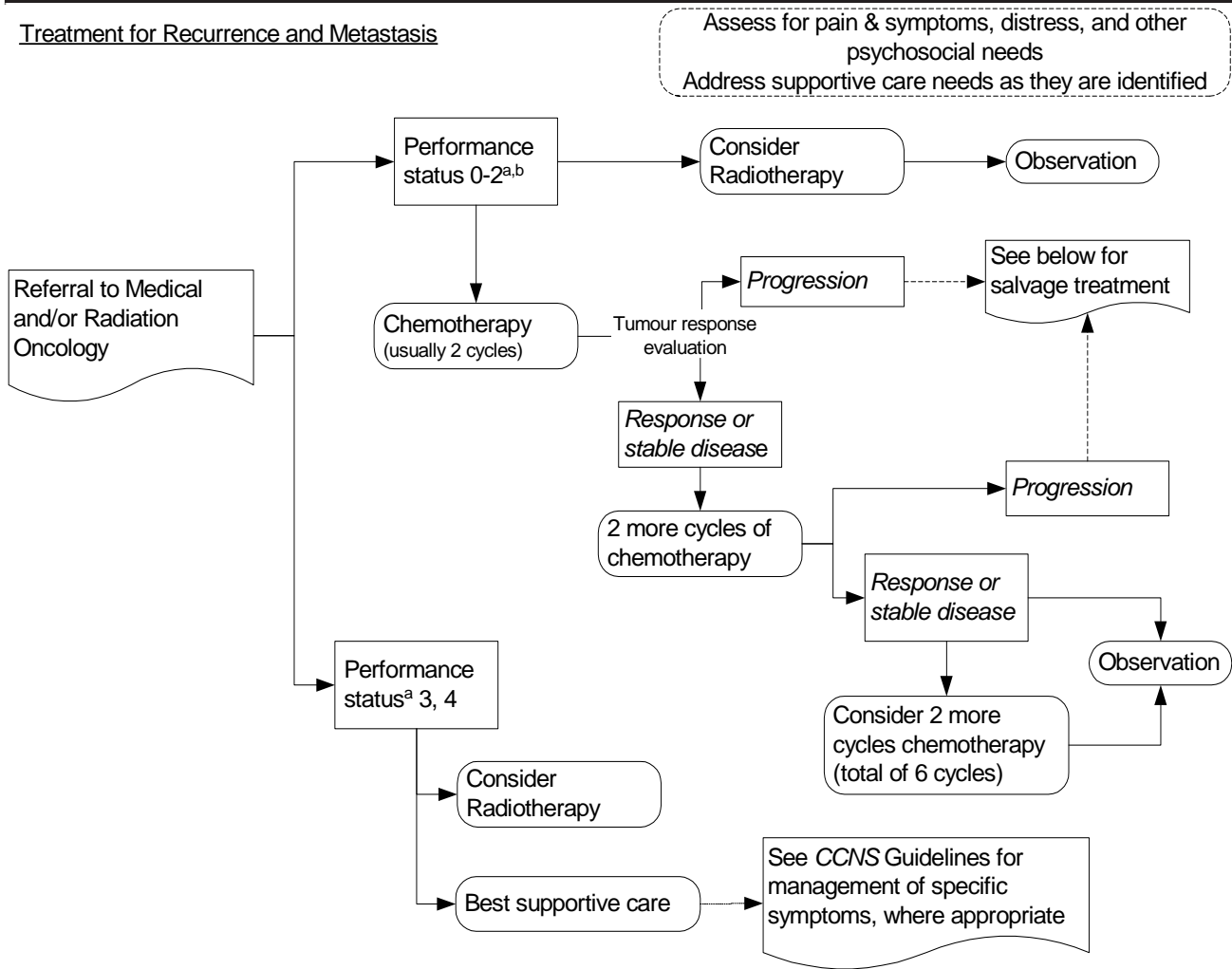
Diagram 13.

Lung Cancer Recurrence - Examples

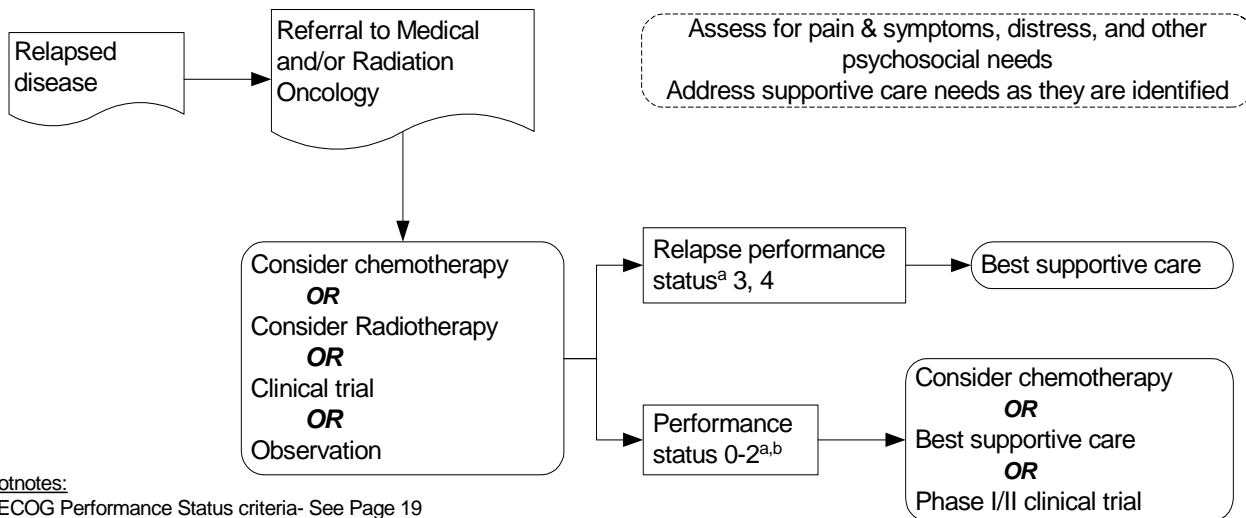


Treatment of Non-Small Cell Lung Cancer- Metastases

Treatment for Recurrence and Metastasis



Relapsed Non-Small Cell Lung Cancer

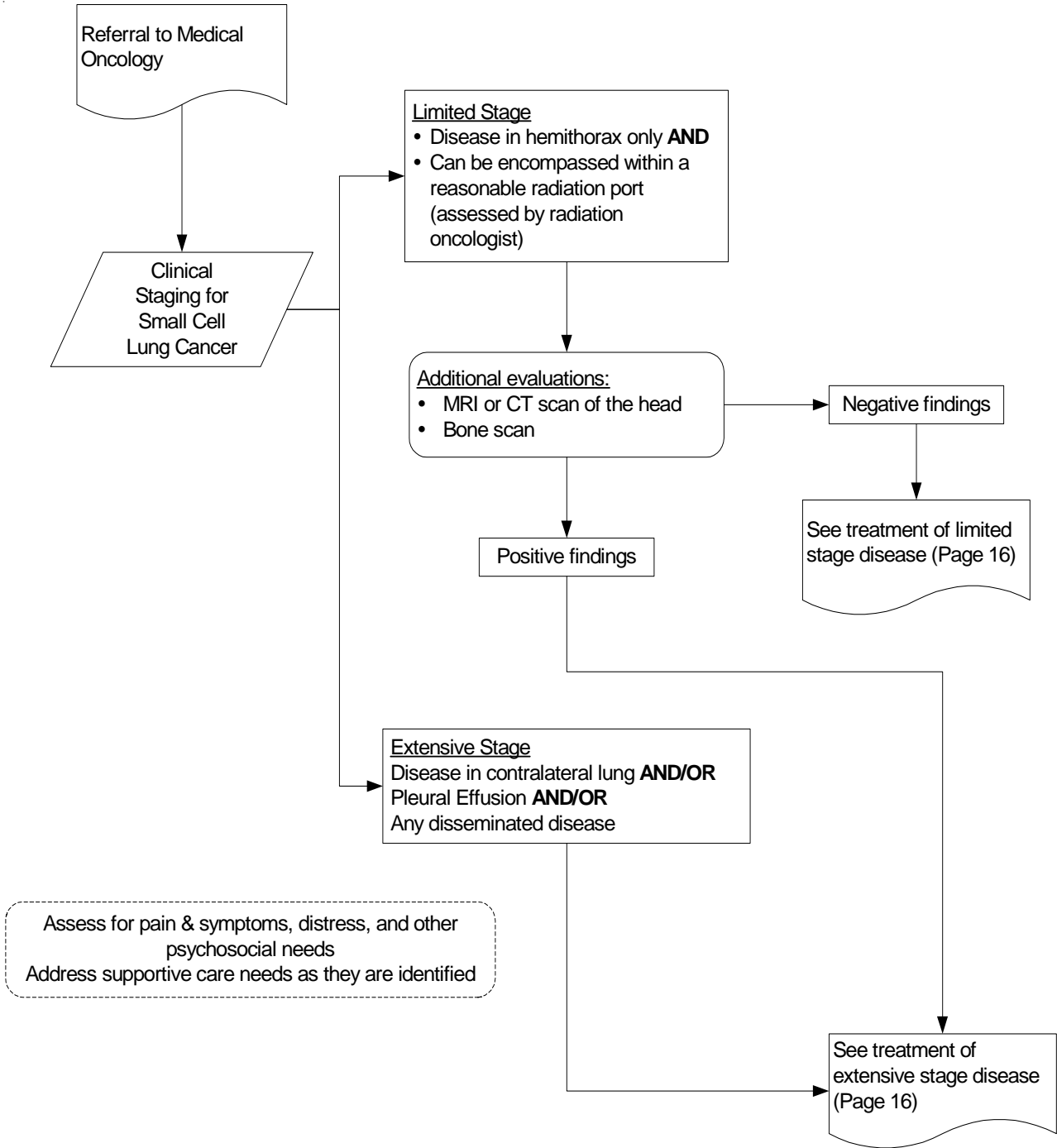


Footnotes:

a. ECOG Performance Status criteria- See Page 19

b. Performance status (PS) 2 patients have greater toxicity and potential for lower benefit than PS 0-1 patients

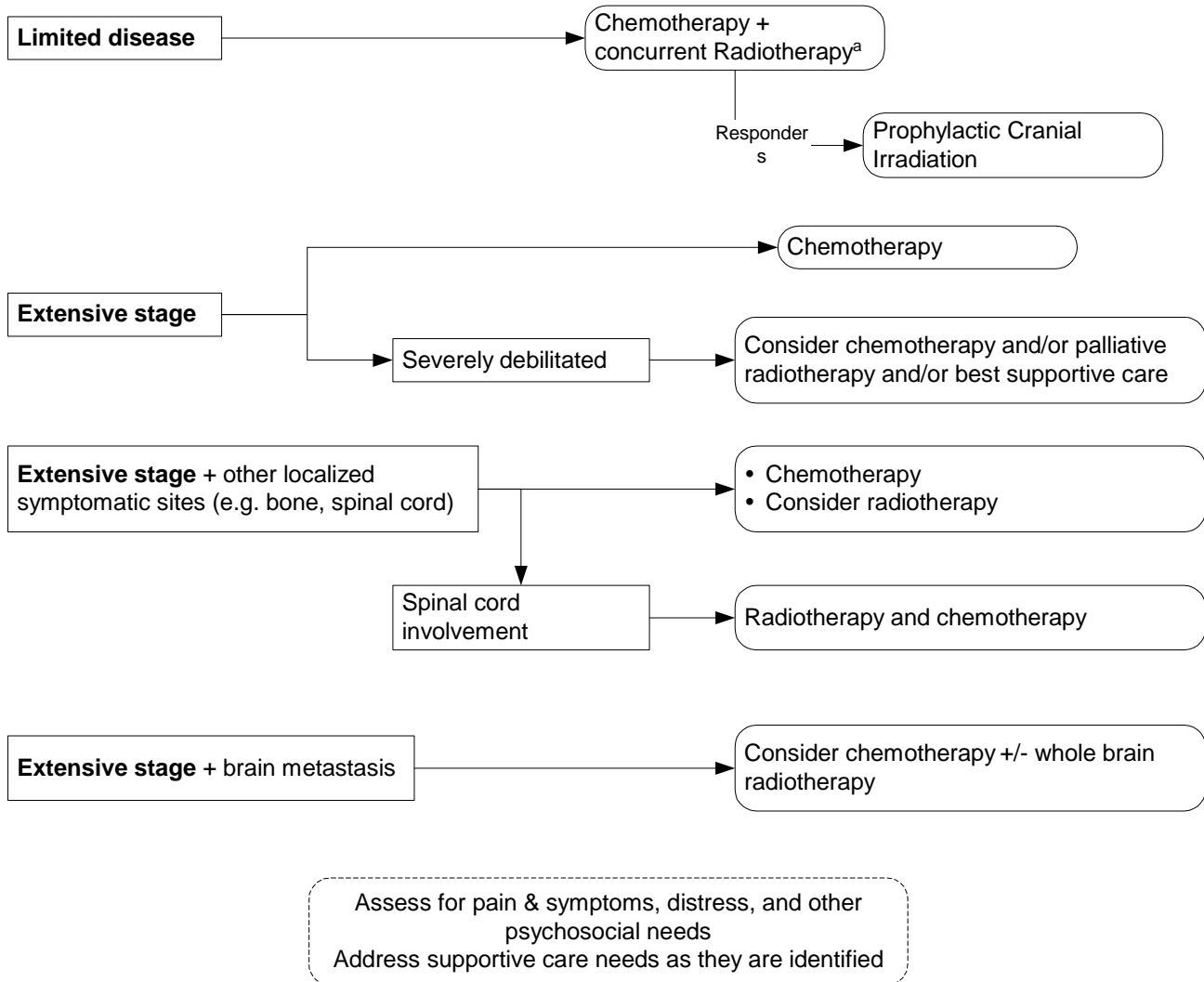
Staging of Small Cell Lung Cancer



NOTE: SCLC can be staged using the same TNM Staging criteria applied to NSCLC; however, clinicians generally use the simpler classification of Limited vs. Extensive Disease. Treatment decisions are usually based upon this simple classification system.

Treatment of Small Cell Lung Cancer

Initial Treatment

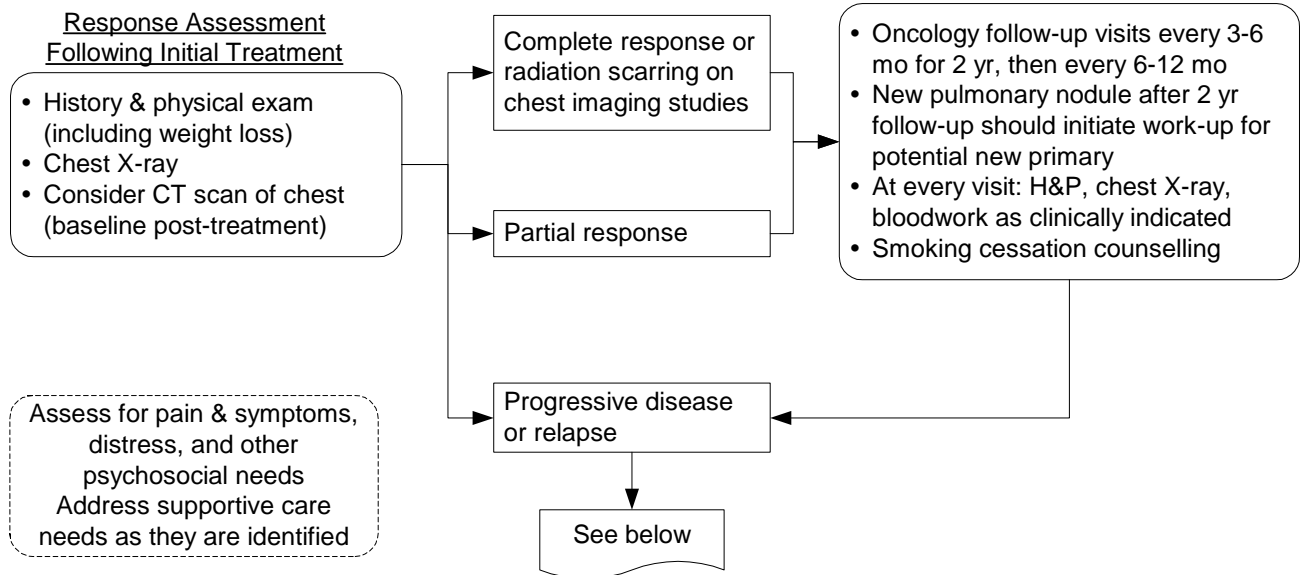


Footnote:

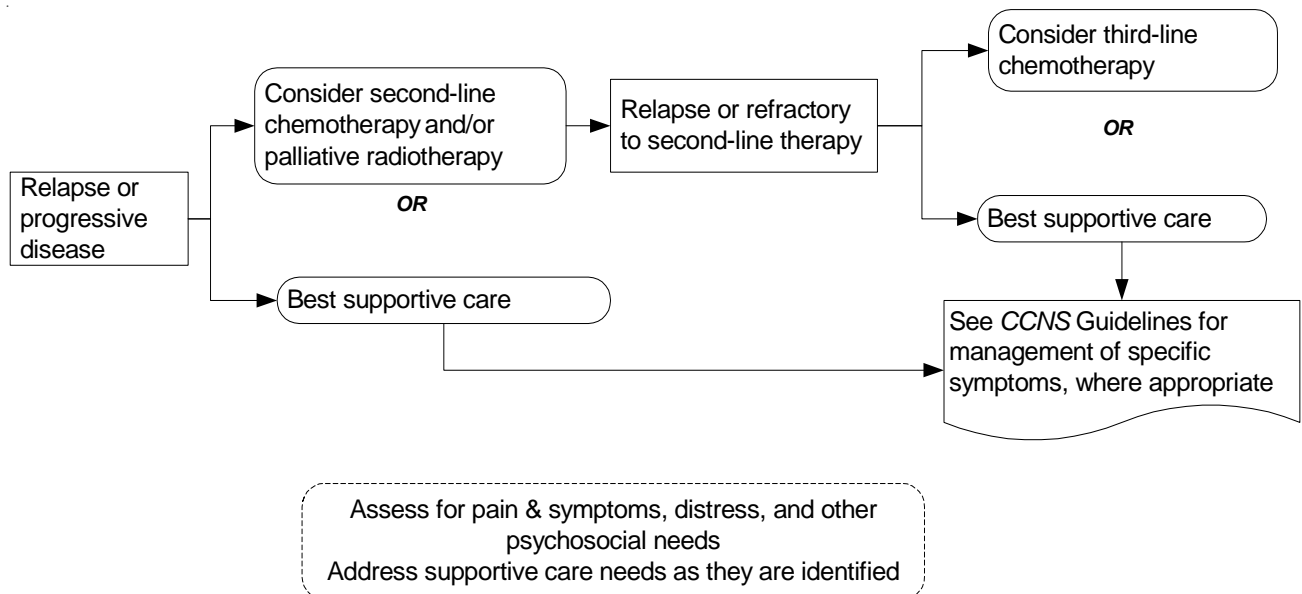
a. Radiotherapy for limited disease:

- Radiotherapy over 3-5 weeks concurrent with chemotherapy
- Prophylactic Cranial Irradiation (PCI) treatment over about 2 weeks

Follow-up after Treatment of Small Cell Lung Cancer



Relapsed or Progressive Small Cell Lung Cancer



Chemotherapy Regimens

Non-Small Cell Lung Cancer

Docetaxel Chemotherapy

Docetaxel IV- Day 1
Repeat every three weeks

Docetaxel-Carboplatin Chemotherapy

Docetaxel IV- Day 1
Carboplatin IV- Day 1
Repeat every three weeks

Docetaxel-Cisplatin Chemotherapy

Docetaxel IV- Day 1
Cisplatin IV- Day 1
Repeat every three weeks

Docetaxel-Gemcitabine Chemotherapy

Docetaxel IV- Day 1
Gemcitabine IV- Days 1, 8, and 15
Repeat every three weeks

Gemcitabine-Cisplatin Chemotherapy

Gemcitabine IV- Days 1, 8, and 15
Cisplatin IV- Day 1
Repeat every four weeks

NB. The role of EGFR Inhibitors (e.g. Erlotinib, Gefitinib) are under review by the Thoracic CST

Small Cell Lung Cancer

Cisplatin-Etoposide Chemotherapy

Etoposide IV- Days 1 to 3
Cisplatin IV- Days 1 to 3
Repeat every three weeks for 4 cycles

Carboplatin-Etoposide Chemotherapy

Etoposide IV- Days 1 to 3
Carboplatin IV- Day 1
Repeat every three weeks for 4 cycles

Paclitaxel-Carboplatin Chemotherapy

Paclitaxel IV over 3 hours- Day 1
Carboplatin IV- Day 1
Repeat every three weeks

Vinblastine-Cisplatin Chemotherapy

Vinblastine IV- Days 1, 8, 15, 22 & 29
Cisplatin IV- Days 1 & 29
Concurrent with radiotherapy

Vinorelbine-Carboplatin Chemotherapy

Vinorelbine IV- Days 1, 8, 15 & 22
Carboplatin IV- Day 1
Repeat every four weeks

Vinorelbine-Cisplatin Chemotherapy

Vinorelbine IV- Days 1, 8, 15 & 22
Cisplatin IV- Day 1
Repeat every four weeks

Vinorelbine Chemotherapy

Vinorelbine IV- Days 1 & 8
Repeat every 3 weeks

CAV Chemotherapy

Cyclophosphamide IV- Day 1
Doxorubicin IV- Day 1
Vincristine IV- Day 1
Repeat every three weeks for 4 cycles

Etoposide Chemotherapy

Etoposide PO- daily for 14-21 days

Topotecan Chemotherapy

Topotecan IV- Days 1-5
Repeat every three weeks for 4 cycles

See the **Systemic Therapy Manual for Cancer Patients** for further details

ECOG Performance Status Scale

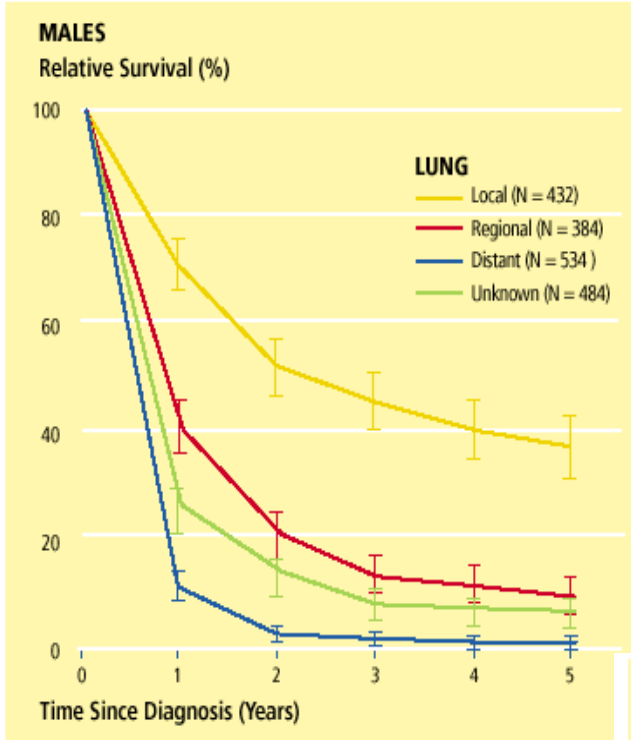
- 0 Fully active, able to carry on all predisease activities without restriction. (Karnofsky 90-100)
- 1 Restricted in physically strenuous activity but ambulatory and able to carry out work of a light or sedentary nature, for example, light housework or office work. (Karnofsky 70-80)
- 2 Ambulatory and capable of all self-care but unable to carry out work activities. Up and about more than 50% of waking hours. (Karnofsky 50-60)
- 3 Capable of only limited self-care, confined to bed or chair 50% or more of waking hours. (Karnofsky 30-40)
- 4 Completely disabled, cannot carry on any self-care, totally confined to bed or chair. (Karnofsky 10-20)

ECOG = Eastern Cooperative Oncology Group

Lung Cancer Prognosis by Stage

Diagram 15.

Survival Rates for **Lung Cancer** in **Males**, Nova Scotia 1992-1996



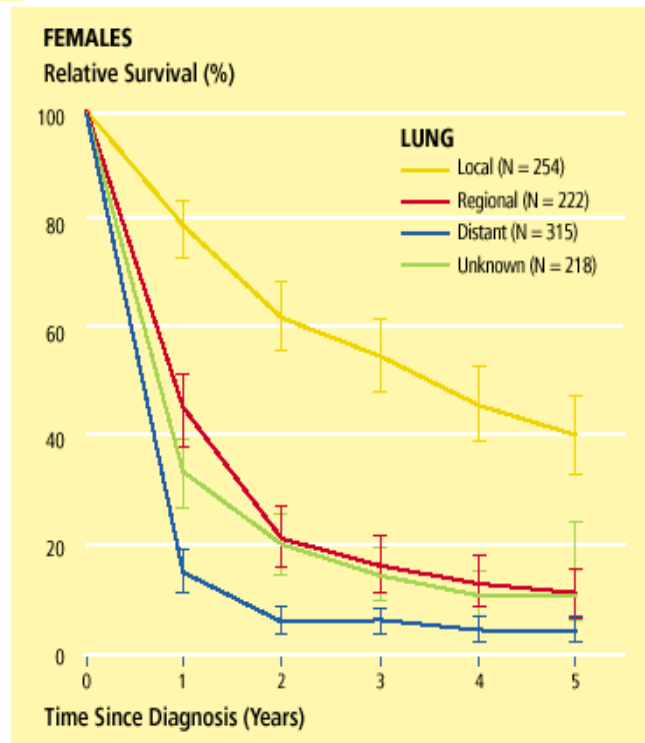
Diagrams 15. & 16.

Relative survival rates for lung cancer in males (15) and females (16) diagnosed in Nova Scotia in 1992 to 1996. Cases classified as local, regional or distant (not by the TNM staging classification), for comparison across different cancer types.

- Approximately 85% of lung tumours were non-small cell lung cancer.
- At diagnosis, 29% of lung cancers were advanced stage.

Diagram 16.

Survival Rates for **Lung Cancer** in **Females**, Nova Scotia 1992-1996



Reference:

Saint-Jacques N, MacIntyre M, Dewar R, et al, Cancer statistics in Nova Scotia: a focus on 1995-1999. Surveillance and Epidemiology Unit, *Cancer Care Nova Scotia*; 2002



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