Small Cell Lung Cancer (SCLC)

**INITIAL EVALUATION**
- Pathology consistent with SCLC
- History and physical
- Chest x-ray
- Laboratory studies to include hematological and full chemistry panels
- PET/CT or CT chest and abdomen (preferred PET/CT if limited staging)
- MRI (preferred) or CT brain

**STAGE**
- Limited Stage
- Extensive Stage

**FURTHER WORKUP**
- Pulmonary function tests
- Bone marrow aspiration and biopsy if elevated LDH or abnormal CBC
- Solitary pulmonary nodule without lymphadenopathy?

**TREATMENT**
- Is patient potentially operable?
  - Yes: Pulmonary function tests
    - Operable: Mediastinoscopy or EBUS
    - Inoperable: Zubrod performance status
  - No: Pulmonary function tests, if clinically indicated
- Solitary pulmonary nodule without lymphadenopathy?
  - Yes: Pulmonary function tests, if clinically indicated
  - No: For Extensive Stage, see Page 2

**FOR EXTENSIVE STAGE**
- Zubrod performance status
  - Status 0-2: Chemotherapy and radiotherapy
  - Status 3-4, due to SCLC: Chemotherapy or supportive care
  - Status 3-4, due to other medical condition: Surveillance, see Page 3
- Lymph nodes and margins positive: Lymph nodes and margins negative

**LIMITED STAGE**
- Positive Lymph nodes and/or margins positive: Adjuvant platinum and etoposide for 4 cycles
- Negative Lymph nodes and margins positive: Resection

**EBUS = endobronchial ultrasound**
1 Limited disease: disease confined to the ipsilateral hemithorax within a single radiation port
2 Extensive disease: disease beyond ipsilateral hemithorax or malignant pleural effusion or obvious metastatic disease
3 Pulmonary function tests include: spirometry pre-and-post-bronchodilators, xenon if clinically indicated, exercise oxygen consumption testing if clinically indicated
4 Consider EBUS for patients treated with radiation therapy also
5 Start radiation therapy within the first 2 cycles of chemotherapy

Note: Consider Clinical Trials as treatment options for eligible patients.
Small Cell Lung Cancer (SCLC)

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant women.

Note: Consider Clinical Trials as treatment options for eligible patients.

STAGE  
FURTHER WORKUP  
TREATMENT

Extensive stage¹

Bone scan or plain bone films if symptoms present that might require immediate radiation therapy

Radiation therapy and steroids, then platinum and etoposide for 4-6 cycles

Yes

Are symptomatic brain metastasis or cord compression present?

Platinum and etoposide for 4-6 cycles

No

Partial or complete response?

Yes

Consider:

- Prophylactic cranial irradiation (PCI) of 25 Gy in 10 fractions, and
- Chest radiation therapy of 45 Gy in 15 fractions

No

Surveillance, see Page 3

¹ Extensive disease: disease beyond ipsilateral hemitorax or malignant pleural effusion or obvious metastatic disease
Small Cell Lung Cancer (SCLC)

SURVEILLANCE

Relapse?
- Yes
  - Time of relapse?
    - Greater than 6 months from completion of treatment
      - Clinical trial (preferred)
      - Reinduction therapy with platinum and etoposide or other chemotherapy or immunotherapy
      - Palliative symptom management including localized radiation therapy
    - Less than or equal to 6 months from completion of treatment
      - Clinical trial (preferred)
      - Salvage chemotherapy or immunotherapy (see principles of chemotherapy)
      - Palliative symptom management including localized radiation therapy
- No
  - Continue surveillance

History, physical, chest x-ray and scans of involved sites every 2 – 3 months for 2 years, then every 6 months for 3 years, then yearly

SALVAGE / PALLIATION

Note: Consider Clinical Trials as treatment options for eligible patients.
Small Cell Lung Cancer (SCLC)

First-line therapy
- Acceptable regimens for limited stage disease (maximum of 4-6 cycles) include:
  - Cisplatin 60 mg/m² IV day 1 and etoposide 120 mg/m² IV days 1, 2, 3
  - Cisplatin 80 mg/m² IV day 1 and etoposide 100 mg/m² IV days 1, 2, 3
  - Carboplatin AUC 5-6 IV day 1 and etoposide 100 mg/m² IV days 1, 2, 3
  - During systemic therapy plus radiation therapy, cisplatin/etoposide is recommended (category 1)
  - The use of myeloid growth factors is not recommended during concurrent systemic therapy plus radiation therapy (category 1 or not using GM-CSF)
- Acceptable regimens for extensive stage disease (maximum of 4-6 cycles) include:
  - Carboplatin AUC 5-6 IV day 1 and etoposide 100 mg/m² IV days 1, 2, 3
  - Cisplatin 75 mg/m² IV day 1 and etoposide 100 mg/m² IV days 1, 2, 3
  - Cisplatin 80 mg/m² IV day 1 and etoposide 80 mg/m² IV days 1, 2, 3
  - Cisplatin 25 mg/m² IV day 1, 2, 3 and etoposide 100 mg/m² IV days 1, 2, 3

Second-line therapy
- Clinical trial (preferred)
- If relapse occurs less than or equal to 6 months and performance status 0-2:
  - Topotecan PO or IV
  - Irinotecan
  - Paclitaxel
  - Docetaxel
  - Temozolomide PO
  - Nivolumab plus ipilimumab immunotherapy
  - Vinorelbine
  - Etoposide PO
  - Gemcitabine
- If relapse occurs greater than 6 months after completion of first-line therapy and performance status 2:
  - Consider dose reduction or growth factor support

Note: Consider Clinical Trials as treatment options for eligible patients.
PRINCIPLES OF RADIATION THERAPY

Radiation therapy For Limited Stage Disease

- Radiation therapy should be given 1.5 Gy twice a day (with at least 6 hours between fractions) to a total dose of 45 Gy. In circumstances where twice daily fractionation is not feasible, an acceptable alternate schedule is 1.8 – 2.0 Gy/day to a dose of 60 – 70 Gy.
- Radiation therapy should be administered concurrently with chemotherapy, ideally beginning during cycle 1 of chemotherapy.
- Radiation therapy should be delivered to original tumor volume unless there is marked risk of radiation pneumonitis; then decrease field as tumor shrinks.
- Appropriate schedule for prophylactic cranial irradiation (PCI) 25 Gy in 10 fractions.
- In patients receiving radiation therapy or chemoradiation with curative intent, treatment interruptions or dose reductions for temporary and manageable toxicities, such as esophagitis and myelosuppression, should be avoided. Careful patient monitoring and aggressive supportive care are preferable to treatment breaks in potentially curable patients. Patients should be evaluated at least once per every 5 fractions to monitor weight changes and toxicity.
- 45 Gy in 30 fractions over 3 weeks would not be recommended with concurrent chemotherapy on day 1, if the DVH shows V20 more than 35% of TL. If the GTV is too large to meet dose volume constraints, give one cycle of chemo or go daily fraction of radiation and cone down of the GTV after re-simulation after 2-3 weeks treatment. This will apply for the patients who have FEV1 or DCLO less than 30% of predicted value.
- Elective nodal radiation therapy is not recommended.


SUGGESTED READINGS
Small Cell Lung Cancer (SCLC)

This practice guideline is based on majority expert opinion of the Thoracic Oncology Center Faculty at the University of Texas, M D Anderson Cancer Center. It was developed using a multidisciplinary approach that included input from the following medical, radiation and surgical oncologists:

- Lauren A. Byers, MD
- George R Blumenschein, Jr, MD
- Joe Y Chang, MD, PhD
- Frank V. Fossella, MD
- Wendy Garcia, BS
- Daniel Gomez, MD
- Bonnie S Glisson, MD
- John V Heymach, MD, PhD
- Wayne Hofstetter, MD
- Firoze Jameel, MSN, RN, OCN
- Melenda Jeter, MD, MPH
- Ritsuko Komaki Cox, M.D.
- Zhongxing Liao, MD
- Charles Lu, MD
- Reza Mehran, MD
- Frank Mott, MD
- Vali Papadimitrakopoulou, MD
- David Rice, MD
- Jack A Roth, MD
- George Simon, MD
- Stephen Swisher, MD
- Anne Tsao, MD
- Ara Vaporciyan, MD
- Garrett Walsh, MD
- James Welsh, MD
- William N William Jr, MD

Core Development Team
Clinical Effectiveness Development Team

This practice algorithm has been specifically developed for MD Anderson using a multidisciplinary approach and taking into consideration circumstances particular to MD Anderson, including the following: MD Anderson’s specific patient population; MD Anderson’s services and structure; and MD Anderson’s clinical information. Moreover, this algorithm is not intended to replace the independent medical or professional judgment of physicians or other health care providers. This algorithm should not be used to treat pregnant women.