Lung Cancer Diagnosis Pathway Map
Version 2017.11

Disclaimer
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Target Population
Patients who present with signs or symptoms suspicious of lung cancer.

Pathway Map Considerations

- Primary care providers play an important role in the cancer journey and should be informed of relevant tests and consultations.
- Ongoing care with a primary care provider is assumed to be part of the pathway. For patients who do not have a primary care provider, Health Care Connect, is a government resource that helps patients find a doctor or nurse practitioner.
- Throughout the pathway, a shared decision-making model should be implemented to enable and encourage patients to play an active role in the management of their care. For more information see Person-Centered Care Guideline and EBS #19-2 Provider-Patient Communication.
- Hyperlinks are used throughout the pathway to provide information about relevant CCO tools, resources and guidance documents.
- The term ‘health care provider’, used throughout the pathway, includes primary care providers and specialists, nurse practitioners, and emergency physicians.
- For more information on the Diagnostic Assessment Program (DAP) refer to the Organizational Standards for DAPs.
- Psychosexual oncology (PSO) is the interprofessional specialty concerned with understanding and treating the social, practical, psychological, emotional, spiritual and functional needs and quality-of-life impact that cancer has on patients and their families. Psychosexual care should be considered an integral and standardized part of cancer care for patients and their families at all stages of the illness trajectory. For more information, visit EBS #19-3.
- Counseling and treatment for smoking cessation should be initiated early on in the pathway and continued by care providers throughout the pathway as necessary Program Training & Consultation Centre – Hospital Based Resources.

*Note. EBS #19-2 and EBS #19-3 is older than 3 years and is currently listed as ‘For Education and Information Purposes’. This means that the recommendations will no longer be maintained but may still be useful for academic or other information purposes.

Pathway Map Disclaimer

This pathway map is a resource that provides an overview of the treatment that an individual in the Ontario cancer system may receive.

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Lung Cancer Diagnosis Pathway Map

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Visit to Health Care Provider

Patient presenting with any of the following signs suspicious for cancer:
- Hemoptysis (single episode)
- New finger clubbing
- Suspicious lymphadenopathy (e.g. cervical, supraclavicular)
- Dysphagia
- Features of metastatic lung cancer (e.g. weight loss > 5 kg, focal skeletal pain, headache)

Or

Patient presents with any of the following unexplained symptoms for > 3 weeks (or sooner if patient has known risk factors):
- Cough
- Anorexia
- Dyspnea

Underlying chronic respiratory problems presenting with unexplained changes in existing symptoms

Patient presenting with any of the following:
- Stridor
- Massive hemoptysis
- New neurological signs suggestive of brain metastases or spinal cord compression including seizures

Visit to emergency department

These are emergency situations and the patient should be seen in the ER (if not presenting there) and referred emergently to specialist

Follow-up with appropriate specialist

No

Patient presenting with abnormal imaging that reports suspicion of lung cancer (including screen detected cancers)

Patient presenting with any of the following:
- Persistent non-massive hemoptysis (Multiple episodes of coughing blood or blood-streaked sputum)
- Superior vena cava syndrome/obstruction

Patient presenting with the following signs suspicious for cancer:
- Chest Imaging CT (or chest x-ray)

Chamber Imaging

Chest Imaging CT (or chest x-ray)

Imaging as appropriate

Treatment for presenting symptoms

Lung cancer suspected?

Yes

Proceed to Page 4

No

Follow-up with appropriate specialist

Proceed to Page 4

1 Refer to the American College of Chest Physicians Clinical Practice Guideline, Chest, 132, 149-160 for features of a standardized evaluation for systematic metastases and a list of paraneoplastic syndromes associated with lung cancer.

2 The following factors have been shown to increase the risk of lung cancer: current or previous smoker or second-hand exposure to tobacco smoke, history of chronic obstructive pulmonary disease, previous exposure to asbestos or other known carcinogens (e.g. radon, chromium, nickel), occupational exposure to dust or other microscopic particles (e.g. wood dust, silica), personal or family history of cancer (especially lung, head & neck), silicosis, tuberculosis.

3 These patients should be accepted by the lung DAP if the lung DAP can facilitate a diagnosis within one week.

4 An abnormal chest x-ray or an abnormal CT scan of chest suspicious of lung cancer is required with each DAP referral. A CT scan of the chest is not required for acceptance of a lung DAP referral if the chest x-ray is abnormal but a CT scan of chest is required prior to assessment at a lung DAP. Patient history should be mandatory as part of the referral and include, at a minimum, comorbidities, medications, allergies, major health issues and symptoms that prompted the DAP referral.
**Lung Cancer Diagnosis Pathway Map**

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**Initial Presentation and Imaging**

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Consolidation or unexplained pleural effusion

- Treatment as appropriate
- Follow-up chest x-ray (or CT chest) EBS #4-2

Results

- Resolved
- Non-resolving EBS #4-2

Return to primary care provider for follow-up

**High suspicion of lung cancer (based on imaging and/or clinical judgement)**

- DAP

CT chest (if not previously done)

Cancer Imaging Guidelines

Results

- Suspected cancer
- Normal imaging results
- Pleural effusion
- Thoracentesis

Normal imaging results

Suspected cancer

Begin staging test at presentation to avoid delay in staging phase. PET should be done before biopsy or IMS. Tests may include additional CT scan, bone scan, PET scan, MRI, or CT of brain (see page 7 for more detail)

Suspected stage IV Based on scans and/or patient history

Return to primary care provider for follow-up

Suspected chronic obstructive pulmonary disease (COPD) or other benign lung disease (e.g. sarcoidosis)

- R
- Respiriologist (or Internist)

Follow-up with specialist or return to primary care provider for follow-up

**Suspected pneumonia**

- Treatment with antibiotics (1 cycle)
- Chest x-ray Within one month after starting treatment

Status

- Not resolved and suspected lung cancer
- Not resolved and lung cancer not suspected
- Resolved

Sputum culture

- Abnormal
- Normal

Suspected other infectious disease process (e.g. tuberculosis, atypical infections)

- R
- Respiriologist (or Tuberculosis Specialist)

Follow-up with specialist (not public health if TB is diagnosed)

**Other conditions (e.g. pulmonary embolus, trauma)**

- Treatment as appropriate

Repeat chest x-ray

**New or growing solitary peripheral mass or suspicious pulmonary nodule(s) without mediastinal or hilar lymphadenopathy**

- Central mass or clinical N1, N2, N3

Pleural effusion

- Suspected stage IV Based on scans and/or patient history

Return to primary care provider for follow-up

Patient history should be mandatory as part of the referral and include, at a minimum: comorbidities, medications, allergies major health issues and symptoms that prompted the DAP referral.

An abnormal chest x-ray or an abnormal CT scan of chest suspicious of lung cancer is required with each DAP referral. A CT scan of the chest is not required for acceptance of a lung DAP referral if the chest x-ray is abnormal but a CT scan-chest is required prior to assessment at a lung DAP. Patient history should be mandatory as part of the referral and include, at a minimum: comorbidities, medications, allergies major health issues and symptoms that prompted the DAP referral.
**Diagnostic Procedures**

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- If not previously done
- Depending on local resources, radial miniprobe navigational bronchoscopy with lung biopsy may be considered.
- Results go to ordering and referring physician and family physician.
- For more information about biomarkers, refer to the Lung Cancer Tissue Pathway.
- Follow-up as per the Fleischner guidelines. For more information see Guidelines for Management of Small Pulmonary Nodules Detected on CT Scans: A Statement from the Fleischner Society. (2005). Radiology, 237, 395-400.

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**Interventional Radiology**

- Core biopsy
- Fine needle biopsy

**Cytology**

- Cell block should be obtained
- And/or Pathology

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**Pathology**

- Cytology
- Cell block should be obtained
- And/or Pathology

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**Results**

- Positive for cancer

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**Change in result**

- EBS #7-20

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**Follow-up**

- Follow-up by family physician, specialist or pulmonary nodule clinic

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**Follow-up CT**

- As per Fleischner guidelines

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**Return to primary care provider for follow-up**

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**Proceed to Page 7**
Lung Cancer Diagnosis Pathway Map

Diagnostic Procedures (cont’d)

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Obtain sufficient tissue sample for histological and molecular diagnosis via least invasive, most accessible and most likely to up-stage the patient

Cancer Imaging Guidelines

Thoracentesis
Perform procedure promptly. Can be done for diagnosis or for symptom relief. Note: If malignant cells found, this condition makes the patient inoperable.

Cancer Imaging Guidelines

Suspected stage IV
Based on scans and/or patient history

Thoracic Surgery
For diagnostic purposes

Cytology
(cell block should be obtained)

Pathology

Results

Positive for cancer
(Stage IV)

Suspected or negative but high level of clinical suspicion

Repeat biopsy, thoracentesis or other diagnostic testing
As appropriate

Cytology
(cell block should be obtained)

Pathology

Results

Negative for cancer

Return to primary care provider for follow up

Change in result
PSGS 81-87

Follow-up by specialist

Results

Stable

Return to primary care provider for follow up

Thoracic Surgery
Call block should be obtained

Cytology

Pathology

Results

Negative for cancer

Return to primary care provider for follow up

Obtain sufficient tissue sample for Hataological and molecular diagnosis via least invasive, most accessible and most likely to up-stage the patient

Cancer Imaging Guidelines

Tests on pleural fluid:
- Cytology (cell block should be obtained)
- Lactate dehydrogenase
- Protein concentration
- Glucose
- Amylase
- Cell count and differential
- Culture and sensitivity

Positive for cancer

From page 4

PSO

Palliative Care

E F

From page 4

Results

Negative and low level of clinical suspicion

Follow-up by specialist

Results

Stable

Return to primary care provider for follow up

Produce to Treatment Pathway Map (NSCLC page 7, 8; SCLC (page 4)

Pathology

Cytology

And/Or

From page 4

G

7 Results go to ordering and referring physician and family physician
8 For more information about biomarkers, refer to the Lung Cancer Tissue Pathway
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Medical history, physical exam and blood work (If not done already)

PET/CT scan

MRI brain
For stage II, III, and IV. No MRI if patient is clinical stage I and asymptomatic

Cancer Imaging Guidelines

Pet Scans Ontario

Pathological Non-Small Cell Lung Cancer Diagnosis (NSCLC)

Clinical Stage I

PET/CT scan

Invasive Mediastinal Staging

EBT 87.4

Mediastinoscopy

Clinical Stage II or IIA

Endobronchial Ultrasound

Clinical Stage II

Mediastinoscopy

Clinical Stage III or IIA

Endobronchial Ultrasound

Clinical Stage IIIB

No CNS metastases

Clinical Stage IV

CNS metastases

Pathological Small Cell Lung Cancer Diagnosis (SCLC)

Medical Oncologist

Radiation Oncologist

Thoracic Surgeon

Medical History, physical exam and blood work (If not done already)

MRI brain
CT if MRI is not available or contraindicated

Cancer Imaging Guidelines

PET/CT scan

PET Report #9

PET Scans Ontario

Bone scan
If suspected metastasis, bone pain or abnormal calcium and alkaline phosphatase. Not indicated if PET/CT is negative

Cancer Imaging Guidelines

Bone scan
If suspected metastasis, bone pain or abnormal calcium and alkaline phosphatase

Cancer Imaging Guidelines

If emergency situation, symptomatic brain metastases, superior vena cava obstruction, spinal compression or stage I-III disease.

Proceed to NSCLC Treatment Pathway Map (Page 3)

Proceed to NSCLC Treatment Pathway Map (Page 4)

Proceed to NSCLC Treatment Pathway Map (Page 5)

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