Best Imaging: Which is the best imaging test

Chest

Disclosures

- None

Clinical Scenario #1

New cough in a patient that is high risk (smoker)

Considerations

- CXR first? Or straight to CT?
- Red flag symptoms to ask and highlight

When Should I Call my Doctor?

A guide for patients being investigated or treated for lung cancer

What should I do if I have these symptoms?

If you have new symptoms or if the symptoms you have get worse while you are waiting to have tests or get your results, talk to your health care provider as soon as possible. **Do not wait** until your next appointment or until they ask you.

The following symptoms rarely happen, but if they do, it is important to get medical help.

When should I call 911 or go to the Emergency Department?

- Severe shortness of breath, difficulty breathing or tightness in your chest
- Coughing up a lot of blood (a mouthful)
- Sudden or worsening back or neck pain that is different than your regular pain, is new or does not stop
- Numbness, loss of feeling or tingling (pins and needles) in your arms or legs
- Severe muscle weakness in your arms or legs (your arms or legs feel weighed down and heavy)
- Seizures
- Odd behaviour, behaving out of character, or personality changes
- If you are currently having systemic therapy (also called chemotherapy) and you have a temperature of 38°C (100.4°F) or higher, or uncontrolled shivering

Take this sheet with you to the Emergency Department. Tell the paramedic, nurse or doctor that you are being investigated or treated for lung cancer.

Remember, these symptoms happen rarely.

When should I see my family doctor, nurse practitioner or call 811?

- Increase in shortness of breath, worsening shortness of breath or difficulty breathing
- Coughing up small spots of blood
- Severe pain or dull pain that won't go away
- Severe headache that won't go away
- Severe weakness, tiredness or fatigue
- Unexpected weight loss

If you still have concerns or questions, see your family doctor or nurse practitioner. If you do not have a family doctor or can't get an appointment, you can call 811 to speak to a nurse. 811 is available anytime, day or night for non-emergency health information.

Reviewed by: Thoracic Cancer Site Team, Nova Scotia Health Authority

Approved by: The Nova Scotia Cancer Patient Education Committee, 2016

CCNS-0050 Dec 2016

This publication is updated every three years or as clinical practice changes. This information does not replace the advice of your health care provider. If you have any questions please ask your health care provider.

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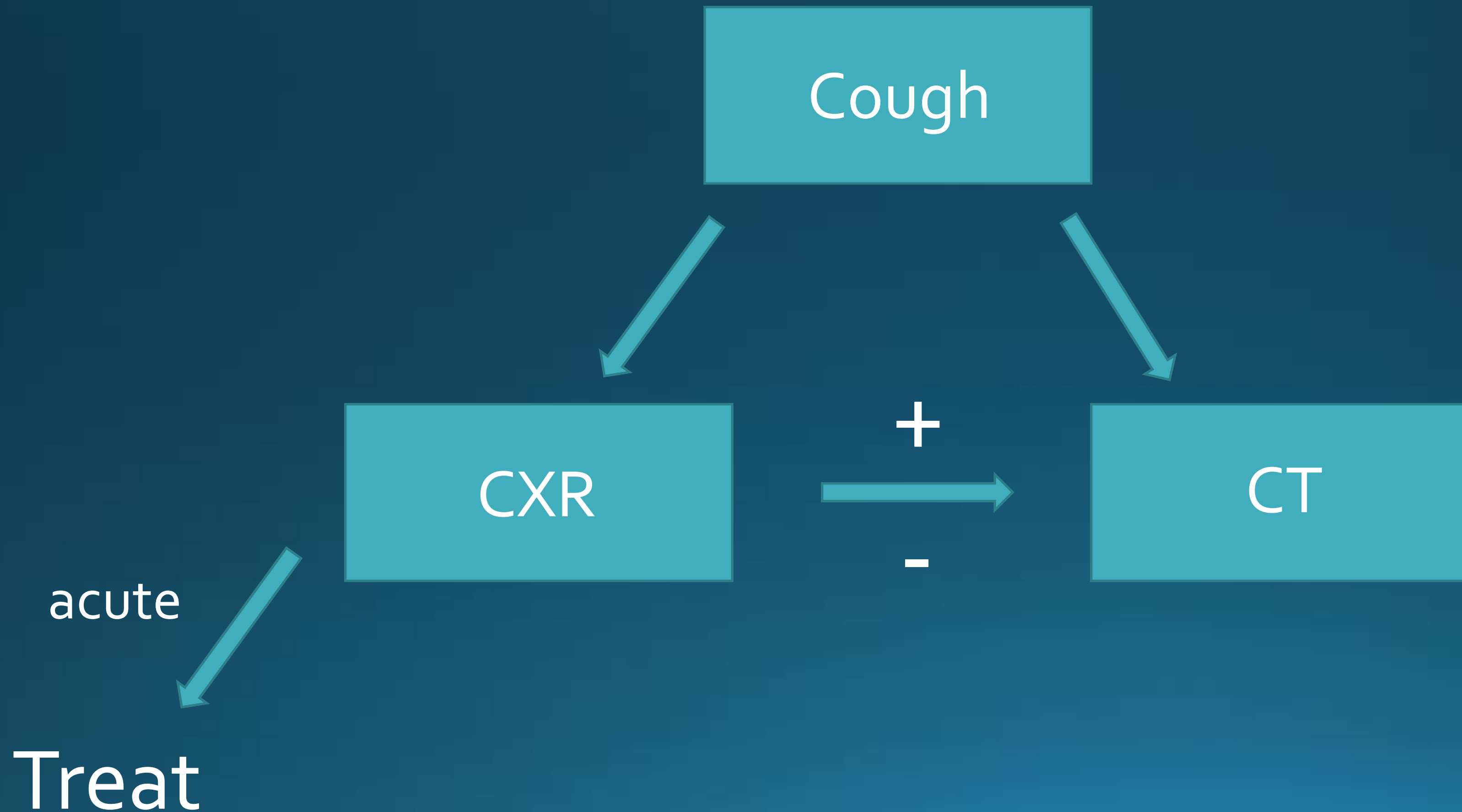
There is no ACR appropriateness guideline



- An initial CXR is almost always appropriate and helpful
  - To identify acute infectious/inflammatory conditions versus non-acute
  - Determine need for further imaging with CT and triage the urgency of that request
- If wait time for CXR is too long (1-2 weeks), and if red flag symptoms present, consider sending directly to CT (my opinion)

Red Flag Symptoms

Hemoptysis
Weight loss
Horner Syndrome
SVC Syndrome
Recurrent infection
Worsening SOB
Persistent fatigue
Chest pain (pleuritic)
Hoarseness

Sameday/Urgent Outpatient Xray Bookings

Central Zone

For Health Care Professionals (Do not give number to patients)

Monday –Friday 0730-1750

902-473-7772

Clinical Scenario #2

Subacute nontraumatic and noncardiac type chest wall pain

Considerations

- Is imaging appropriate?
- If initial imaging negative, what next?

Variant 1: **Nontraumatic chest wall pain. No history of malignancy. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
Radiography chest	Usually Appropriate	☢
US chest	May Be Appropriate	O
Radiography rib views	May Be Appropriate	☢☢☢
MRI chest without and with IV contrast	Usually Not Appropriate	O
MRI chest without IV contrast	Usually Not Appropriate	O
Bone scan whole body	Usually Not Appropriate	☢☢☢
CT chest with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without IV contrast	Usually Not Appropriate	☢☢☢
FDG-PET/CT skull base to mid-thigh	Usually Not Appropriate	☢☢☢☢
WBC scan chest	Usually Not Appropriate	☢☢☢☢

American College of Radiology ACR Appropriateness Criteria®
Nontraumatic Chest Wall Pain 2021

CXR Negative. What next?

Clinical situation where further imaging with CT should be considered:

- Known or suspected malignancy
- Suspected infectious of inflammatory condition
- History of recent chest intervention

Further imaging with CT in otherwise low risk patients is low yield

Clinical Scenario #3

- Outpatient request for PE study. Low suspicion but need to rule out

Considerations

- Incidence of outpatient PE is very very low, usually limited to patients with a history of active malignancy
- Appropriate imaging pathway
- Considerations given logistical challenges

Variant 3: **Suspected pulmonary embolism. High pretest probability. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CTA pulmonary arteries with IV contrast	Usually Appropriate	☢☢☢
V/Q scan lung	Usually Appropriate	☢☢☢
US duplex Doppler lower extremity	May Be Appropriate (Disagreement)	O
US echocardiography transthoracic resting	May Be Appropriate	O
MRA pulmonary arteries without and with IV contrast	May Be Appropriate	O
US echocardiography transesophageal	Usually Not Appropriate	O
Arteriography pulmonary with right heart catheterization	Usually Not Appropriate	☢☢☢☢
MRA pulmonary arteries without IV contrast	Usually Not Appropriate	O
CT chest with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without IV contrast	Usually Not Appropriate	☢☢☢
CTA chest with IV contrast with CTV lower extremities	Usually Not Appropriate	☢☢☢
CTA triple rule out	Usually Not Appropriate	☢☢☢

American College of Radiology ACR Appropriateness Criteria®
Suspected Pulmonary Embolism
Revised 2022

If suspicion for PE is high to moderation, CTA should be done emergently

Patient has to go to ED to be assessed, call charge ED physician to notify

No need to send a requisition, will be arranged by ED if required

Variant 2: **Suspected pulmonary embolism. Low or intermediate pretest probability with a positive D-dimer. Initial imaging.**

Procedure	Appropriateness Category	Relative Radiation Level
CTA pulmonary arteries with IV contrast	Usually Appropriate	☢☢☢
V/Q scan lung	Usually Appropriate	☢☢☢
MRA pulmonary arteries without and with IV contrast	May Be Appropriate	O
CTA triple rule out	May Be Appropriate (Disagreement)	☢☢☢
US duplex Doppler lower extremity	Usually Not Appropriate	O
US echocardiography transesophageal	Usually Not Appropriate	O
US echocardiography transthoracic resting	Usually Not Appropriate	O
Arteriography pulmonary with right heart catheterization	Usually Not Appropriate	☢☢☢☢
MRA pulmonary arteries without IV contrast	Usually Not Appropriate	O
CT chest with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without and with IV contrast	Usually Not Appropriate	☢☢☢
CT chest without IV contrast	Usually Not Appropriate	☢☢☢
CTA chest with IV contrast with CTV lower extremities	Usually Not Appropriate	☢☢☢

American College of Radiology ACR Appropriateness Criteria®
Suspected Pulmonary Embolism
Revised 2022

- In this setting, urgent outpatient imaging can sometimes be coordinated
- Be aware – a faxed requisition can sit for days before being triaged by a radiologist
- Please call!
  - Ideally before the patient leaves your office.
- In Halifax 473- 1031 to discuss suspicion and appropriate timing of CT
- Please state on requisition
  - Level of suspicion
  - Requested timeline
  - Wet report/urgent result
  - Contact information