Emergency residents ‘skill level in Chest X-Ray (ERCXR) Interpretation

Supplementary Online Content

- This supplementary material has been provided by the authors to give readers additional information about their work.

Demographic Information

- **What is your gender?**
  - Male
  - Female

- **What is your residency level?**
  - 1
  - 2
  - 3
  - 4

- **How long have you been in clinical practice?**
  - 1 year
  - 2 year
  - 3 year
  - 4 year
  - >5 year

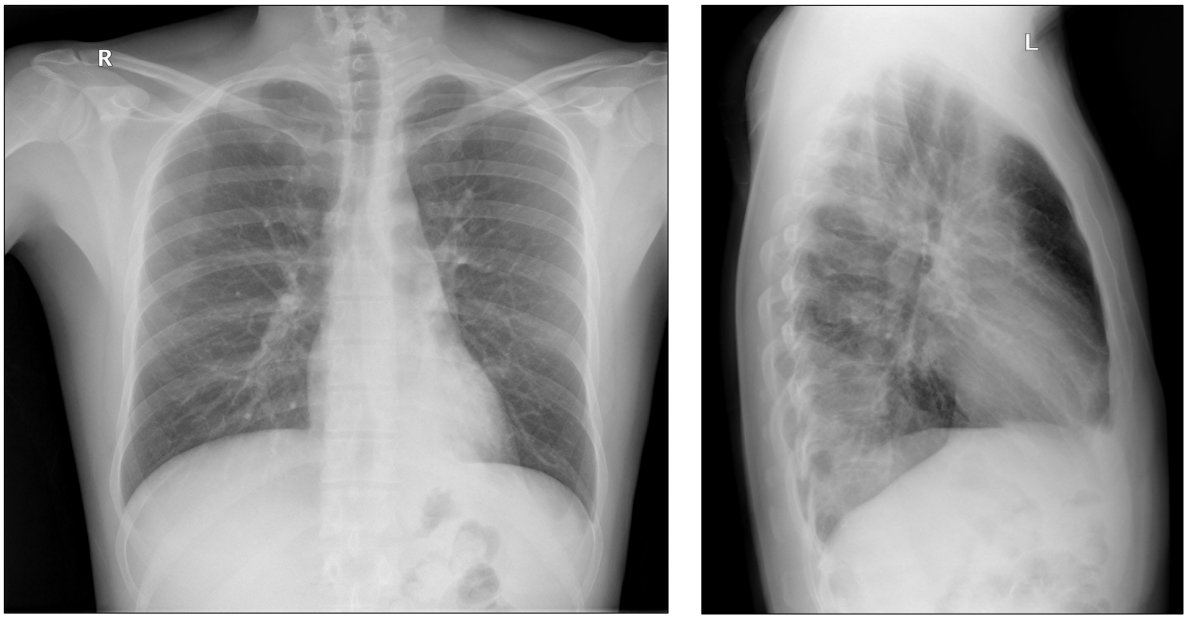
- **Average number of CXR read per week?**
  - >10
  - <=10

- **. Do you have an interest in diagnostic radiology?**
  - Yes
  - No

- **Have you had an elective rotation in diagnostic radiology?**
  - Yes
  - No

Question 1

Clinical Vignette: A 20-year-old man presented to the Emergency Department with a history of productive cough and pleuritic chest pain for 3 days prior to the presentation. His vital signs were as follows: blood pressure: 152/90 mmHg, heart rate: 112/minute, respiratory rate: 24/minute, and temperature: 38.0 °C. His chest X-ray is shown below:



Sim K, Left lower lobe consolidation. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-33258

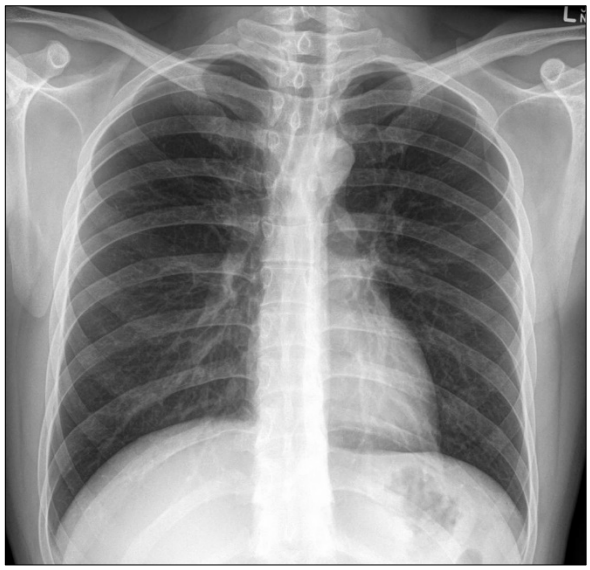
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Normal Chest X-ray
  B. Left Lower Lobe Pneumonia
  C. Lung Cancer
  D. Right Upper Lobe Pneumonia
  E. Pleural Effusion

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 2

Clinical Vignette: A 50-year-old male patient developed a dry cough for 3 days prior to his presentation to the Emergency Department. He is a heavy smoker. His vital signs were as follows: Blood Pressure: 152/90 mmHg, Heart Rate: 100 bpm, Respiratory Rate: 16 bpm, and Temperature: 37.0 C:



Jones J, Normal CXR. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-13647

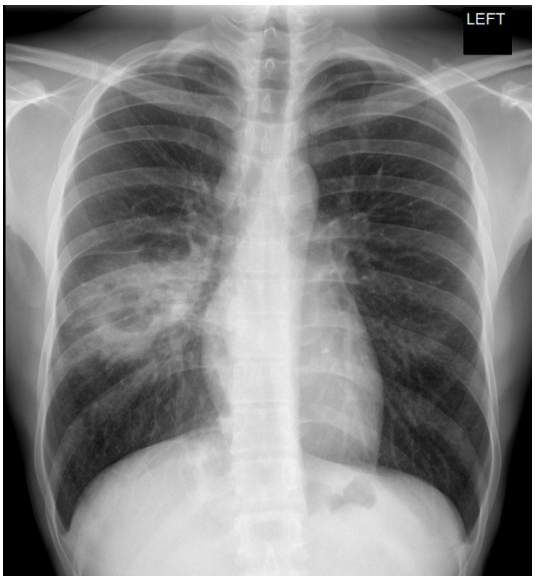
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Normal Chest X-Ray
  B. Pneumonia (Right Upper Lobe)
  C. Pneumonia (Right Lower Lobe)
  D. Pleural Effusion
  E. Lung Cancer

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 3

Clinical Vignette: A 67-year-old male presents to the Emergency Department with a productive cough, nausea and vomiting. He had a previous stroke. He is a non-smoker. On examination, he has saturation of 85% in air, has a HR of 100 bpm, and is febrile with a temperature of 39°C.



Yonso M, Lung abscess. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-84867

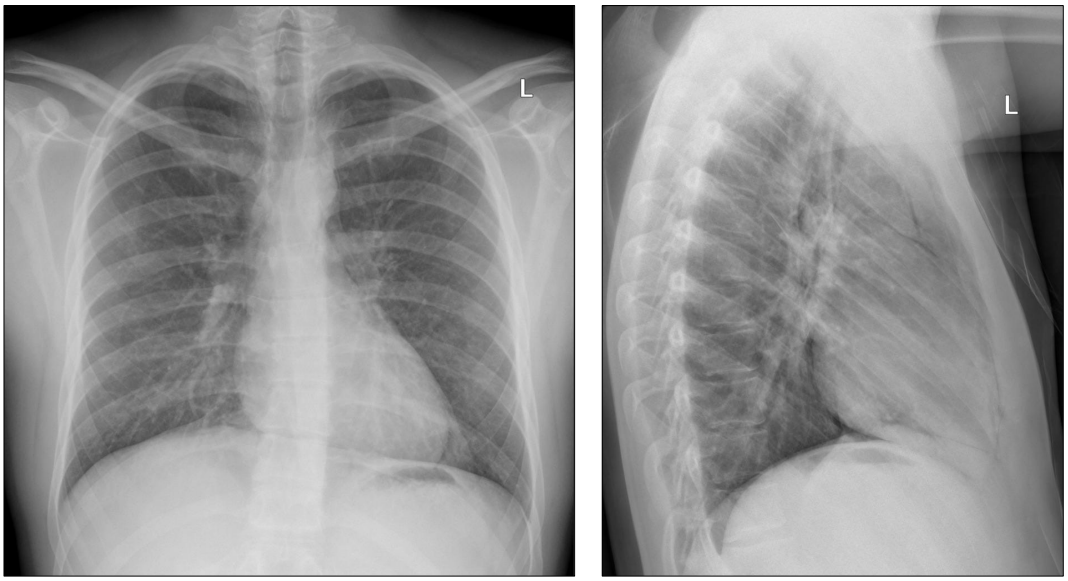
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Right Middle Lobe Pneumonia
  B. Right Upper Lobe Pneumonia
  C. Tuberculosis
  D. Lung Abscess
  E. Lung Cancer

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 4

Clinical Vignette: A 29-year-old male presented to the Emergency Department with increasing wheeze and dyspnea. He is a known asthmatic. On examination, he had oxygen saturation of 84% in room air and was afebrile. His respiratory rate was 28 bpm with a heart rate of 98 bpm. There were scattered wheezes throughout the lungs with reduced air entry bilaterally. His chest X-ray is shown below:



Gaillard F, Pneumomediastinum. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-21694

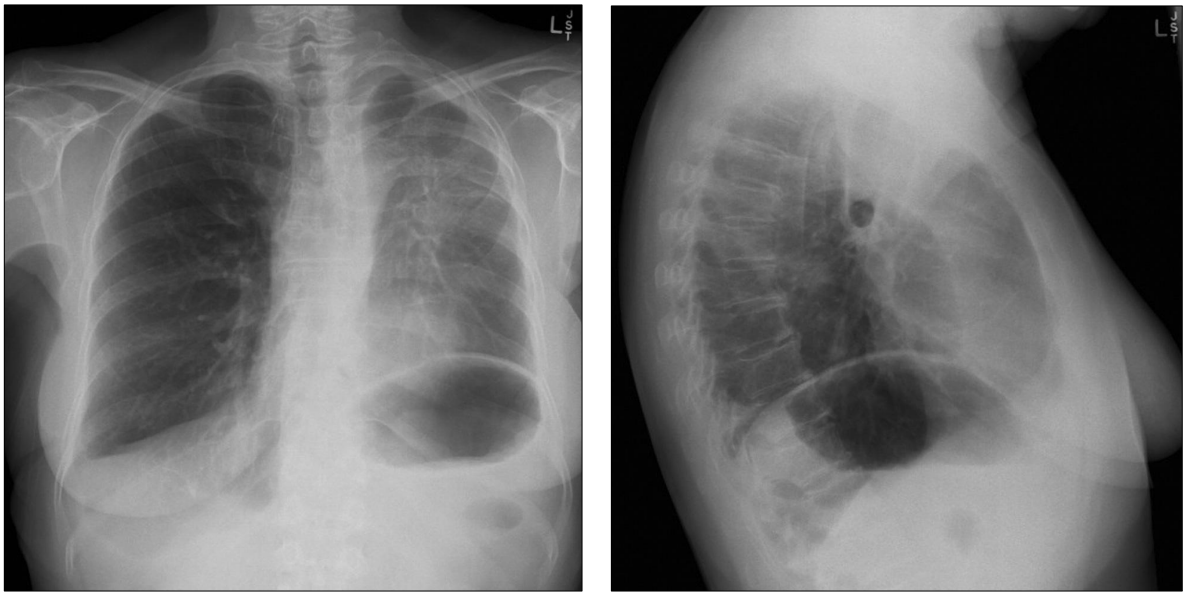
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  - **A.** Pneumothorax
  - **B.** Pneumomediastinum
  - **C.** Normal Chest X-ray
  - **D.** Rib Fracture
  - **E.** Right Lower Lobe Pneumonia

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 5

Clinical Vignette: A 29-year-old woman presented to the Emergency Department with increasing wheeze and dyspnea. She is a known asthmatic. On examination, she had oxygen saturation of 84% in room air and was afebrile. Her respiratory rate was 28 bpm with a heart rate of 98 bpm. There were scattered wheezes throughout the lungs with reduced air entry bilaterally. Her chest X-ray is shown below:



Gaillard F, Left upper lobe collapse. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-10554

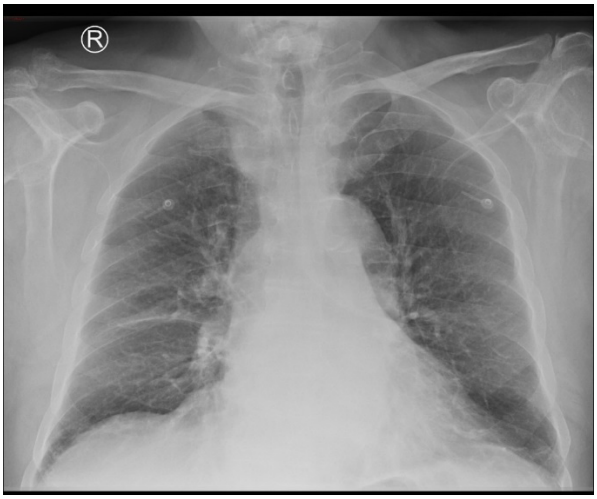
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  - **A.** Pleural Effusion
  - **B.** Lobar Collapse
  - **C.** Pneumothorax
  - **D.** Pneumonia
  - **E.** Normal Chest X-ray

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 6

Clinical Vignette: A 60-year-old man presents to the Emergency Department with acute shortness of breath. He has a 20 pack-year smoking history. On examination, he is afebrile with saturations of 90% in air. His heart rate is 100 bpm with a respiratory rate of 22. There is dullness and inspiratory crackles in both lower zones. His chest X-ray is shown below:



Worsley C, Pulmonary oedema. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-82412

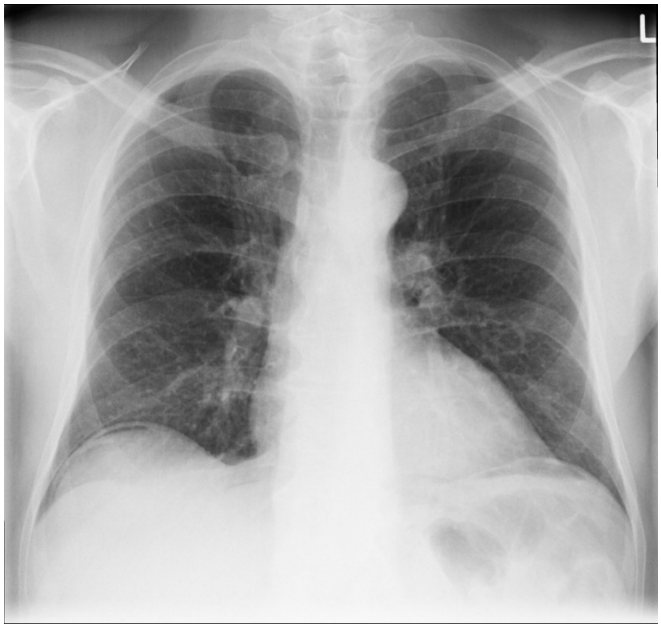
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Pneumonia
  B. Pulmonary Edema
  C. Interstitial Lung Disease
  D. Aortic Dissection
  E. Normal Chest X-ray

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 7

Clinical Vignette: A 25-year-old male presents to the Emergency Department with worsening abdominal pain. He is a non-smoker. On examination, he has an oxygen saturation of 87% in air, respiratory rate of 22 bpm, heart rate of 130 bpm, and is febrile with a temperature of 37.9°C. His chest X-ray is shown below:



Sorrentino S, Pneumoperitoneum. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-14866

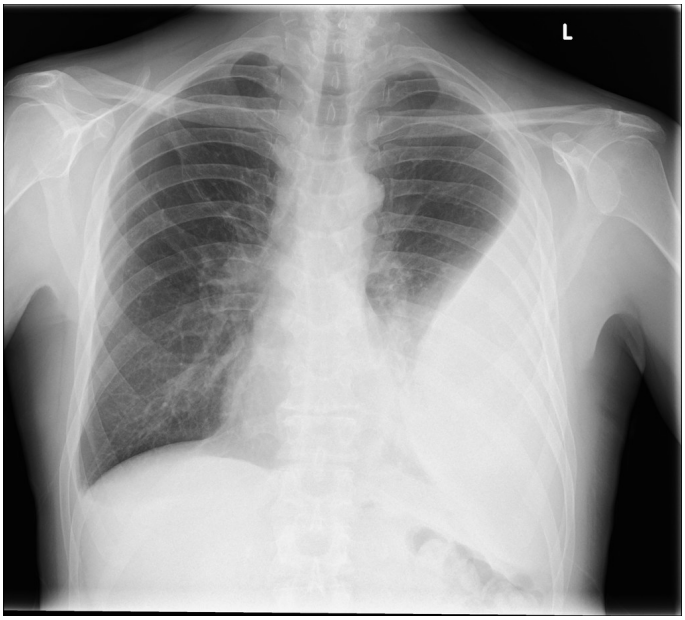
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Hiatal Hernia
  B. Pleural Effusion
  C. Pneumothorax
  D. Pneumoperitoneum
  E. Pneumonia

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 8

Clinical Vignette: A 70-year-old male presents to the Emergency Department feeling unwell with a productive cough. He was diagnosed with pneumonia 3 weeks earlier, but has not been taking his antibiotics. He is a heavy smoker. On examination, he is febrile and has a saturation of 90% in air. There are crackles, reduced air entry in the right hemithorax. His chest X-ray is shown below:



Bickle I, Pleural empyema. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-74921

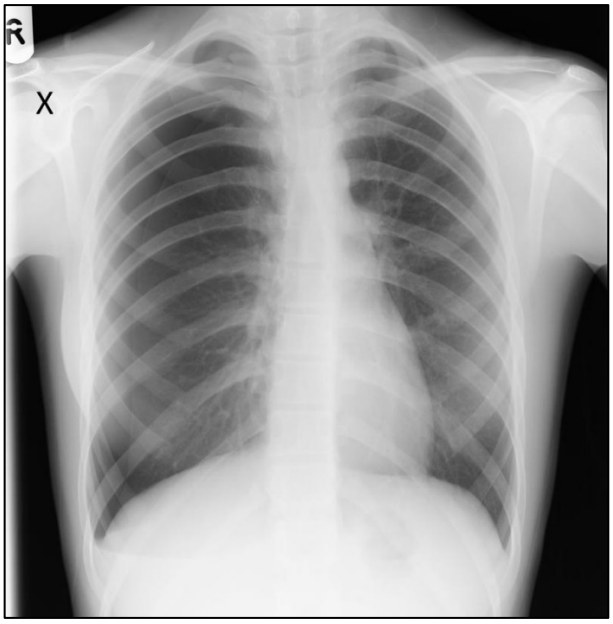
- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Lobar Collapse
  B. Tuberculosis
  C. Pneumothorax
  D. Empyema
  E. Lung Abscess

- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 9

Clinical Vignette: A 20-year-old male presents to the Emergency Department with sudden onset right-sided pleuritic chest pain and breathlessness. He has no significant past medical history and is a non-smoker. On examination, he has an oxygen saturation of 93% in air and is afebrile. His heart rate is 95bpm, and blood pressure is 120/82 mmHg. His chest X-ray is shown below:



Gregorius Enrico, Pneumothorax with apical bleb. , Radiopaedia.org,rID-126208

- **What is the most likely diagnosis?**
  Normal
  Abnormal
- **What is the most likely diagnosis?**
  A. Normal Chest X-ray
  B. Pneumonia
  C. Pneumothorax
  D. Pleural Effusion
  E. Rib Fracture

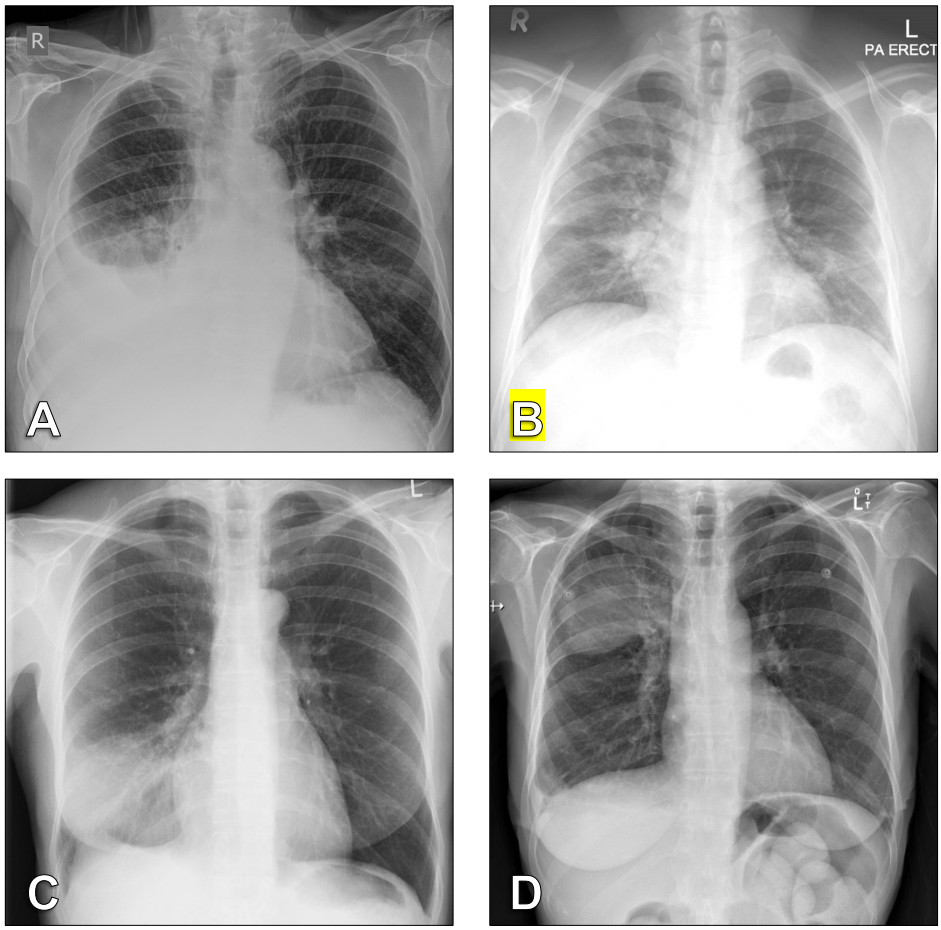
- **How do you rate your degree of confidence in interpreting the chest X-ray of this case?**

1	2	3	4	5
Low				High

Question 10

Clinical Vignette: A 60-year-old patient presented to the Emergency Department with fever and dry cough for the past 3 days. The patient underwent SARS-CoV-2 PCR testing to rule out COVID-19 pneumonia.

- **Which of following chest X-ray images is most consistent with COVID-19 pneumonia?**



A: Gavrila Andrei, Chest RX – pleural effusion. Radiopaedia.org, rID-157292. B: Aljilly S, COVID-19 pneumonia. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-76145. C: Sorrentino S, Pneumonia - right lower lobe. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-14982. D: Mistry V, Lung abscess. Case study, Radiopaedia.org, https://doi.org/10.53347/rID-56959

- **How do you rate your degree of confidence in interpreting the chest X-rays of this case?**

1	2	3	4	5
Low				High