

VLM Multi-Model Comparison Report

Dataset:

progression_recurrence_survival_1yr_2yr_3yr_4yr_5yr_v1_1

Subtask: died_of_cancer_1_yr

Question:

Based on the provided medical history and cancer evidence, is cancer-related mortality expected within 1 year of treatment initiation?

Correct Answer: Yes

Model: OpenGVLab/InternVL3_5-8B

all_image: [INCORRECT] <The patient was diagnosed with lung adenocarcinoma, clinical stage T3 N0 M0, indicating a localized tumor without lymph node involvement or distant metastasis. The treatment plan included surgery, which was tentatively scheduled. The patient's overall condition appears stable, with no immediate signs of severe complications or metastatic disease. The patient's age and general health status also suggest a reasonable prognosis for surgical intervention. Given the stage and treatment plan, cancer-related mortality within 1 year of treatment initiation is not expected.> | No

axial_1_image: [INCORRECT] <The patient was diagnosed with lung adenocarcinoma, clinical stage T3 N0 M0, indicating a localized tumor without lymph node involvement or distant metastasis. The treatment plan included surgery, which was tentatively scheduled. The patient's overall condition appears stable, with no immediate signs of severe complications or metastatic disease. The patient's age and general health status also suggest a reasonable prognosis for surgical intervention. Given the stage and treatment plan, cancer-related mortality within 1 year of treatment initiation is not expected.> | No

axial_all_image: [INCORRECT] <The patient was diagnosed with lung adenocarcinoma, clinical stage T3 N0 M0, indicating a localized tumor without lymph node involvement or distant metastasis. The patient's recent imaging showed an interval increase in consolidation and ground-glass opacities, suggesting worsening of the disease. However, the patient's overall condition appears stable, with no immediate signs of severe complications or metastatic spread. The treatment plan includes antibiotics and follow-up imaging, indicating a cautious approach to managing the disease progression. Given the stage and treatment plan, cancer-related mortality within 1 year of treatment initiation is not expected based on the current evidence.> | No

no_image: [INCORRECT] <The patient was diagnosed with lung adenocarcinoma, clinical stage T3 N0 M0, indicating a localized tumor without lymph node involvement or distant metastasis. The patient's recent PET and CT scans showed an interval increase in ground-glass nodules and consolidation, suggesting disease progression. However, the patient's overall condition appears stable, with no acute distress or significant symptoms. The

treatment plan includes antibiotics and a follow-up CT scan, indicating a cautious approach to managing the disease. Given the stage and the patient's response to treatment, cancer-related mortality within 1 year of treatment initiation is not expected based on the current evidence.> | No

sagittal_all_image: [CORRECT] <The patient was diagnosed with lung adenocarcinoma, clinical stage T3 N0 M0. The timeline shows progressive disease with increasing ground-glass opacities and consolidation, indicating worsening of the cancer. Despite treatment, the disease appears to be advancing, which is associated with a higher risk of mortality within a year.> | Yes

Model: OctoMed/OctoMed-7B

all_image: [CORRECT] <think>First, I need to determine whether the patient is expected to die within one year of starting treatment based on the provided timeline and data. The key factors include the type and stage of cancer, treatment details, imaging findings, and any prognostic indicators. The patient was diagnosed with lung adenocarcinoma (C34.90/C34.31 codes) in the right lower lobe. The initial staging was T3 N0 M0, indicating a locally advanced tumor without lymph node involvement or distant metastasis. However, subsequent imaging (PET-CT scans) showed increasing FDG uptake and spread of disease, suggesting progression despite initial treatment. The patient underwent several treatments: bronchoscopy with lymph node biopsy, CT-guided biopsy confirming adenocarcinoma, and multiple rounds of antibiotics and steroids. Despite these interventions, the CT scans show worsening disease with increased consolidation, ground-glass nodules, and lymphadenopathy. This indicates aggressive tumor behavior and possible resistance to therapy. Additionally, the patient developed bilateral pulmonary emboli, which may complicate prognosis but is secondary to the underlying malignancy. The presence of multiple small nodules and increased FDG uptake in lymph nodes suggests ongoing disease activity. Given the progression observed on imaging over several weeks, the patient's condition appears to be deteriorating rather than improving. The initial treatment plan included surgery, but delays and incomplete resolution of symptoms raise concerns about the effectiveness of the approach. Considering the aggressive nature of the adenocarcinoma, the lack of complete response to treatment, and the documented progression on imaging, the likelihood of survival beyond one year seems low. The patient's overall health status, while stable enough for outpatient visits, does not offset the aggressive tumor biology evident in the scans. Therefore, based on the timeline showing progressive disease despite treatment and the absence of evidence supporting long-term stability or remission, the conclusion is that cancer-related mortality is expected within one year.</think>
<answer>Yes</answer> | <label>Yes</label></think>

axial_1_image: [CORRECT] <think>First, I need to determine whether the patient is expected to die within one year of starting treatment based on the provided timeline. The key factors include the type and stage of cancer, treatment decisions, imaging findings, and any prognostic indicators mentioned. Looking at the timeline, the patient was initially diagnosed with a malignant neoplasm of the right lung (ICD10: C34.91) in September 2015. The diagnosis was later refined to adenocarcinoma of the right lower lobe (C34.31) in November 2015. The staging was T3 N0 M0, indicating a locally advanced tumor without distant metastasis. The patient underwent several procedures: bronchoscopy with lymph node biopsy (negative for malignancy), CT-guided biopsy confirming adenocarcinoma, and PET-CT scans showing increased FDG uptake and progression of disease over time. The PET-CT on November 18, 2015, showed increased consolidation and ground-glass opacities, suggesting progression despite initial treatment. Treatment planning included surgery (right thoracotomy with lobectomy) scheduled for November 28, 2015, but was postponed pending further evaluation. The patient was given antibiotics (Z-pack) and scheduled for another CT scan two weeks later. However, the timeline indicates that the patient developed worsening symptoms and complications such as pulmonary emboli, which required anticoagulation therapy. The patient's

performance status appears relatively good, with no significant weight loss or systemic symptoms reported during visits. However, the imaging clearly shows progressive disease with increasing consolidation, ground-glass nodules, and lymphadenopathy. The presence of these features suggests aggressive tumor behavior. Importantly, the patient was scheduled for surgery but the timeline does not confirm whether the surgery was performed. The last entry before December 2015 mentions a chest X-ray scheduled for December 11, 2015, and a telehealth visit, but no mention of surgery completion. If the surgery was not performed, the patient would remain untreated, leading to higher risk of mortality. Given the progression of disease evident on imaging, the initial treatment delay, and the absence of definitive surgical intervention, the prognosis is poor. The patient's condition worsened despite initial treatments, and the presence of progressive disease on multiple imaging studies supports the likelihood of cancer-related mortality within a year. Therefore, based on the timeline showing progressive disease, delayed treatment, and no definitive curative intervention, the answer is "Yes," cancer-related mortality is expected within one year.

Reasoning: 1. **Progressive Disease Evidence**: Multiple PET-CT scans (September–November 2015) show increasing FDG uptake, consolidation, ground-glass nodules, and lymphadenopathy, indicating aggressive tumor progression. 2. **Treatment Delays**: Surgery (right thoracotomy) was tentatively scheduled but not confirmed to have been performed, delaying definitive treatment. 3. **Complications**: Development of pulmonary emboli requiring anticoagulation suggests systemic involvement and poor prognosis. 4. **Imaging Findings**: Persistent consolidation, cavitation, and new nodules (November 2015) signal worsening disease despite initial therapies. 5. **Performance Status**: While the patient remained stable symptomatically until late November, imaging and procedural delays indicate inadequate control of disease. These factors collectively support a high risk of cancer-related mortality within one year.

axial_all_image: [CORRECT] First, I need to determine whether the patient is expected to die from cancer-related causes within one year of starting treatment. The key factors to consider include the type and stage of cancer, treatment details, imaging findings, and any prognostic indicators mentioned in the timeline. The patient was diagnosed with adenocarcinoma of the right lung, specifically in the lower lobe, classified as T3 N0 M0 according to the TNM staging system. This indicates a locally advanced tumor without lymph node involvement or distant metastasis. However, the presence of multiple centrilobular ground-glass nodules and consolidation suggests possible airway spread, which can indicate aggressive disease behavior. Imaging over time shows progression: initial CT scans showed consolidation and nodules, followed by increased FDG uptake on PET-CT indicating metabolic activity consistent with active tumor. The development of new nodules and increased size of existing ones points to disease progression despite initial treatments like antibiotics and bronchoscopy with lymph node biopsy. The patient underwent a CT-guided biopsy confirming adenocarcinoma. Despite these interventions, subsequent imaging (including a CT on 11/18/2015) showed increased ground-glass opacities and consolidation, suggesting ongoing tumor growth rather than resolution. The presence of right hilar adenopathy (now 13 mm) compared to prior measurements (10 mm) indicates lymph node enlargement, which may signal regional spread. Additionally, the patient developed bilateral punctate emboli, initially attributed to marantic endocarditis but later managed with anticoagulation. This complication might reflect systemic effects of cancer or hypercoagulability associated with malignancy, adding to the complexity of prognosis. The treatment plan included surgery (right thoracotomy with lobectomy) but was delayed pending further imaging and multidisciplinary discussion. The patient's performance status appears relatively good (no significant weight loss, no severe symptoms reported), but the aggressive imaging findings and histological confirmation of adenocarcinoma raise concerns about survival. Given the progression observed on imaging, the presence of lymphadenopathy, and the aggressive nature of adenocarcinoma with airway spread, the likelihood of cancer-related mortality within one year is high unless effective

treatment significantly alters the course. However, the timeline does not show definitive evidence of successful treatment or stabilization, and the disease seems to be progressing.

</think> <answer>Yes</answer> | <label> - The patient has adenocarcinoma of the right lung (T3 N0 M0) with progressive disease evidenced by increased ground-glass nodules, consolidation, and lymphadenopathy. - Imaging shows worsening airway spread and metabolic activity (increased SUV on PET-CT), indicating aggressive tumor behavior. - Despite initial treatments (antibiotics, bronchoscopy, surgery planning), disease progression is evident, suggesting poor prognosis. - The presence of bilateral emboli complicates management and may reflect systemic effects of malignancy. - Given the aggressive imaging findings and lack of documented treatment success, cancer-related mortality within 1 year is likely. </label></think>

\boxed{<answer>Yes</answer>}

no_image: [CORRECT] <think>First, I need to determine whether the patient's cancer-related mortality is expected within 1 year of treatment initiation based solely on the provided PATIENT_TIMELINE data. The options are "Yes" or "No". Looking at the timeline, the patient was diagnosed with lung adenocarcinoma (C34.90/C34.31) starting around November 2015. The initial CT scans showed consolidation and nodules, but the key point is the progression over time. On November 18, 2015, a CT scan showed increased ground-glass nodules and consolidation compared to earlier scans, indicating disease progression. The PET-CT on November 18 showed increased SUV values (from 8.3 to 9.0) and new nodules, suggesting active cancer growth. The patient underwent a CT-guided biopsy confirming adenocarcinoma. Subsequent imaging (November 30, 2015) showed further progression with increased consolidation in the right middle and lower lobes, enlarged centrilobular nodules, and increased right hilar adenopathy. This indicates aggressive disease spread despite initial treatments. Additionally, the patient developed bilateral punctate emboli, which may complicate management but do not directly indicate immediate mortality risk. However, the presence of metastatic potential (even if not definitively proven here) increases prognosis concerns. The treatment plan included surgery (right thoracotomy with lobectomy) scheduled for late November 2015, but the patient's condition worsened before surgery, leading to delays and additional treatments like antibiotics and bronchodilators. The fact that the disease progressed rapidly between September and December 2015 suggests an aggressive tumor biology. Given these factors—rapid progression on imaging, positive biopsy, and the need for repeated interventions—it is reasonable to conclude that the patient's cancer is advanced and progressing quickly, which would place him at high risk for mortality within a year if standard treatments fail or are delayed. Therefore, based on the documented progression and clinical course, the answer is "Yes".</think> <brief reasoning trace with explanation for label selection> | Yes <answer>Yes</answer></think>

sagittal_all_image: [CORRECT] <think>First, I need to carefully analyze the patient's timeline and available data to determine whether cancer-related mortality is expected within one year of treatment initiation. The key factors include the type and stage of cancer, treatment modalities, imaging findings, and clinical course. The patient was initially diagnosed with malignant neoplasm of the right lung (ICD10: C34.91) in September 2015. The diagnosis was further specified as adenocarcinoma of the right lower lobe (ICD10: C34.31) by November 2015. The clinical stage was reported as T3 N0 M0, indicating a locally advanced tumor without nodal involvement or distant metastasis. Imaging studies show progressive disease over time. The November 2015 PET-CT revealed increased FDG uptake and consolidation compared to earlier scans, suggesting active tumor growth. The December 2015 CT scan confirmed worsening consolidation and nodules, consistent with progressive adenocarcinoma. Despite initial treatments such as antibiotics and bronchoscopy, the disease progressed, as evidenced by increased nodules and adenopathy. Treatment plans included surgery (right thoracotomy with lobectomy) but were delayed due to ongoing evaluation and management of complications like pulmonary emboli. The patient underwent chemotherapy (levofloxacin and benzonatate) and repeat imaging, showing persistent disease activity. Given the aggressive nature of the

adenocarcinoma, the presence of progressive disease despite treatment, and the absence of complete resolution, the prognosis appears poor. However, the timeline is critical: the patient was diagnosed in September 2015, and the question is about mortality within one year of treatment initiation. Treatment initiation would typically begin around the time of diagnosis or shortly thereafter. Considering the progression observed within several months and the aggressive tumor behavior, it is reasonable to conclude that the patient's condition is unlikely to stabilize or improve significantly within a year, especially without definitive surgical intervention. The presence of progressive disease markers and the need for repeated interventions indicate a high risk of mortality within the first year.

Model: Qwen/Qwen3-VL-8B-Instruct

all_image: [INCORRECT] No | The patient's timeline shows a diagnosis of lung adenocarcinoma with progressive disease (increased ground-glass nodules and consolidation on CT scans) and a clinical stage of T3 N0 M0. However, the timeline does not contain any evidence of treatment initiation (e.g., surgery, chemotherapy, radiation) or any documented events that would indicate cancer-related mortality within 1 year of treatment. The patient's condition is being managed with antibiotics and follow-up imaging, and there is no record of treatment being started or of death occurring. Therefore, based on the provided evidence, cancer-related mortality within 1 year of treatment initiation is not expected.

axial_1_image: [INCORRECT] The patient is a 75-year-old male with a newly diagnosed right lower lobe lung adenocarcinoma (clinical stage T3 N0 M0). The timeline shows progressive disease: initial imaging in September 2015 suggested a mass, and subsequent PET-CT scans in November 2015 showed interval increase in ground-glass nodules, consolidation, and FDG uptake, consistent with progressive lung adenocarcinoma. The patient was scheduled for surgery but the plan was deferred due to disease progression. The timeline does not indicate initiation of any cancer treatment (e.g., chemotherapy, radiation, targeted therapy) or surgery. The question asks whether cancer-related mortality is expected within 1 year of treatment initiation. Since no treatment has been initiated, and the disease is progressive with a T3 stage (large tumor) in a 75-year-old patient, the expected mortality within 1 year of treatment initiation is high. However, the timeline does not provide evidence of treatment initiation, so the question is not answerable based on the provided data. The timeline only shows diagnosis and staging, not treatment. Therefore, the correct answer is "No" because the patient has not yet started treatment, and the question is about mortality after treatment initiation, which has not occurred. No

axial_all_image: [INCORRECT] The provided PATIENT_TIMELINE documents a 75-year-old male diagnosed with right lower lobe lung adenocarcinoma in November 2015. The clinical course, as detailed in the notes from November 25, 2015, and subsequent imaging, shows progressive disease. The PET-CT and CT scans from November 18, 2015, and December 9, 2015, demonstrate interval increases in ground-glass nodules, consolidation, and lymphadenopathy, which the clinicians interpret as "progressive lung adenocarcinoma" and "worsening airway spread of lung adenocarcinoma." The patient was not scheduled for surgery at that time due to this progression. The timeline does not contain any evidence of treatment initiation (e.g., chemotherapy, radiation, or surgery) or any documented improvement in the disease. Given the advanced stage (T3 N0 M0 with progression), the patient's age, and the documented progression of disease, cancer-related mortality within 1 year of treatment initiation is highly expected. No | The timeline shows progressive disease with no treatment initiation, making "Yes" unsupported.

no_image: [CORRECT] The patient, a 75-year-old male, was diagnosed with right lower lobe lung adenocarcinoma in October 2015. By November 2015, imaging (CT and PET-CT) showed progressive disease with increasing ground-glass nodules, consolidation, and lymphadenopathy. Despite initial plans for surgery, the tumor board recommended delaying

surgery due to disease progression. The patient was started on antibiotics for suspected infection, but imaging continued to show worsening disease. No definitive treatment (e.g., chemotherapy, radiation) was initiated within the timeline, and the patient's condition was described as "concerning for worsening of disease" with no evidence of response to antibiotics. The timeline does not show any curative or disease-modifying treatment being administered within the first year of diagnosis. Given the advanced stage (T3 N0 M0 with progression), lack of effective treatment initiation, and absence of any documented improvement or stabilization, cancer-related mortality within 1 year of treatment initiation is expected. Yes

sagittal_all_image: [INCORRECT] The patient, a 75-year-old male, was diagnosed with right lower lobe lung adenocarcinoma in October 2015. The timeline shows that his cancer was deemed to be progressing, not stable, as evidenced by multiple imaging studies. The November 2015 PET-CT and CT scans showed interval increases in ground-glass nodules, consolidation, and FDG uptake, which the clinicians interpreted as "progressive lung adenocarcinoma" and "worsening of disease." The plan was to delay surgery and treat with antibiotics to rule out infection, but the underlying cancer was considered to be advancing. The patient was not started on definitive cancer treatment (like chemotherapy or radiation) at this point, and the timeline does not show any subsequent treatment initiation. Given the advanced stage (T3 N0 M0) and the documented progression of disease, cancer-related mortality within 1 year of treatment initiation is highly expected. No | The patient's cancer was diagnosed in October 2015 and was found to be progressing by November 2015. The timeline shows no initiation of definitive cancer treatment (e.g., chemotherapy, radiation) after this point. The patient was not scheduled for surgery until November 28, 2015, but the plan was to delay it due to disease progression. The patient's cancer was not controlled, and the timeline does not show any subsequent treatment initiation. Therefore, cancer-related mortality within 1 year of treatment initiation is not expected.

Model: google/medgemma-1.5-4b-it

all_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical history includes a diagnosis of malignant neoplasm of the right bronchus or lung (C34.91) in November 2015, confirmed by pathology from a CT-guided biopsy. Subsequent imaging (PET-CT and CT chest) in November 2015 showed worsening disease with increased consolidation, ground-glass nodules, and centrilobular nodules, suspicious for progression of lung adenocarcinoma. The patient was referred to thoracic surgery for consideration of resection. However, due to the worsening disease and concern for infection versus progression, the plan was revised to include antibiotics (Z-Pak) and a repeat CT scan in two weeks. The patient was last seen in clinic on November 12, 2015. The most recent imaging (CT chest, November 18, 2015) showed interval increase in extent of ground-glass nodules and centrilobular distribution involving all lobes, increased consolidation ground-glass opacity in the right middle lobe, and a dominant consolidation in the right lower lobe with cavitation, consistent with progressive lung adenocarcinoma. The patient presented to the emergency department on November 4, 2015, with bilateral punctate emboli, which were attributed to marantic endocarditis and treated with Lovenox. The patient was last seen in clinic on November 12, 2015. The patient was last seen in clinic on November 12, 2015. At that time, Dr. Ammar reviewed all images and information with Mr. Jeon and his family and recommended he undergo a flexible bronchoscopy, mediastinoscopy to sample lymph nodes, and a right thoracotomy with a right lower lobectomy. The patient was tentatively scheduled to undergo surgery on November 28, 2015. Prior to surgery, we had recommended he undergo an updated PET and chest ct scan, as well as pulmonary function tests. His CT of the chest with contrast performed on November 18, 2015, was reviewed in clinic today. It shows interval increase in extent of ground-glass nodules and centrilobular distribution involving all lobes, which is concerning for progressive lung adenocarcinoma. The patient was last seen in clinic on November 12, 2015. At

that time, Dr. Ammar reviewed all images and information with Mr. Jeon and his family and recommended he undergo a flexible bronchoscopy, mediastinoscopy to sample lymph nodes, and a right thoracotomy with a right lower lobectomy. The patient was tentatively scheduled to undergo surgery on November 28, 2015. Prior to surgery, we had recommended he undergo an updated PET and chest ct scan, as well as pulmonary function tests. His CT of the chest with contrast performed on November 18, 2015, was reviewed in clinic today. It shows interval increase in extent of ground-glass nodules and centrilobular distribution involving all lobes, which is concerning for progressive lung adenocarcinoma. The patient was last seen in clinic on November 12, 2015. At that time, Dr. Ammar reviewed all images and information with Mr. Jeon and his family and recommended he undergo a flexible bronchoscopy, mediastinoscopy to sample lymph nodes, and a right thoracotomy with a right lower lobectomy. The patient was tentatively scheduled to undergo surgery on November 28, 2015. Prior to surgery, we had recommended he undergo an updated PET and chest ct scan, as well as pulmonary function tests. His CT of the chest with contrast performed on November 18, 2015, was reviewed in clinic today. It shows interval increase in extent of ground-glass nodules and centrilobular distribution involving all lobes, which is concerning for progressive lung adenocarcinoma. The patient was last seen in clinic on November 12, 2015. At that time, Dr. Ammar reviewed all images and information with Mr. Jeon and his family and recommended he undergo a flexible bronchoscopy, mediastinoscopy to

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> |
<label> The patient was diagnosed with malignant neoplasm of the right bronchus or lung in November 2015. <label>Yes</label> The patient has a history of lung cancer and has undergone multiple imaging studies including CT scans and PET scans showing worsening disease. <label>Yes</label> The patient has received treatment including antibiotics and a prescription for tessalon perles, suggesting ongoing management of the cancer. <label>Yes</label> The patient has had multiple follow-up visits and imaging studies, indicating ongoing monitoring and management. <label>Yes</label> The patient has had a recent chest X-ray (December 11, 2015) showing worsening consolidation and nodules, consistent with progression of lung cancer. <label>Yes</label> The patient has been started on levofloxacin, an antibiotic, likely due to symptoms suggestive of infection superimposed on the cancer. <label>Yes</label> The patient has had multiple follow-up visits and imaging studies, indicating ongoing monitoring and management. <label>Yes</label> The patient has had a recent chest X-ray (December 11, 2015) showing worsening consolidation and nodules, consistent with progression of lung cancer. <label>Yes</label> The patient has had multiple follow-up visits and imaging studies, indicating ongoing monitoring and management. <label>Yes</label> The patient has had a recent chest X-ray (December 11, 2015) showing worsening consolidation and nodules, consistent with progression of lung cancer. <label>Yes</label> The patient has had multiple follow-up visits and imaging studies, indicating ongoing monitoring and management. <label>Yes</label> The patient has had a recent chest X-ray (December 11, 2015) showing worsening consolidation and nodules, consistent with progression of lung cancer. <label>Yes</label> The patient has had multiple follow-up visits and imaging studies, indicating ongoing monitoring and management. <label>Yes</label> The patient has had a recent chest X-ray (December 11, 2015) showing worsening consolidation and nodules, consistent with progression of lung cancer. <label>Yes</label> The patient has had multiple

sagittal_all_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | Yes <label> The patient has a history of lung cancer (malignant neoplasm of unspecified part of right bronchus or lung) diagnosed in 2015. The patient has undergone multiple imaging studies including CT scans and PET scans, which show worsening of the lung cancer with increasing consolidation, ground-glass nodules, and centrilobular nodules, particularly in the right lower and middle lobes. The patient has also developed new bilateral punctate emboli in the brain. The patient has been treated with antibiotics for a cough, and a chest X-ray was ordered to rule out infection. The patient is scheduled for surgery (right lower lobectomy) and a multidisciplinary tumor board meeting. The recent CT scan shows worsening disease. The patient's symptoms include a productive cough. Given the worsening lung cancer on imaging and the presence of new brain emboli, the risk of cancer-related mortality within 1 year of treatment initiation is high. </label>

Model: google/medgemma-4b-it

all_image: [INCORRECT] Based on the provided medical history and cancer evidence, the patient's cancer-related mortality is expected within 1 year of treatment initiation. Reasoning: The patient was diagnosed with a malignant neoplasm of the right bronchus or lung in November 2015. The subsequent CT scan revealed a large consolidation with air bronchograms involving the entire right lower lobe, extending into the pleural space and major fissure, demonstrating heterogeneous intense FDG uptake, maximal SUV of 12.6, located posteromedially, suspicious for malignancy. This indicates a significant and aggressive tumor burden. The patient underwent a bronchoscopy with lymph node biopsies, which showed negative for malignancy. However, the subsequent CT-guided biopsy confirmed adenocarcinoma. The patient was then ordered an MRI of the brain, which showed no evidence of metastatic disease, but was found to have multiple focal bilateral punctate emboli. The patient was started on Lovenox 60 mg IV twice daily. The patient was last seen in our clinic on 11/12/2015. At that time, Dr. Ammar reviewed all images and information with Mr. Jeon and his family and recommended he undergo a flexible bronchoscopy, mediastinoscopy to sample lymph nodes, and a right thoracotomy with a right lower lobectomy. The patient was tentatively scheduled to undergo surgery on 11/28/2015. Prior to surgery, we had recommended he undergo an updated PET and chest ct scan, as well as pulmonary function tests. His CT of the chest with contrast performed on 11/18/2015 was reviewed by Dr. Vigil and myself in clinic today. It shows interval increase in extent of ground-glass nodules and centrilobular distribution involving all lobes. There is an increased consolidation ground-glass opacity in the right middle lobe. A dominant consolidation in the right lower lobe with cavitation also persists. Findings are most consistent with progressive lung adenocarcinoma with increasing airway spread of disease. PET-CT scan on 11/18/2015, shows again, increased consolidation and ground-glass opacities in the right middle lobe as well as consolidation in the right lower lobe with increased FDG uptake, SUV of 9.0, previously SUV 8.3; interval development of innumerable centrilobular ground-glass nodularities involving both lungs, focal FDG activity is again seen in the right

hilum, SUV 3.8, previously 3.4; and in the subcarinal region SUV 3.6, previously 2.8. There is a small right axillary lymph node with FDG uptake, SUV of 1.9 with preserved lymph node architecture which is most likely reactive. There is concern for worsening of disease. On today's visit, Mr. Jeon is accompanied by his family. We also have a medical Vietnamese interpreter present to help with the translation for today's visit. Overall, Mr. Jeon is feeling well. He does continue with a dry cough. Otherwise, he is feeling well. He denies any fevers, chills, night sweats, unintentional weight loss, decreased appetite, pain, shortness of breath, dyspnea on exertion, hemoptysis, nausea, or vomiting. He also denies any bony pains or neurological changes. Review Of Systems: A 14-point review of system is otherwise negative. Physical Examination: Current Vital Signs: Temperature 98.1 degrees Fahrenheit, pulse 96, respirations 18, blood pressure 108/69, current weight 141 pounds, O2 saturation 96% on room air. General Appearance: He is a well-appearing male, healthy, alert, cooperative, oriented, in no acute distress. HEENT: Normocephalic. Pupils equal, round, and react to light. Sclerae anicteric. Mucous membranes pink and moist. No oral lesions. Neck: Supple. No adenopathy. Lungs: Normal respiratory effort. Decreased breath sounds throughout the right lung. Left lung clear. Abdomen: Soft, nontender, nondistended. Normoactive bowel sounds. Lymph nodes: No palpable cervical or supraclavicular adenopathy. Extremities: Without edema or cyanosis. Warm and perfused x4. Neurologic: He is alert and appropriate. Clear speech. Vietnamese speaking only. Moves all extremities with equal strength bilaterally. Images reviewed in clinic today as described above in HPI. Impression And Plan: Mr. Vinyard is a 75-year-old male, newly diagnosed adenocarcinoma of the right lung lower lobe, clinical stage T3 N0 M0 with multifocal bilateral punctate emboli on brain. His most recent PET and CT scan showed interval increase in extent of ground-glass nodules in centrilobular distribution involving all lobes which is concerning for progressive lung adenocarcinoma. Dr. Wander reviewed the images and information with Mr. Jeon

axial_1_image: [INCORRECT] No

no_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | No The patient's medical history indicates a diagnosis of lung cancer in November 2015. The timeline shows follow-up imaging in November 2015 and December 2015, with a subsequent prescription for antibiotics and a chest X-ray. The patient is currently being treated for a possible infection, and there is no evidence of cancer-related mortality within 1 year of treatment initiation. <label>No</label>

sagittal_all_image: [INCORRECT] Based on the provided PATIENT_TIMELINE, the answer is: ***Yes*** **Reasoning:** The PATIENT_TIMELINE indicates that the patient was diagnosed with a malignant neoplasm of the right bronchus or lung in November 2015. The timeline also shows follow-up imaging and treatment in December 2015, including a chest CT scan and prescription for medication. This suggests that the patient is actively being treated for cancer and that the cancer is expected to be a significant factor in their health status within the next year.

Subtask: died_of_cancer_2_yr

Question:

Based on the provided medical history and cancer evidence, is cancer-related mortality expected within 2 years of treatment initiation?

Correct Answer: Yes

Model: OpenGVLab/InternVL3_5-8B

all_image: [CORRECT] <Based on the provided medical timeline, the patient was diagnosed with a large cell neuroendocrine carcinoma, which is a high-grade malignancy. The staging indicated N2 and T4, suggesting regional lymph node involvement and a large primary tumor. The patient's performance status (ECOG 1) indicates they are ambulatory but have some symptoms. Given the advanced stage and high-grade nature of the tumor, cancer-related mortality within 2 years of treatment initiation is a significant concern. High-grade neuroendocrine carcinomas are aggressive, and the presence of lymph node involvement (N2) and a large tumor (T4) further supports a poorer prognosis.> | Yes

axial_1_image: [CORRECT] <Based on the provided medical history, the patient was diagnosed with a large cell neuroendocrine carcinoma of the lung, classified as Stage 3B with N2 involvement and T4 tumor size. The patient's treatment plan involves further testing to determine the extent of the disease, followed by either chemoradiotherapy (CRT) for limited stage disease or combination chemotherapy plus immunotherapy for extensive stage disease. Given the advanced stage and aggressive nature of the tumor, cancer-related mortality within 2 years of treatment initiation is a significant concern. The patient's history of smoking and the presence of lymphadenopathy further support the likelihood of a poor prognosis.> | Yes

axial_all_image: [INCORRECT] <Based on the provided medical history, the patient was diagnosed with a large cell neuroendocrine carcinoma of the lung, classified as Stage IIIA (T4 N2 M0) according to the 8th edition of the AJCC/UICC staging system. This stage indicates locally advanced disease with regional lymph node involvement but no distant metastasis. The treatment plan discussed involved either chemoradiotherapy (CRT) for limited stage disease or combination chemotherapy plus immunotherapy for extensive stage disease, depending on further diagnostic results. Given the stage and treatment options, the prognosis for Stage IIIA cancer is generally better compared to more advanced stages. However, the presence of a significant tumor burden (T4) and lymph node involvement (N2) suggests a more guarded prognosis. The patient's performance status (ECOG 1) indicates that they are ambulatory and able to carry out light work, which is favorable for treatment tolerance and recovery. While there is a risk of recurrence and progression, the expected mortality within 2 years of treatment initiation for Stage IIIA cancer, especially with appropriate and timely treatment, is generally lower compared to more advanced stages. The treatment plan aims to control the disease and improve survival outcomes, which can be optimistic in this context. Therefore, based on the stage, treatment plan, and performance status, cancer-related mortality within 2 years is not expected to be high.> | No

no_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient was diagnosed with a large cell neuroendocrine carcinoma, which is a high-grade malignancy. The staging indicated as Stage 3B with N2 involvement, suggesting regional lymph node metastasis. The treatment plan discussed includes further testing to determine if the disease is limited or extensive stage, with potential treatment involving chemotherapy and radiation. Given the aggressive nature of the tumor and the stage, cancer-related mortality

within 2 years of treatment initiation is a significant concern. The patient's overall health, including comorbidities like atrial fibrillation and hypertension, may also impact prognosis. Therefore, based on the stage and tumor biology, cancer-related mortality is expected within 2 years. | No

sagittal_all_image: [CORRECT] <Based on the provided medical timeline, the patient was diagnosed with a large cell neuroendocrine carcinoma, which is a high-grade malignancy. The staging indicated N2 and T4, suggesting regional lymph node involvement and a large primary tumor. The patient's treatment plan involved further testing to determine the extent of the disease, with options for limited or extensive stage disease management. Given the aggressive nature of the tumor and the stage, cancer-related mortality within 2 years of treatment initiation is a significant concern. The patient's overall prognosis would depend on the effectiveness of the treatment and the absence of metastasis, but the high-grade nature of the cancer increases the risk of mortality within this timeframe.] | Yes

Model: OctoMed/OctoMed-7B

all_image: [INCORRECT] <think>First, I carefully examine the provided patient timeline and medical records to identify key factors related to cancer prognosis and mortality risk. The patient has been diagnosed with a poorly differentiated large cell neuroendocrine carcinoma (LCNEC), which is a rare and aggressive subtype of lung cancer. The staging indicates clinical N2 disease (mediastinal lymph node involvement) and possible T4 due to bronchial obstruction causing atelectasis. The CT scans reveal extensive mediastinal lymphadenopathy and left upper lobe collapse, suggesting locally advanced disease. The presence of a small left pleural effusion raises concern for potential malignant involvement, though this remains unconfirmed pending further tests like PET/CT and thoracentesis cytology. The patient's history includes a 30-pack-year smoking history, which is a significant risk factor for lung cancer. However, he quit smoking 11.5 years ago, reducing but not eliminating risk. There is no mention of distant metastases beyond the mediastinum and possible pleural effusion, which aligns with limited-stage disease if confirmed. Prognostic indicators such as performance status (ECOG 1), absence of distant metastases, and eligibility for combined chemoradiation (CRT) suggest a potentially curable course if treatment is effective. However, LCNEC tends to have a poorer prognosis compared to typical non-small cell lung cancers due to its aggressive nature and late presentation. Given these factors, the patient's cancer is likely limited stage based on current data, but the uncertainty around pleural effusion and the aggressive histology raise concerns about progression. Without definitive confirmation of metastatic disease, the immediate risk of cancer-related mortality within two years cannot be ruled out, especially considering the tumor's aggressiveness and the patient's age. Therefore, based solely on the provided timeline and imaging findings, the evidence supports a cautious assessment acknowledging the potential for early mortality despite initial limited-stage classification.</think> <answer> | Yes</answer>

axial_1_image: [CORRECT] <think>First, I carefully examine the provided patient timeline and medical records to identify key factors related to cancer prognosis and mortality risk. The patient has been diagnosed with a poorly differentiated large cell neuroendocrine carcinoma (LCNEC), which is a rare and aggressive subtype of lung cancer. The staging indicates clinical stage III-B (AJCC 8th edition), characterized by extensive mediastinal lymphadenopathy and possible local invasion causing left upper lobe collapse. The CT scans reveal infiltrative soft tissue in the mediastinum and left hilum, with abrupt cutoff of the left upper lobe bronchus leading to complete atelectasis. This suggests locally advanced disease with potential airway obstruction. The presence of a small left pleural effusion raises concern for possible malignant involvement, though cytology is pending. The pathology reports confirm high-grade malignancy with atypical cells in multiple lymph node stations (levels 2, 4, 7) and the primary lung lesion. Immunohistochemistry supports LCNEC rather than small cell lung cancer or adenocarcinoma. The patient's smoking history (30 pack-years) and prior occupational asbestos exposure add to

the risk profile. The patient underwent bronchoscopy with EBUS-TBNA, revealing malignant cells in lymph nodes and the primary tumor. However, the definitive histology remains incomplete due to insufficient tissue from the lung FNA. This necessitates further diagnostic steps like PET/CT and thoracentesis to assess for distant metastases or pleural involvement. Given the clinical stage (III-B), the presence of mediastinal lymphadenopathy, and the aggressive nature of LCNEC, the prognosis is poor. Limited-stage small cell lung cancer typically has better survival rates with combined chemoradiation, but LCNEC often behaves more aggressively. The patient's performance status (ECOG 1) allows for treatment, but the overall survival expectation remains guarded. Considering all these factors—stage, tumor biology, lymph node involvement, and pending metastatic workup—the likelihood of cancer-related mortality within two years is high if the disease progresses or metastasizes despite treatment.

</think> <answer>Yes</answer> | <label>Based on the provided timeline, the patient has a diagnosis of poorly differentiated large cell neuroendocrine carcinoma (LCNEC) with clinical stage III-B (AJCC 8th edition). Key findings include extensive mediastinal lymphadenopathy, left upper lobe collapse, and a suspicious small left pleural effusion. The tumor is aggressive, and the patient has a significant smoking history and prior asbestos exposure. While treatment options such as chemoradiation are being pursued, the stage and tumor biology suggest a high risk of progression and cancer-related mortality within two years. The pending PET/CT and pleural fluid analysis may alter staging but do not negate the baseline poor prognosis associated with this diagnosis.</think>

axial_all_image: [INCORRECT] <think>First, I carefully examined the provided medical timeline and imaging reports to understand the patient's condition and treatment status. The patient has been diagnosed with a poorly differentiated neuroendocrine carcinoma, likely large cell neuroendocrine carcinoma (LCNEC), based on biopsy results. The CT scans show extensive mediastinal involvement and left upper lobe atelectasis, suggesting possible bronchial obstruction. There is concern about a small left pleural effusion, which might indicate malignancy. The patient underwent bronchoscopy with EBUS-guided biopsies revealing malignant cells in multiple lymph node stations and the primary lung lesion. The pathology report confirms high-grade carcinoma consistent with LCNEC. The patient's history includes heavy smoking (30 pack-years) and prior exposure to asbestos, which are risk factors for lung cancer. The key question is whether cancer-related mortality is expected within 2 years of treatment initiation. To assess this, I consider several factors:

- Stage of disease: The CT suggests limited-stage disease if the pleural effusion is benign, but the presence of mediastinal lymphadenopathy and possible pleural involvement raises suspicion for more advanced disease.
- Treatment: The patient is scheduled for PET/CT and possibly thoracentesis to clarify staging before initiating chemoradiation (CRT). Without definitive confirmation of limited vs. extensive stage, prognosis remains uncertain.
- Prognostic indicators: LCNEC is aggressive; however, limited-stage disease generally has better survival rates than extensive-stage. The patient's performance status (ECOG 1) is favorable, supporting potential response to treatment.
- Timeline: The patient was admitted in July 2019, and the latest update is August 2019. Treatment initiation timing is unclear, but assuming treatment started soon after diagnosis, the 2-year window aligns with typical follow-up periods. Given these considerations, the evidence does not definitively confirm extensive-stage disease yet, nor does it provide clear prognostic data indicating imminent mortality within 2 years. Therefore, based solely on the provided timeline and imaging, the answer leans toward uncertainty rather than a definite yes.

</think> <answer> | <label> "No" </label></think>

no_image: [INCORRECT] <think>First, I carefully examine the entire patient timeline and diagnostic reports to identify key elements related to cancer staging and prognosis. The patient has been diagnosed with a poorly differentiated large cell neuroendocrine carcinoma (LCNEC), which is a subtype of non-small cell lung cancer (NSCLC). The CT scans reveal extensive mediastinal and hilar lymphadenopathy with complete atelectasis of the left upper lobe, suggesting local invasion and possible obstruction. However, there is no definitive evidence of

distant metastases beyond the thorax based on the available imaging. The presence of a small left pleural effusion raises concern for potential malignant involvement, but this remains unconfirmed. Pathology specimens from EBUS-TBNA and FNA biopsies consistently show high-grade malignancy involving multiple lymph node stations (L2, L4, L7) and the primary lung lesion. This indicates regional lymph node involvement, which is critical for staging. Importantly, the patient underwent a PET/CT scan arranged by the oncologist, pending results, to assess for extrathoracic spread. Until these results are finalized, the staging remains uncertain. The oncologist explicitly notes that if the PET/CT confirms no extrathoracic disease and the pleural effusion is benign, the patient would be classified as having limited-stage disease, eligible for concurrent chemoradiation (CRT). Conversely, if either test reveals more advanced disease, the patient would transition to extensive-stage management. Given the current data—no confirmed distant metastases, presence of regional lymph node involvement, and ongoing investigations—the patient's cancer is currently staged as limited stage based on CT findings alone. However, the uncertainty around the pleural effusion and pending PET/CT means the prognosis cannot yet be definitively categorized as high-risk for mortality within two years solely based on the current timeline. Therefore, without conclusive evidence of extensive disease or poor prognostic factors like rapid progression, distant metastases, or high-risk molecular markers, the decision leans toward the absence of immediate cancer-related mortality risk within two years.

<brief reasoning trace with explanation for label selection> | <label> "No" | Where: - The patient has been diagnosed with poorly differentiated large cell neuroendocrine carcinoma (LCNEC) of the lung with regional lymph node involvement (levels 2, 4, 7) and left upper lobe atelectasis. - Imaging shows no definitive evidence of distant metastases; a small left pleural effusion is noted but cytology results are pending. - The oncologist has arranged a PET/CT scan to further evaluate for extrathoracic spread, which is required to confirm extensive-stage disease. - Based on current CT findings alone, the disease appears localized to the thorax, making limited-stage classification plausible pending PET/CT results. - Without confirmed distant metastases or high-risk features (e.g., rapid progression, poor performance status), there is no definitive evidence of cancer-related mortality within 2 years. - The patient's comorbidities (atrial fibrillation, hypertension) and smoking history are noted but do not directly indicate imminent mortality. - Therefore, based solely on the provided timeline and available data, cancer-related mortality within 2 years is not conclusively supported.

sagittal_all_image: [CORRECT] <think>First, I carefully examine the provided patient timeline and medical records to identify key factors related to cancer prognosis and mortality risk. The patient has been diagnosed with a poorly differentiated large cell neuroendocrine carcinoma (LCNEC), which is a rare and aggressive subtype of lung cancer. The staging indicates clinical N2 disease (positive lymph nodes at levels 2 and 4) and possible involvement of the left upper lobe bronchus causing atelectasis. The patient underwent multiple diagnostic procedures including bronchoscopy with EBUS-TBNA and fine needle aspiration, confirming malignancy in lymph nodes and lung tissue. Imaging shows mediastinal lymphadenopathy and partial lung collapse, suggesting locally advanced disease. However, there is no definitive evidence of distant metastases yet, though a small left pleural effusion raises concern for potential spread. The patient's history includes a 30-pack-year smoking history, which is a significant risk factor for lung cancer. Despite quitting smoking 11.5 years ago, the presence of LCNEC suggests ongoing risk. The patient is currently undergoing workup for staging with PET/CT and thoracentesis to determine if the disease is truly limited or extensive stage. In terms of prognosis, LCNEC generally has a poor outcome compared to typical non-small cell lung cancers, especially when involving lymph nodes. The presence of N2 disease places the patient at higher risk for recurrence and mortality. Without definitive evidence of distant metastases, the initial staging might still consider this limited stage, but the aggressive nature of LCNEC increases the likelihood of progression. Given these factors—aggressive histology, lymph node involvement, and lack of definitive distant metastases—the patient remains at elevated risk for

cancer-related mortality within two years, particularly if the disease progresses despite treatment.</think> <answer>Yes</answer>

Model: Qwen/Qwen3-VL-8B-Instruct

all_image: [INCORRECT] The patient's cancer is diagnosed as a large cell neuroendocrine carcinoma (LCNEC), which is a high-grade malignancy. The clinical stage is described as "Limited stage small cell Lung cancer (Mixed large cell NET)" based on initial imaging, but the pathology report indicates LCNEC. The imaging (CT chest) shows extensive mediastinal lymphadenopathy and left upper lobe consolidation, which is consistent with advanced disease. The patient has a significant 30-year smoking history, a major risk factor for lung cancer. The timeline shows the patient was diagnosed in July 2019 and was immediately referred for oncology evaluation. The plan included PET/CT and thoracentesis to determine if the disease was limited or extensive stage. However, the timeline does not provide evidence of treatment initiation or any subsequent clinical events. The question asks if cancer-related mortality is expected within 2 years of treatment initiation. Since no treatment has been initiated and no follow-up data is provided, it is impossible to determine the expected mortality. The timeline only provides the initial diagnosis and staging, not the outcome or treatment response. No

axial_1_image: [INCORRECT] The patient's cancer is diagnosed as "Clinical Limited stage small cell Lung cancer (Mixed large cell NET)" based on imaging and biopsy findings. The stage is cT4N2M0 (AJCC 8th Edition), which corresponds to Stage 3B. The note explicitly states that the patient is "Clinical Limited stage" and that the plan is to proceed with "CRT" (chemoradiation therapy) if the PET/CT and thoracentesis are unremarkable. The note also indicates that the patient is "ECOG 1" (performance status 1), which is favorable. The patient's age is 64, and he has a 30-year smoking history but quit 11.5 years ago. The imaging (CT chest) shows mediastinal lymphadenopathy and left upper lobe consolidation, but no evidence of distant metastases on initial imaging or brain MRI. The plan is to confirm limited stage with further testing before initiating definitive therapy. The prognosis for limited stage SCLC is generally better than extensive stage, and with appropriate treatment, many patients achieve long-term survival. The patient's performance status and lack of distant metastases at initial diagnosis are favorable prognostic factors. Therefore, cancer-related mortality within 2 years of treatment initiation is not expected. No

axial_all_image: [CORRECT] The patient's cancer is diagnosed as a large cell neuroendocrine carcinoma (LCNEC) with extensive lymph node involvement (N2) and T4 disease, which is classified as Stage 3B. The timeline shows the diagnosis was made in July 2019. The treatment plan discussed at that time was for limited stage disease, contingent on further testing (PET/CT and thoracentesis) to rule out extrathoracic spread or malignant pleural effusion. The patient's ECOG performance status is 1, indicating he is ambulatory and capable of self-care, which is favorable for treatment tolerance. However, LCNEC is an aggressive cancer with a poor prognosis, especially in advanced stages. The timeline does not provide evidence of successful treatment completion or long-term survival. Given the aggressive nature of LCNEC and the advanced stage at diagnosis, cancer-related mortality within 2 years of treatment initiation is highly expected. Yes

no_image: [CORRECT] The patient has a diagnosis of large cell neuroendocrine carcinoma (LCNEC) of the lung, with clinical stage 3B (cT4N2M0) based on imaging and biopsy findings. The tumor is high-grade (Grade 3), and the patient has a significant smoking history (30 pack-years). While the initial assessment suggests limited-stage disease, the presence of a left pleural effusion and mediastinal lymphadenopathy raises concern for possible extrathoracic spread. The oncology note explicitly states that the patient's disease is "Clinical Limited stage small cell Lung cancer (Mixed large cell NET)" and that further testing (PET/CT and thoracentesis) is needed to confirm limited vs. extensive stage. However, the note also indicates that if the disease is found to be extensive, the patient will be offered combination

chemotherapy plus ICI — a regimen typically reserved for advanced disease. Importantly, the note does not indicate that the patient has received definitive treatment yet. The plan is to proceed with CRT if limited stage is confirmed, but the patient's disease is not yet definitively staged. Given the high-grade histology, advanced stage (3B), and the fact that the patient has not yet received definitive treatment, cancer-related mortality within 2 years is highly likely. Additionally, the patient's age (64 years), significant smoking history, and high-grade tumor biology (LCNEC) are all independent predictors of poor prognosis. The absence of brain metastases is a positive factor, but the stage and histology are more critical. Therefore, based on the provided evidence, cancer-related mortality within 2 years is expected. Yes

sagittal_all_image: [CORRECT] The patient's cancer is diagnosed as a large cell neuroendocrine carcinoma (LCNEC), which is a high-grade malignancy. The clinical stage is described as "Limited stage small cell Lung cancer (Mixed large cell NET)" based on initial imaging, but the pathology report indicates LCNEC, not small cell carcinoma. The patient has extensive lymphadenopathy (N2) and a T4 tumor, which is locally advanced. The timeline shows the patient was diagnosed in July 2019 and was referred for treatment. The prognosis for LCNEC is generally poor, with a median survival of 12-24 months for stage III disease, and the patient's stage is advanced. The timeline does not show any evidence of treatment initiation or response, and the patient's condition is described as "chronically ill appearing" with significant weight loss and symptoms. Based on the stage, histology, and clinical presentation, cancer-related mortality is expected within 2 years of treatment initiation. Yes

Model: google/medgemma-1.5-4b-it

all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, specifically a large cell neuroendocrine carcinoma, based on pathology from EBUS and lung biopsy. The clinical presentation includes symptoms consistent with lung cancer, such as cough, hemoptysis, weight loss, and chest pain. Imaging studies (CT chest, X-ray chest) show left upper lobe collapse/consolidation and mediastinal/hilar lymphadenopathy. The patient is currently undergoing evaluation for limited stage small cell lung cancer, which includes a PET/CT scan and thoracentesis with cytology. While the initial assessment suggests limited stage disease, the presence of a trace left pleural effusion raises concern for potential malignant involvement, which could change the staging to extensive stage disease. Therefore, cancer-related mortality within 2 years is a possibility, although not definitively confirmed yet. The question asks if mortality is *expected* within 2 years. Given the diagnosis of lung cancer, even if staged as limited, the risk of mortality within 2 years is significant. The pathology report indicates a poorly differentiated neuroendocrine carcinoma, which often carries a poorer prognosis than small cell lung cancer. The presence of a pleural effusion, even trace, adds uncertainty regarding the stage and potential for metastatic disease. Thus, expecting cancer-related mortality within 2 years is a plausible outcome, although not guaranteed. The provided timeline shows the patient is currently undergoing further workup (PET/CT, thoracentesis) to confirm the stage. However, the initial diagnosis and clinical picture suggest a significant risk. No | Yes

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, consistent with small cell lung cancer, based on pathology from EBUS and lung biopsy. The clinical presentation includes symptoms like cough, hemoptysis, weight loss, and chest pain, along with imaging findings of left upper lobe collapse and mediastinal/hilar lymphadenopathy. The patient has a significant smoking history (30 pack-years) and was exposed to asbestos. The pathology report suggests a large cell neuroendocrine carcinoma, which is a subtype of small cell lung cancer. Given the diagnosis of lung cancer, particularly a high-grade malignancy like neuroendocrine carcinoma, the risk of cancer-related mortality within

2 years is significant. The patient's ECOG score is 1, indicating she is ambulatory and not severely debilitated, but the diagnosis itself carries a substantial mortality risk. No | Yes

no_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label>

The patient has a diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, specifically a large cell neuroendocrine carcinoma, based on pathology from EBUS and lung FNA. The clinical presentation includes symptoms consistent with lung cancer, such as cough, hemoptysis, weight loss, and chest pain. Imaging studies (CT chest, X-ray chest) show left upper lobe collapse/consolidation and mediastinal/hilar lymphadenopathy. The patient is currently undergoing evaluation for limited stage small cell lung cancer, with plans for further workup including PET/CT and thoracentesis. The pathology report indicates a poorly differentiated neuroendocrine carcinoma, which is a type of lung cancer. Given the confirmed malignancy and the clinical context, the risk of cancer-related mortality within 2 years is significant. No | The patient has a confirmed diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, which is a type of cancer. The clinical presentation and imaging findings are consistent with lung cancer. The pathology report confirms malignancy. Therefore, there is a significant risk of cancer-related mortality within 2 years. Yes | The patient has a confirmed diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, which is a type of cancer. The clinical presentation and imaging findings are consistent with lung cancer. The pathology report confirms malignancy. Therefore, there is a significant risk of cancer-related mortality within 2 years.

sagittal_all_image: [INCORRECT] <No evidence of metastatic disease or disease progression. The patient has a diagnosis of poorly differentiated neuroendocrine carcinoma of the lung, stage 3B based on AJCC 8th edition. The patient has received chemotherapy and radiation therapy. The patient has a history of smoking but quit 11 years ago. The patient has a history of atrial fibrillation and hypertension. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy. The patient has received supportive care including nutritional supplementation and coping counseling. The patient has received follow-up imaging and clinical assessments. There is no evidence of disease progression or metastasis based on the provided timeline. The patient is currently receiving chemotherapy.

[illegible]

Model: google/medgemma-4b-it

all_image: [CORRECT] The patient has a history of lung cancer (c-8th AJCC/UICC-N2, Stage 3B, T4, M0). The cancer was diagnosed in 2019 and treated with chemotherapy and radiation. The patient is currently being followed for recurrence. Given the history of lung cancer, the current stage, and the fact that the patient is being followed, it is expected that the patient will have a significant risk of mortality within 2 years of treatment initiation. Therefore, the answer is: <brief reasoning trace with explanation for label selection> | "Yes"

axial_1_image: **[INCORRECT]** The patient has a history of lung cancer, specifically a poorly differentiated neuroendocrine carcinoma, diagnosed in July 2019. The cancer is staged as

c-8th_AJCC/UICC-N2 (CLINICAL|AJCC 8TH EDITION|CN2) and c-8th_AJCC/UICC-T4 (CLINICAL|AJCC 8TH EDITION|CT4). The patient has a significant smoking history (30 pack-years). The current imaging shows a left upper lobe mass with mediastinal lymphadenopathy and a trace left pleural effusion. The patient is being treated with chemotherapy and radiation oncology is being evaluated. Given the presence of lymph node involvement and a mass, the patient is at risk for cancer-related mortality within 2 years of treatment initiation. No | No

[illegible]

sagittal_all_image: **[INCORRECT]** Based on the provided PATIENT_TIMELINE, the answer is: ****Yes**** ****Reasoning:**** The PATIENT_TIMELINE indicates that the patient was diagnosed with lung cancer (specifically, a poorly differentiated neuroendocrine carcinoma) in 2019. The timeline also shows that the patient has a history of smoking, and the cancer is at an advanced stage (T4). The patient is currently undergoing treatment, including chemotherapy and radiation therapy. The timeline also shows that the patient is being followed up by oncologists and other specialists. The patient is also being offered supportive care, such as nutritional counseling and a cancer support group. The question asks if cancer-related mortality is expected within 2 years of treatment initiation. Given the advanced stage of the cancer and the patient's current treatment plan, it is reasonable to expect that the patient's cancer-related mortality is expected

within 2 years of treatment initiation.

Subtask: died_of_cancer_3_yr

Question:

Based on the provided medical history and cancer evidence, is cancer-related mortality expected within 3 years of treatment initiation?

Correct Answer: Yes

Model: OpenGVLab/InternVL3_5-8B

all_image: [INCORRECT] <brief reasoning trace with explanation for label selection>: The patient has a history of malignant neoplasms in multiple locations within the lungs and trachea, indicating advanced and multifocal disease. The presence of hypermetabolic activity in multiple areas suggests aggressive disease. The treatment plan involves radiation therapy, but the extensive nature of the disease and the multiple sites of involvement suggest a poor prognosis. Given the advanced stage and multifocal nature of the cancer, cancer-related mortality within 3 years of treatment initiation is expected. | <label> Yes

axial_1_image: [INCORRECT] <brief reasoning trace with explanation for label selection>: The patient has a history of malignant neoplasms in multiple locations within the lungs and trachea, indicating advanced disease. The imaging notes suggest multifocal disease recurrence and hypermetabolic activity, which are concerning for aggressive cancer behavior. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 3 years of treatment initiation is expected. | <label> Yes

axial_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence and hypermetabolic activity suggestive of aggressive disease. The presence of multiple pulmonary nodules and hypermetabolic activity, along with the need for radiation therapy planning, suggests advanced disease. Given the extent and nature of the malignancies, cancer-related mortality within 3 years of treatment initiation is expected. | Yes

no_image: [CORRECT] <The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with a history of EGFR mutant lung adenocarcinoma and metastatic disease. The PET/CT scan findings suggest multifocal disease recurrence and the presence of new primary lung adenocarcinomas. The treatment plan involves radiation therapy, but the presence of multifocal disease and metastatic involvement typically indicates a poorer prognosis. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 3 years of treatment initiation is expected.> | <Yes>

sagittal_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The PET/CT scan findings suggest extensive disease involvement, particularly with hypermetabolic activity in the left hemithorax, which is concerning for multifocal disease recurrence. Given the advanced stage and multifocal nature of the disease, along with the patient's history of metastatic disease, cancer-related mortality within 3 years of treatment initiation is expected. | Yes

Model: OctoMed/OctoMed-7B

all_image: [CORRECT] <think>First, I carefully examine the patient timeline and available data to assess whether cancer-related mortality is expected within 3 years of treatment initiation. The patient has a history of lung cancer, specifically malignant neoplasms affecting multiple lobes and sites (right lower lobe, right upper lobe, left upper lobe, and left pleura). The timeline shows multiple imaging studies, including PET/CT scans, indicating ongoing monitoring and treatment adjustments. Notably, the PET/CT from October 4, 2018, reveals multifocal hypermetabolic nodularity along the left pleura, fissures, and resection margins, suggesting possible disease recurrence or progression. Additionally, there are multiple bilateral pulmonary nodules visible, though some are below PET resolution limits. Comparing with prior imaging (March 2017), there is an increase in the number and extent of hypermetabolic nodules, indicating disease progression. The patient underwent a left upper lobe wedge resection in May 2017 and has been on erlotinib (an EGFR inhibitor) since November 2017, showing initial stability but now developing new nodules. The presence of multiple hypermetabolic nodules and progression despite targeted therapy suggests aggressive disease behavior. Given the evidence of recurrent or progressive disease after initial treatment, the likelihood of cancer-related mortality within 3 years increases significantly. The imaging findings and clinical course point towards advanced or refractory disease, which often correlates with poorer prognosis. Therefore, based on the documented disease progression and current status, the answer aligns with the expectation of cancer-related mortality within 3 years.</think> <answer>Yes</answer>

axial_1_image: [CORRECT] <think>First, I need to analyze the patient's timeline and available data to determine if cancer-related mortality is expected within 3 years of treatment initiation. Looking at the timeline: - The patient was diagnosed with multiple lung malignancies over a short period: - Malignant neoplasm of the right lower lobe (C34.31) - Malignant neoplasm of the left upper lobe (C34.11) - Malignant neoplasm of the trachea (C33) - Overlapping sites of unspecified bronchus and lung (C34.80) This indicates multiple primary tumors or aggressive disease progression, suggesting advanced or multifocal lung cancer. - Imaging shows post-surgical changes from a left upper lobe wedge resection (VATS LUL wedge resection on 05/14/2017) and multiple bilateral pulmonary nodules with some hypermetabolic activity indicating possible recurrence or metastasis. - The PET/CT from 10/14/2018 notes multifocal hypermetabolic nodularity along the left hemithorax pleura, fissures, and resection margins, which is concerning for multifocal disease recurrence. Additionally, there are multiple bilateral pulmonary nodules with varying SUV values, some below PET resolution but others showing significant metabolic activity (e.g., SUV 16.0). - The patient has been on erlotinib (EGFR inhibitor) since June 2017 for EGFR mutant lung adenocarcinoma, with previously stable disease until recent enlarging nodules in the right upper and lower lobes, suggesting progression despite targeted therapy. - The timeline spans from diagnosis through treatment planning and partial treatment, but no definitive curative treatment completion is noted here. The patient is undergoing radiation therapy planning but no clear indication of completed definitive treatment. Given the presence of multiple recurrent or persistent nodules with hypermetabolic activity, progression during targeted therapy, and lack of definitive treatment completion, the prognosis is poor. The presence of multiple sites of disease and recurrence suggests advanced-stage lung cancer with high risk of mortality. The question asks about cancer-related mortality within 3 years of treatment initiation. Given the aggressive nature of the disease, recurrence patterns, and ongoing treatment without definitive cure, it is reasonable to conclude that cancer-related mortality is expected within 3 years. Therefore, based on the evidence of multifocal disease, recurrence, and progression on therapy, the answer is "Yes."</think> <brief reasoning trace with explanation for label selection> | <label> The patient has a history of multiple malignant lung lesions (right lower lobe, left upper lobe, trachea) with documented progression during EGFR-targeted therapy (erlotinib). Recent PET/CT reveals multifocal hypermetabolic nodularity along the left hemithorax pleura and bilateral pulmonary nodules, indicating active disease recurrence. Despite radiation therapy planning, there is no evidence of definitive treatment completion or long-term disease control. These factors strongly

suggest a high risk of cancer-related mortality within 3 years of treatment initiation.</label>
<boxed>{Yes}

axial_all_image: [CORRECT] <think>First, I carefully examine the timeline and available data to understand the patient's condition and treatments. The patient has a history of EGFR-mutant lung adenocarcinoma initially treated with erlotinib, showing stable disease until recent developments. The timeline shows multiple imaging studies, including PET/CT scans, indicating progression or recurrence of disease. Specifically, the PET/CT notes multifocal hypermetabolic nodularity along the left pleura and fissures, suggesting possible recurrence or metastasis. Additionally, there are new nodules in both lungs, some with increasing solid components, raising concern for new primaries or progression. The patient underwent radiation therapy planning and has had multiple outpatient visits related to oncology care. The presence of hypermetabolic activity in multiple locations, especially after prior treatment, suggests aggressive or recurrent disease. The fact that the patient is undergoing further imaging (like brain MRI) and treatment planning indicates ongoing management of advanced disease. Given the imaging findings of multifocal hypermetabolic nodules, progression of disease, and the need for further treatment planning, this strongly implies that the patient's cancer remains active and potentially life-threatening. Without definitive curative treatment or complete response, cancer-related mortality risk within 3 years is high. The timeline does not show any indication of long-term remission or cure, supporting the conclusion that cancer-related mortality is expected.</think> <answer>Yes</answer>

no_image: [CORRECT] <think>First, I need to determine if the patient is expected to die from cancer-related causes within three years based on the provided timeline. The key factors to consider include the type and stage of cancer, tumor biology, treatments received, surgical outcomes, imaging findings, and any documented progression or recurrence. Looking at the timeline: - The patient was diagnosed with multiple lung cancers: right lower lobe (C34.31), left upper lobe (C34.11), left trachea (C33), and overlapping sites (C34.80). This indicates multifocal disease. - On October 4th, a PET/CT scan showed multifocal hypermetabolic nodularity along the left hemithorax pleura, fissures, and resection margins, suggesting possible recurrence or residual disease after previous surgery (left upper lobe wedge resection on May 2017). - The PET/CT also noted multiple bilateral pulmonary nodules, some with increasing solid components, which could represent new primaries or metastases. The SUV values indicate metabolic activity, supporting active disease. - The patient has been on erlotinib (an EGFR inhibitor) since June 2017 for EGFR-mutant lung adenocarcinoma, indicating advanced/metastatic disease. - Despite treatment, the disease appears to be progressing, as evidenced by increased number and extent of hypermetabolic nodules compared to prior scans. - The presence of multiple metastatic sites (pleura, lungs, possibly others) and ongoing disease activity despite targeted therapy suggests poor prognosis. - Given the aggressive nature of EGFR-mutant lung adenocarcinoma, especially with pleural involvement and multiple nodules, the likelihood of survival beyond three years without effective intervention is low. - The timeline shows no mention of long-term remission or complete response to treatment. Instead, there is progression noted in imaging. Therefore, considering the advanced stage, multifocal disease, EGFR mutation status, and documented progression, the patient is at high risk for cancer-related mortality within three years.</think> <brief reasoning trace with explanation for label selection> | <label> The patient has multifocal lung adenocarcinoma (right lower lobe, left upper lobe, trachea, and overlapping sites) with documented progression of hypermetabolic nodules on PET/CT despite EGFR-targeted therapy (erlotinib). Post-surgical changes and persistent pleural nodularity suggest incomplete response and active disease. The presence of multiple metastatic sites and increasing nodular burden indicate advanced-stage disease with poor prognosis. Given the aggressive tumor biology and lack of durable control, cancer-related mortality within 3 years is highly likely. </brief reasoning trace with explanation for label selection> | <label> <answer>Yes</answer></think>

sagittal_all_image: [CORRECT] <think>First, I carefully examine the provided timeline and imaging data to identify any indications related to cancer progression, treatment response, or prognosis. The timeline shows multiple entries indicating diagnoses of various lung malignancies, including malignant neoplasms of different lobes and sites, as well as a history of surgery (left upper lobe wedge resection) and ongoing treatments such as radiation therapy planning and Erlotinib use. The imaging notes mention post-surgical changes and multiple hypermetabolic nodules in the left hemithorax, some of which show increased activity compared to previous scans, suggesting possible disease recurrence or progression. Additionally, there are multiple bilateral pulmonary nodules visible, though their metabolic activity is not clearly elevated due to limitations in PET resolution. Given the presence of recurrent or persistent disease activity despite treatment, and considering the aggressive nature of lung adenocarcinoma, especially with EGFR mutation and metastatic spread, the likelihood of cancer-related mortality increases significantly over the next few years if effective control cannot be achieved. Therefore, based on the documented disease progression, treatment context, and imaging findings, it is reasonable to conclude that cancer-related mortality is expected within 3 years.</think> \boxed{Yes}

Model: Qwen/Qwen3-VL-8B-Instruct

all_image: [CORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma who underwent a PET/CT scan on 10/14/2018. The radiology report explicitly states that the patient has "multifocal hypermetabolic nodularity" in the left hemithorax, which is "concerning for multifocal disease recurrence." The report further notes that the patient's disease is "increased in number and extent" compared to a prior scan. The patient is described as having "stable disease" on erlotinib prior to this scan, but the current findings indicate progression. The timeline does not contain any evidence of treatment initiation (e.g., radiation therapy or chemotherapy) or any subsequent clinical improvement or stabilization. The patient's cancer is advanced with multifocal recurrence, and the timeline does not indicate any curative or disease-controlling treatment has been initiated or completed. Based on the evidence of multifocal recurrence and the absence of any documented treatment response or disease control, cancer-related mortality is expected within 3 years of treatment initiation. Yes

axial_1_image: [INCORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma, status post thoracic surgery, and metastatic disease. The PET/CT scan from 2018-10-04 shows multifocal hypermetabolic nodularity in the left hemithorax, concerning for recurrence, and new primary lung adenocarcinomas in the right upper and lower lobes. The patient is on erlotinib, but the imaging indicates progression. The timeline does not contain any evidence of cancer-related mortality within 3 years of treatment initiation. The patient is actively being managed with radiation oncology planning and follow-up, indicating ongoing treatment and survival. No | No

axial_all_image: [CORRECT] The provided PATIENT_TIMELINE documents a diagnosis of malignant neoplasm of the lung (ICD10CM/C34.31, C34.12, C34.11, C34.80, C33) with metastatic disease, as evidenced by PET/CT findings showing "multifocal hypermetabolic nodularity" in the left hemithorax and "multiple bilateral pulmonary nodules" with "increased in number and extent" compared to prior scans. The imaging report explicitly states that the findings are "concerning for multifocal disease recurrence" and that the patient has "metastatic disease to the pleura" following prior surgery. The timeline also includes a "non-diagnostic radiation therapy planning PET-CT" and a "whole-body F18-FDG PET-CT" which confirms the presence of widespread disease. Given the advanced stage of disease (metastatic to pleura and multiple lung nodules), the recurrence of disease, and the lack of any indication of complete remission or curative treatment, cancer-related mortality is expected within 3 years of treatment initiation. Yes

no_image: [CORRECT] The PET/CT scan on 10/14/2018 reveals multifocal hypermetabolic nodularity in the left hemithorax pleura, suture lines, and fissures, described as "nonspecific but concerning for multifocal disease recurrence." Additionally, there are multiple bilateral pulmonary nodules with increased solid components, presumed new primary lung adenocarcinomas. The patient has a history of EGFR mutant lung adenocarcinoma with prior surgery and erlotinib therapy, and the imaging shows progression with new lesions. The radiology report explicitly states that the hypermetabolic activity is "concerning for multifocal disease recurrence" and that the patient's disease is "not stable." Given the extent of disease, the presence of new primary tumors, and the lack of response to prior targeted therapy, cancer-related mortality within 3 years of treatment initiation is highly likely. Yes

sagittal_all_image: [INCORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma who presented with metastatic disease. The PET/CT scan from October 14, 2018, revealed multifocal hypermetabolic nodularity in the left hemithorax, concerning for disease recurrence, and new primary lung adenocarcinomas in the right upper and lower lobes. The timeline also includes a note from October 4, 2018, indicating a "non-diagnostic radiation therapy planning PET-CT" and a subsequent "WHOLE-BODY F18-FDG PET-CT" on October 14, 2018, which was interpreted as showing "multifocal hypermetabolic nodularity" and "increasing solid component" in the right lung, consistent with new primary tumors. The patient was referred for radiation therapy planning, indicating active treatment was being initiated. However, the timeline does not contain any information regarding the patient's survival status, treatment response, or any events that would indicate cancer-related mortality within 3 years of treatment initiation. Therefore, based solely on the provided evidence, it is not possible to determine if cancer-related mortality is expected within 3 years. No

Model: google/medgemma-1.5-4b-it

all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018, specifically involving the right lower lobe, right upper lobe, and left upper lobe. The patient underwent radiation therapy planning (including PET/CT) in October 2018. The PET/CT scan showed multifocal hypermetabolic nodularity of the left hemithorax pleura, suture lines, and fissures, which is concerning for multifocal disease recurrence. Additionally, the PET/CT scan revealed multiple bilateral pulmonary nodules, some of which demonstrate hypermetabolic activity, suggesting possible new primary lung adenocarcinomas. The patient has been on erlotinib for EGFR-mutant lung adenocarcinoma since June 2017, with overall stable disease. The provided timeline includes imaging findings suggestive of disease recurrence or progression (multifocal hypermetabolic nodularity, multiple pulmonary nodules with hypermetabolic activity) and a history of malignancy. Although the patient is on treatment, the presence of multifocal hypermetabolic activity on the PET/CT scan indicates potential disease progression or recurrence. Given the history of lung cancer and the findings suggestive of recurrence/progression, cancer-related mortality is expected within 3 years of treatment initiation. No | Yes

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT and CT scans performed in October 2018. These imaging studies show multifocal hypermetabolic nodularity of the left hemithorax pleura, suture lines, and fissures, along with multiple bilateral pulmonary nodules. The PET/CT report notes that the findings are "concerning for multifocal disease recurrence" and that the "multiple bilateral pulmonary nodules do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The report also mentions "Status post thoracic surgery with left upper lobe wedge resection" and "multiple enlarging nodules with

increasing solid component in the RUL and RLL lung, presumed new primary lung adenocarcinomas, each clinical T1a." Although the report describes the findings as "non-diagnostic radiation therapy planning scan" and "no official image interpretation or report will follow," the presence of multifocal hypermetabolic nodularity, multiple pulmonary nodules, and the description of "presumed new primary lung adenocarcinomas" in the context of a history of lung cancer strongly suggests metastatic disease. The PET/CT findings are concerning for recurrence or metastasis. Given the history of malignancy and the concerning findings on the PET/CT, cancer-related mortality is expected within 3 years of treatment initiation. No | Yes

no_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT and CT scans performed on October 4, 2018. The PET/CT report notes "multifocal hypermetabolic nodularity of the left hemithorax pleura, suture lines, and fissures is nonspecific but concerning for multifocal disease recurrence." It also mentions "Multiple bilateral pulmonary nodules do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The report further details findings in the left lung, including "postoperative changes consistent with prior left upper lobe wedge resection" and "multifocal nodularity is seen along the pleura, fissures, and resection margins demonstrating multifocal hypermetabolic activity." The report also describes "Multiple bilateral pulmonary nodules do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The patient has been on erlotinib since June 2017 for EGFR mutant lung adenocarcinoma. The timeline does not explicitly state the stage of the cancer, but the presence of multifocal disease recurrence and multiple pulmonary nodules, even if below accurate PET resolution, suggests a potentially advanced or metastatic state. The presence of multifocal disease recurrence is a significant finding indicating potential progression or spread of the cancer. Given the evidence of multifocal disease recurrence and multiple pulmonary nodules, cancer-related mortality within 3 years is a plausible outcome. No | Yes

sagittal_all_image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT and CT scans performed in October 2018. These imaging studies show multiple hypermetabolic nodules in the lungs, particularly in the left hemithorax, which are concerning for recurrence or metastasis. The PET/CT report specifically mentions "multifocal nodularity is seen along the pleura, fissures, and resection margins demonstrating multifocal hypermetabolic activity" and "conglomerate area of hypermetabolic activity within the posterior left apex associated with pleural nodularity measures approximately 3.2 x 1.4 with maximal SUV 16.0". This indicates a high likelihood of cancer recurrence or metastasis. The question asks about the expected cancer-related mortality within 3 years of treatment initiation. Given the evidence of multifocal hypermetabolic activity in the lungs on the PET/CT scan, which suggests disease recurrence or metastasis, the risk of cancer-related mortality is elevated. Therefore, the expected mortality is "Yes". Yes

Model: google/medgemma-4b-it

all_image: [CORRECT] The patient has a history of lung cancer, including multiple nodules and areas of hypermetabolic activity in the lungs, suggestive of recurrence. The PET-CT scan shows increased nodularity and hypermetabolic activity in the left hemithorax, which is concerning for disease progression. The patient has also had a history of thoracic surgery. Given the presence of multiple nodules and hypermetabolic activity in the lungs, and the history of lung cancer, the risk of cancer-related mortality within 3 years of treatment initiation is high. Output: Yes

axial_1_image: [INCORRECT] The patient has a history of lung cancer with multiple sites of involvement, including the right lower lobe, right upper lobe, left upper lobe, and left lower lobe.

[illegible]

cancer-related mortality within 3 years of treatment initiation is "No". <brief reasoning trace with explanation for label selection> | No The patient has a history of lung

[illegible]

sagittal_all_image: **[INCORRECT]** Based on the provided PATIENT_TIMELINE, the answer is: *****Yes***** ****Reasoning:**** The PATIENT_TIMELINE includes multiple PET/CT scans showing evidence of metastatic disease in the lungs. The scans demonstrate hypermetabolic activity in multiple nodules, indicating increased metabolic activity, which is a hallmark of cancer. The scans also show evidence of prior surgery and radiation therapy. The patient has a history of lung cancer and is currently being treated for it. The PET scans are used to assess the response to treatment and to guide treatment decisions. The scans are also used to monitor for recurrence. The presence of metastatic disease and the patient's history of lung cancer strongly suggest that cancer-related mortality is expected within 3 years of treatment initiation.

Subtask: died_of_cancer_4_yr

Question:

Based on the provided medical history and cancer evidence, is cancer-related mortality expected within 4 years of treatment initiation?

Correct Answer: Yes

Model: OpenGVLab/InternVL3_5-8B

all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical history indicates multiple malignant neoplasms in various parts of the lung and trachea, with evidence of multifocal disease recurrence and hypermetabolic activity on PET/CT scans. The presence of multiple nodules and hypermetabolic activity suggests advanced disease. Additionally, the patient has undergone thoracic surgery and is being managed by Radiation Oncology, indicating aggressive treatment. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 4 years of treatment initiation is expected. | Yes

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> |
<label> The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The imaging notes suggest significant disease activity and the need for radiation therapy planning. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 4 years of treatment initiation is a plausible concern. | Yes

axial_all_image: [INCORRECT] <brief reasoning trace with explanation for label selection> |
<label> The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence and hypermetabolic activity suggestive of aggressive disease. The patient has undergone PET/CT scans and radiation oncology visits, indicating active treatment planning and management. Given the advanced stage and multifocal nature of the malignancy, along with the presence of hypermetabolic activity and postoperative changes, the prognosis is generally poor. The timeline does not show evidence of successful treatment completion or remission, which further supports the likelihood of cancer-related mortality within 4 years of treatment initiation. | No

no_image: [CORRECT] <The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with a history of thoracic surgery and metastatic disease. The PET/CT scan findings suggest multifocal disease recurrence and the presence of new primary lung adenocarcinomas. Given the advanced stage of the disease, multiple sites of malignancy, and the presence of metastatic disease, cancer-related mortality within 4 years of treatment initiation is expected.> | <Yes>

sagittal_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> |
<label> The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The PET/CT scan findings suggest extensive disease involvement, particularly with hypermetabolic activity in the left hemithorax, which is concerning for multifocal disease recurrence. Given the advanced stage and multifocal nature of the disease, along with the patient's history of metastatic disease, cancer-related mortality within 4 years of treatment initiation is expected. | Yes

Model: OctoMed/OctoMed-7B

all_image: [CORRECT] <think>First, I carefully examine the patient timeline and available data to assess whether cancer-related mortality is expected within 4 years of treatment initiation. The patient has a history of lung cancer, specifically malignant neoplasms involving multiple lobes and sites (right lower lobe, right upper lobe, left upper lobe, left pleura, etc.). The timeline shows multiple imaging studies, including PET/CT scans, indicating ongoing monitoring and treatment adjustments. Notably, the PET/CT from October 4, 2018, reveals multifocal hypermetabolic nodularity along the left hemithorax pleura, fissures, and resection margins, suggesting possible disease recurrence or progression. Additionally, there are multiple bilateral pulmonary nodules visible, though some are below PET resolution limits. Comparing with prior imaging (March 2017), there is an increase in the number and extent of hypermetabolic nodules, indicating disease progression. The patient underwent a left upper lobe wedge resection in May 2017 and has been on erlotinib (an EGFR inhibitor) since November 2017, showing initial stability but now new enlarging nodules in the right upper and lower lobes, raising concern for either new primaries or progression despite targeted therapy. Given the presence of multiple metastatic or recurrent nodules, progression after initial treatment, and the aggressive nature suggested by PET findings, the prognosis is poor. The combination of multiple sites involved, progression during targeted therapy, and the nature of lung adenocarcinoma (especially EGFR-mutant) often correlates with reduced long-term survival without effective systemic control. Therefore, based on the imaging evidence of progressive disease and the clinical course, it is reasonable to conclude that cancer-related mortality is expected within 4 years.</think>
<answer>Yes</answer>

axial_1_image: [CORRECT] <think>First, I need to analyze the patient's timeline carefully to determine if cancer-related mortality is expected within 4 years of treatment initiation. The key factors to consider include the type and stage of cancer, treatment details, imaging findings, and any documented outcomes or progression. Looking at the timeline: - The patient was diagnosed with multiple lung malignancies: - Malignant neoplasm of the lower lobe, right bronchus or lung (C34.31) - Malignant neoplasm of the upper lobe, left bronchus or lung (C34.11) - Malignant neoplasm of the overlapping sites of unspecified bronchus and lung (C34.80) - Malignant neoplasm of the trachea (C33) - Imaging shows post-surgical changes from a left upper lobe wedge resection (VATS LUL wedge resection on 05/14/2017) and multiple hypermetabolic nodules in the left hemithorax with increased activity compared to prior scans, suggesting possible recurrence or progression. - The PET/CT from 10/14/2018 indicates multifocal hypermetabolic nodularity along the pleura, fissures, and resection margins, with some nodules having SUV values indicating metabolic activity. This suggests active disease rather than benign changes. - The patient has been on erlotinib (an EGFR inhibitor) since June 2017 for EGFR-mutant lung adenocarcinoma, but there are enlarging nodules with increasing solid components in the right upper and lower lobes, presumed new primaries, each clinical T1a. - The timeline ends around October 2018, so the period of interest is roughly from May 2017 (surgery) to October 2018 (current date). Now, considering prognosis and mortality risk: - The presence of multiple lung tumors, especially with new primaries and hypermetabolic activity on PET, indicates aggressive disease. - Despite treatment with erlotinib, there is evidence of progression (new nodules, increasing size), which suggests resistance or inadequate control. - The patient underwent radiation therapy planning but no definitive radiation treatment is mentioned yet, possibly due to ongoing evaluation. - The combination of EGFR mutation-positive lung adenocarcinoma with multiple metastatic sites and progression despite targeted therapy generally carries a poor prognosis. - In lung cancer, especially with multiple metastases and progression during treatment, the 4-year survival rate is typically low, often less than 20%, depending on specifics. - However, without knowing the exact stage (e.g., whether there is distant metastasis beyond lungs), performance status, or biomarker status beyond EGFR, it's challenging to give precise numbers. But based on the imaging showing multifocal hypermetabolic nodules with increased activity over time and progression of disease, the likelihood of cancer-related mortality within 4 years is high. Therefore, the answer should be

"Yes".</think> <brief reasoning trace with explanation for label selection> | <label> Yes </label>

****Explanation**:** The patient has EGFR-mutant lung adenocarcinoma with multiple metastatic sites (pleural, fissures, and new nodules in contralateral lobes) and documented progression despite targeted therapy (erlotinib). Post-surgical changes and PET/CT findings indicate active disease with hypermetabolic nodularity, suggesting poor response to treatment. These factors strongly correlate with high cancer-related mortality risk within 4 years.</think> \boxed{Yes}

axial_all_image: [CORRECT] <think>First, I carefully examine the timeline and available data to understand the patient's condition and treatments. The patient has a history of EGFR-mutant lung adenocarcinoma initially treated with erlotinib, showing stable disease until recent developments. The timeline shows multiple imaging studies, including PET/CT scans, indicating progression or recurrence of disease. Specifically, the PET/CT notes multifocal hypermetabolic nodularity along the left pleura and fissures, suggesting possible recurrence or metastasis. Additionally, there are new nodules in both lungs, some with increasing solid components, raising concern for new primaries or progression. The patient underwent a left upper lobe wedge resection previously, and now there are post-surgical changes visible. The PET/CT comparison with a prior study indicates increased hypermetabolic activity and nodularity over time, implying disease progression rather than stability. Given the presence of multiple hypermetabolic nodules, post-surgical changes, and progression despite targeted therapy, the prognosis is poor. The patient's treatment includes radiation planning, but no definitive curative intervention is mentioned. Considering all these factors—progressive disease, hypermetabolic nodules, and lack of complete response—the likelihood of cancer-related mortality within 4 years remains high.</think> <answer>Yes</answer>

no_image: [CORRECT] <think>First, I need to determine if the patient is expected to die from cancer-related causes within four years based on the timeline provided. Let me carefully review all the data points. The patient was diagnosed with multiple lung malignancies: initially right lower lobe (C34.31), then left upper lobe (C34.11), and later a combined diagnosis (C34.80) indicating overlapping sites. There's mention of a tracheal malignancy (C33). These diagnoses suggest advanced or multifocal lung cancer. The timeline shows treatments including radiation therapy planning (CPT4 codes) and PET/CT scans. The PET/CT from October 4, 2018, indicates post-surgical changes from a left upper lobe wedge resection done earlier (May 2017). However, there are multiple hypermetabolic nodules in the left hemithorax, pleura, fissures, and some in the right lung, suggesting recurrent or metastatic disease. The SUV max values vary, but some are elevated (e.g., 4.2, 16.0), which can indicate active disease. The patient has been on erlotinib (an EGFR inhibitor) since June 2017, implying a known EGFR mutation and metastatic disease. Despite treatment, there are enlarging nodules with increasing solid components, suggesting progression despite therapy. The presence of multiple hypermetabolic nodules, especially after surgery and during ongoing treatment, indicates persistent or progressive disease. The fact that the PET/CT showed increased hypermetabolic nodularity compared to a prior study (March 2017) further supports disease progression. Given the multifocal nature, recent progression while on targeted therapy, and the aggressive imaging findings, the prognosis is poor. Without curative treatment, survival is typically measured in months rather than years for such cases. Even with treatment, the presence of multiple metastatic sites and progression suggests a high risk of death within four years. Therefore, based on the evidence of advanced, multifocal, progressing lung adenocarcinoma with EGFR mutation and inadequate response to current therapy, the likelihood of cancer-related mortality within four years is high.</think> <brief reasoning trace with explanation for label selection> | <label> The patient has multifocal lung adenocarcinoma (right lower lobe, left upper lobe, trachea) with documented progression despite EGFR-targeted therapy (erlotinib). The PET/CT reveals hypermetabolic nodules in the left hemithorax, fissures, and right lung, indicating active disease. Post-surgical changes and enlarging nodules suggest recurrence/metastasis. Given the aggressive imaging findings, progression on therapy, and lack of curative intervention, cancer-related mortality within 4 years is highly likely. </brief reasoning trace with explanation

for label selection> | <label> Yes </label>

sagittal_all_image: [CORRECT] <think>First, I carefully examine the provided timeline and imaging data to identify any indications related to cancer progression or treatment response that might suggest a high risk of cancer-related mortality within four years. The timeline shows multiple entries indicating diagnoses of various lung malignancies, including malignant neoplasms of different lobes and regions, as well as a history of surgery (left upper lobe wedge resection). There is mention of metastatic disease to the pleura and new nodules developing over time. The PET/CT scan notes multifocal hypermetabolic nodularity along the pleura, fissures, and resection margins, suggesting active disease. Additionally, there are multiple bilateral pulmonary nodules visible, some of which show increased metabolic activity, indicative of possible recurrence or progression. The patient underwent radiation therapy planning and has had multiple imaging studies showing persistent or progressive disease. The presence of multiple hypermetabolic nodules, especially after prior treatment, suggests ongoing aggressive disease behavior. The fact that the patient is undergoing further imaging and treatment planning indicates that the disease remains active and potentially challenging to control. Given the combination of recurrent disease, multiple nodules, and the need for further treatment planning, these factors strongly imply a higher likelihood of cancer-related mortality within the next four years if the disease progresses or becomes refractory to treatment.</think>
<answer>Yes</answer>

Model: Qwen/Qwen3-VL-8B-Instruct

all_image: [CORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma who underwent a PET/CT scan on 10/14/2018. The radiology report explicitly states that the patient has "multifocal hypermetabolic nodularity" in the left hemithorax, which is "concerning for multifocal disease recurrence." The report further notes that the patient's disease is "increased in number and extent" compared to a prior scan. The patient is described as having "stable disease" on erlotinib prior to this scan, but the current findings indicate progression. The timeline does not contain any evidence of treatment initiation (e.g., radiation therapy or chemotherapy) or any subsequent follow-up that would indicate a change in disease status or treatment response. Given the evidence of multifocal disease recurrence and progression, and the absence of any information suggesting effective treatment or stabilization, cancer-related mortality within 4 years of treatment initiation is expected. Yes

axial_1_image: [INCORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma, status post thoracic surgery, and metastatic disease. The PET/CT scan from 2018-10-04 shows multifocal hypermetabolic nodularity in the left hemithorax, concerning for recurrence, and new primary lung adenocarcinomas in the right upper and lower lobes. The patient is on erlotinib, but the imaging indicates progression. The timeline does not contain any evidence of cancer-related mortality occurring within 4 years of treatment initiation. The patient is actively undergoing treatment planning and surveillance, with no documented death event. Therefore, based on the available evidence, cancer-related mortality is not expected within 4 years. No | No

axial_all_image: [CORRECT] The provided PATIENT_TIMELINE documents a diagnosis of malignant neoplasm of the lung (ICD10CM/C34.31, C34.12, C34.11, C34.80, C33) with metastatic disease, as evidenced by PET/CT findings showing "multifocal hypermetabolic nodularity" and "increasing solid component" in the lungs, along with "multifocal nodularity along the pleura" and "conglomerate area of hypermetabolic activity" in the left hemithorax. The imaging report explicitly states that the findings are "concerning for multifocal disease recurrence" and that the patient has "metastatic disease to the pleura" following prior surgery. The timeline also includes a "non-diagnostic radiation therapy planning PET-CT" and a "whole-body F18-FDG PET-CT" which confirms the extent of disease. The patient is 59 years old and has a history of EGFR mutant lung adenocarcinoma. Given the advanced stage of

disease with multifocal recurrence and metastatic spread to the pleura, and without evidence of complete response to prior therapy (erlotinib), cancer-related mortality within 4 years of treatment initiation is highly expected based on the documented evidence. Yes

no_image: [CORRECT] The patient has a history of EGFR mutant lung adenocarcinoma with metastatic disease to the pleura, status post VATS wedge resection, and presents with new primary lung adenocarcinomas (RUL and RLL) and multifocal hypermetabolic nodularity in the left hemithorax. The PET/CT report (10/14/2018) indicates multifocal disease recurrence with SUV max values up to 16.0, suggesting aggressive disease. The patient is on erlotinib, but the imaging shows progression or new primaries. The timeline includes radiation therapy planning, indicating active treatment intent. Given the multifocal, recurrent, and metastatic nature of the disease, and the absence of any evidence of disease control or response to treatment, cancer-related mortality within 4 years is highly likely. Yes

sagittal_all_image: [INCORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma who presented with metastatic disease. The PET/CT scan from October 14, 2018, revealed multifocal hypermetabolic nodularity in the left hemithorax, concerning for disease recurrence, and multiple bilateral pulmonary nodules. The report explicitly states that the patient has "stable disease" on erlotinib therapy as of the prior scan in May 2017. The timeline shows treatment initiation (radiation therapy planning) on October 4, 2018. There is no evidence of progression or death within the 4-year window from treatment initiation. The patient's disease status is described as "stable" and the treatment plan is being developed, indicating a non-terminal trajectory at this point. No | No

Model: google/medgemma-1.5-4b-it

all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's timeline includes a diagnosis of malignant neoplasm of the lung (lung cancer) in October 2018. The subsequent PET/CT scan performed on October 4, 2018, shows multifocal hypermetabolic nodularity of the left hemithorax pleura, suture lines, and fissures, along with multiple bilateral pulmonary nodules. The report notes that the findings are "nonspecific but concerning for multifocal disease recurrence" and that the nodules "do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The report also describes "multiple bilateral pulmonary nodules" and "conglomerate area of hypermetabolic activity within the posterior left apex associated with pleural nodularity measures approximately 3.2 x 1.4 with maximal SUV 16.0." This indicates the presence of multiple metastatic lesions in the lungs, which is a form of cancer-related mortality. The question asks if cancer-related mortality is expected within 4 years of treatment initiation. Given the presence of multifocal lung metastases identified on the PET/CT scan, it is highly likely that the patient will experience cancer-related mortality within 4 years. No | Yes

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT scans performed on October 4, 2018, which show multifocal hypermetabolic nodularity in the left hemithorax, suggesting possible recurrence or metastasis. The PET/CT also shows multiple bilateral pulmonary nodules, some with hypermetabolic activity, and a 7 mm mixed subsolid/groundglass nodule in the right upper lobe and a 7 mm subsolid appearing nodule in the right lower lobe, both with maximal SUV values below accurate PET resolution. The patient has been on erlotinib for EGFR-mutant lung adenocarcinoma since June 2017, with overall stable disease. The presence of multiple lung nodules with hypermetabolic activity on PET/CT, especially in the context of known lung cancer and ongoing treatment, indicates a high risk of disease progression or recurrence. The imaging findings suggest the presence of metastatic disease or significant local recurrence. Given the evidence of multiple lung nodules with hypermetabolic activity on PET/CT, cancer-related mortality is expected within 4 years of treatment initiation. No | Yes

no_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT and CT scans performed on October 4, 2018. The PET/CT report notes "multifocal hypermetabolic nodularity of the left hemithorax pleura, suture lines, and fissures is nonspecific but concerning for multifocal disease recurrence." It also mentions "Multiple bilateral pulmonary nodules do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The report further details findings in the left lung, including "postoperative changes consistent with prior left upper lobe wedge resection" and "multifocal nodularity is seen along the pleura, fissures, and resection margins demonstrating multifocal hypermetabolic activity." The report also describes "Multiple bilateral pulmonary nodules do not demonstrate significant hypermetabolic activity but are predominantly below accurate PET resolution." The patient has been on erlotinib since June 2017 for EGFR-mutant lung adenocarcinoma. The timeline does not mention any documented treatment completion or disease progression/resolution. The presence of multifocal hypermetabolic nodularity, especially in the context of a history of lung cancer and ongoing treatment, suggests potential disease activity or recurrence. While the PET scan findings are described as "non-diagnostic" in the radiology report, the presence of concerning findings like multifocal nodularity and the patient's history of malignancy raise concern for potential cancer-related mortality within 4 years. The timeline does not explicitly state disease progression or treatment completion. The presence of multifocal hypermetabolic nodularity is a concerning finding. No | Yes

sagittal_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT and CT scans performed in October 2018. These imaging studies show multiple hypermetabolic nodules in the lungs, particularly in the left hemithorax, which are concerning for recurrence or metastasis. The PET/CT report specifically mentions "multifocal nodularity is seen along the pleura, fissures, and resection margins demonstrating multifocal hypermetabolic activity" and "conglomerate area of hypermetabolic activity within the posterior left apex associated with pleural nodularity measures approximately 3.2 x 1.4 with maximal SUV 16.0". This indicates a high likelihood of cancer recurrence or metastasis. The question asks about the expected cancer-related mortality within 4 years of treatment initiation. Given the evidence of multifocal hypermetabolic activity in the lungs on the PET/CT scan, which suggests disease recurrence or metastasis, the risk of cancer-related mortality is elevated. Therefore, the expected outcome is not "No". Yes | Yes

Model: google/medgemma-4b-it

all_image: [INCORRECT] The patient has a history of lung cancer, including multiple nodules and areas of hypermetabolic activity in the lungs, suggestive of recurrence. The PET-CT scan shows multifocal hypermetabolic activity in the lungs, including nodules and areas of pleural involvement. The patient has also had a history of thoracic surgery. Given the presence of multiple nodules and areas of hypermetabolic activity in the lungs, and the fact that the patient has a history of lung cancer, it is likely that the cancer is recurrent. The patient is currently being treated with radiation therapy. Given the presence of multiple nodules and areas of hypermetabolic activity in the lungs, and the fact that the patient has a history of lung cancer, it is likely that the cancer is recurrent. The patient is currently being treated with radiation therapy. The patient's current status is not clear, but it is likely that the cancer is recurrent. The patient is being treated with radiation therapy. Given the presence of multiple nodules and areas of hypermetabolic activity in the lungs, and the fact that the patient has a history of lung cancer, it is likely that the cancer is recurrent. The patient is currently being treated with radiation therapy. The patient's current status is not clear, but it is likely that the cancer is recurrent. The patient is being treated with radiation therapy. Given the presence of multiple nodules and areas of

axial_1_image: [INCORRECT] The patient has a history of lung cancer with multiple sites of involvement, including the right lower lobe, right upper lobe, left upper lobe, and left lower lobe. The PET/CT scan shows multifocal hypermetabolic activity in the pleura and lung parenchyma indicating possible recurrence. The patient has also undergone thoracic surgery and radiation therapy. Given the presence of multiple sites of disease and the potential for recurrence, the expected cancer-related mortality within 4 years of treatment initiation is "No". <brief reasoning trace with explanation for label selection> | No The patient has a history of lung cancer with multiple sites of involvement, including the right lower lobe, right upper lobe, left upper lobe, and left lower lobe. The PET/CT scan shows multifocal hypermetabolic activity in the pleura and lung parenchyma, indicating possible recurrence. The patient has also undergone thoracic surgery and radiation therapy. Given the presence of multiple sites of disease and the potential for recurrence, the expected cancer-related mortality within 4 years of treatment initiation is "No". <brief reasoning trace with explanation for label selection> | No The patient has a history of lung cancer with multiple sites of involvement, including the right lower lobe, right upper lobe,

Subtask: died_of_cancer_5_yr

Question:

Based on the provided medical history and cancer evidence, is cancer-related mortality expected within 5 years of treatment initiation?

Correct Answer: Yes

Model: OpenGVLab/InternVL3_5-8B

all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical history indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The imaging notes suggest significant hypermetabolic activity, which is concerning for multifocal disease recurrence. Additionally, the patient has undergone thoracic surgery and is being managed by Radiation Oncology, indicating an advanced stage of cancer. Given the extensive disease and the need for ongoing treatment, cancer-related mortality within 5 years of treatment initiation is expected. | Yes

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The imaging notes suggest significant findings concerning for multifocal disease recurrence, including hypermetabolic activity in various regions. The patient has undergone PET/CT scans and radiation therapy planning, indicating an aggressive treatment approach. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 5 years of treatment initiation is expected. | Yes

axial_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence and hypermetabolic activity suggestive of aggressive disease. The presence of multiple pulmonary nodules and hypermetabolic activity in the left hemithorax, as noted in the imaging reports, suggests advanced disease. Additionally, the patient has undergone radiation therapy planning and treatment, indicating an aggressive treatment approach. Given the advanced stage and multifocal nature of the disease, cancer-related mortality within 5 years of treatment initiation is expected. | Yes

no_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with a history of EGFR mutant lung adenocarcinoma and metastatic disease. The PET/CT scan findings suggest multifocal disease recurrence and the presence of multiple bilateral pulmonary nodules, which are concerning for multifocal disease recurrence. The patient has undergone thoracic surgery and is being referred for radiation therapy planning. Given the advanced stage of the disease and the presence of multiple metastatic sites, cancer-related mortality within 5 years of treatment initiation is expected. | Yes

sagittal_all_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label>
The patient's medical timeline indicates a diagnosis of malignant neoplasms in multiple locations within the lungs and trachea, with evidence of multifocal disease recurrence. The PET/CT scan findings suggest extensive disease involvement, particularly with hypermetabolic activity in the left hemithorax, which is concerning for multifocal disease recurrence. Given the advanced stage and multifocal nature of the disease, along with the patient's history of

metastatic disease, cancer-related mortality within 5 years of treatment initiation is expected. |
Yes

Model: OctoMed/OctoMed-7B

all_image: [CORRECT] <think>First, I carefully examine the patient timeline and available data to assess whether cancer-related mortality is expected within 5 years of treatment initiation. The patient has a history of lung cancer, specifically malignant neoplasms involving multiple lobes and sites (right lower lobe, right upper lobe, left upper lobe, left pleura, etc.). The timeline shows multiple imaging studies, including PET/CT scans, indicating ongoing monitoring and treatment adjustments. Notably, the PET/CT from October 4, 2018, reveals multifocal hypermetabolic nodularity along the left pleura, fissures, and resection margins, suggesting possible disease recurrence or progression. Additionally, there are multiple bilateral pulmonary nodules visible, though some are below PET resolution limits. Comparing with prior imaging (March 2017), there is an increase in the number and extent of hypermetabolic nodules, indicating disease progression. The patient underwent a left upper lobe wedge resection in May 2017 and has been on erlotinib (an EGFR inhibitor) since November 2017, showing initial stability but now developing new nodules. The presence of multiple hypermetabolic nodules and progression despite targeted therapy suggests aggressive disease behavior. Given the evidence of recurrent or progressive disease after initial treatment, the likelihood of cancer-related mortality increases significantly. The combination of multiple metastatic sites, progression on therapy, and the nature of lung adenocarcinoma (which often carries a poor prognosis if advanced) supports a high risk of mortality within 5 years. Therefore, based on the documented disease progression and imaging findings, the appropriate conclusion is that cancer-related mortality is expected within 5 years.</think> <answer>Yes</answer>

axial_1_image: [CORRECT] <think>First, I need to analyze the patient's timeline carefully to determine if cancer-related mortality is expected within 5 years of treatment initiation. The key factors to consider include the type and stage of cancer, treatment details, imaging findings, and any indications of disease progression or recurrence. Looking at the timeline: - The patient was diagnosed with multiple lung malignancies: - Malignant neoplasm of the lower lobe, right bronchus or lung (C34.31) - Malignant neoplasm of the upper lobe, left bronchus or lung (C34.11) - Malignant neoplasm of the overlapping sites of unspecified bronchus and lung (C34.80) - Malignant neoplasm of the trachea (C33) - Imaging shows post-surgical changes from a left upper lobe wedge resection (VATS LUL wedge resection on 05/14/2017) and multiple hypermetabolic nodules in the left hemithorax, suggesting possible recurrence or multifocal disease. - The PET/CT from 10/14/2018 indicates increased hypermetabolic activity in the left pleura and fissures, consistent with multifocal disease recurrence. There are also multiple bilateral pulmonary nodules, some with SUV values indicating metabolic activity, though others are below PET resolution. - The patient has been on erlotinib (an EGFR inhibitor) since 2017 for EGFR-mutant lung adenocarcinoma, showing stable disease until recent enlarging nodules were noted. - Treatment planning for radiation therapy was initiated, but no definitive treatment completion date is mentioned. Given the presence of multiple recurrent or persistent nodules with hypermetabolic activity, especially after previous surgery and targeted therapy, this suggests aggressive or resistant disease. The fact that the disease has progressed despite treatment increases the risk of mortality. The timeline spans from diagnosis in September 2018 through October 2018, so the treatment initiation date is around late 2018. The question asks about mortality within 5 years of treatment initiation. Since the patient already had advanced disease with multiple sites involved and recurrence detected shortly after treatment planning, the prognosis is poor. Therefore, based on the evidence of multifocal disease recurrence, ongoing metabolic activity, and lack of complete response to prior therapies, cancer-related mortality is expected within 5 years.</think> <brief reasoning trace with explanation for label selection> | <label> The patient has a history of EGFR-mutant lung

adenocarcinoma with multiple metastatic nodules and post-surgical changes. Recent imaging reveals multifocal hypermetabolic nodularity in the left hemithorax, indicating disease recurrence. Despite treatment planning and targeted therapy, the persistence and progression of nodules suggest aggressive disease behavior. Given the advanced stage, recurrence, and lack of complete response to prior therapies, cancer-related mortality is expected within 5 years.

axial_all_image: [INCORRECT] <think>First, I carefully examine the timeline and available data to understand the patient's condition and treatments. The patient has a history of lung cancer, specifically EGFR-mutant lung adenocarcinoma, treated with erlotinib since June 2017. The timeline shows multiple imaging studies, including a PET/CT scan on October 4, 2018, indicating post-surgical changes after a left upper lobe wedge resection and showing multifocal hypermetabolic nodularity in the left hemithorax, suggesting possible recurrence or progression of disease. The PET/CT report notes increased hypermetabolic activity in the left pleura and fissures, which could correspond to recurrent or metastatic disease. Additionally, there are multiple bilateral pulmonary nodules visible on CT, some of which are subsolid and ground-glass, potentially representing new primaries or metastases. The comparison with a prior PET/CT from March 2017 shows an increase in the number and extent of these hypermetabolic nodules, indicating disease progression. The patient underwent radiation therapy planning, but no definitive curative treatment is mentioned beyond surgery and targeted therapy. The presence of persistent and progressive disease despite treatment suggests ongoing malignancy. Given the EGFR mutation status and the use of erlotinib, resistance development is plausible over time, especially without further systemic therapy details. Considering all this, the patient's cancer remains active and progressive based on imaging and clinical notes. Therefore, cancer-related mortality risk within 5 years of treatment initiation is significant given the disease progression observed.</think>
<answer>Yes</answer>

no_image: [CORRECT] <think>First, I need to determine if the patient is expected to die from cancer-related causes within 5 years based on the timeline provided. The key factors to consider include the type and stage of cancer, tumor biology, treatments received, surgical outcomes, imaging findings, and any documented prognostic indicators. Looking at the timeline:
- The patient was diagnosed with multiple lung cancers: right lower lobe (C34.31), left upper lobe (C34.11), left trachea (C33), and overlapping sites (C34.80). This indicates multifocal disease.
- On October 4, 2018, a PET/CT scan showed multifocal hypermetabolic nodularity along the left hemithorax pleura, fissures, and resection margins, suggesting recurrent or persistent disease. The SUV max values indicate metabolic activity, which correlates with active cancer cells.
- The patient had a left upper lobe wedge resection in May 2017 (noted in the PET/CT findings), indicating prior surgery. However, the PET/CT shows progression with increased nodularity compared to a prior scan from March 2017.
- The presence of multiple bilateral pulmonary nodules without significant hypermetabolic activity might suggest less aggressive or indolent disease, but some nodules are hypermetabolic, indicating active disease.
- The patient is on erlotinib, an EGFR inhibitor, which suggests the cancer is EGFR-mutant lung adenocarcinoma. EGFR mutations often respond initially to targeted therapies but can develop resistance over time.
- The PET/CT findings show increased hypermetabolic activity compared to previous scans, indicating disease progression despite treatment.
- The patient underwent radiation therapy planning (CPT codes 77263, 77470, 78815), implying localized treatment for certain lesions, possibly palliative or adjuvant. Considering these points:
- Multifocal lung adenocarcinoma with EGFR mutation and documented progression on PET/CT after initial surgery and targeted therapy suggests advanced disease.
- The presence of multiple nodules and hypermetabolic activity indicates systemic spread or recurrence, which is generally associated with poorer prognosis.
- Despite treatment, the disease is progressing, as evidenced by increased nodularity and SUV max values.
- The combination of EGFR-mutant lung adenocarcinoma with progression on targeted therapy and multifocal disease typically carries a

high risk of mortality within 5 years, especially if resistant to further treatments. Therefore, based on the evidence of progressive multifocal lung adenocarcinoma with EGFR mutation and documented disease progression, the patient is at high risk for cancer-related mortality within 5 years.</think> <brief reasoning trace with explanation for label selection> | <label> The patient has multifocal EGFR-mutant lung adenocarcinoma with documented disease progression on PET/CT (increased hypermetabolic nodularity compared to prior scans) despite surgery and targeted therapy (erlotinib). The presence of multiple bilateral pulmonary nodules and recurrent pleural involvement indicates advanced, aggressive disease. These factors strongly correlate with poor long-term survival, particularly within 5 years. </think> \boxed{Yes}

sagittal_all_image: [CORRECT] <think>First, I carefully examine the provided timeline and imaging data to identify any indications related to cancer progression, treatment response, or prognosis. The timeline shows multiple entries indicating diagnoses of various lung malignancies, including malignant neoplasms of different lobes and sites, as well as a history of surgery (left upper lobe wedge resection) and ongoing treatments such as radiation therapy planning and PET/CT scans. The key imaging note mentions post-surgical changes and multifocal hypermetabolic nodularity along the left hemithorax pleura, fissures, and resection margins, suggesting possible disease recurrence or progression. Additionally, there are multiple bilateral pulmonary nodules visible, some with increased metabolic activity, which could indicate active disease. The comparison with a prior PET/CT from March 2017 shows an increase in the number and extent of these hypermetabolic nodules, implying disease progression over time. Given the presence of multiple metastatic nodules, post-surgical changes, and increased metabolic activity on PET/CT, this patient's cancer appears advanced and recurrent despite prior treatments. These factors strongly suggest a poor prognosis and elevated risk of cancer-related mortality within five years of treatment initiation. Therefore, based on the documented disease progression, imaging findings, and clinical course, the most appropriate conclusion is that cancer-related mortality is expected within five years.</think> \boxed{<answer>Yes</answer>}

Model: Qwen/Qwen3-VL-8B-Instruct

all_image: [CORRECT] The provided PATIENT_TIMELINE documents a patient with a history of EGFR mutant lung adenocarcinoma who presented with multifocal disease recurrence. The PET/CT scan from 2018-10-04 explicitly states that the patient has "multifocal hypermetabolic nodularity" in the left hemithorax and "multiple bilateral pulmonary nodules" with "increasing solid component" in the right upper and lower lobes, which are "presumed new primary lung adenocarcinomas." The imaging report also notes that the hypermetabolic activity along the pleura and resection margins is "concerning for multifocal disease recurrence" and has increased in number and extent compared to prior scans. This indicates advanced, multifocal, and likely progressive disease. Given the extent of disease and the lack of any evidence of complete response or cure, cancer-related mortality within 5 years of treatment initiation is expected. Yes

axial_1_image: [CORRECT] The provided timeline documents a patient with a history of EGFR mutant lung adenocarcinoma, who underwent surgery and has been on erlotinib with stable disease. However, the 2018 PET/CT scan reveals multifocal hypermetabolic nodularity in the left hemithorax, concerning for recurrence, and new primary lung adenocarcinomas in the right upper and lower lobes. The imaging also shows extensive pleural involvement. This indicates advanced, multifocal, and likely metastatic disease. The timeline does not show any evidence of disease control or response to treatment beyond the initial stable disease status. Given the advanced stage, multifocal disease, and lack of evidence of treatment success, cancer-related mortality within 5 years of treatment initiation is expected. Yes

axial_all_image: [CORRECT] The provided PATIENT_TIMELINE documents a diagnosis of malignant neoplasm of the lung (ICD10CM/C34.31, C34.12, C34.11, C34.80, C33) with

no_image: [CORRECT] The PET/CT scan from 2018-10-04 explicitly describes "multifocal hypermetabolic nodularity" in the left hemithorax, including pleura, suture lines, and fissures, with SUV max values up to 16.0, and notes that this activity is "concerning for multifocal disease recurrence." Additionally, the report states that compared to prior imaging, the hypermetabolic nodularity "appears increased in number and extent." The patient has a history of EGFR-mutant lung adenocarcinoma with prior surgery and targeted therapy (erlotinib), and the imaging findings suggest progressive, multifocal disease. The radiation oncology visit on the same day indicates treatment planning is underway, implying active disease requiring intervention. Given the extent of disease, recurrence, and lack of evidence of complete response or remission, cancer-related mortality within 5 years is expected. Yes

Model: google/medgemma-1.5-4b-it

[illegible]

axial_1_image: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of malignant neoplasm of the lung (lung cancer) diagnosed in 2018. The timeline includes imaging studies like PET/CT scans performed on October 4, 2018, which show multifocal hypermetabolic nodularity in the left hemithorax, multiple bilateral pulmonary nodules, and conglomerate area of hypermetabolic activity within the posterior left apex. These findings are concerning for multifocal disease recurrence or new primary lung adenocarcinomas. The patient has been on erlotinib for EGFR-mutant lung adenocarcinoma, but the PET/CT findings suggest disease progression or recurrence. Although the patient has received treatment (radiation therapy planning and PET/CT), the presence of multifocal hypermetabolic activity on the PET/CT scan indicates ongoing disease activity. Therefore, cancer-related mortality is expected within 5 years. No | Yes

Model: google/medgemma-4b-it

all_image: [CORRECT] The patient has a history of lung cancer, including multiple nodules and areas of hypermetabolic activity in the lungs, suggestive of recurrence. The PET-CT scan shows multifocal hypermetabolic activity in the lungs, including nodules and areas of pleural involvement. The patient has also had a history of thoracic surgery. Given the presence of multiple nodules and areas of hypermetabolic activity in the lungs, and the fact that the patient has a history of lung cancer, the risk of cancer-related mortality within 5 years of treatment initiation is considered high. Output: Yes

[illegible]

[illegible]

lung cancer and is currently being treated for it. The presence of multiple metastatic lesions and the patient's history of lung cancer strongly suggest that cancer-related mortality is expected within 5 years of treatment initiation.