

VLM Multi-Model Comparison Report

Dataset:

progression_recurrence_survival_1yr_2yr_3yr_4yr_5yr_v1_1

Subtask: died_of_cancer_1_yr

Average unique events: 96.89

Question:

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

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

middle image from each view: **[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

middle axial 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

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

no radiology report: **[INCORRECT]** <brief reasoning trace with explanation for label selection>: The patient has a diagnosis of malignant neoplasm of the bronchus and lung, with

staging indicating T1 N1 M0, which suggests a localized cancer with regional lymph node involvement but no distant metastasis. The treatment appears to involve imaging and possibly other oncological assessments, but there is no explicit mention of aggressive treatment like chemotherapy or radiotherapy that would typically be associated with a high risk of mortality within a year. The patient's vital signs and other observations do not indicate immediate life-threatening conditions. Therefore, based on the provided timeline and evidence, cancer-related mortality within one year of treatment initiation is not expected. | No |

100 axial images (no timeline): [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The CT images show multiple metastatic lesions throughout the body, indicating advanced-stage cancer. The presence of widespread metastases typically suggests a poor prognosis, especially if the cancer has not responded well to initial treatments. Given the extensive nature of the disease and the typical aggressive behavior of metastatic cancer, it is reasonable to expect cancer-related mortality within 1 year of treatment initiation. | Yes

Model: OctoMed/OctoMed-7B

middle image from each view: [CORRECT] <think>First, I need to determine whether the patient's cancer-related mortality is expected within one year of treatment initiation based on the provided medical history and imaging findings. The patient is a 61-year-old female diagnosed with left lower lobe adenocarcinoma of the lung. The tumor is T1N0M0 (no nodal involvement or metastasis evident on imaging). She underwent a PET-CT which showed no metastatic disease, and the biopsy confirmed adenocarcinoma. She has a history of DCIS treated with lumpectomy and tamoxifen, and currently is on menopausal hormone therapy. Key factors to consider for prognosis and mortality risk: - Tumor stage: T1N0M0 suggests early-stage lung cancer. - No evidence of nodal involvement or distant metastasis. - She is undergoing lobectomy as planned, which is standard for early-stage lung cancer. - No mention of high-risk features such as positive margins, lymphovascular invasion, or poor differentiation. - She has comorbidities including asthma, hypothyroidism, and a history of Crohn's disease, but these do not directly impact lung cancer prognosis. - The patient is active and has no significant symptoms like weight loss or night sweats, which would suggest more aggressive disease. - The PET-CT showed no FDG avidity outside the primary tumor, indicating no aggressive metastatic spread. - The patient's overall health status appears stable, with no acute distress noted on physical exam. Given these factors, the patient's cancer is localized and she is undergoing curative-intent surgery. The absence of nodal involvement or metastasis suggests a favorable prognosis. The decision to proceed with lobectomy indicates that the tumor is resectable and there is no evidence of advanced disease. Therefore, the likelihood of cancer-related mortality within one year is low. The options are "Yes" or "No" for whether cancer-related mortality is expected within one year. Based on the information, the answer is "No" because the patient has early-stage disease without high-risk features and is undergoing appropriate treatment.</think> <brief reasoning trace with explanation for label selection | <label> </think> <answer>No</answer>

middle axial image: [CORRECT] <think>First, I need to determine whether the patient's cancer-related mortality is expected within one year of treatment initiation based on the provided timeline and medical records. The patient has a diagnosis of left lower lobe adenocarcinoma of the lung, confirmed by biopsy. The tumor is T1N0M0 (no nodal involvement or metastasis evident on imaging). The patient underwent a PET-CT which showed no metastatic disease, and the MRI brain also showed no metastases. The treatment plan includes lobectomy, which is standard for early-stage lung cancer. Key factors to consider for prognosis and mortality risk: - Stage of cancer: T1N0M0, which is early stage. - No evidence of nodal involvement or distant metastasis. - Patient is undergoing surgical resection (lobectomy), which is curative intent. - No mention of high-risk features such as positive margins, lymphovascular invasion, or poor performance status. - Patient has comorbidities (asthma, hypothyroidism,

history of Crohn's disease), but these do not directly impact cancer prognosis. - The patient is on menopausal hormone therapy, but this is not directly related to lung cancer mortality. - The timeline shows the patient is being evaluated and scheduled for surgery, indicating treatment is planned and likely to be initiated soon. Given the early stage and absence of metastatic disease, the prognosis is generally favorable with appropriate treatment. The patient's overall health status and the planned surgical intervention suggest that cancer-related mortality within one year is unlikely. Therefore, based on the provided information, the answer is "No."

</think>
<brief reasoning trace with explanation for label selection | <label> </brief reasoning trace with explanation for label selection | <label> <answer>No</answer> </answer></think>

no image: [CORRECT] <think>First, I need to determine if the patient's cancer-related mortality is expected within one year based on the provided timeline. The key factors to consider include the cancer stage, treatment details, and any evidence of metastasis or recurrence. Looking at the timeline, the patient was diagnosed with left lower lobe adenocarcinoma of the lung. The PET-CT showed a 2.2 cm nodule with SUV max 4.9, indicating metabolic activity consistent with malignancy. There were no signs of nodal involvement or distant metastasis at that time. The patient underwent a CT-guided FNA and core biopsy confirming adenocarcinoma. The patient's history includes DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has a history of smoking and asthma, but no recent symptoms suggesting advanced disease. The tumor was localized (T1) without nodal involvement (N0), and no evidence of metastasis (M0) based on the imaging studies. The treatment plan includes lobectomy, which is standard for early-stage lung cancer. The patient is scheduled for surgery, and there is no indication of aggressive disease progression or poor prognostic factors like high-grade tumors, extensive nodal involvement, or distant metastases. The FRAX score and other factors do not suggest imminent mortality within a year. Given the absence of high-risk features and the current staging (T1N0M0), the likelihood of cancer-related mortality within one year is low. The patient is being managed with curative intent, and the timeline does not show any signs of rapid progression or complications that would lead to death within a year.</think> <brief reasoning trace with explanation for label selection> | <label> The patient's timeline indicates a newly diagnosed T1N0M0 lung adenocarcinoma with no evidence of nodal involvement or metastasis. The PET-CT and MRI findings do not show aggressive disease progression, and the treatment plan includes curative intent surgery (lobectomy). There are no documented signs of rapid progression, metastasis, or high-risk features that would suggest imminent cancer-related mortality within one year. The patient's overall health status and staging support a low likelihood of mortality within this timeframe. </brief reasoning trace with explanation for label selection> | <label> No</label></think> <answer>No</answer>

no radiology report: [CORRECT] <think>First, I carefully examine the provided CT images and the associated timeline data to assess the patient's condition and treatment history. The images show axial CT scans of the chest and pelvis, with no clear evidence of metastatic disease or recurrence. The patient's timeline includes multiple visits and procedures, but no indication of cancer progression or treatment failure is evident. The patient's lung fields appear clear, and there is no visible tumor or abnormality suggesting recurrence. The patient's overall health status, as inferred from the clinical notes, does not indicate any signs of cancer-related mortality risk within the first year. Therefore, based on the available data, the most appropriate answer is "No."</think> <answer>No</answer>

100 axial images (no timeline): [CORRECT] <think>First, I note that the question asks whether cancer-related mortality is expected within 1 year of treatment initiation. This requires me to assess the patient's prognosis based on their timeline and available data. Looking at the provided image, it is a CT scan of the pelvis, showing bony structures, soft tissues, and some metallic implants or hardware. The scan does not provide direct evidence of tumor size, location, or metastasis. There is no visible tumor mass or lymphadenopathy in this image. The presence of hardware suggests prior surgical intervention, possibly for trauma or tumor resection. However, the image alone does not provide sufficient information to determine the

stage of cancer, the type of cancer, or the treatment history. Without additional clinical data such as tumor stage, histology, treatment modalities (chemotherapy, radiation, surgery), and follow-up outcomes, it is impossible to assess the risk of cancer-related mortality within one year. Since the question is based solely on the provided PATIENT_TIMELINE, and no timeline data is given here, I cannot make a definitive judgment. The image does not show any clear signs of advanced disease or metastasis that would strongly suggest a high risk of mortality within a year. Therefore, without further clinical context, the safest and most accurate answer is "No," as there is no evidence in the image to support a high likelihood of cancer-related mortality within one year.</think> <answer>No</answer>

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

middle image from each view: [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.

middle axial 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

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

no radiology report: [CORRECT] The patient's medical timeline indicates a diagnosis of malignant neoplasm of the bronchus and lung (ICD9CM/162.9) in April 2013, with a subsequent clinical staging of cT1N1M0 (AJCC 7th Edition) on May 2, 2013. This staging corresponds to Stage II (T1N1M0) lung cancer. The timeline includes imaging (CT chest, PET-CT) and clinical assessments, but there is no evidence of treatment initiation or any documentation of survival

status beyond the timeline provided. The question asks whether cancer-related mortality is expected within 1 year of treatment initiation. Since the timeline does not provide information on treatment initiation or patient survival, it is impossible to determine if cancer-related mortality is expected within 1 year. The provided evidence does not support a definitive "Yes" or "No" answer. No | No

100 axial images (no timeline): [CORRECT] The provided PATIENT_TIMELINE consists solely of a series of CT scan images showing anatomical structures from the pelvis to the head, with no clinical data, diagnosis, treatment plan, staging, biomarker results, or any mention of cancer. There is no evidence of cancer, nor any indication of cancer-related mortality risk. Therefore, it is not possible to determine if cancer-related mortality is expected within 1 year of treatment initiation based on this timeline. No | No

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

middle image from each view: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The tumor is classified as T1N0M0 based on the provided clinical information. The patient underwent lobectomy for the tumor. The patient has a history of asthma and is currently on maintenance therapy. The patient has undergone pulmonary function testing (PFT) with DLCO on May 8, 2013, which is consistent with the need for assessing lung function in a patient with lung cancer. The PFT results are not provided, but the test itself is a standard part of the workup for lung cancer. The patient's clinical status is stable, and there is no mention of disease progression or complications. Therefore, cancer-related mortality within 1 year is not expected. No | Cancer-related mortality is not expected within 1 year of treatment initiation.

middle axial image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and provides immunohistochemistry (IHC) results: TTF-1 negative and napsin A positive. The patient underwent a CT-guided biopsy and subsequent lobectomy. The clinical presentation includes a history of asthma and allergies, which are relevant for assessing pulmonary function. The patient underwent pulmonary function testing (PFT) with DLCO on May 8, 2013. The PFT results show a normal DLCO (diffusing capacity of the lungs for carbon monoxide) of 15.5 (normal range is typically 60-100% of predicted). This indicates no significant impairment in gas exchange. The patient's history of asthma and allergies, along with the normal PFT results, suggests that the lung cancer is not significantly impacting her respiratory function. Therefore, cancer-related mortality within 1 year is not expected. No | Yes

no image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and IHC results (TTF-1 negative, Bernier A positive) are consistent with lung origin. The clinical staging indicates T1N0M0 disease based on imaging (CT chest, PET-CT, MRI brain) and clinical assessment. The patient is scheduled for lobectomy, which is the standard treatment for early-stage lung cancer like T1N0M0. Therefore, cancer-related mortality within 1 year is not expected. No | Yes

no radiology report: [INCORRECT] The patient has a history of malignant neoplasm of bronchus and lung, unspecified, diagnosed in 2013. The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The

[illegible]

[illegible]

ultrasound. - Clinical History: Patient underwent bilateral axillary MRI. - Clinical History: Patient underwent bilateral axillary biopsy. - Clinical History: Patient underwent bilateral axillary ultrasound. - Clinical History: Patient underwent bilateral axillary MRI. - Clinical History: Patient underwent bilateral axillary biopsy. - Clinical History:

Model: google/medgemma-4b-it

middle image from each view: [CORRECT] No

middle axial image: [CORRECT] No

no image: [CORRECT] No

no radiology report: [CORRECT] No

100 axial images (no timeline): [CORRECT] The images show a complete and homogeneous opacity within the abdominal cavity, suggesting a well-defined mass. The presence of a mass within the abdominal cavity, along with the imaging characteristics, could be indicative of a tumor. However, without further information about the patient's history, staging, and treatment plan, it is impossible to determine the expected cancer-related mortality within one year. No

Subtask: died_of_cancer_2_yr

Average unique events: 95.42

Question:

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

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

middle image from each view: **[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

middle axial 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

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

no radiology report: **[CORRECT]** <brief reasoning trace with explanation for label selection>: The patient has a diagnosis of a malignant neoplasm of the bronchus and lung, staged as T1 N1 M0, which indicates a localized cancer with regional lymph node involvement but no distant metastasis. The treatment plan appears to involve imaging and possibly other oncological interventions. Given the stage and typical prognosis for such cancers, cancer-related mortality within 2 years of treatment initiation is not expected based on the staging and treatment context provided. | No

100 axial images (no timeline): **[INCORRECT]** <brief reasoning trace with explanation for label selection> | <label> The CT images show multiple metastatic lesions throughout the body, indicating advanced-stage cancer. The presence of widespread metastases typically suggests a poorer prognosis and higher likelihood of cancer-related mortality within a short timeframe, such

as 2 years from treatment initiation. | Yes

Model: OctoMed/OctoMed-7B

middle image from each view: [INCORRECT] <think>First, I need to determine whether the patient's cancer-related mortality is expected within 2 years of treatment initiation based on the provided medical history and imaging findings. The patient is a 61-year-old female diagnosed with left lower lobe adenocarcinoma of the lung. The tumor is T1N0M0 (no nodal involvement or metastasis evident on imaging). She underwent a PET-CT which showed no metastatic disease, and the biopsy confirmed adenocarcinoma. She has a history of DCIS treated with lumpectomy and tamoxifen, and no recent recurrence. She is currently on menopausal hormone therapy. The key factors to consider for prognosis and mortality risk include: - Tumor stage: T1N0M0 suggests early-stage disease. - No evidence of nodal involvement or distant metastasis. - No significant comorbidities mentioned that would drastically affect survival. - She is active and able to perform moderate exercise. - No mention of aggressive tumor biology or high-risk features beyond the primary tumor. The imaging and pathology findings do not indicate advanced disease or high-risk features that would suggest a high likelihood of mortality within 2 years. The treatment plan includes lobectomy and possibly mediastinal node sampling, which is standard for early-stage lung cancer. The absence of nodal involvement and metastasis on imaging supports a favorable prognosis. Therefore, based on the available data, there is no clear evidence to suggest cancer-related mortality within 2 years of treatment initiation.</think>
<brief reasoning trace with explanation for label selection | <label> </think> <answer> | No </answer>

[illegible]

no radiology report: [CORRECT] <think>First, I carefully examine the provided CT images and the associated timeline data to assess the patient's condition and treatment history. The images show axial CT scans of the chest and pelvis, with no clear evidence of metastatic disease or recurrence. The patient's timeline includes multiple visits and procedures, including imaging and oxygen therapy, but no indication of cancer progression or recurrence is evident. The patient's treatment appears to be stable, with no signs of complications or deterioration. Based on the available data, there is no evidence suggesting cancer-related mortality within 2 years of treatment initiation.</think> <answer>No</answer>

100 axial images (no timeline): [CORRECT] <think>First, I observe the provided image, which is a CT scan slice. The image shows a cross-sectional view of the pelvis, including the bony structures, soft tissues, and some metallic implants or hardware visible bilaterally. The scan does not show the lungs or brain, but rather the pelvic region. This suggests the focus is on the pelvis, possibly related to cancer treatment in that area. Next, I consider the question: "Is cancer-related mortality expected within 2 years of treatment initiation?" This requires knowledge of the patient's cancer type, stage, treatment, and outcomes. However, the image alone does not provide sufficient clinical data such as tumor stage, histology, treatment details, or survival data. The image shows post-treatment changes, but no direct evidence of recurrence or metastasis is visible here. Since the question is about cancer-related mortality within 2 years, I must rely on the patient's timeline data, which is not provided in the image or description. Without clinical details, I cannot definitively conclude whether cancer-related mortality is expected within 2 years. Therefore, based on the lack of sufficient clinical data in the image and timeline, the most appropriate answer is "No," as there is no evidence in the image to suggest cancer-related mortality within 2 years.</think> <answer>No</answer>

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

middle image from each view: [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

middle axial 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

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

no radiology report: [CORRECT] The patient's medical timeline indicates a diagnosis of malignant neoplasm of the bronchus and lung (ICD9CM/162.9) in April 2013, with a subsequent clinical staging of cT1N1M0 (AJCC 7th Edition) on May 2, 2013. This staging corresponds to Stage II (T1N1M0) lung cancer. The timeline includes imaging (CT chest, PET-CT) and clinical assessments, but there is no evidence of treatment initiation or any documentation of survival beyond the 2-year mark. The timeline ends with a series of outpatient visits and observations, with no indication of treatment completion or long-term follow-up. Without evidence of treatment initiation or survival data, it is not possible to determine if cancer-related mortality is expected within 2 years. The question asks for a binary "Yes" or "No" based on the provided evidence, and the evidence does not support a definitive "Yes" or "No" conclusion. No | No

100 axial images (no timeline): [CORRECT] The provided PATIENT_TIMELINE consists solely of a series of CT scan images showing anatomical structures from the pelvis to the head, without any accompanying clinical data, pathology reports, treatment plans, staging information, or documented outcomes. There is no evidence of cancer diagnosis, no description of tumor characteristics, no treatment history, and no prognostic information. Therefore, it is impossible to determine whether cancer-related mortality is expected within 2 years of treatment initiation. No | No

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

middle image from each view: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The tumor is classified as T1N0M0 based on the provided clinical information. The patient underwent lobectomy for the tumor. The patient has a history of asthma and is currently on inhaled oxygen. The patient has undergone pulmonary function testing (PFT) with DLCO and spirometry with bronchodilation responsiveness. The PFT results show a reduced diffusing capacity (DLCO) of 45% of predicted, which is consistent with the patient's history of asthma and potential underlying lung disease. The spirometry results show a significant improvement in FEV1 after bronchodilator administration, indicating reversible airway obstruction, which is typical for asthma. The patient's clinical presentation and test results do not suggest a high risk of recurrence or mortality within the next two years. No | Yes

middle axial image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and provides immunohistochemistry (IHC) results: TTF-1 negative and Bernier A positive. The patient underwent a lobectomy in May 2013. The clinical stage is T1N0M0 based on the imaging findings (CT chest, PET-CT, MRI brain) and the pathology report. The patient has no evidence of nodal involvement (N0) or distant metastasis (M0). Therefore, the patient's cancer-related mortality is not expected within 2 years of treatment initiation. No | Yes

no image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and IHC results (TTF-1 negative, Bernier A positive) are consistent with lung origin. The clinical staging indicates T1N0M0 disease based on imaging (CT chest, PET-CT, MRI brain) and clinical assessment. The patient is scheduled for lobectomy, which is the standard treatment for early-stage lung cancer like T1N0M0. Therefore, cancer-related mortality within 2 years is not expected. No | Yes

no radiology report: [INCORRECT] The patient has a history of malignant neoplasm of bronchus and lung, unspecified, diagnosed in 2013. The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The patient has no evidence of active cancer. The patient has a history of malignancy (lung cancer). The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The patient has no evidence of active cancer. The patient has a history of malignancy (lung cancer). The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The patient has no evidence of active cancer. The patient has a history of malignancy (lung cancer). The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The

[illegible]

Model: google/medgemma-4b-it

middle image from each view: **[CORRECT]** No

middle axial image: [CORRECT] No

no image: [CORRECT] No

no radiology report: [CORRECT] No

100 axial images (no timeline): [CORRECT] The images show a well-defined, homogeneous mass within the pelvis. The surrounding tissues appear normal. There is no evidence of invasion or metastasis. The patient has undergone a complete course of treatment. Based on the provided information, there is no evidence of cancer-related mortality within 2 years of treatment initiation. No

Subtask: died_of_cancer_3_yr

Average unique events: 95.47

Question:

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

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

middle image from each view: **[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

middle axial 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

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>

no radiology report: **[CORRECT]** <brief reasoning trace with explanation for label selection>: The patient has a diagnosis of malignant neoplasm of the bronchus and lung, with staging indicating T1 N1 M0, which suggests a localized disease with regional lymph node involvement but no distant metastasis. The treatment appears to involve imaging and possibly other interventions, but there is no explicit mention of aggressive treatment like chemotherapy or radiotherapy that might significantly alter prognosis. Given the stage and the absence of distant metastasis, cancer-related mortality within 3 years might not be expected, though individual outcomes can vary. | No

100 axial images (no timeline): **[INCORRECT]** <brief reasoning trace with explanation for label selection> | <label> The CT images show multiple metastatic lesions throughout the body, indicating advanced-stage cancer. Given the widespread nature of the disease and the presence of metastases, cancer-related mortality is often expected within a few years of diagnosis, especially if treatment is not curative. | Yes

Model: OctoMed/OctoMed-7B

middle image from each view: [CORRECT] <think>First, I will carefully review the provided patient timeline and medical records to assess the patient's current status, cancer diagnosis, and treatment plan. The patient is a 61-year-old female with a history of ductal carcinoma in situ (DCIS) treated with lumpectomy and tamoxifen. She now presents with a 2.2-cm left lower lobe pulmonary nodule confirmed as adenocarcinoma of the lung via biopsy. The imaging studies (CT, PET-CT, MRI brain) show no evidence of nodal involvement or distant metastasis. The tumor is classified as T1N0M0 (stage I) based on current imaging and staging criteria. The patient underwent a CT-guided biopsy confirming adenocarcinoma. The PET-CT showed no significant FDG uptake beyond the primary lesion, indicating no obvious nodal or metastatic disease. The MRI brain was negative for metastases. The patient is scheduled for lobectomy with mediastinal node sampling, which is standard for stage I lung cancer to assess nodal status. The tumor board has reviewed the case, and the plan is to proceed with surgery without immediate adjuvant chemotherapy, as the tumor is T1N0M0. The patient's overall health is stable, with no significant comorbidities that would contraindicate surgery. She is active, with no symptoms of weight loss, night sweats, or other systemic signs of advanced disease. The tumor is localized, and there is no evidence of aggressive features such as large size (>3 cm), lymphovascular invasion, or nodal involvement. The biopsy showed pleomorphic nuclei and TTF-1 negative, which is consistent with lung adenocarcinoma but does not indicate a particularly aggressive subtype. Given the current staging (T1N0M0), the prognosis is favorable, and the patient is undergoing curative-intent surgery. There is no indication of cancer-related mortality within 3 years based on the current data. The patient has no history of prior cancer recurrence, and the new lung lesion is localized. The treatment plan is appropriate, and there is no evidence suggesting imminent mortality from cancer. Therefore, based on the provided timeline and clinical data, the answer is "No," cancer-related mortality is not expected within 3 years of treatment initiation.</think> <brief reasoning trace with explanation for label selection> | <label> - The patient has a T1N0M0 lung adenocarcinoma with no evidence of nodal involvement or metastasis on imaging. - She is scheduled for lobectomy with mediastinal node sampling, which is standard for stage I lung cancer. - There is no indication of aggressive tumor features or systemic symptoms suggesting advanced disease. - The patient is stable, active, and has no comorbidities that would contraindicate surgery. - Based on current staging and treatment plan, the prognosis is favorable, and cancer-related mortality within 3 years is not expected. </think> <answer>No</answer>

middle axial image: [CORRECT] <think>First, I need to determine whether the patient is expected to have cancer-related mortality within 3 years of treatment initiation based on the provided timeline and medical records. Looking at the timeline, the patient was diagnosed with lung adenocarcinoma (T1N0M0) in April 2013. The tumor is described as a 2.2-cm mass in the left lower lobe with spiculated margins but no nodal involvement or distant metastasis on imaging (PET-CT, MRI brain). The staging is clinical T1N0M0, which corresponds to stage I lung cancer. The treatment plan includes lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC) to achieve complete resection. The patient is scheduled for surgery, and there is no indication of metastatic disease or high-risk features that would suggest a poor prognosis. The patient's history includes DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has a history of asthma and allergies but is otherwise active and has no significant comorbidities that would impact survival. Her vital signs and lab values are stable, and she is on appropriate medications. The key factors for prognosis in early-stage lung cancer include tumor size, histology, and nodal status. Here, the tumor is small (2.2 cm), no nodal involvement, and no evidence of metastasis. The patient is a candidate for curative surgery, and the treatment plan aligns with standard guidelines for stage I NSCLC. There is no evidence in the timeline of aggressive tumor biology, such as high-grade features, lymphovascular invasion, or molecular markers indicating poor prognosis. The biopsy showed adenocarcinoma with TTF-1 negative but BRST-2 positive, which is consistent with lung adenocarcinoma but does not inherently indicate a worse outcome. Given the early stage, absence of nodal or metastatic

disease, and planned curative surgery, the likelihood of cancer-related mortality within 3 years is low. The patient's overall health and activity level also support a favorable prognosis. Therefore, based on the provided information, the answer is "No," cancer-related mortality is not expected within 3 years of treatment initiation.</think> <brief reasoning trace with explanation for label selection> | <label> The patient has a T1N0M0 lung adenocarcinoma with no nodal or metastatic involvement. She is scheduled for lobectomy, the standard treatment for stage I NSCLC. The tumor is small (2.2 cm), and there is no evidence of aggressive features or high-risk factors. Her overall health and activity level are stable, and the treatment plan aligns with curative intent. Given these factors, the likelihood of cancer-related mortality within 3 years is low. </brief reasoning trace> <answer>No</answer>

no image: [CORRECT] <think>First, I need to determine if the patient's cancer-related mortality is expected within 3 years of treatment initiation based on the provided timeline and evidence. The key factors to consider include the cancer stage, tumor biology, treatment intent, nodal status, margins, biomarkers, and any documented outcomes. Looking at the timeline, the patient was diagnosed with a 2.2-cm left lower lobe lung adenocarcinoma (T1N0M0) based on CT, PET-CT, and biopsy. The tumor is T1 (≤ 3 cm) with no nodal involvement (N0) and no distant metastasis (M0). The biopsy showed adenocarcinoma with TTF-1 negative and BRST-2 negative but Bernier A positive, which is consistent with lung adenocarcinoma. The patient underwent a CT-guided FNA and core biopsy confirming adenocarcinoma. The PET-CT showed no FDG avidity in the nodule, suggesting low metabolic activity, which is typical for early-stage lung cancer. The MRI brain was negative for metastases, and the patient has no symptoms of metastatic disease. The treatment plan includes a lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC). The tumor board discussion noted that if the tumor is stage I without nodal involvement, adjuvant chemotherapy is not needed. The patient is scheduled for surgery, and the plan is to proceed with lobectomy. Given the T1N0M0 staging, the prognosis is generally favorable. The 5-year survival rate for stage I lung adenocarcinoma is approximately 60-80%, and the risk of mortality within 3 years is relatively low, especially with complete surgical resection. The patient's overall health is good, with no significant comorbidities that would drastically affect survival, except for asthma and hypothyroidism, which are managed. There is no evidence of nodal involvement or metastasis, and the tumor is localized. The presence of small ground-glass nodules and other small nodules is noted but likely unrelated to the primary tumor and may be monitored. The patient's active lifestyle and absence of weight loss or other systemic symptoms further support a better prognosis. Therefore, based on the staging, treatment plan, and absence of high-risk features, the patient's cancer-related mortality is not expected within 3 years of treatment initiation.</think> <brief reasoning trace with explanation for label selection> | <label> "No" | - The patient has a T1N0M0 lung adenocarcinoma, which is early-stage disease with no nodal or metastatic involvement. - The treatment plan includes lobectomy, which is curative intent for stage I NSCLC. - The PET-CT showed no FDG avidity, indicating low metabolic activity, and MRI brain was negative for metastases. - The patient's overall health is stable, with no significant comorbidities affecting survival. - Given the absence of high-risk features and the planned curative surgery, the likelihood of cancer-related mortality within 3 years is low. - The timeline and evidence do not indicate factors that would suggest a high risk of mortality within 3 years.</think> <answer>No</answer>

no radiology report: [INCORRECT] <think>First, I carefully examine the provided CT images and the associated timeline data to assess the patient's condition and treatment history. The images show axial CT scans of the chest and pelvis, with no clear evidence of metastatic disease or recurrence. The patient's timeline includes multiple visits and procedures, including imaging and oxygen therapy, but no indication of cancer progression or recurrence is evident. The patient's treatment appears to be stable, with no signs of complications or deterioration. Based on the available data, there is no evidence to suggest cancer-related mortality within 3 years of treatment initiation.</think> <answer>No</answer>

100 axial images (no timeline): [CORRECT] <think>First, I observe the provided image, which is a CT scan slice. The image shows a cross-sectional view of the pelvis, including the bony structures, soft tissues, and some metallic implants or hardware visible bilaterally. The scan does not show the lungs or brain, but rather the pelvic region. This suggests the focus is on the pelvis, possibly related to a pelvic malignancy or treatment effects. Next, I consider the question: "Is cancer-related mortality expected within 3 years of treatment initiation?" This requires knowledge of the patient's cancer type, stage, treatment, and outcomes. However, the image alone does not provide direct evidence of cancer stage, type, or treatment response. There is no visible tumor mass, no clear signs of metastasis, and no clinical data provided. Since the question is about cancer-related mortality within 3 years, I must rely on the patient's timeline data, which is not provided here. Without clinical details such as cancer stage, treatment type, or biomarkers, I cannot definitively conclude whether cancer-related mortality is expected within 3 years. Therefore, based solely on the image and lack of patient timeline data, I cannot confirm cancer-related mortality within 3 years. The correct answer must be "No" because there is no evidence in the image or provided timeline to support a "Yes" answer.</think> <answer>No</answer>

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

middle image from each view: [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

middle axial 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

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

no radiology report: [CORRECT] The patient's medical timeline indicates a diagnosis of malignant neoplasm of the bronchus and lung (ICD9CM/162.9) in April 2013, with a clinical

staging of cT1N1M0 (AJCC 7th Edition) on May 2, 2013. This is a Stage II cancer. The timeline includes imaging (CT chest, PET-CT) and a case management visit, suggesting active oncology care. However, the timeline does not contain any information about the specific treatment modality (e.g., surgery, chemotherapy, radiation) that was initiated, its completion, or its effectiveness. There are no documented outcomes, follow-up scans, or survival data. Without knowledge of the treatment plan, its success, or the patient's subsequent clinical course, it is impossible to determine if cancer-related mortality is expected within 3 years. The provided evidence is insufficient to make a definitive prediction. No

100 axial images (no timeline): [CORRECT] The provided PATIENT_TIMELINE consists solely of a series of CT scan images showing anatomical structures from the pelvis to the head, without any accompanying clinical data, pathology reports, treatment plans, staging information, or documented outcomes. There is no evidence of cancer diagnosis, no description of tumor characteristics, no treatment history, and no prognostic information. Therefore, it is impossible to determine whether cancer-related mortality is expected within 3 years of treatment initiation. No | No

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

middle image from each view: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The tumor is classified as T1N0M0 based on the provided clinical information. The patient underwent lobectomy for the tumor. The provided timeline includes documentation of a pulmonary function test (PFT) with DLCO performed on May 8, 2013, which is consistent with the need for PFTs in patients with lung cancer. The PFT results are not provided, but the test itself is a standard part of the workup for lung cancer. The question asks about the expected cancer-related mortality within 3 years of treatment initiation. Given the T1 stage, which is considered early-stage lung cancer, the prognosis is generally favorable. The patient has undergone surgery, which is the primary treatment for early-stage lung cancer. While lung cancer can recur, the T1 stage suggests a low risk of recurrence and death within the first three years. Therefore, cancer-related mortality within 3 years is not expected. No | No

middle axial image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and provides immunohistochemistry (IHC) results showing TTF-1 negative and Bernier A positive. The patient underwent a lobectomy in May 2013. The clinical stage is T1N0M0 based on the imaging findings (CT chest, PET-CT, MRI brain) and the pathology report. The patient has no evidence of nodal involvement (N0) or distant metastasis (M0). Therefore, the patient is expected to have no cancer-related mortality within 3 years of treatment initiation. No | Yes

no image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and IHC results (TTF-1 negative, Bernier A positive) are consistent with lung origin. The clinical staging indicates T1N0M0 disease based on imaging (CT chest, PET-CT, MRI brain) and clinical assessment. The tumor is described as a 2.2-cm mass in the left lower lobe. The patient is scheduled for lobectomy. Given the T1 stage, the risk of recurrence is relatively low, and adjuvant chemotherapy is typically not indicated unless the tumor is larger (T2 or greater) or involves lymph nodes (N1 or greater). Therefore, cancer-related mortality within 3 years is not expected based on the current staging and treatment plan. No | Yes

no radiology report: [INCORRECT] The patient has a history of malignant neoplasm of bronchus and lung, unspecified, diagnosed in 2013. The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and

status post bilateral mastectomy and reconstruction. No history of cancer. - Clinical History:
Patient is status post bilateral mastectomy and reconstruction. No history of cancer. - Clinical
History: Patient is status post bilateral mastectomy and reconstruction. No history of cancer. -
Clinical History: Patient is status post bilateral mastectomy and reconstruction. No history of
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status post bilateral mastectomy and reconstruction. No history of cancer. - Clinical History:
Patient is status post bilateral mastectomy and reconstruction. No history of cancer. - Clinical
History: Patient is

Model: google/medgemma-4b-it

middle image from each view: **[CORRECT]** No

middle axial image: [CORRECT] No

no image: [CORRECT] No

no radiology report: [CORRECT] No

100 axial images (no timeline): [CORRECT] The images show a well-defined, homogeneous mass within the pelvis. The surrounding tissues appear normal. There is no evidence of invasion or metastasis. The patient has undergone a complete course of treatment, and there is no mention of recurrence or progression. Therefore, cancer-related mortality is not expected within 3 years of treatment initiation. No

Subtask: died_of_cancer_4_yr

Average unique events: 97.30

Question:

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

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

middle image from each view: [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

middle axial 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

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>

no radiology report: [CORRECT] <brief reasoning trace with explanation for label selection>: The patient has a diagnosis of malignant neoplasm of the bronchus and lung, with staging indicating T1 N1 M0, which suggests a localized disease with regional lymph node involvement but no distant metastasis. The treatment appears to involve imaging and possibly surgical intervention, as indicated by the presence of chest tubes and other supportive care measures. Given the stage and treatment approach, the prognosis might not be extremely poor within 4 years, but there is a significant risk of recurrence or progression, especially with N1 involvement. Therefore, cancer-related mortality within 4 years is a possibility, but not certain. | No

100 axial images (no timeline): [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The CT images show multiple metastatic lesions throughout the body, indicating advanced-stage cancer. The presence of widespread metastases typically suggests a poor prognosis, especially if the cancer has not responded well to initial treatments. Given the extensive nature of the disease and the typical progression of metastatic cancer, it is reasonable to expect cancer-related mortality within 4 years of treatment initiation. | Yes

Model: OctoMed/OctoMed-7B

middle image from each view: [CORRECT] <think>First, I carefully reviewed the entire patient timeline and medical records provided. The patient is a 61-year-old female with a history of ductal carcinoma in situ (DCIS) treated with lumpectomy and tamoxifen. She now presents with a 2.2-cm left lower lobe pulmonary nodule confirmed as adenocarcinoma via biopsy. The staging workup includes CT, PET-CT, and MRI brain, all showing no nodal involvement or distant metastases. The tumor is classified as T1N0M0 (stage I) based on imaging and clinical evaluation. The patient underwent a CT-guided biopsy confirming adenocarcinoma. The PET-CT showed no significant FDG avidity beyond the primary lesion, indicating no obvious nodal or metastatic disease. The MRI brain was negative for metastases. The patient is scheduled for lobectomy with mediastinal node sampling, and the tumor board has recommended surgery. There is no indication of advanced disease or high-risk features that would suggest a poor prognosis. The patient's overall health is stable, with no significant comorbidities or symptoms other than mild chest discomfort. She is active and has no signs of systemic illness. The treatment plan is curative intent surgery, and there is no evidence of cancer-related mortality risk within 4 years based on current staging and treatment. The tumor is localized, and the patient is a candidate for curative resection. Therefore, based on the provided timeline and clinical data, there is no evidence to suggest cancer-related mortality within 4 years of treatment initiation.</think> <brief reasoning trace with explanation for label selection | <label> <answer>No</answer> </label></think>

middle axial image: [CORRECT] <think>First, I need to determine whether the patient is expected to have cancer-related mortality within 4 years of treatment initiation based on the provided timeline and medical records. Looking at the timeline, the patient was diagnosed with lung adenocarcinoma (T1N0M0) in April 2013. The tumor is described as a 2.2-cm mass in the left lower lobe with spiculated margins but no nodal involvement or distant metastasis on imaging (PET-CT, MRI brain). The staging is clinical T1N0M0, which corresponds to stage I lung cancer. The treatment plan includes lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC) to achieve complete resection. The patient is scheduled for surgery, and there is no indication of metastatic disease or high-risk features that would suggest a poor prognosis. The patient's history includes DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has a history of asthma and allergies but is otherwise active and has no significant comorbidities that would impact survival. Her vital signs and lab values are stable, and she is on appropriate medications. The key factors for prognosis in early-stage lung cancer include tumor size, histology, and nodal status. The tumor is small (2.2 cm), and there is no nodal involvement. Adjuvant chemotherapy is not indicated for stage I unless there are high-risk features, which are not mentioned here. The patient is undergoing surgery, which is curative intent. Given the stage and treatment plan, the prognosis is favorable. The 5-year survival rate for stage I NSCLC is approximately 60-80%, indicating that mortality within 4 years is unlikely if the treatment is successful. Therefore, based on the provided information, there is no evidence to suggest cancer-related mortality within 4 years.</think> <brief reasoning trace with explanation for label selection> | <label> The patient was diagnosed with stage I lung adenocarcinoma (T1N0M0) in April 2013. The tumor is small (2.2 cm) with no nodal involvement or distant metastasis on imaging. She is scheduled for lobectomy, the standard treatment for stage I non-small cell lung cancer (NSCLC), which aims for complete resection. There are no high-risk features or evidence of metastatic disease. The 5-year survival rate for stage I NSCLC is favorable (60-80%), indicating a low likelihood of cancer-related mortality within 4 years if treatment is successful. The patient's overall health and treatment plan support a positive prognosis. </brief reasoning trace> <answer> | <label> <answer> No </answer> </label></answer>

no image: [CORRECT] <think>First, I need to determine if the patient's cancer-related mortality is expected within 4 years of treatment initiation based on the provided timeline and medical

evidence. Looking at the timeline, the patient was diagnosed with lung adenocarcinoma (T1N0M0) in April 2013. The tumor is described as a 2.2-cm mass in the left lower lobe with spiculated margins but no nodal involvement or distant metastasis confirmed by PET-CT and MRI brain. The staging is clinical stage I (T1N0M0) based on imaging and biopsy findings. The patient underwent a CT-guided FNA and core biopsy confirming adenocarcinoma. The tumor abuts the fissure but no nodal involvement was detected. The treatment plan includes lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC). The patient is scheduled for surgery, and the tumor board has recommended lobectomy without immediate adjuvant chemotherapy, indicating the tumor is likely stage I. The patient's history includes DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has asthma and allergies but no significant comorbidities that would contraindicate surgery. Her performance status is good, as she is active and able to exercise. The key factors for prognosis in early-stage lung cancer include tumor size, nodal status, and histology. Since the tumor is T1N0M0, the 5-year survival rate is relatively high (around 60-80% for stage I). However, the question is about mortality within 4 years, which is slightly less than 5 years. There is no evidence of aggressive features such as lymphovascular invasion, high-grade histology, or molecular markers that would suggest a worse prognosis. The tumor is localized, and the patient is undergoing curative-intent surgery. The presence of small ground-glass nodules and other small nodules is noted but likely monitored rather than indicative of metastatic disease. Given the clinical stage, absence of nodal involvement, and planned curative surgery, the likelihood of cancer-related mortality within 4 years is low. The patient's overall health and ability to undergo surgery further support a favorable prognosis. Therefore, based on the provided information, the answer is "No," as there is no evidence suggesting cancer-related mortality within 4 years.

<brief reasoning trace with explanation for label selection> | <label> No </label> **Explanation:** The patient was diagnosed with a T1N0M0 lung adenocarcinoma in April 2013. Imaging and biopsy confirmed localized disease without nodal involvement or metastasis. The treatment plan includes lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC). The patient's clinical stage (T1N0M0) and absence of high-risk features (e.g., lymphovascular invasion, high-grade histology) suggest a favorable prognosis. The 5-year survival rate for stage I NSCLC is approximately 60-80%, and the absence of nodal involvement or distant metastasis further supports a low risk of cancer-related mortality within 4 years. The patient's good performance status and planned curative surgery reinforce this assessment. There is no evidence in the timeline indicating aggressive disease progression or factors that would elevate mortality risk.

no radiology report: **[INCORRECT]** <think>First, I carefully examine the provided CT images and the associated timeline data to assess the patient's condition and treatment history. The images show axial CT scans of the chest and pelvis, with no clear evidence of metastatic disease or recurrence. The patient's timeline includes multiple visits and procedures, including imaging and oxygen therapy, but no indication of cancer progression or recurrence is evident. The patient's treatment appears to be stable, with no signs of complications or deterioration. Based on the available data, there is no evidence to suggest cancer-related mortality within 4 years of treatment initiation.</think> <answer>No</answer>

100 axial images (no timeline): **[CORRECT]** <think>First, I note that the question asks whether cancer-related mortality is expected within 4 years of treatment initiation. This requires me to assess the patient's prognosis based on their timeline and available data. Looking at the image provided, it is a CT scan of the pelvis, showing bony structures, soft tissues, and some metallic implants or hardware. The scan does not provide direct evidence of tumor presence, size, or metastasis. There is no visible tumor mass, no lymphadenopathy, and no obvious bone destruction. The presence of hardware suggests prior surgical intervention, possibly for trauma or reconstruction, but no clear oncologic pathology is visible. Since the image is a single axial slice and does not show any tumor or metastatic disease, I cannot infer cancer-related mortality from this image alone. The question references a patient's timeline, but no timeline data is

provided here. Without clinical details such as cancer stage, treatment type, response to therapy, or survival data, I cannot determine if the patient is at high risk of cancer-related mortality within 4 years. Therefore, based solely on the image and lack of timeline data, I cannot confirm cancer-related mortality. The correct answer must be based on the absence of evidence in the image and timeline data provided.</think> <answer>No</answer>

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

middle image from each view: [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

middle axial 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

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

no radiology report: [CORRECT] The patient's medical timeline indicates a diagnosis of malignant neoplasm of the bronchus and lung (ICD9CM/162.9) in April 2013, with a clinical staging of cT1N1M0 (AJCC 7th Edition) on May 2, 2013. This is a Stage II cancer. The timeline includes imaging (CT chest, PET-CT) and a case management visit, suggesting active oncology care. However, the timeline does not contain any information about the specific treatment modality (e.g., surgery, chemotherapy, radiation) that was initiated, its completion, or its effectiveness. There are no documented outcomes, follow-up scans, or survival data. Without knowledge of the treatment's success or the patient's subsequent clinical course, it is impossible to determine if cancer-related mortality is expected within 4 years. The provided evidence is insufficient to make a prediction. No

100 axial images (no timeline): [CORRECT] The provided PATIENT_TIMELINE consists solely of a series of CT scan images depicting anatomical structures from the pelvis to the head, without any accompanying clinical data, pathology reports, treatment records, staging

information, or prognostic assessments. There is no evidence of cancer diagnosis, tumor characteristics, treatment history, or any documentation that would allow for a determination of cancer-related mortality risk within 4 years. Therefore, it is not possible to answer the question based on the given information. <brief reasoning trace with explanation for label selection> | No

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

middle image from each view: [CORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The tumor is classified as T1N0M0 based on the provided clinical information (AJCC staging). The patient has undergone surgery (lobectomy) and is currently on menopausal hormone therapy. The provided timeline includes imaging and pathology results consistent with the diagnosis and staging. There is no mention of disease recurrence, metastasis, or other adverse events. Therefore, cancer-related mortality within 4 years is not expected based on the current information. No | No

middle axial image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and provides immunohistochemistry (IHC) results: TTF-1 negative and Bernier A positive. The patient underwent a lobectomy in May 2013. The clinical stage is T1N0M0 based on the imaging findings (CT chest, PET-CT, MRI brain) and the pathology report. The patient has no evidence of nodal involvement (N0) or distant metastasis (M0). Therefore, the patient's cancer-related mortality is not expected within 4 years. No | Yes

no image: [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and IHC results (TTF-1 negative, Bernier A positive) are consistent with lung origin. The clinical staging indicates T1N0M0 disease based on imaging (CT chest, PET-CT, MRI brain) and clinical assessment. The patient underwent a lobectomy for this T1N0M0 lung cancer. The provided timeline includes documentation of the lobectomy procedure on May 3rd, 2013, including chest tube placement and removal details. The patient's clinical status and vital signs on May 3rd, 2013, show a blood pressure of 160/93 mmHg and a heart rate of 87 bpm, which are elevated but not indicative of immediate life-threatening instability. The patient is described as "well-appearing" and "in no acute distress" on the day of surgery. Given the T1N0M0 stage and the successful surgical resection, the expected outcome is survival without cancer-related mortality within the 4-year timeframe following treatment initiation (surgery). No | Yes

no radiology report: [INCORRECT] The patient has a history of malignant neoplasm of bronchus and lung, unspecified, diagnosed in 2013. The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The patient has no evidence of active cancer. The patient has a history of malignancy (lung cancer). The patient has undergone multiple imaging studies including CT chest and PET scan, as well as a chest tube placement and removal. The patient has also had spirometry and bronchodilation responsiveness testing. The patient's BMI is 26.5, which is overweight. The patient's vital signs are within normal limits. The patient has no documented evidence of disease progression or recurrence. The patient has been followed up with imaging and clinical assessments. There is no evidence of metastatic disease or treatment failure. The patient has been managed with asthma medications. The patient has no evidence of active cancer. The patient has a history of malignancy (lung cancer). The patient has undergone multiple imaging

[illegible]

[illegible]

Model: google/medgemma-4b-it

middle image from each view: [CORRECT] No

middle axial image: [CORRECT] No

no image: [CORRECT] No

no radiology report: [CORRECT] No

100 axial images (no timeline): [CORRECT] The images show a well-defined, homogeneous mass within the pelvis. The presence of a mass and the lack of any mention of metastasis or other concerning features suggests a potentially curable cancer. The images are consistent with a mass that is likely to be treated and potentially cured. No | No

Subtask: died_of_cancer_5_yr

Average unique events: 95.25

Question:

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

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

middle image from each view: [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

middle axial 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

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

no radiology report: [CORRECT] <brief reasoning trace with explanation for label selection>: The patient has a diagnosis of a malignant neoplasm of the bronchus and lung, staged as T1 N1 M0 according to the 7th edition of the AJCC. This stage typically indicates a localized cancer with regional lymph node involvement but no distant metastasis. The treatment plan appears to involve imaging and possibly other oncological interventions. Given the stage and typical prognosis for such localized cancers with appropriate treatment, cancer-related mortality within 5 years is not expected. | No

100 axial images (no timeline): [INCORRECT] <brief reasoning trace with explanation for label selection> | <label> The CT images show multiple metastatic lesions throughout the body, indicating advanced-stage cancer. Given the widespread nature of the metastases and the lack of specific treatment details suggesting curative intent, cancer-related mortality within 5 years of treatment initiation is expected. | Yes

Model: OctoMed/OctoMed-7B

middle image from each view: [CORRECT] <think>First, I will carefully review the provided patient timeline and medical records to assess the patient's current condition, cancer stage, treatment plan, and any prognostic indicators that might suggest cancer-related mortality within 5 years. The patient is a 61-year-old female with a history of ductal carcinoma in situ (DCIS) of the breast treated with lumpectomy and tamoxifen. She now presents with a 2.2-cm left lower lobe pulmonary nodule diagnosed as adenocarcinoma of the lung. The imaging (CT, PET-CT, MRI brain) shows no evidence of nodal involvement or distant metastasis. The tumor is classified as T1N0M0 (stage I) based on the information provided. The treatment plan includes lobectomy with possible mediastinal node sampling, and the patient is scheduled for surgery. There is no indication of metastatic disease or high-risk features such as large tumor size (>3 cm), nodal involvement, or distant spread. The patient is otherwise active and has no significant comorbidities that would contraindicate surgery. Given the early stage (T1N0M0) and absence of high-risk features, the prognosis is generally favorable with appropriate surgical resection. Adjuvant chemotherapy is not indicated unless the final pathology upstages the disease (e.g., to stage IB or higher). The patient's overall health status and the planned treatment suggest that the cancer is localized and potentially curable. There is no evidence in the timeline or notes indicating aggressive tumor biology, rapid progression, or other factors that would suggest a high risk of cancer-related mortality within 5 years. The patient is being managed with curative intent, and the treatment plan aligns with standard guidelines for early-stage lung adenocarcinoma. Therefore, based on the available information, the patient's cancer-related mortality risk within 5 years is low.</think> <brief reasoning trace with explanation for label selection | <label> The patient has a T1N0M0 lung adenocarcinoma with no evidence of nodal involvement or metastasis. The treatment plan includes lobectomy, which is standard for early-stage disease. There are no high-risk features or indications of aggressive tumor biology. The prognosis is favorable with curative intent, and no evidence suggests cancer-related mortality within 5 years. </brief reasoning trace with explanation for label selection | <label> <answer>No</answer> </label></think>

middle axial image: [CORRECT] <think>First, I need to determine whether the patient is expected to have cancer-related mortality within 5 years based on the provided timeline and medical history. The key factors to consider include the stage of the cancer, tumor biology, treatment intent and completion, margins, nodal status, biomarkers, and any documented outcomes or events. From the timeline, the patient was diagnosed with a 2.2-cm left lower lobe lung adenocarcinoma (T1N0M0) based on CT, PET-CT, and biopsy. The tumor is T1 (≤ 3 cm) with no nodal involvement (N0) and no distant metastasis (M0), as per the imaging and PET-CT findings. The biopsy showed adenocarcinoma with TTF-1 negative and BRST-2 negative but napsin A positive, consistent with lung adenocarcinoma. The patient underwent a CT-guided FNA and core biopsy confirming adenocarcinoma. The PET-CT showed no FDG avidity in the nodule, suggesting low metabolic activity, which is typical for early-stage lung cancer. The MRI brain showed no metastases, and the patient has no symptoms of metastatic disease. The treatment plan includes lobectomy, which is standard for stage I non-small cell lung cancer (NSCLC). The tumor board discussion noted that if the tumor is stage I without nodal involvement, adjuvant chemotherapy would not be needed. The patient is scheduled for lobectomy, and the tumor abuts the fissure but no nodal involvement is documented. The patient has a history of DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has no other significant comorbidities that would contraindicate surgery. Her vital signs and lab values are stable, and she is active. Given the T1N0M0 staging, the prognosis is generally favorable. The 5-year survival rate for stage I lung adenocarcinoma is approximately 60-80%, depending on factors like tumor size and margins. Since the tumor is small (2.2 cm), no nodal involvement, and no evidence of metastasis, the risk of cancer-related mortality within 5 years is low. There is no evidence of aggressive tumor biology, such as high-grade features or positive margins, and no documented recurrence or metastasis. The patient is undergoing

curative-intent surgery, and the plan is appropriate for her stage. Therefore, based on the provided information, the patient is not expected to have cancer-related mortality within 5 years of treatment initiation.</think> <brieft reasoning trace with explanation for label selection> | <label> "No" | - The patient has a T1N0M0 lung adenocarcinoma with no nodal involvement or metastasis documented. - She is scheduled for lobectomy, the standard treatment for stage I NSCLC, with no indication of aggressive tumor biology or recurrence. - The 5-year survival rate for stage I lung adenocarcinoma is favorable, and there is no evidence of disease progression or high-risk features in the timeline. - The decision to proceed with lobectomy and absence of nodal or metastatic disease support a low risk of cancer-related mortality within 5 years.</think> <answer>No</answer>

no image: [CORRECT] <think>First, I need to determine if the patient's cancer-related mortality is expected within 5 years based on the provided timeline and medical evidence. The key factors to consider include the cancer stage, tumor biology, treatment intent, nodal status, biomarkers, and any other relevant clinical data. Looking at the timeline, the patient was diagnosed with a 2.2-cm left lower lobe lung adenocarcinoma (T1N0M0) based on CT, PET-CT, and biopsy. The tumor is T1 (≤ 3 cm) with no nodal involvement (N0) and no distant metastasis (M0), as per the imaging and biopsy results. The PET-CT showed no FDG avidity, indicating no active metastatic disease. The MRI brain also showed no metastases. The patient underwent a CT-guided FNA and core biopsy, which confirmed adenocarcinoma. The tumor is T1N0M0, which is stage I. The treatment plan includes lobectomy, and the tumor board discussion noted that if it remains stage I without nodal involvement, adjuvant chemotherapy would not be needed. This aligns with standard guidelines where stage I non-small cell lung cancer (NSCLC) treated with complete resection does not require adjuvant therapy unless there are high-risk features. The patient's history includes DCIS treated with lumpectomy and tamoxifen, but no recurrence. She has a history of asthma and allergies but no recent exacerbations. Her vital signs and lab values are stable, with no signs of systemic illness or weight loss. The physical exam shows no acute distress or signs of metastatic disease. Given the stage (T1N0M0), absence of nodal involvement, and no evidence of metastasis, the prognosis is favorable. The 5-year survival rate for stage I NSCLC is generally high, around 60-80%, depending on specific factors. However, the question is whether cancer-related mortality is expected within 5 years. Since the patient is stage I and undergoing curative-intent surgery, the likelihood of cancer-related death within 5 years is low unless there are high-risk features not mentioned here. The timeline does not indicate any high-risk features such as lymphovascular invasion, positive margins, or molecular markers that would suggest a worse prognosis. The tumor is T1 with no nodal involvement, and the patient is undergoing lobectomy, which is standard treatment. Therefore, based on the provided information, there is no evidence to suggest that cancer-related mortality is expected within 5 years. Thus, the correct answer is "No."</think> <brieft reasoning trace with explanation for label selection> | <label> No </label>

no radiology report: [INCORRECT] <think>First, I carefully examine the provided CT images and the associated timeline data to assess the patient's condition and cancer prognosis. The images show axial CT scans of the chest and pelvis, with no clear evidence of metastatic disease or aggressive tumor progression. The patient's timeline includes multiple visits and procedures, but no indication of advanced cancer or recurrence is evident. The patient's treatment appears to be ongoing, with no signs of terminal illness or complications that would suggest imminent mortality. The absence of significant findings on imaging and the lack of clinical deterioration suggest that the patient is stable and likely to survive beyond 5 years post-treatment. Therefore, the answer is "No," cancer-related mortality is not expected within 5 years of treatment initiation.</think> <answer>No</answer>

100 axial images (no timeline): [CORRECT] <think>First, I note that the question asks whether cancer-related mortality is expected within 5 years of treatment initiation. This requires me to assess the patient's prognosis based on their timeline and available data. Looking at the provided image, it is a CT scan of the pelvis, showing bony structures, soft tissues, and some

metallic implants or hardware. The scan does not provide direct evidence of tumor presence, size, or metastasis. There is no visible tumor mass, no lymphadenopathy, and no obvious bone destruction. The presence of hardware suggests prior surgical intervention, possibly for trauma or reconstruction, but no clear oncologic pathology is visible. The question references cancer-related mortality within 5 years, but the image alone does not provide sufficient information to confirm or deny cancer presence, stage, or prognosis. Without additional clinical data such as biopsy results, tumor markers, or treatment records, it is impossible to determine the likelihood of cancer-related mortality solely from this image. Therefore, based on the image alone, I cannot confirm cancer-related mortality within 5 years. The correct answer must be "No" because there is no evidence in the image to support a cancer diagnosis or prognosis indicating mortality within 5 years.</think> <answer>No</answer>

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

middle image from each view: [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

middle axial 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

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

no radiology report: [CORRECT] The patient's medical timeline indicates a diagnosis of malignant neoplasm of the bronchus and lung (ICD9CM/162.9) in April 2013, with a subsequent clinical staging of cT1N1M0 (AJCC 7th Edition) on May 2, 2013. This staging corresponds to Stage II (T1N1M0) lung cancer. The timeline includes imaging (CT chest, PET-CT) and clinical assessments, but there is no evidence of treatment initiation, response, or survival data beyond the diagnosis. The question asks whether cancer-related mortality is expected within 5 years of treatment initiation. Since no treatment has been initiated and no survival data is provided, it is impossible to determine the expected mortality. The provided timeline does not contain

sufficient information to make a definitive prediction. No

100 axial images (no timeline): [CORRECT] The provided PATIENT_TIMELINE consists solely of a series of CT scan images depicting anatomical structures from the pelvis to the head, without any accompanying clinical data, pathology reports, staging information, treatment details, or documented outcomes. There is no evidence of cancer diagnosis, tumor characteristics, treatment response, or prognostic indicators. Therefore, it is impossible to determine whether cancer-related mortality is expected within 5 years of treatment initiation. No | No

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

[illegible]

middle axial image: [INCORRECT] <brief reasoning trace with explanation for label selection>
| <label> The patient has a history of lung adenocarcinoma diagnosed in May 2013. The pathology report confirms adenocarcinoma and provides immunohistochemistry (IHC) results showing TTF-1 negative and Bernier A positive. The patient underwent a lobectomy in May 2013. The clinical stage is T1N0M0 based on the imaging findings (CT chest, PET-CT, MRI brain) and the pathology report. The patient has no evidence of nodal involvement (N0) or distant metastasis (M0). Therefore, the patient is expected to have no cancer-related mortality within 5 years. No | Yes

[illegible]

[illegible]

Model: google/medgemma-4b-it

middle image from each view: **[CORRECT]** No

middle axial image: [CORRECT] No

no image: [CORRECT] No

no radiology report: [CORRECT] No

100 axial images (no timeline): [CORRECT] The images show a complete and homogeneous opacity of the entire breast, with no evidence of tumor or metastasis. The images are consistent

with a complete response to treatment. Therefore, cancer-related mortality is not expected within 5 years of treatment initiation. No