

VLM Multi-Model Comparison Report

Dataset:

[progression_recurrence_survival_1yr_2yr_3yr_4yr_5yr_v1_1](#)

Subtask: died_any_cause_1_yr

Average unique events: 50.68

Question:

Based on the provided medical history and cancer evidence, will the patient experience all-cause mortality within 1 year of treatment initiation?

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

100 axial images (no timeline): [INCORRECT] <think> The CT images show multiple cross-sections of the thoracic region, indicating the presence of a significant tumor burden in the lungs and trachea. The images suggest advanced-stage disease with potential metastasis, which is often associated with a poorer prognosis. Given the extensive involvement of the respiratory system and the presence of multiple lesions, the likelihood of all-cause mortality within a year is high. </think> <brief reasoning trace with explanation for answer selection> | <answer></answer> Where: - The explanation must be concise and should reference specific evidence from the image(s). - The answer must be one of the allowed output answers (exactly as specified). - Select Allowed output answers within OPTIONS: "Yes", "No" Rules: - Base your decision ONLY on the provided image(s). - Do NOT infer new facts. - Prefer explicit evidence. - Consider stage, tumor biology, treatment intent/completeness, margins, nodal status, biomarkers, and surveillance findings. Patient timeline (first 4 rows): [2018-05-26 00:00] | ICD10CM/C34.80 (Malignant neoplasm of overlapping sites of unspecified bronchus and lung) [2018-05-26 00:00] | ICD10CM/C34.80 (Malignant neoplasm of overlapping sites of unspecified bronchus and lung) [2018-05-26 00:00] | ICD10CM/C33 (Malignant neoplasm of trachea) [2018-05-26 00:00] | ICD10CM/C33 (Malignant neoplasm of trachea) image(s): The CT images show multiple cross-sections of the thoracic region, indicating the presence of a significant tumor burden in the lungs and trachea. The images suggest advanced-stage disease with potential metastasis, which is often associated with a poorer prognosis. Given the extensive involvement of the respiratory system and the presence of multiple lesions, the likelihood of all-cause mortality within a year is high. | Yes</answer>

timeline only: [INCORRECT] <brief reasoning trace with explanation for answer selection> | <answer> The patient has a diagnosis of malignant neoplasms in multiple locations including the bronchus, lung, and trachea, indicating advanced cancer. Despite ongoing treatments such as metoprolol, albuterol, and various medications for atrial fibrillation and other conditions, the

patient's condition appears complex and serious. The presence of persistent atrial fibrillation, multiple hospital visits, and the need for continuous monitoring suggest a high risk of mortality. Given the advanced stage of cancer and the patient's multiple comorbidities, it is reasonable to predict a high likelihood of all-cause mortality within one year. </answer>

Model: OctoMed/OctoMed-7B

100 axial images (no timeline): [CORRECT] <think>To determine whether this patient experiences all-cause mortality within 1 year of treatment initiation based solely on these images, we need to carefully analyze visible features that might indicate prognosis or disease severity. However, CT scans alone do not provide direct prognostic data such as survival rates; they show anatomical structures but lack clinical details like biopsy results, molecular markers, performance status, or response metrics post-treatment—all critical factors influencing mortality risk assessment. The axial slices shown here include various body regions—pelvis, abdomen, thorax, neck, oral cavity, nasal cavity, orbits, brainstem, cerebellum, skull base, and cranium. These images reveal structural anatomy without clear indications of active malignancy progression, metastasis extent, or other life-threatening complications directly linked to short-term mortality. For example: 1. **Pelvic region**: No obvious large masses or lymphadenopathy suggesting advanced pelvic malignancy. 2. **Abdomen/thorax**: No visible signs of massive organ infiltration, pleural effusion, or grossly enlarged nodes indicative of aggressive systemic spread. 3. **Neck/oral cavity**: No overt soft tissue invasion or airway obstruction seen. 4. **Brain/skull**: No intracranial mass effect or hemorrhage evident. Without additional clinical context (e.g., histopathology, staging reports), it's impossible to definitively conclude if there's sufficient evidence predicting death within a year due to cancer recurrence or other causes. Oncologic outcomes depend heavily on multidisciplinary inputs beyond radiographic appearance alone.</think> <answer>No</answer>

timeline only: [CORRECT] <think>Okay, let me try to figure this out.</think> <think>To determine whether the patient experienced all-cause mortality within one year of treatment initiation based solely on their timeline data, we need to carefully analyze the progression of their malignancy, comorbidities, treatments, and any relevant clinical indicators that could suggest survival prognosis. The patient has been diagnosed with **malignant neoplasm involving both the trachea** (ICD10: C33) and **overlapping sites of unspecified bronchus and lung** (ICD10: C34.80). These diagnoses indicate advanced disease localized across multiple respiratory structures but do not specify distant metastasis explicitly. Over time, they underwent various treatments including antiarrhythmic medications (e.g., metoprolol), anticoagulants (e.g., rivaroxaban), and targeted therapies like erlotinib—a drug commonly used for EGFR-mutated cancers—indicating recognition of systemic involvement despite initial staging details being limited. Key observations include persistent atrial fibrillation (I48.1), hyperlipidemia (E78.5), hypertension managed via medication, and a history of significant smoking exposure (former smoker since March 2017). Laboratory values show stable BMI (~27–28), normal renal function, and no acute metabolic derangements suggesting chronicity rather than rapid decline. Imaging studies (e.g., CT scans) were performed repeatedly between August and October 2018, indicating ongoing monitoring likely related to disease burden assessment. However, there's no direct documentation of progressive metastases beyond local regions nor clear signs of organ failure indicative of imminent death. While the patient had recurrent outpatient visits and adjustments to therapy over several months, these reflect standard follow-up rather than terminal decline. No acute life-threatening events such as sepsis, massive hemorrhage, or multiorgan failure are noted. Vital signs remain relatively stable throughout most recorded encounters until late stages when some variability appears, possibly linked to palliative interventions. Ultimately, while the disease course was aggressive enough to require multiple therapeutic modalities, there's insufficient evidence pointing definitively toward death within the first year after initiating treatment. The absence of explicit records documenting mortality

confirms uncertainty here.</think> <answer>No</answer>

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

100 axial images (no timeline): [CORRECT] The provided images are a series of CT scans showing a progression from the pelvis and abdomen up through the thorax and neck. There is no evidence of any cancer in the images. The images show normal anatomy without any masses, lesions, or abnormalities consistent with malignancy. The patient's medical history indicates a diagnosis of malignant neoplasm of the bronchus and lung, and also of the trachea, but the imaging does not show any residual or recurrent disease. Therefore, based on the imaging evidence, the patient will not experience all-cause mortality within 1 year of treatment initiation. <brief reasoning trace with explanation for answer selection> | <answer>No</answer>

timeline only: [CORRECT] The patient's timeline shows a diagnosis of malignant neoplasm of the bronchus and lung (C34.80) and trachea (C33) as early as April 2018, with multiple subsequent visits and imaging (e.g., CT scans, PET scans) and treatment initiation (e.g., erlotinib, radiation planning) in late 2018. The patient's condition is advanced, with multiple sites of malignancy and persistent atrial fibrillation. However, the timeline does not contain any documented evidence of death or all-cause mortality within 1 year of treatment initiation. All clinical data up to October 2018 (including multiple outpatient visits, lab results, and imaging) indicate ongoing care without a recorded fatal outcome. Therefore, based on the provided evidence, the patient has not experienced all-cause mortality within 1 year of treatment initiation. <brief reasoning trace with explanation for answer selection> | <answer></answer>

The patient's timeline documents multiple diagnoses of malignant neoplasms (C34.80, C33) and ongoing treatment (e.g., erlotinib, radiation planning) from April 2018 through October 2018, with no recorded death or all-cause mortality within 1 year of treatment initiation. All clinical data up to October 2018 indicate continued survival and active management. |

<answer>No</answer>

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

timeline only: [INCORRECT] <unused94>thought The user wants me to determine if the patient will experience all-cause mortality within 1 year based on the provided medical history and cancer evidence. 1. **Identify the core question:** Will the patient die within 1 year? 2. **Scan the PATIENT_TIMELINE for relevant information:** Look for diagnoses, treatments, outcomes, and staging information related to cancer and overall health. 3. **Analyze the cancer evidence:** * Diagnosis: Malignant neoplasm of overlapping sites of unspecified bronchus and lung (C34.80), Malignant neoplasm of trachea (C33), Solitary pulmonary nodule (R91.1), Malignant neoplasm of unspecified part of unspecified bronchus or lung (C34.90), Malignant neoplasm of unspecified part of left bronchus or lung (C34.92). * Staging: The timeline doesn't explicitly state the stage (e.g., TNM). However, the presence of multiple diagnoses (lung, trachea) suggests a potentially advanced or metastatic disease, although it could also be multiple primary sites. * Treatment: The patient has received chemotherapy (e.g., erlotinib), radiation therapy (e.g., total body irradiation, hemibody radiation), and possibly surgery (implied by radiation treatment planning). * Outcomes: The timeline doesn't mention specific survival data or recurrence. 4. **Analyze overall health and risk factors:** * Age: Not specified, but the presence of multiple cancers and treatments suggests an older individual. * Comorbidities: The timeline lists several conditions: * Paroxysmal atrial fibrillation (I48.0, I48.1) - treated with metoprolol. * Hyperlipidemia (E78.5) - treated with ezetimibe/simvastatin. * Major depressive disorder (F32.9) - treated with citalopram. * History of smoking (Former, 03/24/2017, 40 pack-years reported). * History of acne (L70.8). * History of rash (R21). * History of epistaxis

(R04.0). * History of skin eruption (L27.0). * History of skin texture changes (R23.4). * History of atrial fibrillation (I48.0, I48.1) - persistent. * History of abnormal ECG (R94.31). * History of cardiac arrhythmia (I49.9). * History of hyperlipidemia (E78.5). * History of depression (F32.9). * Recent Events: The patient has had multiple visits, including outpatient visits, case management visits, and telehealth appointments. There's a recent history of treatment (radiation therapy) and a recent office visit (October 4th, 2018). 5. **Synthesize the information:** * The patient has multiple primary cancers (lung and trachea) and a history of smoking. * The patient has received cancer treatment (chemotherapy, radiation). * The patient has several comorbidities (atrial fibrillation, hyperlipidemia, depression). * The timeline doesn't provide specific survival data or information about the stage/grade of the cancers. * The presence of multiple cancers, smoking history, and comorbidities increases the risk of mortality. * However, the timeline doesn't explicitly state a diagnosis of metastatic cancer or a specific stage that would guarantee mortality within 1 year. The cancers are described as "malignant neoplasm" without further detail. * The patient has received treatment, which might indicate an attempt to manage the cancer. * Without specific information on the stage, grade, response to treatment, or overall health status, it's impossible to definitively predict mortality within 1 year. The timeline provides evidence of disease presence and treatment but not a definitive prognosis. 6. **Formulate the answer:** Based *only* on the provided timeline, there is no explicit information confirming or denying mortality within 1 year. The presence of multiple cancers and comorbidities indicates a significant risk, but the timeline lacks specific prognostic details. Therefore, based *strictly* on the evidence provided, a definitive answer cannot be made. However, the question asks for a Yes/No answer based *only* on the timeline. The timeline shows the patient has multiple cancers and comorbidities, which are risk factors for mortality. While it doesn't give a specific stage or survival data, the presence of multiple primary

Model: google/medgemma-4b-it

100 axial images (no timeline): [CORRECT] The images show a large, homogeneous mass occupying the majority of the chest cavity, obscuring the lung fields and mediastinal structures. This suggests a significant tumor burden. The presence of the mass in the chest cavity indicates a potential for compression of surrounding structures and possible metastasis. The images do not show any obvious signs of treatment response or complications. No | No

timeline only: [CORRECT] No

Subtask: died_any_cause_2_yr

Average unique events: 50.68

Question:

Based on the provided medical history and cancer evidence, will the patient experience all-cause mortality within 2 years of treatment initiation?

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

100 axial images (no timeline): [INCORRECT] <think> The CT images show multiple cross-sections of the thoracic region, indicating the presence of a significant tumor burden in the lungs and trachea. The images suggest advanced-stage disease with potential metastasis, which is often associated with a poorer prognosis. Given the extensive involvement of the respiratory system and the presence of multiple lesions, the likelihood of all-cause mortality within 2 years is high. </think> <brief reasoning trace with explanation for answer selection> | <answer></answer> Where: - The explanation must be concise and should reference specific evidence from the image(s). - The answer must be one of the allowed output answers (exactly as specified). - Select Allowed output answers within OPTIONS: "Yes", "No" Rules: - Base your decision ONLY on the provided image(s). - Do NOT infer new facts. - Prefer explicit evidence. - Consider stage, tumor biology, treatment intent/completeness, margins, nodal status, biomarkers, and surveillance findings. Patient timeline (first 4 rows): [2018-05-26 00:00] | ICD10CM/C34.80 (Malignant neoplasm of overlapping sites of unspecified bronchus and lung) [2018-05-26 00:00] | ICD10CM/C34.80 (Malignant neoplasm of overlapping sites of unspecified bronchus and lung) [2018-05-26 00:00] | ICD10CM/C33 (Malignant neoplasm of trachea) [2018-05-26 00:00] | ICD10CM/C33 (Malignant neoplasm of trachea) image(s): The CT images show multiple cross-sections of the thoracic region, indicating the presence of a significant tumor burden in the lungs and trachea. The images suggest advanced-stage disease with potential metastasis, which is often associated with a poorer prognosis. Given the extensive involvement of the respiratory system and the presence of multiple lesions, the likelihood of all-cause mortality within 2 years is high. | Yes</answer>

timeline only: [INCORRECT] <brief reasoning trace with explanation for answer selection> | <answer> The patient has a diagnosis of malignant neoplasms in multiple locations, including the bronchus and lung, and the trachea. The patient's medical history includes persistent atrial fibrillation, which is a significant comorbidity. Despite the initiation of various treatments, including chemotherapy and radiation planning, there is no evidence of treatment completion or response within the provided timeline. The patient's ongoing atrial fibrillation and other health issues suggest a high risk of mortality. Given the advanced stage of cancer and the presence of multiple comorbidities, it is reasonable to predict that the patient may experience all-cause mortality within 2 years of treatment initiation. </answer>

Model: OctoMed/OctoMed-7B

100 axial images (no timeline): [CORRECT] <think> To determine whether this patient experiences all-cause mortality within two years based solely on these CT images, we need to carefully analyze visible features that might indicate prognosis or disease burden. However, there's no direct indication here about survival outcomes such as tumor size, metastasis extent, lymph node involvement, or other clinical data necessary to assess prognosis accurately. These

factors would require additional context beyond what can be inferred purely from static axial slices shown.</think> <answer>No</answer>

timeline only: [CORRECT] <think>Okay, let me try to figure this out. So the question is whether the patient will die within two years of starting treatment based on their timeline. But wait, the options are Yes or No. Hmm. First, looking at the patient's diagnosis: they have malignant neoplasm involving both the trachea (C33) and parts of the lungs where there might be overlap between different areas like the bronchi. They've been undergoing various treatments including medications like sotalol, metoprolol, rivaroxaban, erlotinib, etc., but also had some procedures like case management visits and possibly imaging studies. There's mention of atrial fibrillation that was persistent even after some interventions. The key here is determining if these factors lead to death within two years. However, the data given doesn't include survival statistics directly. Instead, we need to look at progression indicators. For example, the presence of multiple metastatic sites would worsen prognosis. Here, it seems localized to certain regions—trachea and overlapping bronchus/lung—but no clear distant mets mentioned yet. Also, performance status isn't detailed beyond vitals maybe. Their BMI is around 27 initially, then drops slightly over time indicating possible cachexia developing later? Wait, BMI decreased from ~27 to 25.3 kg/m² according to some entries. Weight loss could indicate disease progression affecting nutrition. But the timeline spans several years up until late October 2018. If the patient survived through August 2018 and into October, does that suggest longer survival than expected? Or perhaps not necessarily. Without knowing exact staging details, but since the problem asks specifically about the two-year mark regardless of when treatment started... Wait, actually, the timeline starts back to April 2018. Treatment began presumably early 2018. By May-August 2018, they were still alive. But predicting beyond that? However, the question says "will the patient experience all-cause mortality within 2 years". Given that the patient has advanced malignancy involving airways and has comorbidities like atrial fibrillation requiring meds, plus possible declining function indicated by weight loss and lab values (like creatinine dropping suggesting renal issues), but without concrete markers of imminent death such as rapidly progressing disease, high-grade tumors, or organ failure signs... I think the answer hinges on available data pointing towards aggressive disease course versus stable enough to survive past initial stages. Since the patient is still being treated actively throughout most of 2018, albeit changing therapies, it suggests ongoing survival despite challenges. Therefore, unless there's direct evidence of rapid deterioration leading to death before two years, the answer would lean toward 'No'. But how sure can we be? Wait, another angle: the presence of persistent atrial fibrillation complicates things because AFib increases stroke risk, especially with underlying lung cancer. However, the patient hasn't shown acute cardiac events recorded here. Also, the labs don't show severe electrolyte imbalances or hypercoagulability that would predict fatal PE/DVT soon. The main issue remains the cancer itself. Without definitive evidence of metastasis spread or refractory disease, maybe survival exceeds two years. Hence, likely answer is 'No'.</think> <answer>No</answer></think> To determine whether the patient experienced **all-cause mortality within 2 years** of initiating treatment, we analyze the provided **PATIENT_TIMESTAMPLINE** dataset focusing on clinical milestones, laboratory trends, and treatment responses indicative of disease progression or resolution. Key observations include: 1. **Diagnosis**: - Malignant neoplasm involves *overlapping sites* of the trachea (C33) and bronchus/lung (C34.80). This indicates locally advanced disease rather than distant metastases explicitly noted in records. 2. **Treatment Timeline**: - Continuous therapeutic interventions (e.g., antiarrhythmics, anticoagulants, targeted therapy like erlotinib) spanning months to years reflect active management without immediate cessation or palliative shift. - Imaging (e.g., CT scans) confirms ongoing monitoring but lacks documentation of life-threatening complications (e.g., massive pleural effusion, spinal cord compression). 3. **Clinical Trends**: - **Weight/BMI Decline**: From ~27 kg/m² to ~25.3 kg/m² reflects gradual weight loss, potentially linked to chronic illness but not acute wasting syndromes. - **Lab Stability**: Hemoglobin (~12.5 g/dL), albumin (~3.3

g/dL), and creatinine (~0.7–0.8 mg/dL) remain relatively stable, avoiding critical thresholds predictive of multiorgan failure. - ****Vitals**:** Persistent hypotension (systolic BP ~90 mmHg) and bradycardia

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

100 axial images (no timeline): [INCORRECT] The provided images are a series of CT scans showing a progression from the pelvis and abdomen up through the thorax and neck. However, there is no evidence of cancer in the images. The scans show normal anatomy without any visible tumors, masses, or abnormal lesions. The patient's medical history indicates a diagnosis of malignant neoplasm of the bronchus and lung, and also of the trachea, but the imaging does not confirm the presence of these malignancies. Without evidence of cancer in the imaging, it is not possible to determine if the patient will experience all-cause mortality within 2 years of treatment initiation. <brief reasoning trace with explanation for answer selection> |
<answer></answer>

timeline only: [CORRECT] The patient's timeline shows a diagnosis of malignant neoplasm of the bronchus and lung (C34.80) and trachea (C33) as early as April 2018, with subsequent documentation of persistent atrial fibrillation, hyperlipidemia, and other comorbidities. Treatment initiation is implied by the administration of erlotinib (a targeted therapy) on May 19, 2018, and continued use through October 2018. The patient's clinical course includes multiple outpatient visits, lab work, and imaging, with no documented death or terminal event within the 2-year window from treatment initiation (May 19, 2018, to May 19, 2020). All vital signs, lab values, and clinical assessments remain within acceptable ranges, and no evidence of progression or fatal outcome is present in the provided timeline. <brief reasoning trace with explanation for answer selection> | <answer></answer> The patient has no documented all-cause mortality within 2 years of treatment initiation, as the timeline ends in October 2018 with no death event and shows ongoing clinical monitoring and treatment. | <answer>No</answer>

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

timeline only: [INCORRECT] <unused94>thought The user wants me to determine if the patient will experience all-cause mortality within 2 years based on the provided medical history and cancer evidence. 1. **Identify the core question:** Will the patient die within 2 years? 2. **Scan the PATIENT_TIMELINE for relevant information:** * **Diagnosis:** Malignant neoplasm of overlapping sites of unspecified bronchus and lung (C34.80), Malignant neoplasm of trachea (C33), Solitary pulmonary nodule (R91.1), Other nonspecific abnormal finding of lung field (R91.8), Malignant neoplasm of unspecified part of unspecified bronchus or lung (C34.90), Malignant neoplasm of unspecified part of left bronchus or lung (C34.92). * **Staging:** The timeline doesn't explicitly state the stage (e.g., TNM stage). However, the presence of multiple lung/trachea diagnoses suggests a potentially advanced stage. * **Treatment:** Chemotherapy (Metoprolol succinate 25 MG Extended Release Oral Tablet - RxNorm 866427) - started April 2018. * Inhaled oxygen (97.0) - used during visits. * Inhaler (ACTUAT albuterol 0.09 MG/ACTUAT Metered Dose Inhaler - RxNorm 801092) - used during visits. * Immunotherapy (erlotinib 150 MG Oral Tablet - RxNorm 603206) - started May 2018. * Cardiology (Metoprolol succinate 50 MG Extended Release Oral Tablet - RxNorm 866436) - started May 2018. * Anticoagulant (rivaroxaban 20 MG Oral Tablet - RxNorm 1232086) - started May 2018. * Cardiology (ezetimibe 10 MG / simvastatin 40 MG Oral Tablet - RxNorm 245500) - started May 2018. * Cardiology (sotalol hydrochloride 80 MG Oral Tablet - RxNorm 1922765) - started May 2018. * Cardiology (magnesium sulfate 10 MG/ML Injection - RxNorm 829757) - started May 2018. * Antidepressant (citalopram 20 MG Oral Tablet - RxNorm 200371) - started

May 2018. * Cardiology (metoprolol succinate 25 MG Extended Release Oral Tablet - RxNorm 866427) - started April 2018. * Cardiology (metoprolol succinate 50 MG Extended Release Oral Tablet - RxNorm 866436) - started May 2018. * Anticoagulant (rivaroxaban 20 MG Oral Tablet - RxNorm 1232086) - started May 2018. * Cardiology (sotalol hydrochloride 80 MG Oral Tablet - RxNorm 1922765) - started May 2018. * Cardiology (alclometasone dipropionate 0.5 MG/ML Topical Cream - RxNorm 855474) - started May 2018. * Cardiology (erlotinib 150 MG Oral Tablet - RxNorm 603206) - started May 2018. * Cardiology (duloxetine 30 MG Delayed Release Oral Capsule - RxNorm 596930) - started September 2018. * Cardiology (metoprolol succinate 25 MG Extended Release Oral Tablet - RxNorm 866427) - started April 2018. * Cardiology (metoprolol succinate 50 MG Extended Release Oral Tablet - RxNorm 866436) - started May 2018. * Anticoagulant (rivaroxaban 20 MG Oral Tablet - RxNorm 1232086) - started May 2018. * Cardiology (sotalol hydrochloride 80 MG Oral Tablet - RxNorm 1

Model: google/medgemma-4b-it

100 axial images (no timeline): [CORRECT] The images show a large, homogeneous mass occupying the majority of the chest cavity, obscuring the mediastinum and potentially compressing the lungs. The presence of a central mass with surrounding tissue suggests a significant tumor burden. The images do not show any evidence of metastasis or other concerning findings. No | No

timeline only: [CORRECT] No

Subtask: progression_recurrence_free_survival_1_yr

Average unique events: 49.18

Question:

Based on the patient's clinical history and current cancer-related evidence, will the patient remain free of disease progression or recurrence at 1 year after treatment initiation?

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

100 axial images (no timeline): [CORRECT] <brief reasoning trace with explanation for answer selection> | <answer></answer> The provided CT images show multiple cross-sectional views of the thoracic region, including the lungs and surrounding structures. The images reveal several areas of abnormal density, particularly in the lung fields, which are suggestive of metastatic lesions or residual tumor tissue. Given the presence of these abnormalities, it is likely that the patient has evidence of disease progression or recurrence. Therefore, the patient is unlikely to remain free of disease progression or recurrence at 1 year after treatment initiation. | No

timeline only: [INCORRECT] <brief reasoning trace with explanation for answer selection> | <answer> The patient has a history of malignant neoplasms in multiple sites, including the bronchus and lung, and the trachea. Despite ongoing treatment and multiple follow-up visits, the patient continues to have documented malignant neoplasms through August 2018. The repeated entries of ICD10CM codes for malignant neoplasms suggest persistent disease. Additionally, the patient's condition includes atrial fibrillation and other comorbidities, but there is no clear evidence of disease-free status or remission by 1 year after treatment initiation. The timeline does not indicate a complete response or remission within the specified timeframe. </answer>

Model: OctoMed/OctoMed-7B

100 axial images (no timeline): [CORRECT] <think>To determine whether this patient remains free of disease progression or recurrence at 1 year post-treatment based solely on these images, we need to carefully analyze the CT scans shown. These axial slices appear to represent various levels through the body starting from lower extremities up towards the thorax and head/neck region. The first few images show cross-sections of soft tissues including muscles and bones without any obvious signs of masses or abnormal lesions that would suggest active malignancy. Moving further along the sequence, there are no visible tumors, lymphadenopathy, or other abnormalities indicative of metastatic spread or local recurrence. The lungs seen laterally do not exhibit suspicious opacities or nodules suggestive of pulmonary metastases. Additionally, bone structures such as vertebrae and pelvis look intact without lytic or blastic changes typical of skeletal metastases. However, since the question specifically asks about disease-free status at 1 year post-treatment, it requires knowledge beyond just static imaging—such as histopathological response data, biochemical markers like PSA or CA-125 depending on cancer type, and clinical follow-up details which cannot be inferred directly from these images alone. Without additional clinical context indicating complete remission or ongoing monitoring results, concluding absolute freedom from recurrence purely from these images isn't possible.</think> <answer>No</answer>

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

100 axial images (no timeline): [INCORRECT] The provided CT scan images show a complete, unbroken, and continuous axial view from the lower pelvis through the head, with no visible lesions, masses, or abnormal densities consistent with active cancer recurrence or progression. The images demonstrate normal anatomical structures at all levels, including the

lungs, mediastinum, abdomen, pelvis, and head, with no evidence of residual or metastatic disease. This complete absence of disease on imaging at the time of the scan strongly supports the conclusion that the patient remains free of disease progression or recurrence at 1 year after treatment initiation. <brief reasoning trace with explanation for answer selection> |
<answer>Yes</answer>

timeline only: [INCORRECT] The patient's timeline shows a diagnosis of malignant neoplasm of the bronchus and lung (C34.80) and trachea (C33) as of April 2018, with subsequent documentation of persistent atrial fibrillation and other comorbidities. Treatment with erlotinib (a targeted therapy) began on May 19, 2018, and continued through October 2018. The timeline includes multiple imaging and lab assessments, but no evidence of disease progression or recurrence is documented at 1 year after treatment initiation (i.e., by April 2019). The most recent documented cancer-related ICD-10-CM codes (C34.11, C34.31, C34.80, C33) are from October 2018, and no new or worsening findings are reported in the timeline after that date. The patient's clinical status remains stable with no documented disease progression or recurrence at 1 year post-treatment initiation. <brief reasoning trace with explanation for answer selection> | <answer></answer> The patient's timeline includes multiple cancer diagnoses (C34.80, C33) and treatment with erlotinib starting May 2018. No evidence of disease progression or recurrence is documented at 1 year post-treatment initiation (April 2019). The most recent cancer-related codes are from October 2018, and no new or worsening findings are reported after that. Therefore, the patient remains free of disease progression or recurrence at 1 year after treatment initiation. <answer>Yes</answer>

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

potassium chloride, ezetimibe, simvastatin, sotalol hydrochloride, erlotinib, citalopram, metoprolol succinate, rivaroxaban, alclometasone dipropionate, erlotinib, citalopram, metoprolol succinate, rivaroxaban, magnesium sulfate, streptococcus thermophilus, bifidobacterium bifidum, lactobacillus delbrueckii, lactobacillus acidophilus, cholecalciferol, lutein, biotin, folic acid, lutein, potassium chloride, ezetimibe, simvastatin, sotalol hydrochloride, erlotinib, citalopram, metoprolol succinate, rivaroxaban, alclometasone dipropionate, erlotinib, citalopram, metoprolol succinate, rivaroxaban, magnesium sulfate, streptococcus thermophilus, bifidobacterium bifidum, lactobacillus delbrueckii, lactobacillus acidophilus, cholecalciferol, lutein, biotin, folic acid, lutein, potassium chloride, ezetimibe, simvastatin, sotalol hydrochloride, erlotinib, citalopram, metoprolol succinate, rivaroxaban, alclometasone dipropionate, erlotinib, citalopram, metoprolol succinate, rivaroxaban, magnesium sulfate, streptococcus thermophilus, bifidobacterium bifidum, lactobacillus delbrueckii, lactobacillus acidophilus, cholecalciferol, lutein, biotin, folic acid, lutein, potassium chloride, ezetimibe, simvastatin, sotalol hydrochloride, erlotinib, citalopram, metoprolol succinate, rivaroxaban, alclometasone dipropionate, erlotinib, citalopram, metoprolol succinate, rivaroxaban, magnesium sulfate, streptococcus thermophilus, bifidobacterium bifidum, lactobacillus delbrueckii, lactobacillus acidophilus, cholecalciferol, lutein, biotin, folic acid, lutein, potassium chloride, ezetimibe, simvastatin, sotalol hydrochloride, erlotinib, citalopram, metoprolol succinate, rivaroxaban, alclometasone dipropionate,

Model: google/medgemma-4b-it

100 axial images (no timeline): [INCORRECT] The images show a cross-sectional view of the chest, with a large, well-defined mass occupying a significant portion of the right hemithorax. The mass appears to be homogenous and has a relatively uniform density. There is no evidence of significant invasion into surrounding structures. The patient's history indicates a diagnosis of lung cancer. Given the apparent size and characteristics of the mass, and the absence of evidence of local invasion or distant metastasis, the patient is likely to remain free of disease progression or recurrence at 1 year after treatment initiation. Yes

timeline only: [INCORRECT] The patient's clinical history indicates a history of lung cancer (C34.80, C33, C34.11, C34.31) and atrial fibrillation (I48.1, I49.9). The patient has been treated with metoprolol and erlotinib. The most recent imaging shows a solitary pulmonary nodule (R91.1) and other nonspecific lung findings (R91.8). The patient is currently on metoprolol and erlotinib. The patient's current medications and the presence of a solitary pulmonary nodule suggest that the patient is being monitored for disease progression or recurrence. Given the history of lung cancer and the presence of a solitary pulmonary nodule, the patient's condition is likely being monitored for disease progression or recurrence. <Yes>

Subtask: progression_recurrence_free_survival_2_yr

Average unique events: 42.70

Question:

Based on the patient's clinical history and current cancer-related evidence, will the patient remain free of disease progression or recurrence at 2 years after treatment initiation?

Correct Answer: No

Model: OpenGVLab/InternVL3_5-8B

100 axial images (no timeline): [INCORRECT] <brief reasoning trace with explanation for answer selection> | <answer></answer> The provided CT images show cross-sectional views of the thoracic region, including the lungs and surrounding structures. The images do not show any obvious signs of tumor recurrence or progression, such as new masses or significant abnormalities in the lung fields. However, without additional clinical information on treatment response, margins, nodal status, and biomarkers, it is challenging to definitively predict disease-free status at 2 years. Given the lack of visible evidence of disease progression in the images, the cautious assumption might lean towards "Yes," but this is speculative without comprehensive clinical data. | <answer>Yes</answer>

timeline only: [INCORRECT] <brief reasoning trace with explanation for answer selection> | <answer> The patient's timeline indicates a diagnosis of malignant neoplasms in various parts of the bronchus and lung, including the trachea, with multiple entries throughout the timeline. Despite ongoing treatment and monitoring, there is no clear evidence of disease progression or recurrence within the two-year period. The patient has multiple follow-up visits and tests, but no specific documentation of disease progression or recurrence is noted. Therefore, based on the available information, it is reasonable to infer that the patient may remain free of disease progression or recurrence at 2 years after treatment initiation. <answer>Yes</answer>

Model: OctoMed/OctoMed-7B

100 axial images (no timeline): [CORRECT] <think>To determine whether this patient remains free of disease progression or recurrence at 2 years post-treatment based solely on these images, we need to carefully analyze any visible signs that might indicate residual malignancy, metastasis, or other abnormalities consistent with cancer recurrence. However, CT scans alone cannot definitively confirm biochemical remission or absence of microscopic disease without additional clinical data such as PET scan results, biopsy reports, or laboratory markers like circulating tumor DNA levels. In terms of visual analysis here: 1. The axial slices shown progress through various anatomical regions including pelvis, abdomen, thorax, neck, oral cavity, nasal cavity, orbits, brainstem, cerebellum, skull base, paranasal sinuses, mandible, clavicles, shoulders, upper arms, chest wall, lungs, heart, diaphragm, liver, kidneys, spleen, pancreas, intestines, spine, ribs, sternum, soft tissues, etc., but no clear focal lesion indicative of active malignancy can be confidently identified across all planes presented. 2. There appears to be some gas-filled bowel loops which could represent normal intestinal contents; there's also air density noted around the mediastinum possibly representing pneumomediastinum if clinically relevant. No obvious mass effect, lymphadenopathy, pleural effusion, or bone destruction is clearly evident either. 3. Without knowing histopathological details about surgical resection margins, chemotherapy/radiation response metrics, or molecular tumor characteristics, it would not be possible to conclude definitive disease-free survival just from these static cross-sectional

images. Given only radiologic imaging and lacking further clinical context, the safest conclusion aligns more conservatively.</think> <answer>No</answer>

timeline only: [CORRECT] <think>Okay, let me try to figure this out. So the question is whether the patient remains free of disease progression or recurrence two years after starting treatment based on their timeline data. But wait, the problem says we need to determine if they'll have no disease progression or recurrence at exactly 2 years. However, looking at the timeline provided up until May 201<think>First, I note that the patient has been undergoing treatment since April 2018 for malignant neoplasms involving both the trachea and lungs. Their treatment regimen includes various medications like metoprolol, rivaroxaban, erlotinib, etc., indicating multimodal therapy including chemotherapy and possibly targeted therapies given the mention of Erlotinib later on. The key here is determining any signs of disease progression or recurrence during follow-up visits. The timeline shows multiple outpatient visits but lacks detailed imaging results beyond what was initially recorded in early stages. For example, initial diagnoses include C34.80 (overlapping sites), C33 (trachea), and C34.90 (unspecified). However, there isn't clear documentation of response assessment via CT scans or PET scans showing reduction in tumor size or resolution over time. Looking closely at the most recent entries before 2018-10-04, such as the last visit on May 19, 2018, it notes ongoing treatments but doesn't specify imaging confirmation of complete remission. There's also a shift towards more advanced staging classifications (e.g., C34.31 for lower lobe involvement) suggesting possible spread rather than control. Additionally, lab values show stable markers but don't confirm absence of active disease. Without definitive imaging reports confirming no residual masses or metastases, especially around critical areas like lymph nodes or distant organs, concluding freedom from recurrence would require stronger objective evidence not present here.</think> <answer>No</answer></think> \boxed{No}

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

100 axial images (no timeline): [INCORRECT] The provided images are a series of CT scans that sequentially scan from the lower pelvis up through the thorax and head. There is no evidence of disease progression or recurrence in any of the images. The scans show normal anatomy without any visible masses, lesions, or abnormalities in the lung, trachea, or other organs. The patient has been scanned from the pelvis to the head, and all slices appear clear. Therefore, based on the imaging evidence, the patient remains free of disease progression or recurrence. <brief reasoning trace with explanation for answer selection> | <answer>Yes</answer>

timeline only: [INCORRECT] The patient's timeline shows a diagnosis of malignant neoplasm of the bronchus and lung (C34.80) and trachea (C33) as of April 2018, with subsequent documentation of persistent atrial fibrillation and other comorbidities. Treatment with erlotinib (a targeted therapy) began on May 19, 2018, and continued through at least October 2018. The timeline includes multiple imaging and lab assessments, but no evidence of disease progression or recurrence is documented at 2 years after treatment initiation. The most recent documented cancer-related ICD-10-CM codes (C34.11, C34.31, C34.80, C33) are from October 2018, and no new or worsening findings are reported after that. The patient's clinical status remains stable with no signs of disease progression, and the timeline does not include any documentation of recurrence or progression beyond 2 years. Therefore, based on the available evidence, the patient remains free of disease progression or recurrence at 2 years after treatment initiation. <brief reasoning trace with explanation for answer selection> | <answer></answer> The patient's timeline documents a diagnosis of lung and tracheal malignancy in April 2018, with initiation of targeted therapy (erlotinib) in May 2018. No evidence of disease progression or recurrence is documented in the timeline beyond October 2018, and no new cancer-related events are reported after that. The patient's clinical status remains stable with no signs of progression, and the timeline does not include any documentation of recurrence

or progression beyond 2 years. Therefore, based on the available evidence, the patient remains free of disease progression or recurrence at 2 years after treatment initiation. |
<answer>Yes</answer>

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

has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy. Clinical information: The patient has a history of lung cancer. The patient has received chemotherapy.

timeline only: [INCORRECT] <unused94>thought The user wants me to determine if the patient will remain free of disease progression or recurrence at 2 years based on the provided timeline. 1. **Identify the core question:** Will the patient be disease-free at 2 years? 2. **Scan the timeline for relevant information:** Look for diagnoses, treatments, staging, pathology, imaging, and follow-up. 3. **Analyze the diagnosis:** The patient has malignant neoplasm of overlapping sites of unspecified bronchus and lung (C34.80) and malignant neoplasm of trachea (C33). These are lung and tracheal cancers. 4. **Analyze the treatment:** The patient has undergone surgery (likely lobectomy, though not explicitly stated, it's implied by the location and stage) and radiation therapy (indicated by CPT codes 77263 and 77470). The patient is also on chemotherapy (erlotinib, indicated by CPT code 93010). 5. **Analyze the staging:** The patient is staged as c-8th_AJCC/UICC-Stage-1A1 (NAACCR/3610). This indicates a small tumor (T1a) without nodal involvement (N0) and no distant metastasis (M0). 6. **Analyze follow-up:** The timeline shows multiple follow-up visits (Outpatient Visits, Case Management Visits, Telehealth visits) after the initial diagnosis and treatment. 7. **Evaluate prognosis based on staging:** Stage 1A1 lung cancer generally has a good prognosis, especially after surgery and radiation. The 5-year survival rate for Stage 1A1 lung cancer is typically high (around 70-80% or higher). 8. **Consider the 2-year mark:** At 2 years post-treatment, the patient is still alive and has undergone treatment. While recurrence is always a possibility, the initial staging and treatment intent suggest a high likelihood of remaining disease-free. The follow-up visits indicate ongoing monitoring, which is standard practice for cancer survivors. 9. **Formulate the answer:** Based on the Stage 1A1 staging and treatment received, the patient has a high probability of remaining disease-free at 2 years. 10. **Select the option:** "Yes". 11. **Construct the reasoning:** The patient was diagnosed with Stage 1A1 lung cancer (C34.80, C33) and received treatment including surgery and radiation. Stage 1A1 lung cancer has a relatively good prognosis, with high 5-year survival rates. The patient has undergone follow-up care. Therefore, it is highly likely the patient will remain disease-free at 2 years.<unused95><brief reasoning trace with explanation for answer selection>The patient was diagnosed with Stage 1A1 lung cancer (C34.80, C33) and received treatment including surgery and radiation therapy. Stage 1A1 lung cancer has a relatively good prognosis, with high 5-year survival rates. The patient has undergone follow-up care. Therefore, it is highly likely the patient will remain disease-free at 2 years. <answer>Yes</answer>

Model: google/medgemma-4b-it

100 axial images (no timeline): [INCORRECT] The images show a cross-sectional view of the chest, with a large, well-defined mass occupying the central portion of the chest. The mass appears to be homogenous and has a relatively uniform density. The surrounding structures, such as the lungs and mediastinum, appear normal. The images suggest a complete resection of the tumor. <The images show a large, well-defined mass in the chest, which is consistent with a complete resection. The absence of any evidence of recurrence or progression makes it likely that the patient will remain free of disease progression or recurrence at 2 years after treatment

initiation.> | Yes

timeline only: [CORRECT] The patient was diagnosed with a malignant neoplasm of the bronchus and lung in April 2018. They underwent treatment, including radiation therapy, in October 2018. The patient has a history of atrial fibrillation and hyperlipidemia. The patient's current clinical history includes a malignant neoplasm of the bronchus and lung, a malignant neoplasm of the trachea, and a solitary pulmonary nodule. The patient is also being treated for atrial fibrillation and hyperlipidemia. The patient's last follow-up was in October 2018. Given the presence of multiple malignancies and the lack of recent follow-up, it is difficult to determine if the patient remains free of disease progression or recurrence at 2 years after treatment initiation. <No>