Clinical Note

A 53-year-old man comes to the physician because of a 1-day history of fever and chills, severe malaise, and cough with yellowgreen sputum. He works as a commercial fisherman on Lake Superior. Current medications include metoprolol and warfarin. His temperature is 38.5 C (101.3 F), pulse is 96/min, respirations are 26/min, and blood pressure is 98/62 mm Hg. Examination shows increased fremitus and bronchial breath sounds over the right middle lung field. After reviewing imaging, the causal pathogen was determined to be **Haemophilus influenzae**. An x-ray of the chest showed consolidation of the right upper lobe.

Streptococcus pneumoniae.

Step 3: Inference (ICL + CoT)

Clinical Note

A 48-year-old man comes to the

dyspnea and cough. [...]. Patient

was diagnosed with pulmonary

showed an FVC of 78% and an

emphysema after spirometry

FEV1/FVC ratio of 95%.

physician for the evaluation of

Step 1: Fine-tune an Error Span Predictor

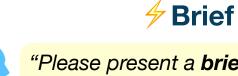
Error Span Predictor (BioLinkBERT)

Predict medical error span

Haemophilus influenzae

Supervised Training

Step 2: Generate CoT reasons



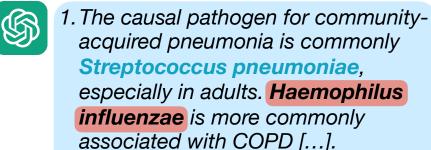
"Please present a brief reasoning that leads to the ground truth answer provided"



"Streptococcus pneumoniae is a common cause of communityacquired pneumonia, especially in adults. **Haemophilus influenzae** is also a potential pathogen, but streptococcus pneumoniae is more frequently associated with pneumonia in this age group."



"Please present a step-by-step reasoning that leads to the ground truth answer provided"



2. Given the patient's presentation with fever, chills, [...], the most likely pathogen is Streptococcus pneumoniae.



SOAP

"Please present a step-by-step reasoning that leads to the ground truth answer provided. First, organise the clinical note into a SOAP format



OR

Subjective: The patient presents with a 1-day history of [...].

Objective: Vital signs include a [...]. Examination findings reveal [...].

Assessment: The causal pathogen was determined to be Haemophilus influenzae, which is inconsistent with community-acquired pneumonia in adults.

Plan: An x-ray of the chest [...]. The correction should be made [...], the causal pathogen was determined to be Streptococcus pneumoniae, which is a more common cause of community-acquired pneumonia [...].

Correction

After reviewing imaging, the causal pathogen was determined to be

In-Context Examples

(1)

Retrieve

k ICL examples

[In-Context Examples]

Clinical text:

Store

[Clinical Note Sentences]

OR

Store

Task: Identify 1 incorrect sentence in the clinical text, or confirm if all sentences are correct. If there is 1 incorrect sentence, how would you fix it? Follow the hints below if you see fit Hint:

Store

- Pay special attention to biomedical entities such as chief complaints, medical exams, diagnoses, and treatments.
- A clinician said that you MAY want to pay attention to the mention of "pulmonary emphysema".

Let's think step by step Answer:

Use Error as a hint

Span Prediction

Patient was diagnosed with pulmonary emphysema after spirometry showed an FVC of 78% and an FEV1/FVC ratio of 95%.

Predict Correction



Predicted Correction

Patient was diagnosed with pulmonary fibrosis after spirometry showed an FVC of 78% and an FEV1/FVC ratio of 95%.



Error Span Predictor (BioLinkBERT)