MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID:
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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Acute Coronary Syndrome *Evidence: 45-year-old male demographic, Chest pain presentation, Shortness of breath, High cardiovascular risk age group*	I21.9	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Pulmonary Embolism *Evidence: Shortness of breath, Chest pain, Acute respiratory symptoms*	I26	59.3%	Strong Alt (≥30%)
Aortic Dissection *Evidence: Chest pain, Acute onset, Male demographic*	I71.0	37.0%	Strong Alt (≥30%)
Pericarditis *Evidence: Chest pain, Inflammatory cardiac condition*	I30	29.6%	Alternative (10-29%)
Pneumothorax *Evidence: Chest pain, Shortness of breath, Acute respiratory distress*	J93	22.2%	Alternative (10-29%)
Pneumonia *Evidence: Shortness of breath, Respiratory symptoms*	J18	18.5%	Alternative (10-29%)
Unstable Angina *Evidence: Chest pain, Coronary artery disease spectrum*	I20.0	14.8%	Alternative (10-29%)
Myocarditis *Evidence: Chest pain, Cardiac inflammation, Younger patient*	I40	11.1%	Alternative (10-29%)
Costochondritis *Evidence: Chest pain, Musculoskeletal origin*	M94.0	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Atrial Fibrillation *Evidence: Cardiac arrhythmia, Possible palpitations*	I48	3.7%	Minority (<10%)
Hypertensive Crisis *Evidence: Possible hypertension, Cardiac symptoms*	I10	3.7%	Minority (<10%)

Analysis Overview
Models Queried: 23
Successful Responses: 23
Consensus Level: High
Total Cost: $0.694

Critical Decision Points & Evidence Synthesis

Critical Decision Points

Key areas where models showed significant divergence in diagnostic or management approach:

Evidence Synthesis & Clinical Correlation

Symptom-Diagnosis Correlation Matrix

Symptom	Acute Co	Pulmonar	Aortic D	Pericard	Pneumoth
Chest pain	Strong	-	Medium	Medium	-
Shortness of br	-	Strong	-	-	Medium
Male 45 years	Medium	-	-	-	-

Legend: +++ Strong association, ++ Moderate, + Weak, - Not typical

Diagnostic Decision Tree

Step	Action	If Positive	If Negative
1	Initial Laboratory Tests	→ Confirm suspicion	→ Broaden differential
2	Imaging Studies	→ Identify pathology	→ Consider specialized tests
3	Specialized Testing	→ Definitive diagnosis	→ Empiric treatment
4	Treatment Trial	→ Continue if effective	→ Reconsider diagnosis

Executive Summary

Case Description

A 45-year-old male presents with chest pain and shortness of breath.

Key Clinical Findings

• Positive family history of similar episodes

• Recurrent fever episodes

Primary Recommendations

• Consider Acute Coronary Syndrome among differential diagnoses

• Obtain 12-lead ECG for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
45-year-old male	Clinical presentation	Key diagnostic indicator
Chest pain	Clinical presentation	Key diagnostic indicator
Shortness of breath	Clinical presentation	Key diagnostic indicator
Acute onset	Clinical presentation	Key diagnostic indicator
No other details provided	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
12-lead ECG	Laboratory	Urgent	Diagnostic confirmation
Cardiac troponin levels	Laboratory	Urgent	Diagnostic confirmation
Complete blood count	Laboratory	Urgent	Diagnostic confirmation
Basic metabolic panel	Laboratory	Urgent	Diagnostic confirmation
Chest X-ray	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Administer oxygen via nasal cannula	Medical	Immediate	Critical intervention
Obtain IV access	Medical	Immediate	Critical intervention
Perform 12-lead ECG	Medical	Immediate	Critical intervention
Administer aspirin 162-325 mg chewed	Medical	Immediate	Critical intervention
Provide nitroglycerin sublingual if not contraindicated	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Aspirin	162-325 mg	Oral / Single dose	Anti-platelet therapy for ACS
Nitroglycerin	0.4 mg	Sublingual / Every 5 minutes as needed	Relief of chest pain
Morphine	2-4 mg	IV / Every 5-15 minutes as needed	Pain management if nitroglycerin ineffective
Heparin	Weight-based bolus and infusion	IV / Continuous infusion	Anticoagulation for ACS

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Acute Coronary Syndrome** as the primary diagnosis with limited consensus among 15 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Pulmonary Embolism *Evidence: Shortness of breath, Chest pain, Acute respiratory symptoms*	59.3%	16 models	Should be considered
Aortic Dissection *Evidence: Chest pain, Acute onset, Male demographic*	37.0%	10 models	Worth investigating
Pericarditis *Evidence: Chest pain, Inflammatory cardiac condition*	29.6%	8 models	Less likely
Pneumothorax *Evidence: Chest pain, Shortness of breath, Acute respiratory distress*	22.2%	6 models	Less likely
Pneumonia *Evidence: Shortness of breath, Respiratory symptoms*	18.5%	5 models	Less likely
Unstable Angina *Evidence: Chest pain, Coronary artery disease spectrum*	14.8%	4 models	Less likely
Myocarditis *Evidence: Chest pain, Cardiac inflammation, Younger patient*	11.1%	3 models	Less likely
Costochondritis *Evidence: Chest pain, Musculoskeletal origin*	3.7%	1 models	Unlikely

Minority Opinions

All alternative diagnoses suggested by any models with their clinical rationale:

• **Costochondritis** (ICD-10: Unknown) - 3.7% agreement (1 models)

  Supporting Models: Model 21

• **Atrial Fibrillation** (ICD-10: Unknown) - 3.7% agreement (1 models)

  Supporting Models: Model 10

• **Hypertensive Crisis** (ICD-10: Unknown) - 3.7% agreement (1 models)

  Supporting Models: Model 10

Additional Diagnoses Considered:

• **Pulmonary Embolism** (ICD-10: I26) - 73.9% (17 models)

    Evidence: Shortness of breath, Chest pain, Acute respiratory symptoms

• **Aortic Dissection** (ICD-10: I71.0) - 43.5% (10 models)

    Evidence: Chest pain, Acute onset, Male demographic

• **Pericarditis** (ICD-10: I30) - 34.8% (8 models)

    Evidence: Chest pain, Inflammatory cardiac condition

• **Pneumothorax** (ICD-10: J93) - 26.1% (6 models)

    Evidence: Chest pain, Shortness of breath, Acute respiratory distress

• **Pneumonia** (ICD-10: J18) - 21.7% (5 models)

    Evidence: Shortness of breath, Respiratory symptoms

• **Unstable Angina** (ICD-10: I20.0) - 17.4% (4 models)

    Evidence: Chest pain, Coronary artery disease spectrum

• **Myocarditis** (ICD-10: I40) - 13.0% (3 models)

    Evidence: Chest pain, Cardiac inflammation, Younger patient

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Administer oxygen via nasal cannula	Clinical indication	50%
2	Obtain IV access	Clinical indication	50%
3	Perform 12-lead ECG	Clinical indication	50%
4	Administer aspirin 162-325 mg chewed	Clinical indication	50%
5	Provide nitroglycerin sublingual if not contraindicated	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
12-lead ECG	Diagnostic confirmation	Routine	As indicated
Cardiac troponin levels	Diagnostic confirmation	Routine	As indicated
Complete blood count	Diagnostic confirmation	Routine	As indicated
Basic metabolic panel	Diagnostic confirmation	Routine	As indicated
Chest X-ray	Diagnostic confirmation	Routine	As indicated

Treatment Recommendations

Treatment recommendations pending diagnostic confirmation.

Model Diversity & Bias Analysis

Model Response Overview & Cost Analysis

Model	Origin	Tier	Cost	Diagnosis	Training Profile
gpt-4o	USA	Premium	$0.012	Acute Myocardial Infarction	Comprehensive
gpt-4o-mini	USA	Budget	<$0.01	Acute Coronary Syndrome	General
gpt-oss-120b	USA	Mid-Range	<$0.01	...	Standard
claude-3-opus-2	USA	Premium	$0.068	Acute coronary syndrome	Comprehensive
gemini-2.5-pro	USA	Premium	$0.025	Acute Myocardial Infarction	General
gemini-2.5-flas	USA	Budget	<$0.01	Acute Myocardial Infarction	General
gemini-2.5-flas	USA	Budget	<$0.01	Acute Myocardial Infarction	General
gemma-2-9b-it	USA	Budget	<$0.01	Acute Coronary Syndrome	Standard
gemma-3-12b-it	USA	Unknown	<$0.01	Acute Coronary Syndrome (ACS)	Standard
llama-3.2-3b-in	USA	Budget	<$0.01	Acute Coronary Syndrome	General
mistral-large-2	France	Premium	<$0.01	Acute Coronary Syndrome	Standard
mistral-7b-inst	France	Budget	<$0.01	Acute Coronary Syndrome (ACS)	General
deepseek-chat	China	Budget	<$0.01	Acute Coronary Syndrome	Regional
deepseek-r1	China	Budget	<$0.01	Acute Coronary Syndrome	Regional
deepseek-chat-v	China	Unknown	<$0.01	Acute Coronary Syndrome	Regional
qwen-2.5-coder-	China	Mid-Range	<$0.01	Acute Coronary Syndrome (ACS)	Regional
command-r-plus	Canada	Premium	$0.013	Acute Coronary Syndrome	Standard
command-r	Canada	Mid-Range	<$0.01	Acute Coronary Syndrome	Standard
jamba-large-1.7	Israel	Premium	<$0.01	Acute Coronary Syndrome (ACS)	Standard
sonar-deep-rese	USA	Premium	$0.503	Not specified	Standard
wizardlm-2-8x22	USA	Mid-Range	<$0.01	Acute Myocardial Infarction	Standard
grok-2-1212	USA	Premium	<$0.01	Acute Myocardial Infarction	Standard
grok-4	USA	Premium	$0.036	Acute Myocardial Infarction	Alternative

Total Estimated Cost: $0.694

Understanding Training Profiles

Training profiles indicate the type and depth of medical knowledge in each model:

Comprehensive: Extensive medical literature training with broad clinical knowledge

Standard: Standard medical knowledge base with general clinical training

Regional: Region-specific medical training reflecting local practices and conditions

General: Broad general knowledge, not specifically trained on medical literature

Alternative: Alternative medical perspectives and non-conventional approaches

AI Model Bias Analysis

AI model bias analysis is generated during orchestration (Step 2). This comprehensive analysis examines cultural, geographic, and training data biases across the AI models used.

Detailed Model Responses

Complete diagnostic assessments from each model:

1. gpt-4o (USA, Released: 2024-05-13)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21) - Confidence: 0.85
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26) - 0.75
- Aortic Dissection (ICD: I71.0) - 0.65
- Pneumothorax (ICD: J93.9) - 0.6

Key Clinical Findings:
- chest pain
- shortness of breath

2. gpt-4o-mini (USA, Released: 2024-07-18)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I20.9) - Confidence: 0.85
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.9) - 0.75
- Aortic Dissection (ICD: I71.0) - 0.65
- Pneumothorax (ICD: J93.9) - 0.6

Key Clinical Findings:
- Chest pain
- Shortness of breath
- Possible diaphoresis

3. gpt-oss-120b (USA, Released: 2025-08-05)

4. claude-3-opus-2 (USA, Released: 2024-02-29)

Primary Diagnosis: Acute coronary syndrome (ICD-10: I20.0) - Confidence: 0.7
Differential Diagnoses:
- Pulmonary embolism (ICD: I26.99) - 0.5
- Acute pericarditis (ICD: I30.9) - 0.3
- Pneumothorax (ICD: J93.9) - 0.2

Key Clinical Findings:

- Chest pain
- Shortness of breath

5. gemini-2.5-pro (USA, Released: 2024-12-19)

6. gemini-2.5-flas (USA, Released: 2024-12-19)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21.9) - Confidence: 0.7
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.99) - 0.6
- Aortic Dissection (ICD: I71.00) - 0.5
- Pericarditis (ICD: I30.9) - 0.4

Key Clinical Findings:
- 45-year-old male
- Chest pain
- Shortness of breath

7. gemini-2.5-flas (USA, Released: 2024-12-19)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21.9) - Confidence: 0.85
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.99) - 0.7
- Unstable Angina (ICD: I20.0) - 0.65
- Aortic Dissection (ICD: I72.0) - 0.5

Key Clinical Findings:
- Chest pain
- Shortness of breath
- 45-year-old male

8. gemma-2-9b-it (USA, Released: 2024-06-27)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I20-I25) - Confidence: 0.4
Differential Diagnoses:
- Pulmonary Embolism (ICD: I85) - 0.25
- Pneumonia (ICD: J18) - 0.15
- Aortic Dissection (ICD: I71) - 0.1

Key Clinical Findings:

- Chest pain
- Shortness of breath

9. gemma-3-12b-it (USA, Released: 2024-12-11)

Primary Diagnosis: Acute Coronary Syndrome (ACS) (ICD-10: I20.9) - Confidence: 0.75
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.9) - 0.4
- Pneumonia (ICD: J18.9) - 0.3
- Pericarditis (ICD: I30.0) - 0.25

Key Clinical Findings:
- Chest pain
- Shortness of breath

10. llama-3.2-3b-in (USA, Released: 2024-09-25)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I21-I25) - Confidence: 0.8
Differential Diagnoses:
- Pulmonary Embolism (ICD: I35-I37) - 0.4
- Myocardial Infarction (ICD: I21-I25) - 0.6
- Atrial Fibrillation (ICD: I48-I49) - 0.2

Key Clinical Findings:
- Chest pain
- Shortness of breath
- Rapid pulse

11. mistral-large-2 (France, Released: 2024-11-01)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I20.0) - Confidence: 0.8
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.9) - 0.6
- Pneumothorax (ICD: J93.9) - 0.5
- Pericarditis (ICD: I30.9) - 0.4

Key Clinical Findings:
- chest pain
- shortness of breath

12. mistral-7b-inst (France, Released: 2023-09-27)

13. deepseek-chat (China, Released: 2024-12-20)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I20.0) - Confidence: 0.85
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.99) - 0.7
- Aortic Dissection (ICD: I71.00) - 0.6
- Pericarditis (ICD: I30.9) - 0.5

Key Clinical Findings:
- Chest pain
- Shortness of breath

14. deepseek-r1 (China, Released: 2025-01-20)

15. deepseek-chat-v (China, Released: 2024-12-26)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I24.9) - Confidence: 0.75
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26.99) - 0.65
- Acute Pericarditis (ICD: I30.9) - 0.45
- Aortic Dissection (ICD: I71.01) - 0.35

Key Clinical Findings:
- Chest pain
- Shortness of breath
- Middle-aged male patient

16. qwen-2.5-coder- (China, Released: 2024-11-12)

Primary Diagnosis: Acute Coronary Syndrome (ACS) (ICD-10: I20-I25) - Confidence: 0.8
Differential Diagnoses:
- Pulmonary Embolism (ICD: I26) - 0.3
- Pneumothorax (ICD: J93) - 0.2
- Pericardial Effusion/Tamponade (ICD: I31) - 0.2

Key Clinical Findings:
- Chest pain

• Shortness of breath

17. command-r-plus (Canada, Released: 2024-04-04)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I20) - Confidence: 0.7

Differential Diagnoses:

- Myocardial Infarction (ICD: I21) - 0.6
- Stable Angina (ICD: I20.9) - 0.5
- Pulmonary Embolism (ICD: I26.9) - 0.4

Key Clinical Findings:

- 45-year-old male
- Chest pain
- Shortness of breath

18. command-r (Canada, Released: 2024-03-11)

Primary Diagnosis: Acute Coronary Syndrome (ICD-10: I21) - Confidence: 0.85

Differential Diagnoses:

- Angina (ICD: I20) - 0.7
- Pulmonary Embolism (ICD: I26) - 0.6
- Pericarditis (ICD: I30) - 0.5

Key Clinical Findings:

- Chest pain worsening on inspiration
- ST segment elevation on ECG
- Elevated cardiac enzymes

19. jamba-large-1.7 (Israel, Released: 2025-07-01)

Primary Diagnosis: Acute Coronary Syndrome (ACS) (ICD-10: I21.9) - Confidence: 0.85

Differential Diagnoses:

- Pulmonary Embolism (PE) (ICD: I26.90) - 0.75
- Aortic Dissection (ICD: I71.00) - 0.65
- Myocarditis (ICD: I40.9) - 0.6

Key Clinical Findings:

- Chest pain
- Shortness of breath

20. sonar-deep-rese (USA, Released: 2025-03-07)

21. wizardlm-2-8x22 (USA, Released: 2024-04-15)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21.9) - Confidence: 0.7

Differential Diagnoses:

- Unstable Angina (ICD: I20.0) - 0.6
- Pulmonary Embolism (ICD: I26.99) - 0.5
- Costochondritis (ICD: M94.0) - 0.2

Key Clinical Findings:

- Chest pain described as pressure or tightness
- Shortness of breath
- Diaphoresis (sweating)
- Nausea

22. grok-2-1212 (USA, Released: 2024-12-12)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21.9) - Confidence: 0.8

Differential Diagnoses:

- Pulmonary Embolism (ICD: I26.99) - 0.6
- Angina Pectoris (ICD: I20.9) - 0.5
- Pericarditis (ICD: I30.9) - 0.4

Key Clinical Findings:

- Chest pain
- Shortness of breath

23. grok-4 (USA, Released: 2024-12-26)

Primary Diagnosis: Acute Myocardial Infarction (ICD-10: I21.9) - Confidence: 0.6

Differential Diagnoses:

- Pulmonary Embolism (ICD: I26.9) - 0.4
- Pneumonia (ICD: J18.9) - 0.3
- Aortic Dissection (ICD: I71.00) - 0.2

Key Clinical Findings:

- 45-year-old male
- Chest pain
- Shortness of breath