MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpafml98fm Title: Custom Case Analysis Generated: 2025-09-05 23:48

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Acute decompensated heart failure due to ischemic cardiomyopathy *Evidence: progressive exertional dyspnea, orthopnea, paroxysmal nocturnal dyspnea, JVD*	I50.21	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Acute coronary syndrome *Evidence: history of prior anterior MI, ECG Q waves V1-V4, chest pain symptoms*	I24.9	3.7%	Minority (<10%)
Hypertensive emergency with heart failure *Evidence: history of hypertension, poorly controlled BP, fluid overload signs*	I11.0	3.7%	Minority (<10%)
Pulmonary embolism *Evidence: acute dyspnea, possible hypoxia*	I26.99	0.0%	Minority (<10%)
Chronic obstructive pulmonary disease exacerbation *Evidence: exertional dyspnea, bibasilar crackles*	J44.1	0.0%	Minority (<10%)
Pneumonia *Evidence: bibasilar crackles, fever possibility*	J18.9	0.0%	Minority (<10%)
Cardiac arrhythmia *Evidence: S3 gallop, possible palpitations*	I49.9	0.0%	Minority (<10%)
Renal failure with fluid overload *Evidence: poorly controlled diabetes, fluid overload, possible electrolyte imbalance*	N19	0.0%	Minority (<10%)
Valvular heart disease *Evidence: S3 gallop, low ejection fraction*	I35.9	0.0%	Minority (<10%)
Pericardial disease *Evidence: JVD, possible pericardial rub*	I31.9	0.0%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Anemia-related heart failure *Evidence: fatigue, exertional dyspnea, possible CBC abnormalities*	I50.9	0.0%	Minority (<10%)

Analysis Overview

Models Queried: 3

Successful Responses: 3

Consensus Level: High

Total Cost: <$0.01

■■ Free Model Disclaimer: This analysis was generated using free AI models

Free models may provide suboptimal results. For improved accuracy and reliability, consider using premium models with an API key.

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 de	Acute co	Hyperten	Pulmonar	COPD exa
exertional dysp	Strong	-	-	-	Medium
orthopnea	Strong	-	-	-	-
PND	Strong	-	-	-	-
JVD	Strong	-	-	-	-
bibasilar crack	Strong	-	-	-	-
S3 gallop	Strong	-	-	-	-
ECG Q waves	-	Strong	-	-	-

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 68-year-old man with a history of long-standing hypertension, poorly controlled type 2 diabetes mellitus, and prior anterior myocardial infarction presents with progressive exertional dyspnea, orthopnea, and paroxysmal nocturnal dyspnea over the past two weeks. On examination, he is tachycardic and hypertensive, with jugular venous distension, bibasilar crackles, and an S3 gallop. ECG shows sinus tachycardia with Q waves in leads V1–V4, and transthoracic echocardiography reveals a left ventricular ejection fraction of 25% with akinesis of the anterior wall and moderate functional mitral regurgitation. Laboratory studies demonstrate elevated BNP and mild renal impairment. He is admitted for acute decompensated heart failure on a background of ischemic cardiomyopathy, with consideration for optimization of guideline-directed medical therapy, management of volume overload, and evaluation for device therapy.

Key Clinical Findings

Primary Recommendations

• Consider Acute decompensated heart failure due to ischemic cardiomyopathy among differential diagnoses

• Obtain BNP or NT-proBNP for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
progressive exertional dyspnea	Clinical presentation	Key diagnostic indicator
orthopnea	Clinical presentation	Key diagnostic indicator
paroxysmal nocturnal dyspnea	Clinical presentation	Key diagnostic indicator
JVD	Clinical presentation	Key diagnostic indicator
bibasilar crackles	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
BNP or NT-proBNP	Laboratory	Urgent	Diagnostic confirmation
Troponin	Laboratory	Urgent	Diagnostic confirmation
Complete Blood Count (CBC)	Laboratory	Urgent	Diagnostic confirmation
Basic Metabolic Panel (BMP)	Laboratory	Urgent	Diagnostic confirmation
Electrolyte Panel	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Administer supplemental oxygen	Medical	Immediate	Critical intervention
Initiate IV access	Medical	Immediate	Critical intervention
Obtain 12-lead ECG	Medical	Immediate	Critical intervention
Place patient on cardiac monitor	Medical	Immediate	Critical intervention
Assess volume status	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Furosemide	40-80 mg	IV / Once, then titrate based on response	Diuresis for fluid overload
Nitroglycerin	10-20 mcg/min	IV infusion / Continuous	Preload reduction in hypertensive heart failure

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Acute decompensated heart failure due to ischemic cardiomyopathy** as the primary diagnosis with limited consensus among 1 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Acute coronary syndrome *Evidence: history of prior anterior MI, ECG Q waves V1-V4, chest pain symptoms*	3.7%	1 models	Unlikely
Hypertensive emergency with heart failure *Evidence: history of hypertension, poorly controlled BP, fluid overload signs*	3.7%	1 models	Unlikely
Pulmonary embolism *Evidence: acute dyspnea, possible hypoxia*	0.0%	0 models	Unlikely
Chronic obstructive pulmonary disease exacerbation *Evidence: exertional dyspnea, bibasilar crackles*	0.0%	0 models	Unlikely
Pneumonia *Evidence: bibasilar crackles, fever possibility*	0.0%	0 models	Unlikely
Cardiac arrhythmia *Evidence: S3 gallop, possible palpitations*	0.0%	0 models	Unlikely
Renal failure with fluid overload *Evidence: poorly controlled diabetes, fluid overload, possible electrolyte imbalance*	0.0%	0 models	Unlikely
Valvular heart disease *Evidence: S3 gallop, low ejection fraction*	0.0%	0 models	Unlikely

Minority Opinions

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

- **Acute coronary syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model1
- **Hypertensive emergency with heart failure** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model1
- **Pulmonary embolism** (ICD-10: Unknown) - 0.0% agreement (0 models)
  Supporting Models:

• **Chronic obstructive pulmonary disease exacerbation** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Pneumonia** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Cardiac arrhythmia** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Renal failure with fluid overload** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Valvular heart disease** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Pericardial disease** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

• **Anemia-related heart failure** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Administer supplemental oxygen	Clinical indication	50%
2	Initiate IV access	Clinical indication	50%
3	Obtain 12-lead ECG	Clinical indication	50%
4	Place patient on cardiac monitor	Clinical indication	50%
5	Assess volume status	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
BNP or NT-proBNP	Diagnostic confirmation	Routine	As indicated
Troponin	Diagnostic confirmation	Routine	As indicated
Complete Blood Count (CBC)	Diagnostic confirmation	Routine	As indicated
Basic Metabolic Panel (BMP)	Diagnostic confirmation	Routine	As indicated
Electrolyte 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
deepseek-chat-v	China	Unknown	<$0.01	Acute decompensated heart failure due to ischemic cardiomyopathy	General
deepseek-r1	China	Unknown	<$0.01	Acute decompensated heart failure due to ischemic cardiomyopathy	General
qwen-2.5-coder-	China	Mid-Range	<$0.01	Acute Decompensated Heart Failure	Regional

Total Estimated Cost: <$0.01

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

Primary Diagnosis: Acute decompensated heart failure due to ischemic cardiomyopathy (ICD-10: I50.21) - Confidence: 0.95

Differential Diagnoses:

- Acute coronary syndrome (ICD: I24.9) - 0.4
- Hypertensive emergency with heart failure (ICD: I11.0) - 0.35
- Diabetic cardiomyopathy with acute decompensation (ICD: E11.9) - 0.3

Key Clinical Findings:

- Progressive exertional dyspnea, orthopnea, PND
- Tachycardia, hypertension, JVD
- Bibasilar crackles, S3 gallop
- ECG: sinus tachycardia with anterior Q waves

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

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

Primary Diagnosis: Acute Decompensated Heart Failure (ICD-10: I50.1) - Confidence: 0.95

Differential Diagnoses:

- Asthma Exacerbation (ICD: J45) - 0.05
- Pulmonary Embolism (ICD: I26) - 0.03
- Chronic Obstructive Pulmonary Disease (COPD) Exacerbation (ICD: J44) - 0.02

Key Clinical Findings:

- Progressive exertional dyspnea
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Tachycardia