

MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpnjts2_cl

Title: Custom Case Analysis

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Acute decompensated heart failure due to ischemic cardiomyopathy <i>Evidence: History of prior anterior MI, ECG showing Q waves in V1-V4 consistent with old anterior MI, Echo showing LVEF 25% with anterior wall akinesis, High BNP levels</i>	I50.23	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Acute coronary syndrome <i>Evidence: History of prior MI, ECG abnormalities, Cardiac risk factors</i>	I24.9	3.7%	Minority (<10%)
Pulmonary embolism <i>Evidence: Acute dyspnea, Possible right heart strain signs</i>	I26.99	3.7%	Minority (<10%)
Chronic obstructive pulmonary disease exacerbation <i>Evidence: Exertional dyspnea, Crackles on exam, Smoking history possible</i>	J44.1	3.7%	Minority (<10%)
Pneumonia <i>Evidence: Crackles on lung exam, Dyspnea, Possible fever/infection</i>	J18.9	3.7%	Minority (<10%)
Cardiogenic shock <i>Evidence: Severely reduced LVEF, Signs of poor perfusion, Renal impairment</i>	R57.0	3.7%	Minority (<10%)
Hypertensive emergency <i>Evidence: History of hypertension, Acute decompensation, Possible elevated BP</i>	I16.9	3.7%	Minority (<10%)
Renal failure with volume overload <i>Evidence: Mild renal issues, Volume overload signs, JVD and crackles</i>	N17.9	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Valvular heart disease <i>Evidence: Moderate mitral regurgitation, Cardiac murmurs possible, Heart failure symptoms</i>	I08.9	3.7%	Minority (<10%)
Cardiac arrhythmia <i>Evidence: S3 gallop, Possible irregular rhythm, History of cardiac disease</i>	I49.9	3.7%	Minority (<10%)
Diabetic ketoacidosis <i>Evidence: Poorly controlled diabetes, Possible metabolic derangements, Acute illness</i>	E10.10	3.7%	Minority (<10%)

Analysis Overview
Models Queried: 2
Successful Responses: 2
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	Pulmonar	COPD exa	Pneumoni	Cardioge	Hyperten	Renal fa
Exertional dysp	Strong	-	Medium	-	-	-	-	-
Orthopnea	Strong	-	-	-	-	-	-	-
Paroxysmal noct	-	-	-	-	-	-	-	-
Jugular venous	Strong	-	-	-	-	-	-	-
Crackles	-	-	-	-	Medium	-	-	-
S3 gallop	Strong	-	-	-	-	-	-	-
ECG Q waves	-	Strong	-	-	-	-	-	-
Reduced LVEF	Strong	-	-	-	-	-	-	-
High BNP	Strong	-	-	-	-	-	-	-
Mitral regurgit	-	-	-	-	-	-	-	-

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
- Assess ABCs (Airway, Breathing, Circulation)
- Administer supplemental oxygen to maintain SpO₂ >90%
- Obtain IV access
- Obtain 12-lead ECG for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Prior anterior MI history	Clinical presentation	Key diagnostic indicator
ECG Q waves V1-V4	Clinical presentation	Key diagnostic indicator
LVEF 25% with anterior wall akinesis	Clinical presentation	Key diagnostic indicator
High BNP levels	Clinical presentation	Key diagnostic indicator
Exertional dyspnea/orthopnea/PND	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
12-lead ECG	Laboratory	Urgent	Diagnostic confirmation
Cardiac troponin	Laboratory	Urgent	Diagnostic confirmation
BNP or NT-proBNP	Laboratory	Urgent	Diagnostic confirmation
Complete metabolic panel (including renal function)	Laboratory	Urgent	Diagnostic confirmation
Chest X-ray	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Assess ABCs (Airway, Breathing, Circulation)	Medical	Immediate	Critical intervention
Administer supplemental oxygen to maintain SpO2 >90%	Medical	Immediate	Critical intervention
Obtain IV access	Medical	Immediate	Critical intervention
Perform focused cardiac and pulmonary exam	Medical	Immediate	Critical intervention
Obtain 12-lead ECG	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Furosemide	40-80 mg IV	IV / Every 6-12 hours as needed	Diuresis for volume overload
Nitroglycerin	10-20 mcg/min IV	IV infusion / Continuous	Afterload reduction and preload reduction
Morphine sulfate	2-4 mg IV	IV / Every 5-15 minutes as needed	Anxiety and dyspnea relief (use with caution)

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Acute decompensated heart failure due to ischemic cardiomyopathy** as the primary diagnosis with 0.0% consensus among 1 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Acute coronary syndrome <i>Evidence: History of prior MI, ECG abnormalities, Cardiac risk factors</i>	3.7%	1 models	Unlikely
Pulmonary embolism <i>Evidence: Acute dyspnea, Possible right heart strain signs</i>	3.7%	1 models	Unlikely
Chronic obstructive pulmonary disease exacerbation <i>Evidence: Exertional dyspnea, Crackles on exam, Smoking history possible</i>	3.7%	1 models	Unlikely
Pneumonia <i>Evidence: Crackles on lung exam, Dyspnea, Possible fever/infection</i>	3.7%	1 models	Unlikely
Cardiogenic shock <i>Evidence: Severely reduced LVEF, Signs of poor perfusion, Renal impairment</i>	3.7%	1 models	Unlikely
Hypertensive emergency <i>Evidence: History of hypertension, Acute decompensation, Possible elevated BP</i>	3.7%	1 models	Unlikely
Renal failure with volume overload <i>Evidence: Mild renal issues, Volume overload signs, JVD and crackles</i>	3.7%	1 models	Unlikely
Valvular heart disease <i>Evidence: Moderate mitral regurgitation, Cardiac murmurs possible, Heart failure symptoms</i>	3.7%	1 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: Unknown
- **Pulmonary embolism** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: Unknown

- **Chronic obstructive pulmonary disease exacerbation** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

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

Supporting Models: Unknown

- **Cardiogenic shock** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

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

Supporting Models: Unknown

- **Renal failure with volume overload** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

- **Valvular heart disease** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

- **Cardiac arrhythmia** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

- **Diabetic ketoacidosis** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Assess ABCs (Airway, Breathing, Circulation)	Clinical indication	50%
2	Administer supplemental oxygen to maintain SpO2 >90%	Clinical indication	50%
3	Obtain IV access	Clinical indication	50%
4	Perform focused cardiac and pulmonary exam	Clinical indication	50%
5	Obtain 12-lead ECG	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
12-lead ECG	Diagnostic confirmation	Routine	As indicated
Cardiac troponin	Diagnostic confirmation	Routine	As indicated
BNP or NT-proBNP	Diagnostic confirmation	Routine	As indicated
Complete metabolic panel (including renal function)	Diagnostic confirmation	Routine	As indicated
Chest X-ray	Diagnostic confirmation	Routine	As indicated
Arterial blood gas if hypoxemic	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 on a background of ischemic cardiomyopathy	General

***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: I50.23) - Confidence: 0.95

Differential Diagnoses:

- Acute coronary syndrome (ICD: I24.9) - 0.4
- Pulmonary embolism (ICD: I26.99) - 0.2
- Chronic kidney disease with volume overload (ICD: N18.9) - 0.3

Key Clinical Findings:

- Progressive exertional dyspnea, orthopnea, PND
- Tachycardia, hypertension, JVD, bibasilar crackles, S3 gallop
- ECG: sinus tachycardia with Q waves V1-V4
- Echo: LVEF 25% with anterior wall akinesis, moderate functional MR

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