MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmp7fh5mong Title: Custom Case Analysis Generated: 2025-09-07 16:30

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Acute decompensated heart failure due to ischemic cardiomyopathy *Evidence: High confidence level (0.95), Specific ICD code provided, Consistent with cardiac diagnostic tests ordered*	I50.23	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Non-ST elevation myocardial infarction *Evidence: Moderate confidence level (0.4), Cardiac etiology consistent with heart failure presentation*	I21.4	3.7%	Minority (<10%)
Acute kidney injury with volume overload *Evidence: Lower confidence level (0.3), Volume overload component consistent with heart failure symptoms*	N17.9	3.7%	Minority (<10%)
Pulmonary embolism *Evidence: Acute respiratory distress potential, Right heart strain possible*	I26.99	0.0%	Minority (<10%)
Pneumonia with respiratory failure *Evidence: Respiratory component possible, Infection could exacerbate cardiac symptoms*	J18.9	0.0%	Minority (<10%)
Chronic obstructive pulmonary disease exacerbation *Evidence: Respiratory distress presentation, Possible overlap with cardiac symptoms*	J44.1	0.0%	Minority (<10%)
Cardiogenic shock *Evidence: Severe cardiac decompensation possible, Hemodynamic instability potential*	R57.0	0.0%	Minority (<10%)
Hypertensive emergency *Evidence: Blood pressure dysregulation possible, Can precipitate heart failure*	I16.0	0.0%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Valvular heart disease exacerbation *Evidence: Echocardiography ordered suggests valvular assessment, Cardiac etiology*	I35.0	0.0%	Minority (<10%)
Myocarditis *Evidence: Inflammatory cardiac process possible, Acute presentation*	I40.9	0.0%	Minority (<10%)
Pericardial effusion/tamponade *Evidence: Echocardiography ordered appropriate, Cardiac compression possible*	I31.4	0.0%	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	NSTEMI	Acute ki	Pulmonar	Pneumoni
Acute respirato	Strong	-	-	Medium	-
Volume overload	Strong	-	Medium	-	-
Cardiac dysfunc	Strong	-	-	-	-
Hemodynamic ins	-	Medium	-	-	-
Possible infect	-	-	-	-	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 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 ECG for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Acute decompensation presentation	Clinical presentation	Key diagnostic indicator
Cardiac etiology suspected	Clinical presentation	Key diagnostic indicator
Volume overload indicators	Clinical presentation	Key diagnostic indicator
Respiratory distress components	Clinical presentation	Key diagnostic indicator
Need for immediate cardiac assessment	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
ECG	Laboratory	Urgent	Diagnostic confirmation
Chest X-ray	Laboratory	Urgent	Diagnostic confirmation
BNP/NT-proBNP	Laboratory	Urgent	Diagnostic confirmation
Troponin	Laboratory	Urgent	Diagnostic confirmation
Basic metabolic panel	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Assess airway, breathing, circulation	Medical	Immediate	Critical intervention
Administer supplemental oxygen to maintain SpO2 >90%	Medical	Immediate	Critical intervention
Establish IV access	Medical	Immediate	Critical intervention
Initiate cardiac monitoring	Medical	Immediate	Critical intervention
Assess volume status and perfusion	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Furosemide	20-40 mg	IV / Once, then reassess	Diuresis for volume overload
Nitroglycerin	10-20 mcg/min	IV infusion / Continuous	Afterload reduction in normotensive/hypertensive patients

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
Non-ST elevation myocardial infarction *Evidence: Moderate confidence level (0.4), Cardiac etiology consistent with heart failure presentation*	3.7%	1 models	Unlikely
Acute kidney injury with volume overload *Evidence: Lower confidence level (0.3), Volume overload component consistent with heart failure symptoms*	3.7%	1 models	Unlikely
Pulmonary embolism *Evidence: Acute respiratory distress potential, Right heart strain possible*	0.0%	0 models	Unlikely
Pneumonia with respiratory failure *Evidence: Respiratory component possible, Infection could exacerbate cardiac symptoms*	0.0%	0 models	Unlikely
Chronic obstructive pulmonary disease exacerbation *Evidence: Respiratory distress presentation, Possible overlap with cardiac symptoms*	0.0%	0 models	Unlikely
Cardiogenic shock *Evidence: Severe cardiac decompensation possible, Hemodynamic instability potential*	0.0%	0 models	Unlikely
Hypertensive emergency *Evidence: Blood pressure dysregulation possible, Can precipitate heart failure*	0.0%	0 models	Unlikely
Valvular heart disease exacerbation *Evidence: Echocardiography ordered suggests valvular assessment, Cardiac etiology*	0.0%	0 models	Unlikely

Minority Opinions

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

• **Non-ST elevation myocardial infarction** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

• **Acute kidney injury with volume overload** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

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

Supporting Models:

• **Pneumonia with respiratory failure** (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:

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

Supporting Models:

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

Supporting Models:

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

Supporting Models:

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

Supporting Models:

• **Pericardial effusion/tamponade** (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	Assess airway, breathing, circulation	Clinical indication	50%
2	Administer supplemental oxygen to maintain SpO2 >90%	Clinical indication	50%
3	Establish IV access	Clinical indication	50%
4	Initiate cardiac monitoring	Clinical indication	50%
5	Assess volume status and perfusion	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
ECG	Diagnostic confirmation	Routine	As indicated
Chest X-ray	Diagnostic confirmation	Routine	As indicated
BNP/NT-proBNP	Diagnostic confirmation	Routine	As indicated
Troponin	Diagnostic confirmation	Routine	As indicated
Basic metabolic panel	Diagnostic confirmation	Routine	As indicated
Transthoracic echocardiography	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
llama-3.2-3b-in	USA	Free	Free	Acute Decompensated 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:

- Non-ST elevation myocardial infarction (ICD: I21.4) - 0.4
- Acute kidney injury with volume overload (ICD: N17.9) - 0.3
- Pulmonary embolism (ICD: I26.99) - 0.2

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

Primary Diagnosis: Acute Decompensated Ischemic Cardiomyopathy (ICD-10: I36.0) - Confidence: 0.9

Differential Diagnoses:

- Hypertensive Heart Disease (ICD: I13.0) - 0.8
- Constrictive Pericarditis (ICD: K72.0) - 0.7
- Restrictive Cardiomyopathy (ICD: F10.0) - 0.6

Key Clinical Findings:

- Progressive exertional dyspnea
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Jugular venous distension