MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmp2c4vtldu Title: Custom Case Analysis Generated: 2025-09-05 19:56

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Acute decompensated heart failure due to ischemic cardiomyopathy *Evidence: High confidence rating from model, Specific ICD code provided, Consistent with cardiac testing recommendations*	I50.21	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Acute coronary syndrome *Evidence: Listed as differential with 30% confidence*	I24.9	3.7%	Minority (<10%)
Pulmonary embolism *Evidence: Listed as differential with 20% confidence*	I26.99	3.7%	Minority (<10%)

Analysis Overview
Models Queried: 4
Successful Responses: 4
Consensus Level: High
Total Estimated Cost: <$0.01

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	heart fa	acute co	pulmonar
cardiac symptom	Strong	-	-
dyspnea	-	-	Medium
chest pain	-	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

• Assess hemodynamic stability and vital signs

• Obtain IV access and continuous cardiac monitoring

• Position patient upright to reduce preload

• Obtain 12-lead ECG to assess for acute ischemia for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
ECG recommended as immediate priority	Clinical presentation	Key diagnostic indicator
Transthoracic echocardiography recommended	Clinical presentation	Key diagnostic indicator
BNP testing recommended by multiple models	Clinical presentation	Key diagnostic indicator
Chest X-ray recommended as urgent	Clinical presentation	Key diagnostic indicator
Renal function tests recommended	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
12-lead ECG to assess for acute ischemia	Laboratory	Urgent	Diagnostic confirmation
Chest X-ray to evaluate pulmonary edema	Laboratory	Urgent	Diagnostic confirmation
BNP or NT-proBNP levels	Laboratory	Urgent	Diagnostic confirmation
Complete metabolic panel including creatinine and electrolytes	Laboratory	Urgent	Diagnostic confirmation
Troponin levels to rule out acute MI	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Assess hemodynamic stability and vital signs	Medical	Immediate	Critical intervention
Obtain IV access and continuous cardiac monitoring	Medical	Immediate	Critical intervention

Intervention	Category	Urgency	Clinical Reasoning
Position patient upright to reduce preload	Medical	Immediate	Critical intervention
Administer supplemental oxygen if SpO2 <90%	Medical	Immediate	Critical intervention
Strict fluid balance monitoring with daily weights	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Furosemide	40-80mg	IV / BID or as needed	Diuresis for volume overload
ACE inhibitor or ARB	Low dose initially	PO / Daily	Afterload reduction and cardioprotection
Beta-blocker	Low dose initially	PO / BID	Cardioprotection when stable
Aspirin	81mg	PO / Daily	Antiplatelet therapy for ischemic cardiomyopathy

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 *Evidence: Listed as differential with 30% confidence*	3.7%	1 models	Unlikely
Pulmonary embolism *Evidence: Listed as differential with 20% confidence*	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: model1
- **Pulmonary embolism** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model1

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Assess hemodynamic stability and vital signs	Clinical indication	50%
2	Obtain IV access and continuous cardiac monitoring	Clinical indication	50%
3	Position patient upright to reduce preload	Clinical indication	50%
4	Administer supplemental oxygen if SpO2 <90%	Clinical indication	50%
5	Strict fluid balance monitoring with daily weights	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
12-lead ECG to assess for acute ischemia	Diagnostic confirmation	Routine	As indicated
Chest X-ray to evaluate pulmonary edema	Diagnostic confirmation	Routine	As indicated
BNP or NT-proBNP levels	Diagnostic confirmation	Routine	As indicated
Complete metabolic panel including creatinine and electrolytes	Diagnostic confirmation	Routine	As indicated
Troponin levels to rule out acute MI	Diagnostic confirmation	Routine	As indicated
Arterial blood gas if respiratory distress	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
gemma-2-9b-it	USA	Free	Free	string	General
llama-3.2-3b-in	USA	Free	Free	Heart Failure with Reduced Ejection Fraction	General
mistral-7b-inst	France	Free	Free	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: I50.21) - Confidence: 0.95

Differential Diagnoses:

- Acute coronary syndrome (ICD: I24.9) - 0.3
- Pulmonary embolism (ICD: I26.99) - 0.2
- Exacerbation of chronic obstructive pulmonary disease (ICD: J44.1) - 0.15

Key Clinical Findings:

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

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

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

Primary Diagnosis: Heart Failure with Reduced Ejection Fraction (ICD-10: I50.0) - Confidence: 0.9

Differential Diagnoses:

- Coronary Artery Disease (ICD: I21.0) - 0.8
- Cardiomyopathy (ICD: I20.0) - 0.7
- Mild Heart Valve Disease (ICD: I40.0) - 0.6

Key Clinical Findings:

- Progressive exertional dyspnea
- Orthopnea
- Jugular venous distension
- Bibasilar crackles

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

Primary Diagnosis: Acute Decompensated Heart Failure on a background of Ischemic Cardiomyopathy (ICD-10: I50.99) - Confidence: 1.0

Differential Diagnoses:

- Chronic Obstructive Pulmonary Disease (COPD) (ICD: J44.9) - 0.6
- Pulmonary Embolism (ICD: I26.0) - 0.5
- Pneumonia (ICD: J18.9) - 0.4

Key Clinical Findings:

- Tachycardia
- Hypertension
- Jugular Venous Distension
- Bibasilar Crackles