MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpyon2owm4 Title: Custom Case Analysis Generated: 2025-09-05 00:22

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever *Evidence: Mediterranean descent, Recurrent fever episodes lasting 1-3 days, Family history (father and paternal uncle), Childhood onset*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever pattern, Inflammatory markers elevation*	E85.8	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Joint pain in knees and ankles, Childhood onset, Elevated inflammatory markers*	M08.2	7.4%	Minority (<10%)
Adult-Onset Still's Disease *Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers*	M35.3	3.7%	Minority (<10%)

Analysis Overview

Models Queried: 3

Successful Responses: 3

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	FMF	Periodic	Systemic
Recurrent fever	Strong	Strong	-
Abdominal pain	Strong	-	-
Joint pain	-	-	Strong
Mediterranean d	Strong	-	-
Family history	Strong	-	-

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

Diagnostic Decision Tree

Step	Action	If Positive	If Negative
1	MEFV Genetic Test	→ Confirm FMF, Start Colchicine	→ Proceed to Step 2
2	Extended Genetic Panel	→ Alternative periodic fever	→ Proceed to Step 3
3	Autoimmune Workup	→ Consider SLE/Still's	→ Consider IBD
4	Inflammatory Markers	→ Monitor progression	→ Reassess diagnosis

Executive Summary

Case Description

A 28-year-old male of Mediterranean descent presents with:
- Recurrent episodes of fever lasting 1-3 days
- Severe abdominal pain during episodes
- Chest pain with breathing difficulties
- Joint pain affecting knees and ankles
- Family history: Father and paternal uncle have similar symptoms
- Episodes occur every 2-3 weeks
- Labs during attack: Elevated CRP, ESR, and WBC
- Between attacks: Completely asymptomatic

Patient reports episodes started in childhood around age 7. Recent genetic testing is pending.

Key Clinical Findings

• Recurrent fever episodes
• Migratory arthritis affecting large joints
• Severe abdominal pain with peritoneal signs
• Positive family history of similar episodes
• Elevated inflammatory markers (CRP, ESR)

Primary Recommendations

• Consider Familial Mediterranean Fever among differential diagnoses
• Initiate colchicine therapy for FMF management
• Confirm genetic testing results for MEFV gene mutations
• Assess for signs of amyloidosis
• Obtain MEFV gene sequencing if not completed for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Mediterranean descent	Clinical presentation	Key diagnostic indicator
Recurrent fever episodes every 2-3 weeks	Clinical presentation	Key diagnostic indicator
Episodes last 1-3 days	Clinical presentation	Key diagnostic indicator
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Childhood onset	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
MEFV gene sequencing if not completed	Laboratory	Urgent	Diagnostic confirmation
24-hour urine protein to screen for amyloidosis	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A (SAA) levels	Laboratory	Urgent	Diagnostic confirmation
Complete metabolic panel including creatinine	Laboratory	Urgent	Diagnostic confirmation
Echocardiogram to assess for cardiac amyloidosis	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy for FMF management	Medical	Immediate	Critical intervention
Confirm genetic testing results for MEFV gene mutations	Medical	Immediate	Critical intervention
Assess for signs of amyloidosis	Medical	Immediate	Critical intervention

Intervention	Category	Urgency	Clinical Reasoning
Patient education on FMF and trigger avoidance	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.6 mg	oral / twice daily	FMF attack prevention and amyloidosis prevention
Anakinra	100 mg	subcutaneous / daily	colchicine-resistant FMF

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with 0.0% consensus among 2 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever pattern, Inflammatory markers elevation*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Joint pain in knees and ankles, Childhood onset, Elevated inflammatory markers*	7.4%	2 models	Unlikely
Adult-Onset Still's Disease *Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers*	3.7%	1 models	Unlikely

Minority Opinions

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

- **Periodic Fever Syndrome (other types)** (ICD-10: R50.9) - 3.7% agreement (1 models)
  Supporting Models: Model 1
- **Systemic Juvenile Idiopathic Arthritis** (ICD-10: Unknown) - 7.4% agreement (2 models)
  Supporting Models: Model 1, Model 3
- **Adult-Onset Still's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Model 3

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Initiate colchicine therapy for FMF management	Clinical indication	50%
2	Confirm genetic testing results for MEFV gene mutations	Clinical indication	50%
3	Assess for signs of amyloidosis	Clinical indication	50%
4	Patient education on FMF and trigger avoidance	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
MEFV gene sequencing if not completed	Diagnostic confirmation	Routine	As indicated
24-hour urine protein to screen for amyloidosis	Diagnostic confirmation	Routine	As indicated
Serum amyloid A (SAA) levels	Diagnostic confirmation	Routine	As indicated
Complete metabolic panel including creatinine	Diagnostic confirmation	Routine	As indicated
Echocardiogram to assess for cardiac amyloidosis	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	Familial Mediterranean Fever	General
deepseek-r1	China	Unknown	<$0.01	Familial Mediterranean Fever	General
gemma-3-12b-it	USA	Unknown	<$0.01	Periodic Fever Syndrome (likely Familial Mediterranean Fever - FMF)	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: Familial Mediterranean Fever (ICD-10: E85.0) - Confidence: 0.95

Differential Diagnoses:

- Periodic Fever Syndrome (other types) (ICD: E85.8) - 0.7
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.4
- Inflammatory Bowel Disease (ICD: K50.9) - 0.3

Key Clinical Findings:

- Recurrent febrile episodes (1-3 days)
- Severe abdominal pain
- Chest pain with breathing difficulties
- Joint pain (knees/ankles)

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

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

Primary Diagnosis: Periodic Fever Syndrome (likely Familial Mediterranean Fever - FMF) (ICD-10: M15.4) - Confidence: 0.85

Differential Diagnoses:

- Adult-Onset Still's Disease (ICD: M35.3) - 0.6
- Systemic Juvenile Idiopathic Arthritis (sJIA) (ICD: M08.0) - 0.5
- Vasculitis (e.g., Polyarteritis Nodosa) (ICD: M34.0) - 0.4

Key Clinical Findings:

- Recurrent fever episodes (1-3 days)
- Severe abdominal pain during episodes
- Chest pain and breathing difficulties
- Joint pain (knees and ankles)