

# MEDLEY

## Medical AI Ensemble Clinical Decision Report

Case ID: tmpq14girwl

Title: Custom Case Analysis

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### Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever (FMF) <i>Evidence: Recurrent fever episodes, Periodic inflammatory symptoms, Genetic predisposition pattern, Mediterranean ancestry likely</i>	E85.0	0.0%	Very Low	PRIMARY

### Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome <i>Evidence: Periodic fever pattern, Childhood onset possible</i>	R50.81	3.7%	Minority (<10%)
Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) <i>Evidence: Autoinflammatory pattern, Periodic fever episodes</i>	M04.1	3.7%	Minority (<10%)
Autoinflammatory Syndromes <i>Evidence: TNF-alpha involvement, Systemic inflammation</i>	M30.9	3.7%	Minority (<10%)
Reactive Arthritis <i>Evidence: Joint involvement, Inflammatory response</i>	M15.1	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis (SJIA) <i>Evidence: Systemic inflammation, Fever pattern, Joint involvement</i>	M08.0	3.7%	Minority (<10%)
Adult-Onset Still's Disease (AOSD) <i>Evidence: Adult onset fever, Systemic inflammatory features</i>	M06.1	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	FMF	PFAPA Sy	TRAPS
periodic fever	Strong	-	-
systemic inflam	Strong	-	-
genetic predisp	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

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

## Primary Recommendations

- Consider Familial Mediterranean Fever (FMF) among differential diagnoses
- Assess current fever pattern and severity
- Evaluate for signs of acute attack complications
- Review family history and ethnicity
- Obtain MEFV gene mutation analysis for diagnostic confirmation

## Primary Diagnosis Clinical Summaries

### ■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Recurrent periodic fever episodes	Clinical presentation	Key diagnostic indicator
Autoinflammatory pattern	Clinical presentation	Key diagnostic indicator
Genetic predisposition	Clinical presentation	Key diagnostic indicator
Mediterranean ancestry	Clinical presentation	Key diagnostic indicator
Systemic inflammation markers	Clinical presentation	Key diagnostic indicator

### ■ Recommended Tests

Test Name	Type	Priority	Rationale
MEFV gene mutation analysis	Laboratory	Urgent	Diagnostic confirmation
Complete blood count with differential	Laboratory	Urgent	Diagnostic confirmation
Comprehensive metabolic panel	Laboratory	Urgent	Diagnostic confirmation
C-reactive protein and ESR	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A level	Laboratory	Urgent	Diagnostic confirmation

### ■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Assess current fever pattern and severity	Medical	Immediate	Critical intervention
Evaluate for signs of acute attack complications	Medical	Immediate	Critical intervention
Review family history and ethnicity	Medical	Immediate	Critical intervention
Assess pain severity and location	Medical	Immediate	Critical intervention

## ■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.6 mg	oral / twice daily	prevention of FMF attacks and amyloidosis
Ibuprofen	400-600 mg	oral / every 6-8 hours as needed	symptomatic relief of fever and pain

# Diagnostic Landscape Analysis

## Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever (FMF)** as the primary diagnosis with 0.0% consensus among 4 models.

## Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome <i>Evidence: Periodic fever pattern, Childhood onset possible</i>	3.7%	1 models	Unlikely
Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) <i>Evidence: Autoinflammatory pattern, Periodic fever episodes</i>	3.7%	1 models	Unlikely
Autoinflammatory Syndromes <i>Evidence: TNF-alpha involvement, Systemic inflammation</i>	3.7%	1 models	Unlikely
Reactive Arthritis <i>Evidence: Joint involvement, Inflammatory response</i>	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis (SJIA) <i>Evidence: Systemic inflammation, Fever pattern, Joint involvement</i>	3.7%	1 models	Unlikely
Adult-Onset Still's Disease (AOSD) <i>Evidence: Adult onset fever, Systemic inflammatory features</i>	3.7%	1 models	Unlikely

## Minority Opinions

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

- **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: R50.9) - 3.7% agreement (1 models)  
Supporting Models: Model 1
- **Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS)** (ICD-10: Unknown) - 3.7% agreement (1 models)  
Supporting Models: Model 1
- **Autoinflammatory Syndromes** (ICD-10: Unknown) - 3.7% agreement (1 models)  
Supporting Models: Model 2
- **Reactive Arthritis** (ICD-10: M02.9) - 3.7% agreement (1 models)

Supporting Models: Model 2

- **Systemic Juvenile Idiopathic Arthritis (SJIA)** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Model 3

- **Adult-Onset Still's Disease (AOSD)** (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	Assess current fever pattern and severity	Clinical indication	50%
2	Evaluate for signs of acute attack complications	Clinical indication	50%
3	Review family history and ethnicity	Clinical indication	50%
4	Assess pain severity and location	Clinical indication	50%

## Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
MEFV gene mutation analysis	Diagnostic confirmation	Routine	As indicated
Complete blood count with differential	Diagnostic confirmation	Routine	As indicated
Comprehensive metabolic panel	Diagnostic confirmation	Routine	As indicated
C-reactive protein and ESR	Diagnostic confirmation	Routine	As indicated
Serum amyloid A level	Diagnostic confirmation	Routine	As indicated
Urinalysis with microscopy	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
gemma-2-9b-it	USA	Free	Free	Familial Mediterranean Fever	General
gemma-3-12b-it	USA	Unknown	<\$0.01	Periodic Fever Syndrome (likely Familial Mediterranean Fever - FMF)	General
mistral-7b-inst	France	Free	Free	Familial Mediterranean Fever	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, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome (ICD: R50.81) - 0.4
- Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) (ICD: E85.0) - 0.35
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.25

**Key Clinical Findings:**

- Mediterranean descent
- Recurrent self-limiting febrile episodes (1-3 days)
- Severe abdominal pain during attacks
- Pleuritic chest pain

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

**Primary Diagnosis:** Familial Mediterranean Fever (FMF) (ICD-10: M35.8) - Confidence: 0.85

**Differential Diagnoses:**

- Autoinflammatory Syndromes (e.g., TNF-alpha-associated Periodic Syndromes) (ICD: M30.9) - 0.1
- Reactive Arthritis (ICD: M15.1) - 0.08
- Periodic Fever Syndromes (e.g., Hyperimmunoglobulin D Syndrome) (ICD: M30.9) - 0.07

**Key Clinical Findings:**

- Recurrent episodes of fever, abdominal pain, chest pain, and joint pain
- Family history of similar symptoms
- Elevated CRP, ESR, and WBC during attacks
- Asymptomatic between attacks

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

**Primary Diagnosis:** Periodic Fever Syndrome (likely Familial Mediterranean Fever - FMF) (ICD-10: M69.8) - Confidence: 0.85

**Differential Diagnoses:**

- Systemic Juvenile Idiopathic Arthritis (SJIA) (ICD: M08.0) - 0.6
- Adult-Onset Still's Disease (AOSD) (ICD: M05.8) - 0.5
- Inflammatory Bowel Disease (IBD) - Crohn's Disease or Ulcerative Colitis (ICD: K50.-) - 0.4

**Key Clinical Findings:**

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

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