

# MEDLEY

## Medical AI Ensemble Clinical Decision Report

Case ID:  
custom\_20250909\_080552      Title: Custom Case

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### Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever <i>Evidence: Recurrent fever episodes since childhood, Severe abdominal pain, chest pain, breathing difficulties, and joint pain in knees and ankles, Family history of similar symptoms, Elevated CRP, ESR, WBC during attacks</i>	E85.0	0.0%	Very Low	PRIMARY

### Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) <i>Evidence: Recurrent fever episodes with similar symptoms</i>	E85.8	7.4%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever episodes with joint pain</i>	M08.2	7.4%	Minority (<10%)
Adult-Onset Still's Disease (AOSD) <i>Evidence: Recurrent fever episodes with joint pain and elevated inflammatory markers</i>	M05.3	3.7%	Minority (<10%)
Undifferentiated Connective Tissue Disease <i>Evidence: Recurrent fever episodes with multi-system involvement</i>	M35.9	3.7%	Minority (<10%)
Juvenile Idiopathic Arthritis <i>Evidence: Recurrent joint pain with fever</i>	M04.0	3.7%	Minority (<10%)
Systemic Lupus Erythematosus <i>Evidence: Recurrent fever episodes with multi-system involvement</i>	M32.9	3.7%	Minority (<10%)
Recurrent Fever Syndrome <i>Evidence: Recurrent fever episodes</i>	R50.0	3.7%	Minority (<10%)
Behçet's Disease <i>Evidence: Recurrent fever episodes with oral and genital ulcers</i>	M35.2	0.0%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) <i>Evidence: Recurrent fever episodes with abdominal pain and rash</i>	E85.8	0.0%	Minority (<10%)
Hyperimmunoglobulinemia D Syndrome (HIDS) <i>Evidence: Recurrent fever episodes with elevated IgD levels</i>	E85.8	0.0%	Minority (<10%)

Analysis Overview
Models Queried: 7
Successful Responses: 7
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	FMF	Periodic	Systemic	Adult-On	Undiffer	Juvenile	SLE	Recurrent
Recurrent fever	Strong	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Severe abdomina	Strong	-	-	-	-	-	-	-
Chest pain with	Strong	-	-	-	-	-	-	-
Joint pain in k	Strong	-	-	-	-	-	-	-
Family history	Strong	-	-	-	-	-	-	-
Elevated CRP, E	Strong	-	-	-	-	-	-	-
Asymptomatic be	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
- Recurrent fever episodes
- Severe abdominal pain with peritoneal signs
- Migratory arthritis affecting large joints
- Elevated inflammatory markers (CRP, ESR)

## Primary Recommendations

- Consider Familial Mediterranean Fever among differential diagnoses
- Obtain Familial Mediterranean Fever genetic testing for diagnostic confirmation

## Primary Diagnosis Clinical Summaries

### ■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Recurrent fever episodes since childhood	Clinical presentation	Key diagnostic indicator
Severe abdominal pain, chest pain, breathing difficulties, and joint pain in knees and ankles	Clinical presentation	Key diagnostic indicator
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Elevated CRP, ESR, WBC during attacks	Clinical presentation	Key diagnostic indicator
Asymptomatic between episodes	Clinical presentation	Key diagnostic indicator

### ■ Recommended Tests

Test Name	Type	Priority	Rationale
Familial Mediterranean Fever genetic testing	Laboratory	Urgent	Diagnostic confirmation
ESR (Erythrocyte Sedimentation Rate)	Laboratory	Urgent	Diagnostic confirmation
CRP (C-Reactive Protein)	Laboratory	Urgent	Diagnostic confirmation

### ■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Confirm diagnosis with genetic testing	Medical	Immediate	Critical intervention
Initiate anti-inflammatory treatment	Medical	Immediate	Critical intervention

### ■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	1.2 mg	oral / daily	Prophylaxis of FMF attacks

# Diagnostic Landscape Analysis

## Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with limited consensus among 4 models.

## Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever Syndrome (other types) <i>Evidence: Recurrent fever episodes with similar symptoms</i>	7.4%	2 models	Unlikely
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever episodes with joint pain</i>	7.4%	2 models	Unlikely
Adult-Onset Still's Disease (AOSD) <i>Evidence: Recurrent fever episodes with joint pain and elevated inflammatory markers</i>	3.7%	1 models	Unlikely
Undifferentiated Connective Tissue Disease <i>Evidence: Recurrent fever episodes with multi-system involvement</i>	3.7%	1 models	Unlikely
Juvenile Idiopathic Arthritis <i>Evidence: Recurrent joint pain with fever</i>	3.7%	1 models	Unlikely
Systemic Lupus Erythematosus <i>Evidence: Recurrent fever episodes with multi-system involvement</i>	3.7%	1 models	Unlikely
Recurrent Fever Syndrome <i>Evidence: Recurrent fever episodes</i>	3.7%	1 models	Unlikely
Behçet's Disease <i>Evidence: Recurrent fever episodes with oral and genital ulcers</i>	0.0%	0 models	Unlikely

## Minority Opinions

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

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

- **Undifferentiated Connective Tissue Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)  
Supporting Models: Unknown
- **Juvenile Idiopathic Arthritis** (ICD-10: Unknown) - 3.7% agreement (1 models)  
Supporting Models: Unknown
- **Systemic Lupus Erythematosus** (ICD-10: M32.9) - 3.7% agreement (1 models)  
Supporting Models: Unknown
- **Recurrent Fever Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)  
Supporting Models: Unknown
- **Behçet's Disease** (ICD-10: Unknown) - 0.0% agreement (0 models)  
Supporting Models:
- **Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS)** (ICD-10: Unknown)  
- 0.0% agreement (0 models)  
Supporting Models:
- **Hyperimmunoglobulinemia D Syndrome (HIDS)** (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	Confirm diagnosis with genetic testing	Clinical indication	50%
2	Initiate anti-inflammatory treatment	Clinical indication	50%

## Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Familial Mediterranean Fever genetic testing	Diagnostic confirmation	Routine	As indicated
ESR (Erythrocyte Sedimentation Rate)	Diagnostic confirmation	Routine	As indicated
CRP (C-Reactive Protein)	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
llama-3.2-3b-in	USA	Free	Free	Undifferentiated Connective Tissue Disease	General
mistral-7b-inst	France	Free	Free	Familial Mediterranean Fever	General
gpt-oss-20b	USA	Unknown	<\$0.01	Familial Mediterranean Fever	General
shisa-v2-llama3	Japan/USA	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 Syndrome (other types) (ICD: E85.8) - 0.7
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.4
- Acute Intermittent Porphyria (ICD: E80.21) - 0.3

**Key Clinical Findings:**

- Mediterranean descent
- Recurrent self-limited febrile episodes
- Abdominal pain
- Chest pain with pleurisy

### 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:**

- Systemic Juvenile Idiopathic Arthritis (SJIA) (ICD: M08.0) - 0.6
- Adult-Onset Still's Disease (AOSD) (ICD: M05.8) - 0.5
- Behçet's Disease (ICD: M06.1) - 0.4

**Key Clinical Findings:**

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

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

**Primary Diagnosis:** Undifferentiated Connective Tissue Disease (ICD-10: M35.9) - Confidence: 0.8

**Differential Diagnoses:**

- Juvenile Idiopathic Arthritis (ICD: M04.0) - 0.4
- Systemic Lupus Erythematosus (ICD: M32.9) - 0.3
- Recurrent Fever Syndrome (ICD: R50.0) - 0.2

**Key Clinical Findings:**

- Recurrent episodes of fever lasting 1-3 days
- Severe abdominal pain during episodes
- Chest pain with breathing difficulties
- Joint pain affecting knees and ankles

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

**Primary Diagnosis:** Familial Mediterranean Fever (FMF) (ICD-10: M39.0) - Confidence: 0.7

**Differential Diagnoses:**

- Systemic Juvenile Idiopathic Arthritis (ICD: M09.0) - 0.3
- Ankylosing Spondylitis (ICD: M45.0) - 0.2
- Reactive Arthritis (ICD: M40.6) - 0.2

**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

## **6. gpt-oss-20b (USA, Released: 2024-05-13)**

## **7. shisa-v2-llama3 (Japan/USA, Released: 2024-12-20)**