

# MEDLEY

## Medical AI Ensemble Clinical Decision Report

Case ID: custom_20250909_121943	Title: A 28-year-old male of Mediterranean descent presents with: -...	Generated: 2025-09-09 12:20
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### Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever <i>Evidence: Recurrent fever, abdominal pain, chest pain with breathing difficulty, joint pain affecting knees and ankles, episodes every 2-3 weeks, started in childhood (~7), family history of similar symptoms in father and paternal uncle, 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, abdominal pain, chest pain, joint pain, family history of similar symptoms</i>	E85.8	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever, joint pain, family history of similar symptoms</i>	M08.2	3.7%	Minority (<10%)
Behçet's Disease <i>Evidence: Recurrent fever, oral and genital ulcers, uveitis, skin lesions</i>	M35.2	0.0%	Minority (<10%)
Takayasu's Arteritis <i>Evidence: Recurrent fever, vascular involvement, limb claudication, hypertension</i>	M31.0	0.0%	Minority (<10%)
Wegener's Granulomatosis <i>Evidence: Recurrent fever, upper respiratory tract symptoms, renal involvement, pulmonary symptoms</i>	M31.3	0.0%	Minority (<10%)
Polyarteritis Nodosa <i>Evidence: Recurrent fever, abdominal pain, peripheral neuropathy, renal involvement</i>	M30.0	0.0%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Relapsing Polychondritis <i>Evidence: Recurrent fever, cartilage inflammation, joint pain, hearing loss</i>	M35.0	0.0%	Minority (<10%)
Chronic Recurrent Multifocal Osteomyelitis <i>Evidence: Recurrent fever, bone pain, osteolytic lesions</i>	M86.8	0.0%	Minority (<10%)
Adult-Onset Still's Disease <i>Evidence: Recurrent fever, rash, joint pain, hepatosplenomegaly</i>	M06.1	0.0%	Minority (<10%)
Hereditary Periodic Fever Syndromes <i>Evidence: Recurrent fever, abdominal pain, chest pain, joint pain, family history of similar symptoms</i>	E85.8	0.0%	Minority (<10%)

Analysis Overview
Models Queried: 4
Successful Responses: 4
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	Behçet's	Takayasu	Wegener'	Polyarte	Relapsin
Recurrent fever	Strong	-	-	-	-	-	-	-
Abdominal pain	Strong	-	-	-	-	-	-	-
Chest pain with	Strong	-	-	-	-	-	-	-
Joint pain affe	Strong	-	-	-	-	-	-	-
Episodes every	Strong	-	-	-	-	-	-	-
Started in chil	Strong	-	-	-	-	-	-	-
Family history	Strong	-	-	-	-	-	-	-
Elevated CRP, E	Strong	-	-	-	-	-	-	-
Asymptomatic be	Strong	-	-	-	-	-	-	-
Recent genetic	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
- Elevated inflammatory markers (CRP, ESR)
- Severe abdominal pain with peritoneal signs
- Positive family history of similar episodes
- Migratory arthritis affecting large joints

## Primary Recommendations

- Consider Familial Mediterranean Fever among differential diagnoses
- Obtain Erythrocyte Sedimentation Rate (ESR) test for diagnostic confirmation

## Primary Diagnosis Clinical Summaries

### ■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Recurrent fever	Clinical presentation	Key diagnostic indicator
Abdominal pain	Clinical presentation	Key diagnostic indicator
Chest pain with breathing difficulty	Clinical presentation	Key diagnostic indicator
Joint pain affecting knees and ankles	Clinical presentation	Key diagnostic indicator
Episodes every 2-3 weeks	Clinical presentation	Key diagnostic indicator

### ■ Recommended Tests

Test Name	Type	Priority	Rationale
Erythrocyte Sedimentation Rate (ESR) test	Laboratory	Urgent	Diagnostic confirmation
C-Reactive Protein (CRP) test	Laboratory	Urgent	Diagnostic confirmation
Imaging studies (e.g., X-ray, MRI) of spine and joints	Laboratory	Urgent	Diagnostic confirmation

### ■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Order Erythrocyte Sedimentation Rate (ESR) test	Medical	Immediate	Critical intervention
Order C-Reactive Protein (CRP) test	Medical	Immediate	Critical intervention

# Diagnostic Landscape Analysis

## Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with limited consensus among 3 models.

## Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever Syndrome (other types) <i>Evidence: Recurrent fever, abdominal pain, chest pain, joint pain, family history of similar symptoms</i>	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever, joint pain, family history of similar symptoms</i>	3.7%	1 models	Unlikely
Behçet's Disease <i>Evidence: Recurrent fever, oral and genital ulcers, uveitis, skin lesions</i>	0.0%	0 models	Unlikely
Takayasu's Arteritis <i>Evidence: Recurrent fever, vascular involvement, limb claudication, hypertension</i>	0.0%	0 models	Unlikely
Wegener's Granulomatosis <i>Evidence: Recurrent fever, upper respiratory tract symptoms, renal involvement, pulmonary symptoms</i>	0.0%	0 models	Unlikely
Polyarteritis Nodosa <i>Evidence: Recurrent fever, abdominal pain, peripheral neuropathy, renal involvement</i>	0.0%	0 models	Unlikely
Relapsing Polychondritis <i>Evidence: Recurrent fever, cartilage inflammation, joint pain, hearing loss</i>	0.0%	0 models	Unlikely
Chronic Recurrent Multifocal Osteomyelitis <i>Evidence: Recurrent fever, bone pain, osteolytic lesions</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) - 3.7% agreement (1 models)

Supporting Models: model1

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

Supporting Models: model1

- **Behçet's Disease** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Takayasu's Arteritis** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Wegener's Granulomatosis** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Polyarteritis Nodosa** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Relapsing Polychondritis** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Chronic Recurrent Multifocal Osteomyelitis** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Adult-Onset Still's Disease** (ICD-10: Unknown) - 0.0% agreement (0 models)

Supporting Models:

- **Hereditary Periodic Fever Syndromes** (ICD-10: R50.9) - 0.0% agreement (0 models)

Supporting Models:

**Additional Diagnoses Considered:**

# Management Strategies & Clinical Pathways

## Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Order Erythrocyte Sedimentation Rate (ESR) test	Clinical indication	50%
2	Order C-Reactive Protein (CRP) test	Clinical indication	50%

## Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Erythrocyte Sedimentation Rate (ESR) test	Diagnostic confirmation	Routine	As indicated
C-Reactive Protein (CRP) test	Diagnostic confirmation	Routine	As indicated
Imaging studies (e.g., X-ray, MRI) of spine and joints	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
llama-3.2-3b-in	USA	Free	Free	Seronegative Spondyloarthritis (undetermined)	General
mistral-7b-inst	France	Free	Free	Familial Mediterranean Fever	General
gpt-oss-20b	USA	Unknown	<\$0.01	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
- Serositis (abdominal pain, pleuritic chest pain)
- Family history of similar symptoms

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

**Primary Diagnosis:** Seronegative Spondyloarthropathy (undetermined) (ICD-10: M89.9) - Confidence: 0.85

**Differential Diagnoses:**

- Reactive Arthritis (ICD: M45.9) - 0.68
- Undifferentiated Spondyloarthritis (ICD: M90.9) - 0.63
- Ankylosing Spondylitis (ICD: M45.1) - 0.42

**Key Clinical Findings:**

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

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

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