

MEDLEY

Medical AI Ensemble Clinical Decision Report

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever (FMF) <i>Evidence: Mediterranean descent, Recurrent fevers 1-3 days, Severe abdominal pain, Chest pain with breathing difficulties</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: Recurrent fevers, Abdominal pain, Joint pain</i>	M89.89	11.1%	Alternative (10-29%)
Systemic Juvenile Idiopathic Arthritis (sJIA) <i>Evidence: Recurrent fevers, Joint pain, Elevated CRP, ESR, WBC</i>	M08.0	7.4%	Minority (<10%)
Adult-Onset Still's Disease <i>Evidence: Recurrent fevers, Joint pain, Elevated CRP, ESR, WBC</i>	M35.4	3.7%	Minority (<10%)
Hyperuricemia/Gout <i>Evidence: Joint pain, Elevated CRP, ESR, WBC</i>	M15.4	3.7%	Minority (<10%)
Hyper-IgD Syndrome (MKD) <i>Evidence: Recurrent fevers, Abdominal pain, Elevated CRP, ESR, WBC</i>	E85.810	3.7%	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	Familial	Periodic	Systemic	Adult-On	Hyperuri	Hyper-Ig
Recurrent fever	Strong	Moderate	Moderate	Moderate	-	Moderate
Severe abdomina	Strong	Moderate	-	-	-	Moderate
Chest pain with	Strong	-	-	-	-	-
Joint pain (kne	Strong	Moderate	Moderate	Moderate	Moderate	-
Elevated CRP, E	Strong	-	Moderate	Moderate	Moderate	Moderate

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 (FMF) among differential diagnoses
- Obtain Complete Blood Count (CBC) for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Mediterranean descent	Clinical presentation	Key diagnostic indicator
Recurrent fevers 1-3 days	Clinical presentation	Key diagnostic indicator
Severe abdominal pain	Clinical presentation	Key diagnostic indicator
Chest pain with breathing difficulties	Clinical presentation	Key diagnostic indicator
Joint pain (knees, ankles)	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Complete Blood Count (CBC)	Laboratory	Urgent	Diagnostic confirmation
Erythrocyte Sedimentation Rate (ESR)	Laboratory	Urgent	Diagnostic confirmation
C-Reactive Protein (CRP)	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate genetic testing for MEFV gene mutations	Medical	Immediate	Critical intervention
Refer to a rheumatologist for further evaluation and management	Medical	Immediate	Critical intervention

■ Medications

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

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

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

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome <i>Evidence: Recurrent fevers, Abdominal pain, Joint pain</i>	11.1%	3 models	Less likely
Systemic Juvenile Idiopathic Arthritis (sJIA) <i>Evidence: Recurrent fevers, Joint pain, Elevated CRP, ESR, WBC</i>	7.4%	2 models	Unlikely
Adult-Onset Still's Disease <i>Evidence: Recurrent fevers, Joint pain, Elevated CRP, ESR, WBC</i>	3.7%	1 models	Unlikely
Hyperuricemia/Gout <i>Evidence: Joint pain, Elevated CRP, ESR, WBC</i>	3.7%	1 models	Unlikely
Hyper-IgD Syndrome (MKD) <i>Evidence: Recurrent fevers, Abdominal pain, Elevated CRP, ESR, WBC</i>	3.7%	1 models	Unlikely

Minority Opinions

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

- **Systemic Juvenile Idiopathic Arthritis (sJIA)** (ICD-10: Unknown) - 7.4% agreement (2 models)
Supporting Models: Unknown, Unknown
- **Adult-Onset Still's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: Unknown
- **Hyperuricemia/Gout** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: Unknown
- **Hyper-IgD Syndrome (MKD)** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: Unknown

Additional Diagnoses Considered:

- **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: M89.89) - 57.1% (4 models)
Evidence: Recurrent fevers, Abdominal pain, Joint pain

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Initiate genetic testing for MEFV gene mutations	Clinical indication	50%
2	Refer to a rheumatologist for further evaluation and management	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Complete Blood Count (CBC)	Diagnostic confirmation	Routine	As indicated
Erythrocyte Sedimentation Rate (ESR)	Diagnostic confirmation	Routine	As indicated
C-Reactive Protein (CRP)	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	Reactive Arthritis	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, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome (ICD: R50.81) - 0.4
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.3
- Hereditary Periodic Fever Syndrome (other than FMF) (ICD: E85.8) - 0.25

Key Clinical Findings:

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

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: M35.4) - 0.6
- Systemic Juvenile Idiopathic Arthritis (sJIA) (ICD: M08.0) - 0.5
- Behçet's Disease (ICD: M79.2) - 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. llama-3.2-3b-in (USA, Released: 2024-09-25)

Primary Diagnosis: Reactive Arthritis (ICD-10: M11.0) - Confidence: 0.8

Differential Diagnoses:

- Ankylosing Spondylitis (ICD: M45.0) - 0.6
- Psoriatic Arthritis (ICD: M90.3) - 0.5
- Gout (ICD: M17.0) - 0.4

Key Clinical Findings:

- Recurrent episodes of fever, abdominal pain, chest pain, joint pain, and elevated inflammatory markers
- Family history of similar symptoms
- Episodes occur every 2-3 weeks since childhood

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

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

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

Primary Diagnosis: Familial Mediterranean Fever (FMF) (ICD-10: E85.0) - Confidence: 0.85

Differential Diagnoses:

- Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome (ICD: M89.89) - 0.1
- Hyper-IgD Syndrome (MKD) (ICD: E85.810) - 0.05
- Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) (ICD: E85.819) - 0.05

Key Clinical Findings:

- Recurrent fevers with abdominal, chest, and joint pain
- Family history of similar symptoms in father and paternal uncle
- Elevated CRP, ESR, WBC during episodes
- Episodic pattern with asymptomatic intervals