MEDLEY

Medical AI Ensemble Clinical Decision Report

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever *Evidence: Recurrent febrile episodes, Mediterranean ethnicity, Positive response to colchicine, Autosomal recessive inheritance pattern*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Periodic fever episodes, Aphthous ulcers, Pharyngitis*	R50.81	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Fever patterns, Joint involvement, Rash*	M08.2	3.7%	Minority (<10%)
Adult-Onset Still's Disease *Evidence: High spiking fevers, Salmon-colored rash, Arthralgia/arthritis*	M06.1	3.7%	Minority (<10%)
Behçet's Disease *Evidence: Oral ulcers, Genital ulcers, Uveitis*	M35.2	3.7%	Minority (<10%)
Cyclic Neutropenia *Evidence: Regular fever cycles, Oral ulcers, Periodic neutropenia*	D70	3.7%	Minority (<10%)
Hereditary Periodic Fever Syndromes *Evidence: Recurrent fevers, Family history, Autoinflammatory pattern*	E85.0	3.7%	Minority (<10%)
Inflammatory Bowel Disease *Evidence: Fever episodes, Abdominal pain, Gastrointestinal symptoms*	K50.9	3.7%	Minority (<10%)
Lyme Disease *Evidence: Fever, Arthralgia, Rash*	A69.20	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Rheumatic Fever *Evidence: Fever, Migratory polyarthritis, Carditis*	I00	3.7%	Minority (<10%)
Sarcoidosis *Evidence: Fever, Hilar lymphadenopathy, Uveitis*	D86.9	3.7%	Minority (<10%)

Analysis Overview

Models Queried: 1

Successful Responses: 1

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	PFAPA Sy	Systemic	Adult-On	Behçet's	Cyclic N	Heredita	IBD
Recurrent fever	Strong	-	-	-	-	-	-	-
Abdominal pain	-	-	-	-	-	-	-	-
Joint pain	-	-	Medium	-	-	-	-	-
Rash	-	-	-	Medium	-	-	-	-
Oral ulcers	-	Medium	-	-	Strong	-	-	-
Pharyngitis	-	Medium	-	-	-	-	-	-
Lymphadenopathy	-	-	-	-	-	-	-	-
Ethnic predispo	Strong	-	-	-	-	-	-	-
Family history	-	-	-	-	-	-	Medium	-
Response to col	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

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

Primary Recommendations

• Consider Familial Mediterranean Fever among differential diagnoses
• Obtain Genetic testing for MEFV gene mutations for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Recurrent febrile episodes	Clinical presentation	Key diagnostic indicator
Mediterranean ethnicity	Clinical presentation	Key diagnostic indicator
Positive response to colchicine	Clinical presentation	Key diagnostic indicator
Autosomal recessive inheritance pattern	Clinical presentation	Key diagnostic indicator
Elevated inflammatory markers during attacks	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Genetic testing for MEFV gene mutations	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A (SAA) and C-reactive protein (CRP) during attacks	Laboratory	Urgent	Diagnostic confirmation
Urinalysis and 24-hour urine protein for amyloidosis screening	Laboratory	Urgent	Diagnostic confirmation
Complete blood count with differential during febrile episodes	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy	Medical	Immediate	Critical intervention
Assess for signs of amyloidosis (proteinuria, renal function)	Medical	Immediate	Critical intervention
Evaluate for acute attack symptoms (fever, serositis, arthritis)	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.5-2.0 mg daily	Oral / Daily	Prophylaxis against FMF attacks and amyloidosis
Colchicine	Additional 0.5-1.0 mg at attack onset	Oral / As needed for acute attacks	Acute FMF attack management
Anakinra	1-2 mg/kg daily	Subcutaneous / Daily	Colchicine-resistant FMF

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with limited consensus among 1 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Periodic fever episodes, Aphthous ulcers, Pharyngitis*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Fever patterns, Joint involvement, Rash*	3.7%	1 models	Unlikely
Adult-Onset Still's Disease *Evidence: High spiking fevers, Salmon-colored rash, Arthralgia/arthritis*	3.7%	1 models	Unlikely
Behçet's Disease *Evidence: Oral ulcers, Genital ulcers, Uveitis*	3.7%	1 models	Unlikely
Cyclic Neutropenia *Evidence: Regular fever cycles, Oral ulcers, Periodic neutropenia*	3.7%	1 models	Unlikely
Hereditary Periodic Fever Syndromes *Evidence: Recurrent fevers, Family history, Autoinflammatory pattern*	3.7%	1 models	Unlikely
Inflammatory Bowel Disease *Evidence: Fever episodes, Abdominal pain, Gastrointestinal symptoms*	3.7%	1 models	Unlikely
Lyme Disease *Evidence: Fever, Arthralgia, Rash*	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: Unknown

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

Supporting Models: Unknown

• **Adult-Onset Still's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

- **Behçet's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Cyclic Neutropenia** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Hereditary Periodic Fever Syndromes** (ICD-10: R50.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Inflammatory Bowel Disease** (ICD-10: K50.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Lyme Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Rheumatic Fever** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Sarcoidosis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Initiate colchicine therapy	Clinical indication	50%
2	Assess for signs of amyloidosis (proteinuria, renal function)	Clinical indication	50%
3	Evaluate for acute attack symptoms (fever, serositis, arthritis)	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Genetic testing for MEFV gene mutations	Diagnostic confirmation	Routine	As indicated
Serum amyloid A (SAA) and C-reactive protein (CRP) during attacks	Diagnostic confirmation	Routine	As indicated
Urinalysis and 24-hour urine protein for amyloidosis screening	Diagnostic confirmation	Routine	As indicated
Complete blood count with differential during febrile episodes	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

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) - 0.3
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.25
- Hereditary Periodic Fever Syndrome (other than FMF) (ICD: E85.8) - 0.2

Key Clinical Findings:

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