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, Autosomal recessive inheritance pattern, Response to colchicine therapy*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever pattern, Autoinflammatory syndrome characteristics, Similar episodic presentation*	E85.9	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Febrile episodes, Systemic inflammatory presentation, Arthritic manifestations possible*	M08.2	3.7%	Minority (<10%)
Adult-onset Still's Disease *Evidence: High spiking fevers, Systemic inflammation, Rash and arthralgia*	M06.1	3.7%	Minority (<10%)
Behçet's Disease *Evidence: Recurrent oral/genital ulcers, Uveitis, Vasculitic features*	M35.2	3.7%	Minority (<10%)
Gout *Evidence: Acute inflammatory episodes, Joint involvement, Response to anti-inflammatory treatment*	M10.9	3.7%	Minority (<10%)
Inflammatory Bowel Disease *Evidence: Abdominal pain episodes, Systemic inflammation, Recurrent symptoms*	K50.9	3.7%	Minority (<10%)
Hereditary Angioedema *Evidence: Recurrent attacks, Abdominal pain, Family history*	D84.1	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Lyme Disease *Evidence: Fever episodes, Arthralgia, Possible tick exposure*	A69.20	3.7%	Minority (<10%)
Rheumatic Fever *Evidence: Migratory polyarthritis, Fever, Previous streptococcal infection*	I00	3.7%	Minority (<10%)
Sarcoidosis *Evidence: Systemic inflammation, Multi-organ involvement, Granulomatous disease*	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	Periodic	Systemic	Adult-on	Behçet's
Recurrent fever	Strong	Strong	-	Strong	-
Abdominal pain	Strong	-	-	-	-
Joint pain	-	-	Strong	-	-
Family history	Strong	-	-	-	-
Ethnic backgrou	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
• Severe abdominal pain with peritoneal signs
• Recurrent fever episodes
• Migratory arthritis affecting large joints

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
Autosomal recessive inheritance	Clinical presentation	Key diagnostic indicator
Serositis (peritonitis, pleuritis)	Clinical presentation	Key diagnostic indicator
Response to colchicine	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
Complete blood count with differential	Laboratory	Urgent	Diagnostic confirmation
Erythrocyte sedimentation rate	Laboratory	Urgent	Diagnostic confirmation
Urinalysis for proteinuria	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy	Medical	Immediate	Critical intervention
Provide patient education about FMF and treatment	Medical	Immediate	Critical intervention
Assess for signs of acute attack (fever, abdominal pain, joint pain)	Medical	Immediate	Critical intervention

Intervention	Category	Urgency	Clinical Reasoning
Evaluate for complications (amyloidosis, renal impairment)	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.5-1.2 mg daily	Oral / Once or twice daily	Prophylaxis against FMF attacks and amyloidosis
Colchicine	0.5-1.0 mg every 2-4 hours	Oral / As needed during attack onset	Acute FMF attack management
Anakinra	1-2 mg/kg/day	Subcutaneous / Daily	For 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 Syndrome (other types) *Evidence: Recurrent fever pattern, Autoinflammatory syndrome characteristics, Similar episodic presentation*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Febrile episodes, Systemic inflammatory presentation, Arthritic manifestations possible*	3.7%	1 models	Unlikely
Adult-onset Still's Disease *Evidence: High spiking fevers, Systemic inflammation, Rash and arthralgia*	3.7%	1 models	Unlikely
Behçet's Disease *Evidence: Recurrent oral/genital ulcers, Uveitis, Vasculitic features*	3.7%	1 models	Unlikely
Gout *Evidence: Acute inflammatory episodes, Joint involvement, Response to anti-inflammatory treatment*	3.7%	1 models	Unlikely
Inflammatory Bowel Disease *Evidence: Abdominal pain episodes, Systemic inflammation, Recurrent symptoms*	3.7%	1 models	Unlikely
Hereditary Angioedema *Evidence: Recurrent attacks, Abdominal pain, Family history*	3.7%	1 models	Unlikely
Lyme Disease *Evidence: Fever episodes, Arthralgia, Possible tick exposure*	3.7%	1 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: 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
- **Gout** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Inflammatory Bowel Disease** (ICD-10: K50.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Hereditary Angioedema** (ICD-10: Unknown) - 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	Provide patient education about FMF and treatment	Clinical indication	50%
3	Assess for signs of acute attack (fever, abdominal pain, joint pain)	Clinical indication	50%
4	Evaluate for complications (amyloidosis, renal impairment)	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
Complete blood count with differential	Diagnostic confirmation	Routine	As indicated
Erythrocyte sedimentation rate	Diagnostic confirmation	Routine	As indicated
Urinalysis for proteinuria	Diagnostic confirmation	Routine	As indicated
Renal function tests (creatinine, BUN)	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 Syndrome (other types) (ICD: E85.9) - 0.7
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.4
- Inflammatory Bowel Disease (ICD: K50.9) - 0.3

Key Clinical Findings:

- Mediterranean descent
- Recurrent self-limited febrile episodes (1-3 days)
- Severe abdominal pain
- Chest pain with pleurisy