MEDLEY

Medical AI Ensemble Clinical Decision Report

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever (FMF) *Evidence: Mediterranean descent, Recurrent fever episodes with abdominal and chest pain, Joint pain in knees and ankles, Family history of similar symptoms*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever episodes with abdominal and chest pain, Joint pain in knees and ankles*	E85.0	7.4%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis (sJIA) *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M08.0	7.4%	Minority (<10%)
Adult-Onset Still's Disease *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M35.3	3.7%	Minority (<10%)
Reiter's Syndrome *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M89.0	3.7%	Minority (<10%)
Seronegative Spondyloarthropathy *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M45.9	3.7%	Minority (<10%)
Acute Rheumatic Fever *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M16.9	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Reactive Arthritis *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M02.7	3.7%	Minority (<10%)
Periodic Fever, Aphthous Stomatitis, Pharyngitis, and Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever episodes with abdominal and chest pain, Elevated CRP, ESR, and WBC during attacks*	M89.89	3.7%	Minority (<10%)
Hyper-IgD Syndrome (HIDS) *Evidence: Recurrent fever episodes with abdominal and chest pain, Elevated CRP, ESR, and WBC during attacks*	E85.8	3.7%	Minority (<10%)
Systemic Lupus Erythematosus (SLE) *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	M32.9	0.0%	Minority (<10%)

Analysis Overview

Models Queried: 7

Successful Responses: 7

Consensus Level: High

Total Cost: $0.010

■■ 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	Reiter's	Seronega	Acute Rh	Reactive
Recurrent fever	Strong	-	-	-	-	-	-	-
Abdominal pain	Strong	-	-	-	-	-	-	-
Chest pain	Strong	-	-	-	-	-	-	-
Joint pain	Strong	-	-	-	-	-	-	-
Elevated CRP, E	Strong	-	-	-	-	-	-	-
Family history	Strong	-	-	-	-	-	-	-
Mediterranean d	Strong	-	-	-	-	-	-	-
Asymptomatic be	Strong	-	-	-	-	-	-	-
Started in chil	Strong	-	-	-	-	-	-	-
Severe abdomina	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

• Migratory arthritis affecting large joints
• Positive family history of similar episodes
• Severe abdominal pain with peritoneal signs
• Recurrent fever episodes
• 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 fever episodes with abdominal and chest pain	Clinical presentation	Key diagnostic indicator
Joint pain in knees and ankles	Clinical presentation	Key diagnostic indicator
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Elevated CRP, ESR, and WBC during attacks	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Complete blood count (CBC)	Laboratory	Urgent	Diagnostic confirmation
C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR)	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy	Medical	Immediate	Critical intervention
Schedule genetic testing for MEFV gene mutations	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.6 mg	oral / twice 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 Syndrome (other types) *Evidence: Recurrent fever episodes with abdominal and chest pain, Joint pain in knees and ankles*	7.4%	2 models	Unlikely
Systemic Juvenile Idiopathic Arthritis (sJIA) *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	7.4%	2 models	Unlikely
Adult-Onset Still's Disease *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	3.7%	1 models	Unlikely
Reiter's Syndrome *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	3.7%	1 models	Unlikely
Seronegative Spondyloarthropathy *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	3.7%	1 models	Unlikely
Acute Rheumatic Fever *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	3.7%	1 models	Unlikely
Reactive Arthritis *Evidence: Recurrent fever episodes with joint pain, Elevated CRP, ESR, and WBC during attacks*	3.7%	1 models	Unlikely
Periodic Fever, Aphthous Stomatitis, Pharyngitis, and Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever episodes with abdominal and chest pain, Elevated CRP, ESR, and WBC during attacks*	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) - 7.4% agreement (2 models)
  Supporting Models: Unknown, Unknown
- **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
- **Reiter's Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Seronegative Spondyloarthropathy** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Acute Rheumatic Fever** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Reactive Arthritis** (ICD-10: M02.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Periodic Fever, Aphthous Stomatitis, Pharyngitis, and Adenitis (PFAPA) Syndrome** (ICD-10: R50.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Hyper-IgD Syndrome (HIDS)** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Systemic Lupus Erythematosus (SLE)** (ICD-10: M32.9) - 0.0% agreement (0 models)
  Supporting Models:

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Initiate colchicine therapy	Clinical indication	50%
2	Schedule genetic testing for MEFV gene mutations	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Complete blood count (CBC)	Diagnostic confirmation	Routine	As indicated
C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR)	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	Reiter\'s Syndrome	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: $0.010

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: E85.0) - 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)
- Periodic abdominal pain
- Pleuritic 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: M69.8) - Confidence: 0.85

Differential Diagnoses:

- Adult-Onset Still's Disease (ICD: M35.3) - 0.6
- Systemic Juvenile Idiopathic Arthritis (sJIA) (ICD: M08.0) - 0.4
- Behçet's Disease (ICD: M77.0) - 0.3

Key Clinical Findings:

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

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

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: 0.9

Differential Diagnoses:

- Periodic Fever, Aphthous Stomatitis, Pharyngitis, and Adenitis (PFAPA) Syndrome (ICD: M89.89) - 0.2
- Hyper-IgD Syndrome (HIDS) (ICD: E85.8) - 0.15
- Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) (ICD: E85.8) - 0.1

Key Clinical Findings:

- Recurrent febrile episodes with abdominal, chest, and joint pain
- Family history of similar symptoms
- Elevated inflammatory markers during episodes (CRP, ESR, WBC)
- Asymptomatic between episodes