

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 fever episodes every 2-3 weeks, Abdominal and chest pain, Family history of similar symptoms</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 periodic fever episodes, Childhood onset, Regular interval pattern</i>	R50.81	11.1%	Alternative (10-29%)
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever episodes, Joint pain, Elevated inflammatory markers</i>	M08.2	7.4%	Minority (<10%)
Adult-Onset Still's Disease <i>Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers</i>	M06.1	3.7%	Minority (<10%)
TNF Receptor-Associated Periodic Syndrome (TRAPS) <i>Evidence: Periodic fever syndrome, Autosomal dominant inheritance pattern</i>	M31.2	3.7%	Minority (<10%)
Hyper-IgD Syndrome <i>Evidence: Periodic fever syndrome, Autosomal recessive inheritance</i>	D82.8	3.7%	Minority (<10%)
Undifferentiated Connective Tissue Disease <i>Evidence: Systemic symptoms, Inflammatory markers elevation</i>	M35.30	3.7%	Minority (<10%)
Rheumatoid Arthritis <i>Evidence: Joint pain, Systemic inflammation</i>	M05.9	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Lupus Erythematosus <i>Evidence: Systemic autoimmune condition, Recurrent symptoms</i>	M32.9	3.7%	Minority (<10%)
Sjögren's Syndrome <i>Evidence: Autoimmune disorder, Systemic involvement</i>	M35.89	3.7%	Minority (<10%)
Behçet's Disease <i>Evidence: Recurrent systemic inflammation, Mediterranean prevalence</i>	M35.2	3.7%	Minority (<10%)

Analysis Overview
Models Queried: 6
Successful Responses: 6
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	TRAPS	Hyper-Ig	Undiffer
Recurrent fever	Strong	-	-	-	-	-	-
Abdominal pain	Strong	-	-	-	-	-	-
Chest pain	-	-	-	-	-	-	-
Joint pain	-	-	Medium	-	-	-	-
Mediterranean d	Strong	-	-	-	-	-	-
Family history	Strong	-	-	-	-	-	-
Elevated inflam	-	-	-	Medium	-	-	-
Periodic episod	-	Medium	-	-	-	-	-
Childhood onset	-	Medium	-	-	-	-	-
Asymptomatic be	-	-	-	-	-	-	-

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 (FMF) among differential diagnoses
- Obtain MEFV gene mutation analysis 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 every 2-3 weeks	Clinical presentation	Key diagnostic indicator
Abdominal and chest pain	Clinical presentation	Key diagnostic indicator
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Elevated CRP/ESR/WBC during attacks	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
MEFV gene mutation analysis	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A (SAA) level	Laboratory	Urgent	Diagnostic confirmation
24-hour urine protein	Laboratory	Urgent	Diagnostic confirmation
Complete blood count with differential	Laboratory	Urgent	Diagnostic confirmation
CRP and ESR during attack	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 adherence	Medical	Immediate	Critical intervention
Assess for signs of amyloidosis (proteinuria, renal function)	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.5-2.0 mg daily	Oral / Daily	Prophylaxis of FMF attacks and prevention of amyloidosis
Anakinra	100 mg daily	Subcutaneous / Daily	For colchicine-resistant FMF

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 periodic fever episodes, Childhood onset, Regular interval pattern</i>	11.1%	3 models	Less likely
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Recurrent fever episodes, Joint pain, Elevated inflammatory markers</i>	7.4%	2 models	Unlikely
Adult-Onset Still's Disease <i>Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers</i>	3.7%	1 models	Unlikely
TNF Receptor-Associated Periodic Syndrome (TRAPS) <i>Evidence: Periodic fever syndrome, Autosomal dominant inheritance pattern</i>	3.7%	1 models	Unlikely
Hyper-IgD Syndrome <i>Evidence: Periodic fever syndrome, Autosomal recessive inheritance</i>	3.7%	1 models	Unlikely
Undifferentiated Connective Tissue Disease <i>Evidence: Systemic symptoms, Inflammatory markers elevation</i>	3.7%	1 models	Unlikely
Rheumatoid Arthritis <i>Evidence: Joint pain, Systemic inflammation</i>	3.7%	1 models	Unlikely
Lupus Erythematosus <i>Evidence: Systemic autoimmune condition, Recurrent symptoms</i>	3.7%	1 models	Unlikely

Minority Opinions

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

- **Systemic Juvenile Idiopathic Arthritis** (ICD-10: Unknown) - 7.4% agreement (2 models)
Supporting Models: model1, model3
- **Adult-Onset Still's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: model3

- **TNF Receptor-Associated Periodic Syndrome (TRAPS)** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model6

- **Hyper-IgD Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model6

- **Undifferentiated Connective Tissue Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model4

- **Rheumatoid Arthritis** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model4

- **Lupus Erythematosus** (ICD-10: M32.9) - 3.7% agreement (1 models)

Supporting Models: model4

- **Sjögren's Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model4

- **Behçet's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: model4

Additional Diagnoses Considered:

- **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: R50.81) - 50.0% (3 models)

Evidence: Recurrent periodic fever episodes, Childhood onset, Regular interval pattern

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 adherence	Clinical indication	50%
3	Assess for signs of amyloidosis (proteinuria, renal function)	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
MEFV gene mutation analysis	Diagnostic confirmation	Routine	As indicated
Serum amyloid A (SAA) level	Diagnostic confirmation	Routine	As indicated
24-hour urine protein	Diagnostic confirmation	Routine	As indicated
Complete blood count with differential	Diagnostic confirmation	Routine	As indicated
CRP and ESR during attack	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	Undifferentiated Connective Tissue Disease	General
mistral-7b-inst	France	Free	Free	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) - 0.3
- 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 fever episodes
- Severe 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:

- Systemic Juvenile Idiopathic Arthritis (SJIA) (ICD: M08.0) - 0.6
- Adult-Onset Still's Disease (AOSD) (ICD: M05.8) - 0.5
- Inflammatory Bowel Disease (IBD) - Crohn's Disease or Ulcerative Colitis (ICD: K50.-) - 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: Undifferentiated Connective Tissue Disease (ICD-10: M35.30) - Confidence: 0.85

Differential Diagnoses:

- Rheumatoid Arthritis (ICD: M05.9) - 0.2
- Lupus Erythematosus (ICD: M32.9) - 0.18
- Sjögren's Syndrome (ICD: M35.89) - 0.15

Key Clinical Findings:

- Recurrent episodes of fever and abdominal pain
- Elevated CRP, ESR, and WBC during attacks
- Family history of similar symptoms
- Chest pain with breathing difficulties

5. mistral-7b-inst (France, Released: 2023-09-27)**6. 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: M31.1) - 0.2
- TNF Receptor-Associated Periodic Syndrome (TRAPS) (ICD: M31.2) - 0.1
- Hyper-IgD Syndrome (HIDS) (ICD: M31.3) - 0.1

Key Clinical Findings:

- Recurrent fevers with abdominal, chest, and joint pain
- Family history of similar symptoms
- Elevated inflammatory markers during episodes
- Complete asymptomatic periods