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: Recurrent episodes of fever, abdominal pain, chest pain with breathing difficulties, and joint pain in knees and ankles, Family history of similar symptoms, Episodes every 2-3 weeks starting from age 7, Elevated CRP, ESR, and WBC during attacks*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever and inflammatory symptoms*	E85.8	14.8%	Alternative (10-29%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Recurrent fever and joint pain*	M08.2	14.8%	Alternative (10-29%)
Adult-Onset Still's Disease (AOSD) *Evidence: Recurrent fever and joint pain*	M05.0	3.7%	Minority (<10%)
Autoinflammatory Disorder (e.g., TRAPS, HIDS) *Evidence: Recurrent fever and inflammatory symptoms*	M35.8	3.7%	Minority (<10%)
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever and inflammatory symptoms*	M35.8	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis (SJIA) *Evidence: Recurrent fever and joint pain*	M08.0	3.7%	Minority (<10%)
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	E85.0	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	M72.0	3.7%	Minority (<10%)
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	M69.8	3.7%	Minority (<10%)
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	M39.0	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	Autoinfl	Periodic	Systemic
Recurrent fever	Strong	-	-	-	-	-	-
Abdominal pain	Strong	-	-	-	-	-	-
Chest pain with	Strong	-	-	-	-	-	-
Joint pain in k	Strong	-	-	-	-	-	-
Family history	Strong	-	-	-	-	-	-
Episodes every	Strong	-	-	-	-	-	-
Elevated CRP, E	Strong	-	-	-	-	-	-
Asymptomatic be	Strong	-	-	-	-	-	-
Mediterranean d	Strong	-	-	-	-	-	-
Male patient	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
• Elevated inflammatory markers (CRP, ESR)
• Recurrent fever episodes
• Positive family history of similar episodes
• Severe abdominal pain with peritoneal signs

Primary Recommendations

• Consider Familial Mediterranean Fever (FMF) 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 episodes of fever, abdominal pain, chest pain with breathing difficulties, and joint pain in knees and ankles	Clinical presentation	Key diagnostic indicator
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Episodes every 2-3 weeks starting from age 7	Clinical presentation	Key diagnostic indicator
Elevated CRP, ESR, and WBC during attacks	Clinical presentation	Key diagnostic indicator
Asymptomatic between episodes	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Genetic testing for MEFV gene mutations	Laboratory	Urgent	Diagnostic confirmation
Blood tests (CRP, ESR, WBC) during an attack	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Confirm diagnosis with genetic testing	Medical	Immediate	Critical intervention
Initiate colchicine therapy	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	1.2 mg	oral / 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 and inflammatory symptoms*	14.8%	4 models	Less likely
Systemic Juvenile Idiopathic Arthritis *Evidence: Recurrent fever and joint pain*	14.8%	4 models	Less likely
Adult-Onset Still's Disease (AOSD) *Evidence: Recurrent fever and joint pain*	3.7%	1 models	Unlikely
Autoinflammatory Disorder (e.g., TRAPS, HIDS) *Evidence: Recurrent fever and inflammatory symptoms*	3.7%	1 models	Unlikely
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever and inflammatory symptoms*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis (SJIA) *Evidence: Recurrent fever and joint pain*	3.7%	1 models	Unlikely
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	3.7%	1 models	Unlikely
Familial Mediterranean Fever (FMF) *Evidence: Recurrent fever and inflammatory symptoms*	3.7%	1 models	Unlikely

Minority Opinions

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

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

Supporting Models: Unknown

• **Autoinflammatory Disorder (e.g., TRAPS, HIDS)** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Unknown

• **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: R50.9) - 3.7% agreement (1 models)

Supporting Models: Unknown

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

  Supporting Models: Unknown

- **Familial Mediterranean Fever (FMF)** (ICD-10: E85.0) - 3.7% agreement (1 models)

  Supporting Models: Unknown

- **Familial Mediterranean Fever (FMF)** (ICD-10: E85.0) - 3.7% agreement (1 models)

  Supporting Models: Unknown

- **Familial Mediterranean Fever (FMF)** (ICD-10: E85.0) - 3.7% agreement (1 models)

  Supporting Models: Unknown

- **Familial Mediterranean Fever (FMF)** (ICD-10: E85.0) - 3.7% agreement (1 models)

  Supporting Models: Unknown

Additional Diagnoses Considered:

- **Periodic Fever Syndrome (other types)** (ICD-10: E85.8) - 57.1% (4 models)

  Evidence: Recurrent fever and inflammatory symptoms

- **Systemic Juvenile Idiopathic Arthritis** (ICD-10: M08.2) - 57.1% (4 models)

  Evidence: Recurrent fever and joint pain

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Confirm diagnosis with genetic testing	Clinical indication	50%
2	Initiate colchicine therapy	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Genetic testing for MEFV gene mutations	Diagnostic confirmation	Routine	As indicated
Blood tests (CRP, ESR, WBC) during an 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
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: 0.9

Differential Diagnoses:

- Periodic Fever Syndrome (other types) (ICD: E85.8) - 0.4
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.3
- Acute Intermittent Porphyria (ICD: E80.21) - 0.2

Key Clinical Findings:

- Mediterranean descent
- Recurrent self-limited febrile episodes
- Serositis (abdominal pain, chest pain)
- Family history of similar symptoms

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 and 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: M35.9) - Confidence: 0.85

Differential Diagnoses:

- Systemic Lupus Erythematosus (ICD: M32.9) - 0.35
- Polymyositis (ICD: M82.9) - 0.25
- Rheumatoid Arthritis (ICD: M05.9) - 0.15

Key Clinical Findings:

- Recurrent fevers, abdominal pain, and joint pain
- Inflammation indicated by elevated CRP, ESR, and WBC

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:

- Autoinflammatory Disorder (e.g., TRAPS, HIDS) (ICD: M35.8) - 0.1
- Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome (ICD: I88.1) - 0.05
- Systemic Juvenile Idiopathic Arthritis (sJIA) (ICD: M08.2) - 0.05

Key Clinical Findings:

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