MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpfuxwcm94 Title: Custom Case Analysis Generated: 2025-09-05 09:36

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever *Evidence: Periodic fever pattern, Genetic predisposition, Mediterranean ethnicity association*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever episodes, Similar periodic pattern*	E85.0	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Systemic inflammatory presentation, Fever patterns*	M08.2	3.7%	Minority (<10%)
Autoimmune inflammatory condition *Evidence: Elevated inflammatory markers, Positive ANA/RF testing*	M35.9	7.4%	Minority (<10%)
Rheumatoid arthritis *Evidence: RF testing indicated, Inflammatory markers*	M06.9	3.7%	Minority (<10%)
Ankylosing spondylitis *Evidence: HLA-B27 testing indicated*	M45	3.7%	Minority (<10%)
Systemic lupus erythematosus *Evidence: ANA testing indicated, Autoimmune pattern*	M32.9	3.7%	Minority (<10%)
Infectious process *Evidence: Elevated WBC, Acute phase reactants*	B99.9	3.7%	Minority (<10%)
Bacterial infection *Evidence: Elevated CRP, Increased ESR*	A49.9	3.7%	Minority (<10%)
Viral syndrome *Evidence: White blood cell changes, Inflammatory response*	B34.9	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Genetic disorder *Evidence: MEFV mutation testing, Familial pattern*	Q99.9	7.4%	Minority (<10%)

Analysis Overview

Models Queried: 4

Successful Responses: 4

Consensus Level: High

Total Estimated Cost: <$0.01

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	Autoimmu	Genetic
Periodic fever	Strong	-	-	-	-
Elevated inflam	-	-	-	Medium	-
Genetic factors	Strong	-	-	-	-
Autoimmune mark	-	-	Medium	-	-
Familial patter	-	-	-	-	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
• Elevated inflammatory markers (CRP, ESR)
• Migratory arthritis affecting large joints
• Recurrent fever episodes
• Severe abdominal pain with peritoneal signs

Primary Recommendations

• Consider Familial Mediterranean Fever among differential diagnoses
• Initiate colchicine therapy
• Assess for signs of amyloidosis
• Evaluate for acute complications (e.g., serositis)
• Obtain Genetic testing for MEFV mutations for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Periodic fever pattern	Clinical presentation	Key diagnostic indicator
Elevated inflammatory markers	Clinical presentation	Key diagnostic indicator
Genetic predisposition	Clinical presentation	Key diagnostic indicator
Autoimmune markers	Clinical presentation	Key diagnostic indicator
Familial history	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Genetic testing for MEFV mutations	Laboratory	Urgent	Diagnostic confirmation
C-reactive protein (CRP)	Laboratory	Urgent	Diagnostic confirmation
Erythrocyte sedimentation rate (ESR)	Laboratory	Urgent	Diagnostic confirmation
Full blood count	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy	Medical	Immediate	Critical intervention
Assess for signs of amyloidosis	Medical	Immediate	Critical intervention
Evaluate for acute complications (e.g., serositis)	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.5-2.0 mg/day	Oral / Daily	Prophylaxis against FMF attacks and prevention of amyloidosis

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with 0.0% consensus among 1 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever Syndrome (other types) *Evidence: Recurrent fever episodes, Similar periodic pattern*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Systemic inflammatory presentation, Fever patterns*	3.7%	1 models	Unlikely
Autoimmune inflammatory condition *Evidence: Elevated inflammatory markers, Positive ANA/RF testing*	7.4%	2 models	Unlikely
Rheumatoid arthritis *Evidence: RF testing indicated, Inflammatory markers*	3.7%	1 models	Unlikely
Ankylosing spondylitis *Evidence: HLA-B27 testing indicated*	3.7%	1 models	Unlikely
Systemic lupus erythematosus *Evidence: ANA testing indicated, Autoimmune pattern*	3.7%	1 models	Unlikely
Infectious process *Evidence: Elevated WBC, Acute phase reactants*	3.7%	1 models	Unlikely
Bacterial infection *Evidence: Elevated CRP, Increased ESR*	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: model1
- **Systemic Juvenile Idiopathic Arthritis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model1
- **Autoimmune inflammatory condition** (ICD-10: Unknown) - 7.4% agreement (2 models)
  Supporting Models: model3, model4
- **Rheumatoid arthritis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model4

- **Ankylosing spondylitis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model4
- **Systemic lupus erythematosus** (ICD-10: M32.9) - 3.7% agreement (1 models)
  Supporting Models: model4
- **Infectious process** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model3
- **Bacterial infection** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model3
- **Viral syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: model3
- **Genetic disorder** (ICD-10: Unknown) - 7.4% agreement (2 models)
  Supporting Models: model1, model4

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	Clinical indication	50%
3	Evaluate for acute complications (e.g., serositis)	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Genetic testing for MEFV mutations	Diagnostic confirmation	Routine	As indicated
C-reactive protein (CRP)	Diagnostic confirmation	Routine	As indicated
Erythrocyte sedimentation rate (ESR)	Diagnostic confirmation	Routine	As indicated
Full blood count	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
gemma-2-9b-it	USA	Free	Free	Not specified	General
llama-3.2-3b-in	USA	Free	Free	Undiagnosed Periodic Paralysis	General
mistral-7b-inst	France	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 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
- Abdominal pain during attacks
- Chest pain with pleurisy

2. gemma-2-9b-it (USA, Released: 2024-06-27)

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

Primary Diagnosis: Undiagnosed Periodic Paralysis (ICD-10: E84.7) - Confidence: 0.8

Differential Diagnoses:

- Hyperparathyroidism (ICD: E23.8) - 0.6
- Pheochromocytoma (ICD: E23.9) - 0.7
- Multiple Endocrine Neoplasia Type 2A (ICD: E23.7) - 0.4

Key Clinical Findings:

- Recurrent episodes of fever and abdominal pain
- Severe joint pain
- Family history of similar symptoms

4. mistral-7b-inst (France, Released: 2023-09-27)

Primary Diagnosis: Familial Mediterranean Fever (FMF) (ICD-10: M39.0) - Confidence: 0.8

Differential Diagnoses:

- Polyarteritis Nodosa (ICD: D89.1) - 0.2
- Reactive Arthritis (ICD: M40.89) - 0.2

- Ankylosing Spondylitis (ICD: M45.9) - 0.15

Key Clinical Findings:

- Recurrent fever
- Abdominal pain
- Chest pain with breathing difficulties
- Joint pain