MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpmmzhyt0b Title: Custom Case Analysis Generated: 2025-09-04 21:33

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever	E85.0	42.9%	Moderate	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever Syndrome (other types)	E85.8	14.3%	Alternative (10-29%)
Systemic Juvenile Idiopathic Arthritis	M08.2	14.3%	Alternative (10-29%)
Reactive Arthritis	M35.5	14.3%	Alternative (10-29%)
Ankylosing Spondylitis	M89.0	14.3%	Alternative (10-29%)
Reiter syndrome	M45.0	14.3%	Alternative (10-29%)
Psoriatic Arthritis	M97.0	14.3%	Alternative (10-29%)
Gonococcal arthritis	A08.0	14.3%	Alternative (10-29%)
Inflammatory Bowel Disease	K50.9	14.3%	Alternative (10-29%)
TRAPS	M04.8	14.3%	Alternative (10-29%)

Analysis Overview
Models Queried: 7
Successful Responses: 7
Consensus Level: 0.95
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/Finding	Familial Med	Periodic Fev	Systemic Juv	Reactive Art
Fever	+++	+++	+++	+++
Pain	++	+++	++	+++
Joint Symptoms	++	++	++	++

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
• Migratory arthritis affecting large joints
• Recurrent fever episodes
• Elevated inflammatory markers (CRP, ESR)

Primary Recommendations

• Consider Familial Mediterranean Fever among differential diagnoses
• Genetic testing for FMF
• Start colchicine treatment
• Obtain Genetic testing for diagnostic confirmation

Primary Diagnosis Clinical Summaries

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with 42.9% consensus among 2 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever Syndrome (other types)	14.3%	1 models	Less likely
Systemic Juvenile Idiopathic Arthritis	14.3%	1 models	Less likely
Reactive Arthritis	14.3%	1 models	Less likely
Ankylosing Spondylitis	14.3%	1 models	Less likely
Reiter syndrome	14.3%	1 models	Less likely
Psoriatic Arthritis	14.3%	1 models	Less likely
Gonococcal arthritis	14.3%	1 models	Less likely
Inflammatory Bowel Disease	14.3%	1 models	Less likely

Minority Opinions

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

Additional Diagnoses Considered:

- **Periodic Fever Syndrome (other types)** (ICD-10: E85.8) - 14.3% (1 models)
- **Systemic Juvenile Idiopathic Arthritis** (ICD-10: M08.2) - 14.3% (1 models)
- **Reactive Arthritis** (ICD-10: M35.5) - 14.3% (1 models)
- **Ankylosing Spondylitis** (ICD-10: M89.0) - 14.3% (1 models)
- **Reiter syndrome** (ICD-10: M45.0) - 14.3% (1 models)
- **Psoriatic Arthritis** (ICD-10: M97.0) - 14.3% (1 models)
- **Gonococcal arthritis** (ICD-10: A08.0) - 14.3% (1 models)
- **Inflammatory Bowel Disease** (ICD-10: K50.9) - 14.3% (1 models)
- **TRAPS** (ICD-10: M04.8) - 14.3% (1 models)

Diagnostic Confidence Analysis

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Genetic testing for FMF	Clinical indication	50%
2	Start colchicine treatment	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Genetic testing	Diagnostic confirmation	Routine	As indicated
CRP and ESR levels	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	Not specified	General
gemma-2-9b-it	USA	Free	Free	Not specified	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	Reactive Arthritis (AR)	General
mistral-7b-inst	France	Free	Free	Seronegative Spondyloarthropathy	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.

Primary Diagnosis Bias Factors:

- Cultural: Models from 6 countries with Western dominance may miss cultural factors. Chinese models (71.4%) provide alternative perspective.
- Geographic: Western model dominance (357.1%) creates strong bias toward Western medical paradigms. High Western medical paradigm influence expected
- Training Data: English-dominant training data creates systematic bias against non-Western medical practices and symptom presentations.

Alternative Diagnoses Bias:

• Missed: Traditional Medicine Conditions - Western model dominance may miss traditional medicine diagno...

• Missed: Socioeconomic-Related Conditions - Homeless status bias may cause dismissive attitudes and miss...

Bias Mitigation Recommendations:

• Socioeconomic Bias: Consider cultural context in diagnosis interpretation

• Geographic/Cultural Bias: Incorporate diverse cultural perspectives in diagnosis

Detailed Model Responses

Complete diagnostic assessments from each model:

1. deepseek-chat-v (China, Released: 2024-12-26)

2. deepseek-r1 (China, Released: 2025-01-20)

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

4. gemma-3-12b-it (USA, Released: 2024-12-11)

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

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

7. shisa-v2-llama3 (Japan/USA, Released: 2024-12-20)

Primary Diagnosis: Familial Mediterranean Fever (FMF) (ICD-10: E85.0) - Confidence: 0.8

Differential Diagnoses:

- Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome (ICD: M89.89) - 0.2
- Hyper-IgD Syndrome (Mevalonate Kinase Deficiency) (ICD: E85.1) - 0.15
- TNF Receptor-Associated Periodic Syndrome (TRAPS) (ICD: E85.2) - 0.15

Key Clinical Findings:

- Recurrent febrile episodes with severe abdominal, chest, and joint pain
- Family history of similar symptoms in father and paternal uncle
- Elevated CRP, ESR, and WBC during episodes
- Complete asymptomatic periods between episodes