

MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmp5uq0x3q2

Title: Custom Case Analysis

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever <i>Evidence: Periodic fever episodes, Genetic predisposition pattern, Inflammatory markers elevation</i>	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Systemic inflammatory features, Fever pattern</i>	M08.2	7.4%	Minority (<10%)
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome <i>Evidence: Periodic fever episodes, Childhood onset pattern</i>	R50.81	3.7%	Minority (<10%)
Adult-Onset Still's Disease <i>Evidence: Systemic inflammatory features, Fever pattern</i>	M05	3.7%	Minority (<10%)

Analysis Overview
Models Queried: 2
Successful Responses: 2
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	Systemic	PFAPA Sy
periodic fever	Strong	-	-
inflammatory ma	-	Strong	-
systemic sympto	-	-	-

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

- Recurrent fever episodes
- Migratory arthritis affecting large joints
- Severe abdominal pain with peritoneal signs
- Elevated inflammatory markers (CRP, ESR)
- Positive family history of similar episodes

Primary Recommendations

- Consider Familial Mediterranean Fever among differential diagnoses
- Confirm FMF diagnosis with genetic testing for MEFV gene mutations
- Assess current disease activity and frequency of attacks
- Evaluate for complications including amyloidosis
- Obtain MEFV gene sequencing for diagnostic confirmation

Primary Diagnosis Clinical Summaries

■ Key Clinical Findings

Finding	Supporting Evidence	Clinical Reasoning
Periodic fever episodes	Clinical presentation	Key diagnostic indicator
Inflammatory markers	Clinical presentation	Key diagnostic indicator
Genetic predisposition	Clinical presentation	Key diagnostic indicator
Systemic symptoms	Clinical presentation	Key diagnostic indicator
Age of onset	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
MEFV gene sequencing	Laboratory	Urgent	Diagnostic confirmation
Complete blood count with differential	Laboratory	Urgent	Diagnostic confirmation
Comprehensive metabolic panel	Laboratory	Urgent	Diagnostic confirmation
Erythrocyte sedimentation rate (ESR)	Laboratory	Urgent	Diagnostic confirmation
C-reactive protein (CRP)	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Confirm FMF diagnosis with genetic testing for MEFV gene mutations	Medical	Immediate	Critical intervention
Assess current disease activity and frequency of attacks	Medical	Immediate	Critical intervention
Evaluate for complications including amyloidosis	Medical	Immediate	Critical intervention
Obtain detailed family history of Mediterranean ancestry and similar symptoms	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.6 mg	oral / twice daily	prevention of FMF attacks and amyloidosis
Anakinra	100 mg	subcutaneous daily /	colchicine-resistant cases

Diagnostic Landscape Analysis

Detailed Diagnostic Analysis

The ensemble analysis identified **Familial Mediterranean Fever** as the primary diagnosis with 0.0% consensus among 2 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Systemic Juvenile Idiopathic Arthritis <i>Evidence: Systemic inflammatory features, Fever pattern</i>	7.4%	2 models	Unlikely
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome <i>Evidence: Periodic fever episodes, Childhood onset pattern</i>	3.7%	1 models	Unlikely
Adult-Onset Still's Disease <i>Evidence: Systemic inflammatory features, Fever pattern</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: Unknown, Unknown
- **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: R50.9) - 3.7% agreement (1 models)
Supporting Models: Unknown
- **Adult-Onset Still's Disease** (ICD-10: Unknown) - 3.7% agreement (1 models)
Supporting Models: Unknown

Additional Diagnoses Considered:

Management Strategies & Clinical Pathways

Immediate Actions Required

Priority	Action	Rationale	Consensus
1	Confirm FMF diagnosis with genetic testing for MEFV gene mutations	Clinical indication	50%
2	Assess current disease activity and frequency of attacks	Clinical indication	50%
3	Evaluate for complications including amyloidosis	Clinical indication	50%
4	Obtain detailed family history of Mediterranean ancestry and similar symptoms	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
MEFV gene sequencing	Diagnostic confirmation	Routine	As indicated
Complete blood count with differential	Diagnostic confirmation	Routine	As indicated
Comprehensive metabolic panel	Diagnostic confirmation	Routine	As indicated
Erythrocyte sedimentation rate (ESR)	Diagnostic confirmation	Routine	As indicated
C-reactive protein (CRP)	Diagnostic confirmation	Routine	As indicated
Serum amyloid A protein	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-3-12b-it	USA	Unknown	<\$0.01	Periodic Fever Syndrome (likely Familial Mediterranean Fever - FMF)	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) - 0.4
- Systemic Juvenile Idiopathic Arthritis (ICD: M08.2) - 0.3
- Hereditary Periodic Fever Syndrome (other than FMF) (ICD: E85.8) - 0.25

Key Clinical Findings:

- Mediterranean descent
- Recurrent self-limiting fever episodes (1-3 days)
- Severe abdominal pain
- Pleuritic chest pain

2. 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)