MEDLEY

Medical AI Ensemble Clinical Decision Report

Case ID: tmpr_o3dyut	Title: Custom Case Analysis	Generated: 2025-09-04 21:09

Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever (FMF) *Evidence: Mediterranean descent, Family history (father and paternal uncle), Recurrent fever episodes since childhood, Elevated inflammatory markers during attacks*	E85.0	0.0%	Very Low	PRIMARY

Alternative & Minority Diagnoses

Diagnosis	ICD-10	Support	Type
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever episodes, Childhood onset*	R50.81	7.4%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Joint pain, Elevated inflammatory markers, Childhood onset*	M08.2	7.4%	Minority (<10%)
Adult-Onset Still's Disease *Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers*	M05.9	3.7%	Minority (<10%)
Hyper-IgD Syndrome (Mevalonate Kinase Deficiency) *Evidence: Periodic fever, Childhood onset, Abdominal pain*	E88.89	3.7%	Minority (<10%)
Reactive Arthritis *Evidence: Joint pain in knees and ankles*	M35.5	3.7%	Minority (<10%)
Ankylosing Spondylitis *Evidence: Joint pain, Inflammatory markers*	M45.9	3.7%	Minority (<10%)
Uveitis *Evidence: Inflammatory condition*	H35.0	3.7%	Minority (<10%)
Crohn's Disease *Evidence: Abdominal pain, Inflammatory markers*	K50.9	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Psoriatic Arthritis *Evidence: Joint pain*	L40.50	3.7%	Minority (<10%)

Analysis Overview

Models Queried: 7

Successful Responses: 7

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	PFAPA Sy	Systemic
Recurrent fever	Strong	Medium	-
Abdominal pain	Strong	-	-
Joint pain	-	-	Medium
Mediterranean d	Strong	-	-
Family history	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
• Recurrent fever episodes
• Elevated inflammatory markers (CRP, ESR)
• Migratory arthritis affecting large joints
• Severe abdominal pain with peritoneal signs

Primary Recommendations

• Consider Familial Mediterranean Fever (FMF) among differential diagnoses
• Confirm FMF diagnosis with genetic testing for MEFV gene mutations
• Assess current disease activity and frequency of attacks
• Evaluate for amyloidosis complications
• 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
Family history of similar symptoms	Clinical presentation	Key diagnostic indicator
Recurrent fever episodes since childhood	Clinical presentation	Key diagnostic indicator
Severe abdominal pain during episodes	Clinical presentation	Key diagnostic indicator
Chest pain with breathing difficulties	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
MEFV gene mutation analysis	Laboratory	Urgent	Diagnostic confirmation
24-hour urine protein to screen for amyloidosis	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A (SAA) levels	Laboratory	Urgent	Diagnostic confirmation
Complete metabolic panel including creatinine	Laboratory	Urgent	Diagnostic confirmation
Echocardiogram to assess for cardiac amyloidosis	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

Intervention	Category	Urgency	Clinical Reasoning
Evaluate for amyloidosis complications	Medical	Immediate	Critical intervention
Review family history and genetic counseling needs	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 (FMF)** as the primary diagnosis with 0.0% consensus among 3 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever episodes, Childhood onset*	7.4%	2 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Joint pain, Elevated inflammatory markers, Childhood onset*	7.4%	2 models	Unlikely
Adult-Onset Still's Disease *Evidence: Recurrent fever, Joint pain, Elevated inflammatory markers*	3.7%	1 models	Unlikely
Hyper-IgD Syndrome (Mevalonate Kinase Deficiency) *Evidence: Periodic fever, Childhood onset, Abdominal pain*	3.7%	1 models	Unlikely
Reactive Arthritis *Evidence: Joint pain in knees and ankles*	3.7%	1 models	Unlikely
Ankylosing Spondylitis *Evidence: Joint pain, Inflammatory markers*	3.7%	1 models	Unlikely
Uveitis *Evidence: Inflammatory condition*	3.7%	1 models	Unlikely
Crohn's Disease *Evidence: Abdominal pain, Inflammatory markers*	3.7%	1 models	Unlikely

Minority Opinions

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

• **Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome** (ICD-10: R50.9) - 7.4% agreement (2 models)

Supporting Models: Model 1, Model 7

• **Systemic Juvenile Idiopathic Arthritis** (ICD-10: Unknown) - 7.4% agreement (2 models)

Supporting Models: Model 1, Model 4

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

Supporting Models: Model 4

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

Supporting Models: Model 7

• **Reactive Arthritis** (ICD-10: M02.9) - 3.7% agreement (1 models)

Supporting Models: Model 5

• **Ankylosing Spondylitis** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Model 5

• **Uveitis** (ICD-10: Unknown) - 3.7% agreement (1 models)

Supporting Models: Model 5

• **Crohn's Disease** (ICD-10: K50.9) - 3.7% agreement (1 models)

Supporting Models: Model 5

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

Supporting Models: Model 5

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 amyloidosis complications	Clinical indication	50%
4	Review family history and genetic counseling needs	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
MEFV gene mutation analysis	Diagnostic confirmation	Routine	As indicated
24-hour urine protein to screen for amyloidosis	Diagnostic confirmation	Routine	As indicated
Serum amyloid A (SAA) levels	Diagnostic confirmation	Routine	As indicated
Complete metabolic panel including creatinine	Diagnostic confirmation	Routine	As indicated
Echocardiogram to assess for cardiac amyloidosis	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-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	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 febrile episodes
- Abdominal pain
- Chest pain

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)

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)

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

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

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

Differential Diagnoses:

- Systemic Lupus Erythematosus (SLE) (ICD: M32.0) - 0.2
- Ankylosing Spondylitis (ICD: M45.0) - 0.2
- Rheumatoid Arthritis (ICD: M05.0) - 0.1

Key Clinical Findings:

- Recurrent fever, abdominal pain, chest pain, joint pain
- Family history of similar symptoms

7. 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, Adenitis (PFAPA) Syndrome (ICD: M04.1) - 0.3
- Hyper-IgD Syndrome (Mevalonate Kinase Deficiency) (ICD: E85.1) - 0.2
- Tumor Necrosis Factor Receptor-Associated Periodic Syndrome (TRAPS) (ICD: E85.2) - 0.2

Key Clinical Findings:

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