MEDLEY

Medical AI Ensemble Clinical Decision Report

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Primary Diagnostic Consensus

Diagnosis	ICD-10	Agreement	Confidence	Status
Familial Mediterranean Fever *Evidence: Recurrent episodes of abdominal pain, Pain lasting 2-3 hours, Episodes occurring every few weeks, Associated nausea and vomiting*	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, Periodic nature of symptoms*	R50.81	3.7%	Minority (<10%)
Systemic Juvenile Idiopathic Arthritis *Evidence: Recurrent episodes, Periodic nature of symptoms*	M08.2	3.7%	Minority (<10%)
Gallbladder Disease/Cholecystitis *Evidence: Upper right quadrant pain, Pain worse after fatty meals, Associated nausea and vomiting*	K81.9	3.7%	Minority (<10%)
Biliary Colic *Evidence: Upper right quadrant pain, Pain worse after fatty meals, Episodic nature*	K80.5	3.7%	Minority (<10%)
Autoinflammatory Syndrome *Evidence: Recurrent episodes, Periodic nature, Genetic component suggested*	E85.9	3.7%	Minority (<10%)
Hereditary Periodic Fever Syndrome *Evidence: Recurrent episodes, Periodic nature, Genetic component suggested*	E85.0	3.7%	Minority (<10%)
Psoriatic Arthritis *Evidence: ACR criteria testing mentioned, Recurrent symptoms*	L40.52	3.7%	Minority (<10%)

Diagnosis	ICD-10	Support	Type
Spondyloarthropathy *Evidence: HLA-B27 testing mentioned, Recurrent symptoms*	M46.9	3.7%	Minority (<10%)
Recurrent Abdominal Pain Syndrome *Evidence: Recurrent abdominal pain, Episodic pattern, Long duration (2-3 years)*	R10.81	3.7%	Minority (<10%)
Cyclic Vomiting Syndrome *Evidence: Recurrent episodes, Associated nausea and vomiting, Periodic pattern*	G43.A0	3.7%	Minority (<10%)

Analysis Overview

Models Queried: 3

Successful Responses: 3

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	FMF	Gallblad	PFAPA Sy	Biliary	Cyclic V
Recurrent abdom	Strong	-	-	-	-
Upper right qua	-	Strong	-	-	-
Pain worse afte	-	-	-	Strong	-
Nausea and vomi	-	-	-	-	Medium
Episodic 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

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

Primary Recommendations

• Consider Familial Mediterranean Fever 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 abdominal pain episodes	Clinical presentation	Key diagnostic indicator
Upper right quadrant location	Clinical presentation	Key diagnostic indicator
Pain worse after fatty meals	Clinical presentation	Key diagnostic indicator
Episodes last 2-3 hours	Clinical presentation	Key diagnostic indicator
Associated nausea and vomiting	Clinical presentation	Key diagnostic indicator

■ Recommended Tests

Test Name	Type	Priority	Rationale
Genetic testing for MEFV gene mutations	Laboratory	Urgent	Diagnostic confirmation
Serum amyloid A (SAA) protein level	Laboratory	Urgent	Diagnostic confirmation
C-reactive protein (CRP)	Laboratory	Urgent	Diagnostic confirmation
Erythrocyte sedimentation rate (ESR)	Laboratory	Urgent	Diagnostic confirmation
Complete blood count (CBC) during attack	Laboratory	Urgent	Diagnostic confirmation

■ Immediate Management

Intervention	Category	Urgency	Clinical Reasoning
Initiate colchicine therapy	Medical	Immediate	Critical intervention
Provide patient education on FMF management	Medical	Immediate	Critical intervention
Assess for signs of amyloidosis complications	Medical	Immediate	Critical intervention

■ Medications

Medication	Dosage	Route/Frequency	Indication
Colchicine	0.5-2.0 mg daily	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 limited consensus among 1 models.

Detailed Alternative Analysis

Diagnosis	Support	Key Evidence	Clinical Significance
Periodic Fever, Aphthous Stomatitis, Pharyngitis, Adenitis (PFAPA) Syndrome *Evidence: Recurrent fever episodes, Periodic nature of symptoms*	3.7%	1 models	Unlikely
Systemic Juvenile Idiopathic Arthritis *Evidence: Recurrent episodes, Periodic nature of symptoms*	3.7%	1 models	Unlikely
Gallbladder Disease/Cholecystitis *Evidence: Upper right quadrant pain, Pain worse after fatty meals, Associated nausea and vomiting*	3.7%	1 models	Unlikely
Biliary Colic *Evidence: Upper right quadrant pain, Pain worse after fatty meals, Episodic nature*	3.7%	1 models	Unlikely
Autoinflammatory Syndrome *Evidence: Recurrent episodes, Periodic nature, Genetic component suggested*	3.7%	1 models	Unlikely
Hereditary Periodic Fever Syndrome *Evidence: Recurrent episodes, Periodic nature, Genetic component suggested*	3.7%	1 models	Unlikely
Psoriatic Arthritis *Evidence: ACR criteria testing mentioned, Recurrent symptoms*	3.7%	1 models	Unlikely
Spondyloarthropathy *Evidence: HLA-B27 testing mentioned, Recurrent symptoms*	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) - 3.7% agreement (1 models)

  Supporting Models: Unknown

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

  Supporting Models: Unknown

- **Gallbladder Disease/Cholecystitis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Biliary Colic** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Autoinflammatory Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Hereditary Periodic Fever Syndrome** (ICD-10: R50.9) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Psoriatic Arthritis** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Spondyloarthropathy** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Recurrent Abdominal Pain Syndrome** (ICD-10: Unknown) - 3.7% agreement (1 models)
  Supporting Models: Unknown
- **Cyclic Vomiting Syndrome** (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	Initiate colchicine therapy	Clinical indication	50%
2	Provide patient education on FMF management	Clinical indication	50%
3	Assess for signs of amyloidosis complications	Clinical indication	50%

Recommended Diagnostic Tests

Test	Purpose	Priority	Timing
Genetic testing for MEFV gene mutations	Diagnostic confirmation	Routine	As indicated
Serum amyloid A (SAA) protein level	Diagnostic confirmation	Routine	As indicated
C-reactive protein (CRP)	Diagnostic confirmation	Routine	As indicated
Erythrocyte sedimentation rate (ESR)	Diagnostic confirmation	Routine	As indicated
Complete blood count (CBC) during 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
gemma-2-9b-it	USA	Free	Free	Complete Blood Count (CBC)	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, 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 (1-3 days)
- Severe abdominal pain
- Chest pain with breathing difficulties

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

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

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

Differential Diagnoses:

- Reactive Arthritis (ICD: M40.0) - 0.3
- Ankylosing Spondylitis (ICD: M45.0) - 0.2
- Psoriatic Arthritis (ICD: M87.1) - 0.2

Key Clinical Findings:

- Recurrent fever
- Abdominal pain
- Chest pain with breathing difficulties
- Joint pain affecting knees and ankles