MAYO CLINIC

AI, ML, NOP

UNDERSTANDING THE ALPHABET SOUP OF ARTIFICIAL INTELLIGENCE

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MNACEP Emergency Medicine Summit
January 14, 2025

DISCLOSURES

NONE

Artificial Intelligence is here

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Objectives

1. Understand the fundamentals of artificial intelligence
2. Describe the implementation difficulties in health care
3. Identify use cases for artificial intelligence in emergency medicine

1

Understand the fundamentals of artificial intelligence

Artificial Intelligence

If drug A and drug B are prescribed to a patient, drug A is known to increase the effects of drug B→ trigger an alert for potential overdose risk

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Artificial Intelligence

Rules based logic: if/then rules

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Artificial Intelligence

Ru ed logic: rules

If d and are pre ed to a pat drug A to ase the effe f drug B→ rt for pote verdose ri

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Artificial Intelligence

PERC Rule for Pulmonary Embolism

Rules out PE if no criteria are present and pre-test probability is ≤15%.

When to Use	Pearls/Pitfalls	Why Use

Age ≥50	**No** 0	Yes +1
HR ≥100	**No** 0	Yes +1
O_2 sat on room air <95%	**No** 0	Yes +1
Unilateral leg swelling	**No** 0	Yes +1
Hemoptysis	**No** 0	Yes +1
Recent surgery or trauma Surgery or trauma ≤4 weeks ago requiring treatment with general anesthesia	**No** 0	Yes +1
Prior PE or DVT	**No** 0	Yes +1
Hormone use Oral contraceptives, hormone replacement or estrogenic hormones use in males or female patients	**No** 0	Yes +1

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https://www.mdcalc.com/calc/347/perc-rule-pulmonary-embolism

Artificial Intelligence

Clinical Decision Support Rule

PERC Rule for Pulmonary Embolism

Rules out PE if no criteria are present and pre-test probability is ≤15%.

When to Use	Pearls/Pitfalls	Why Use

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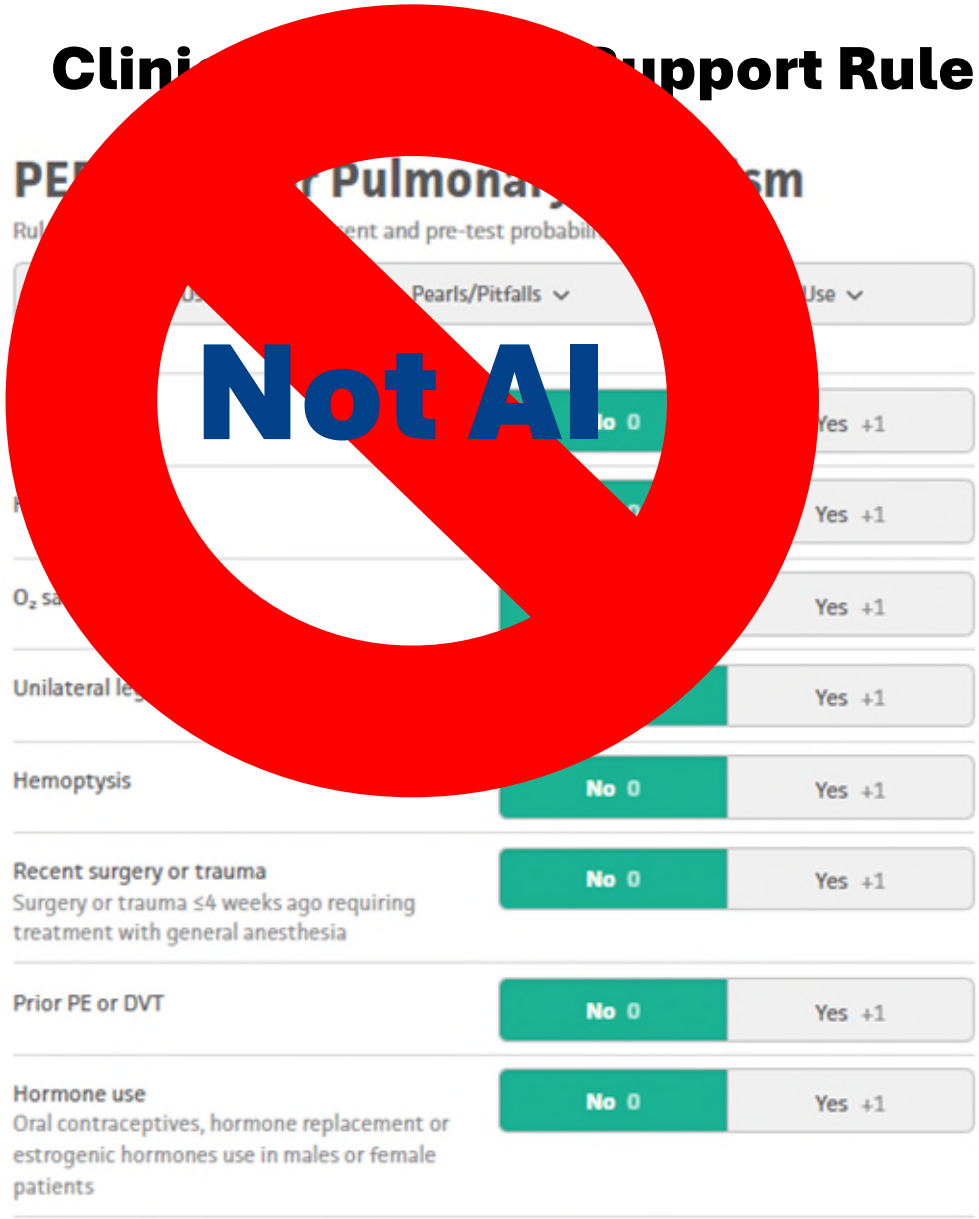
Artificial Intelligence



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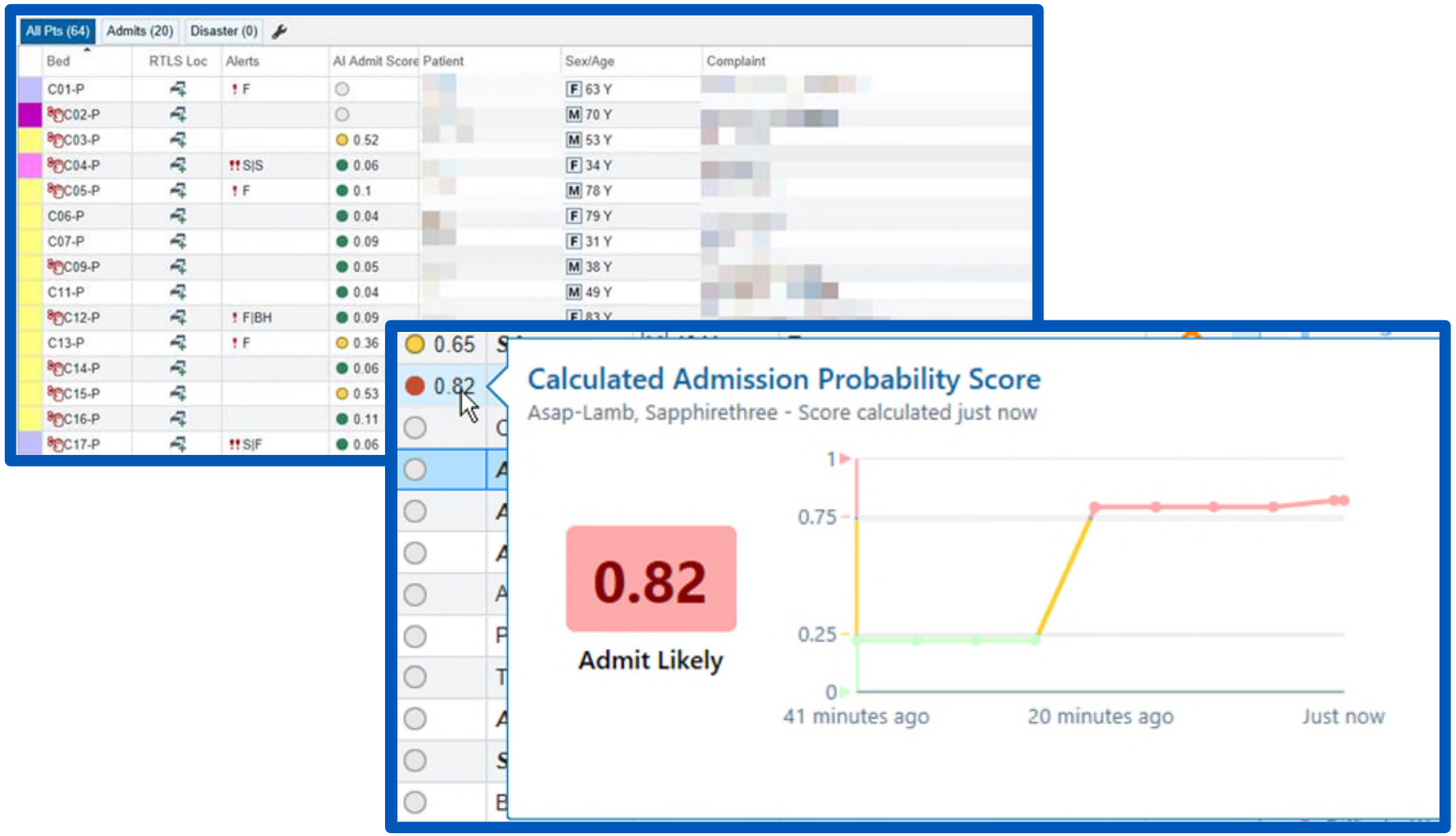
Artificial Intelligence

Likelihood to Admit Prediction Score



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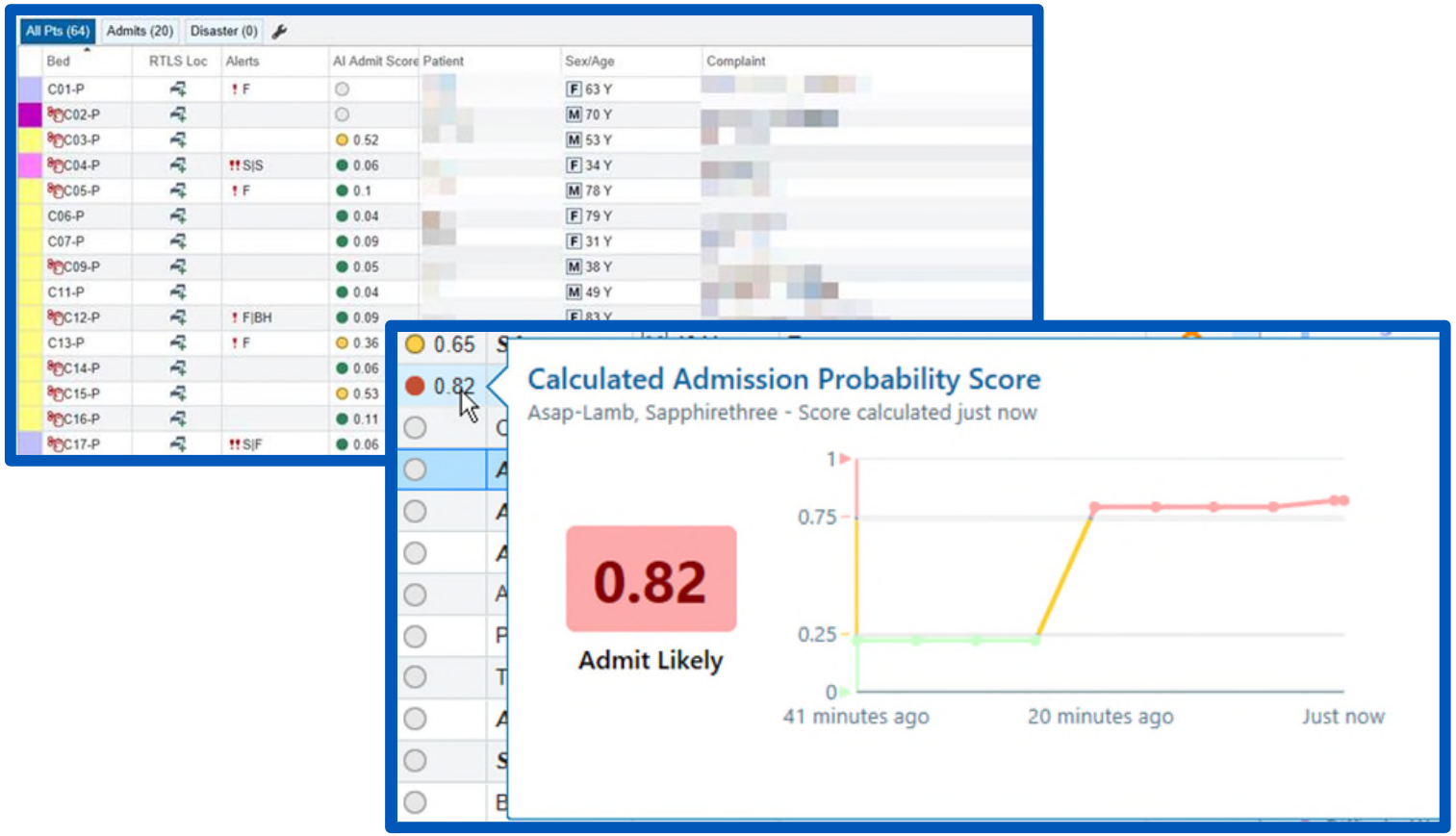
Artificial Intelligence

Likelihood to Admit Prediction Score→ Predictive Analytics



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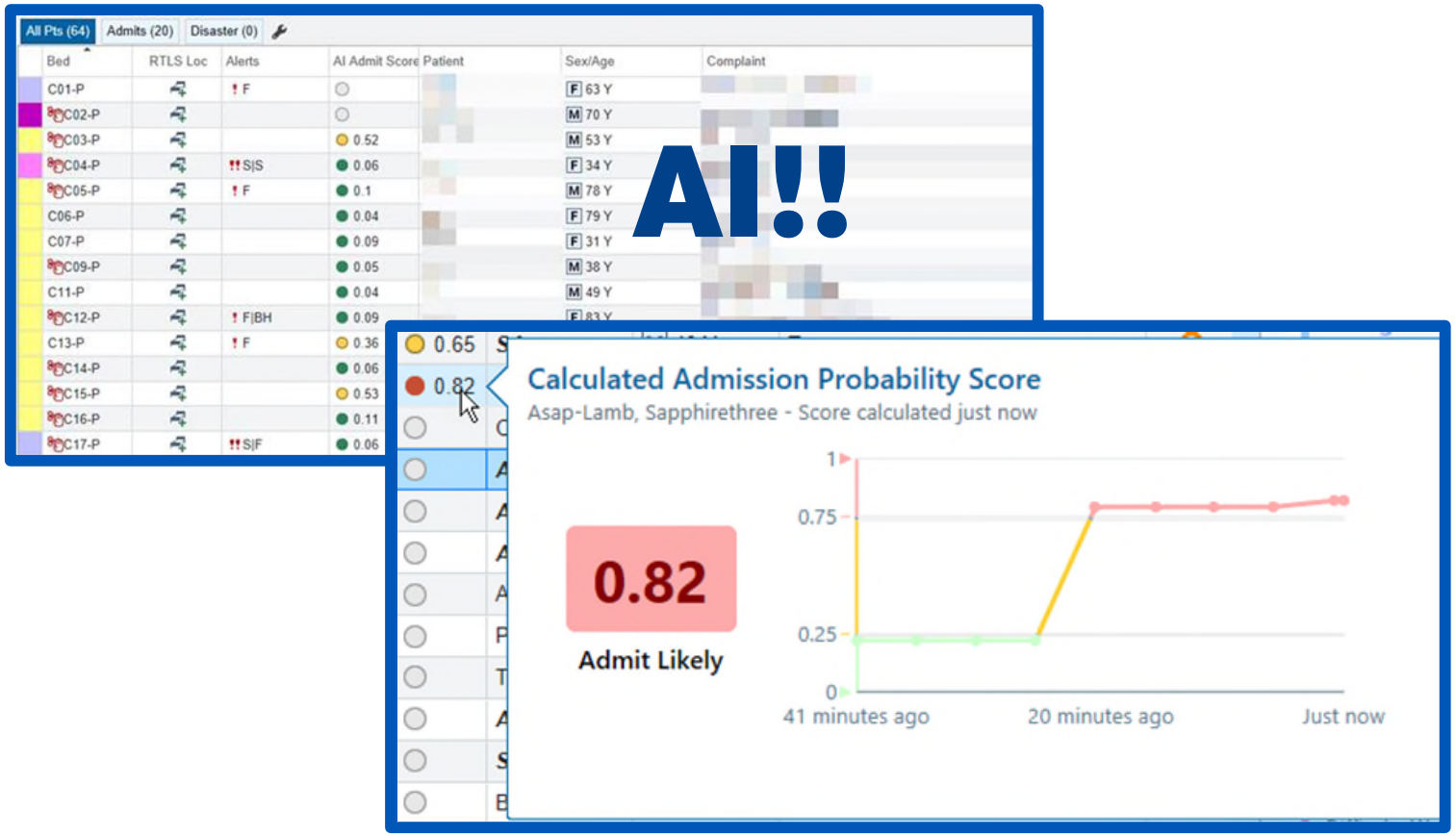
Artificial Intelligence

Likelihood to Admit Prediction Score→ Predictive Analytics



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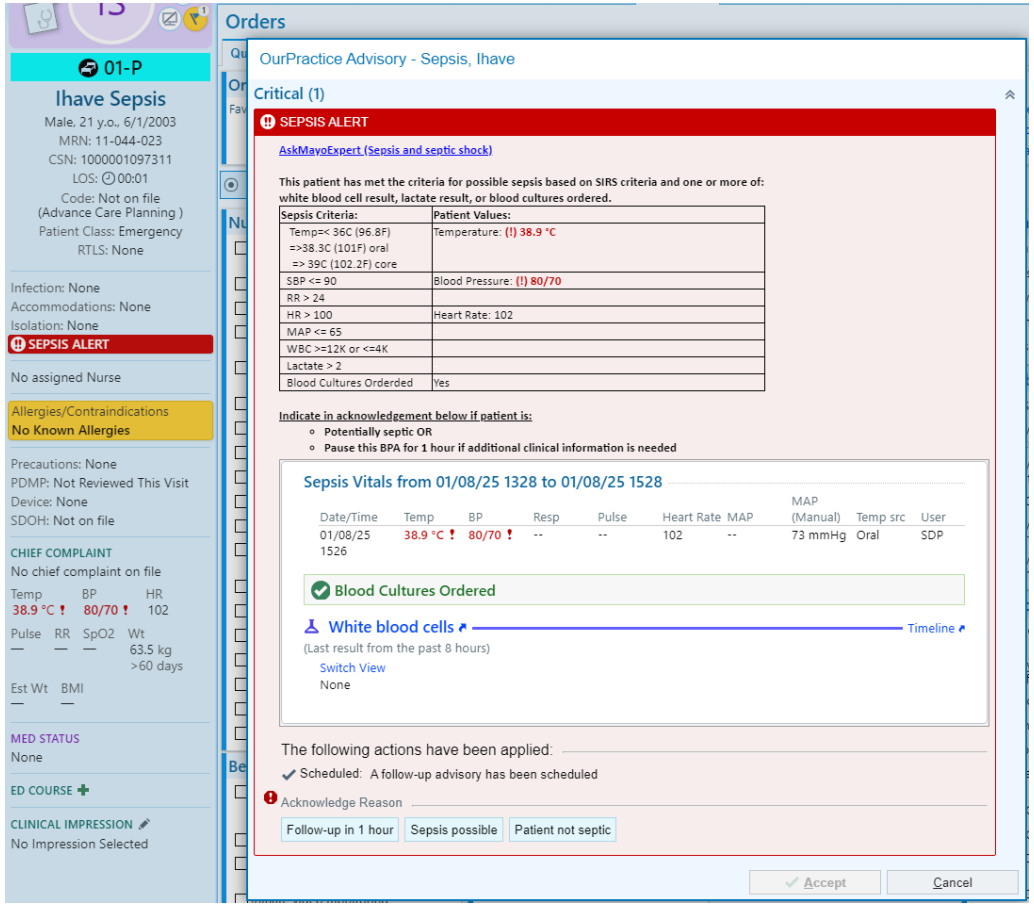
Artificial Intelligence

Sepsis Risk Score



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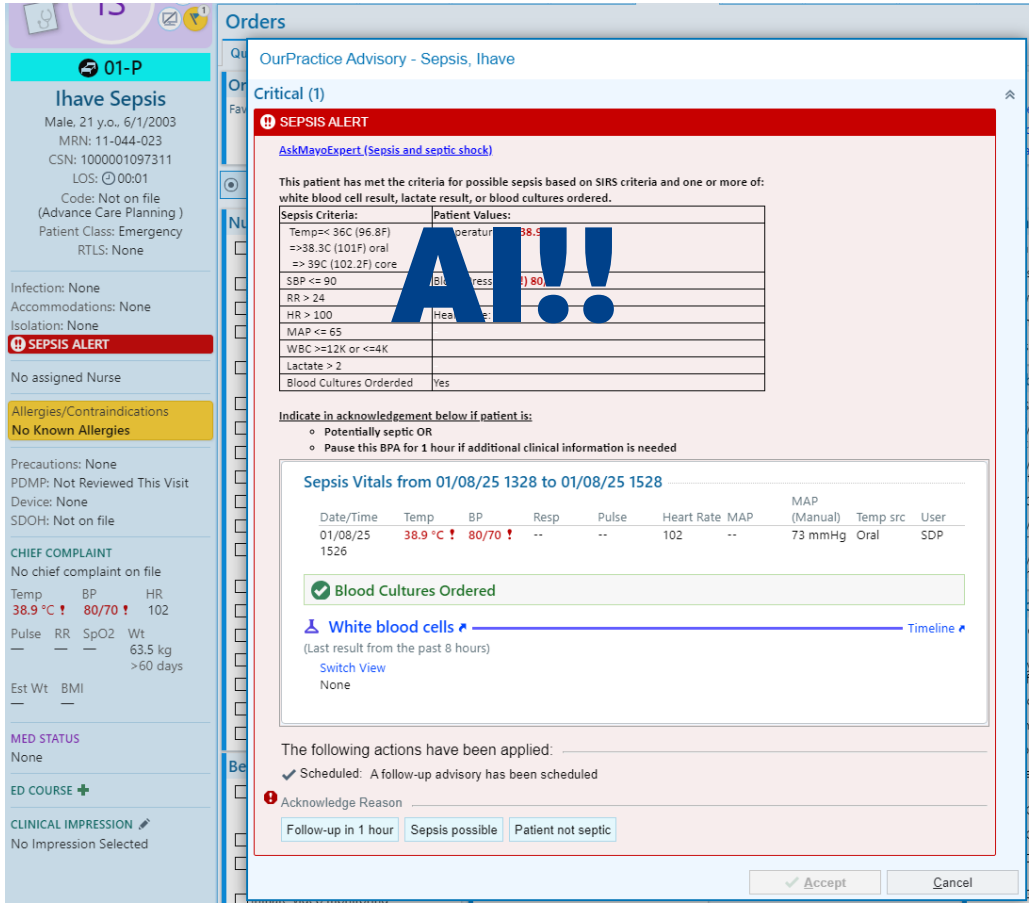
Artificial Intelligence

Sepsis Risk Score



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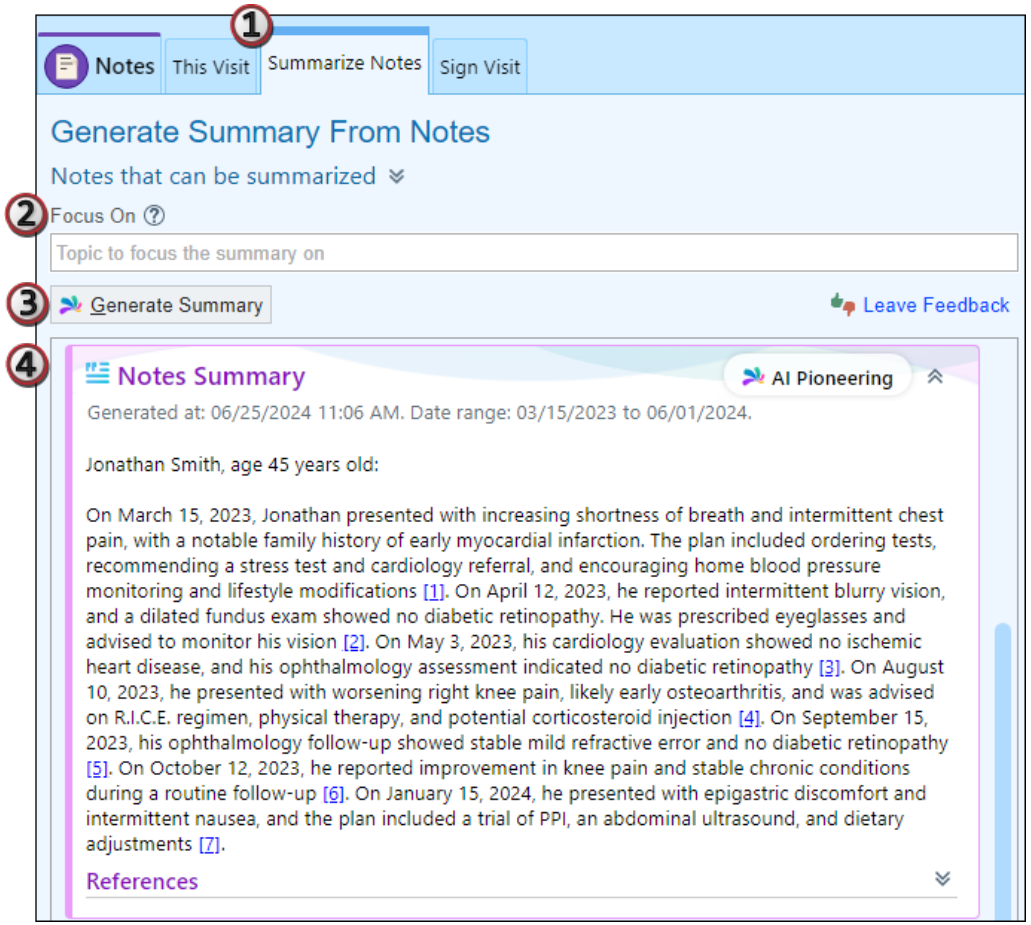
Artificial Intelligence

Note Summarization



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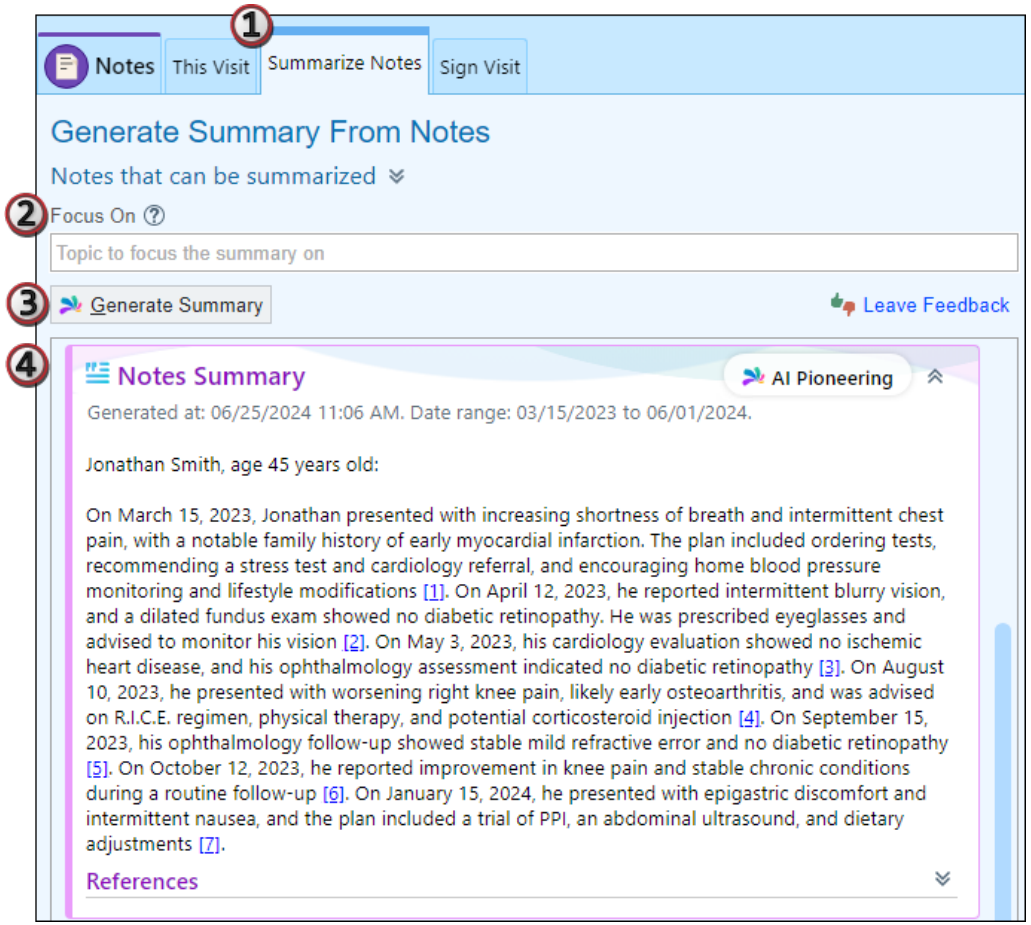
Artificial Intelligence

Note Summarization→ Generative AI



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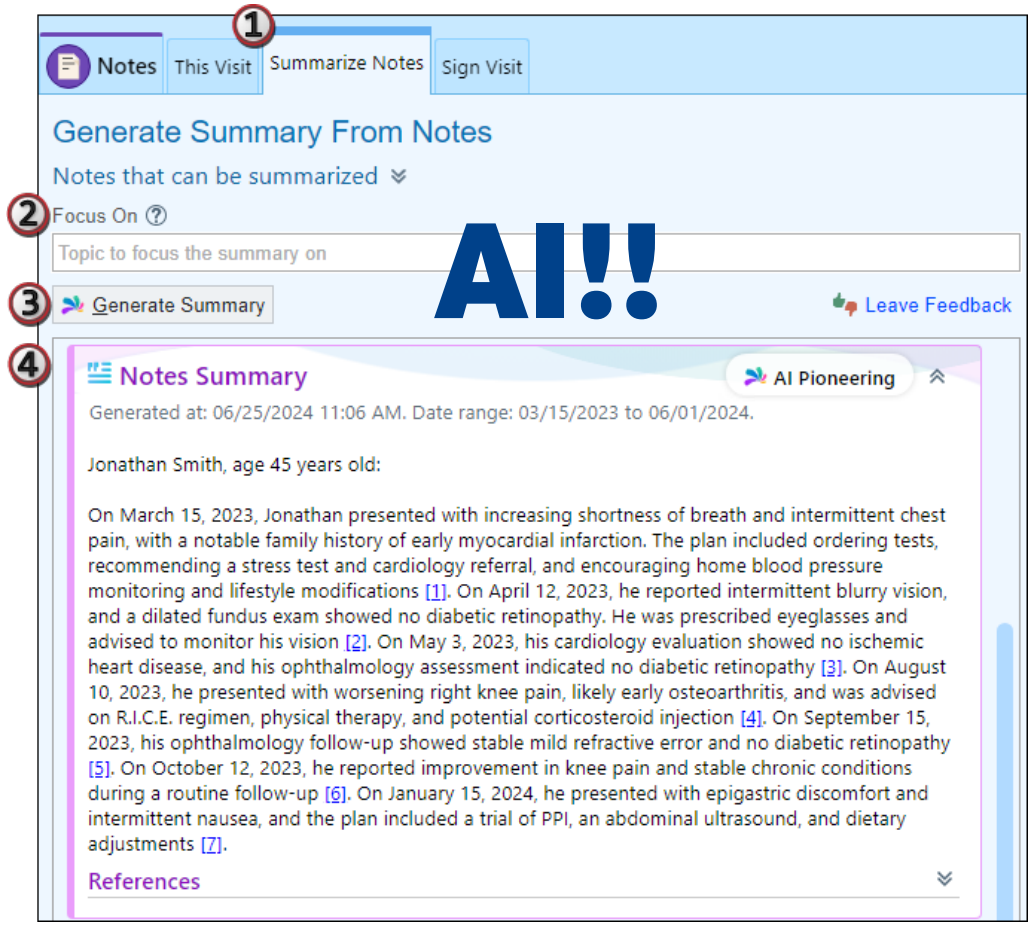
Artificial Intelligence

Note Summarization→ Generative AI



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Artificial intelligence

Artificial Intelligence

Teaches computers to think more like use, understanding and solving problems, informing decisions, and even communicating with us

Intelligent Automation

Combines AI with automation tools to complete computer tasks traditionally performed by humans (e.g., data entry, processing documents)

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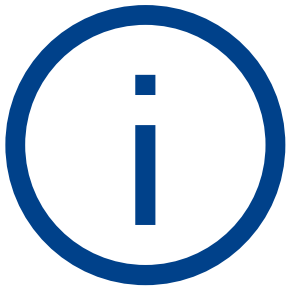
2

Describe the implementation difficulties with AI in health care

Implementation Difficulties

Technical challenges

Ethical considerations



Governance & guidance

Cost

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3

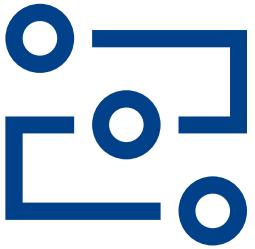
Identify use cases for artificial intelligence in emergency medicine

Emergency Medicine use cases for AI

Clinical workflows

Predictive Analytics

Operational efficiency



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Emergency Medicine use cases for AI

Clinical workflows

- Imaging review (radiology, ECG, etc.)
- Patient flow optimization
- Real-time monitoring/alerts for deteriorating patients

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Emergency Medicine use cases for AI

Predictive Analytics

- Sepsis prediction
- Risk scores
- Predictive modeling for patient outcomes

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Emergency Medicine use cases for AI

Operational Efficiency

- AI based speech recognition for note generation
- Chart summarization
- Data entry

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QUESTIONS + ANSWERS

