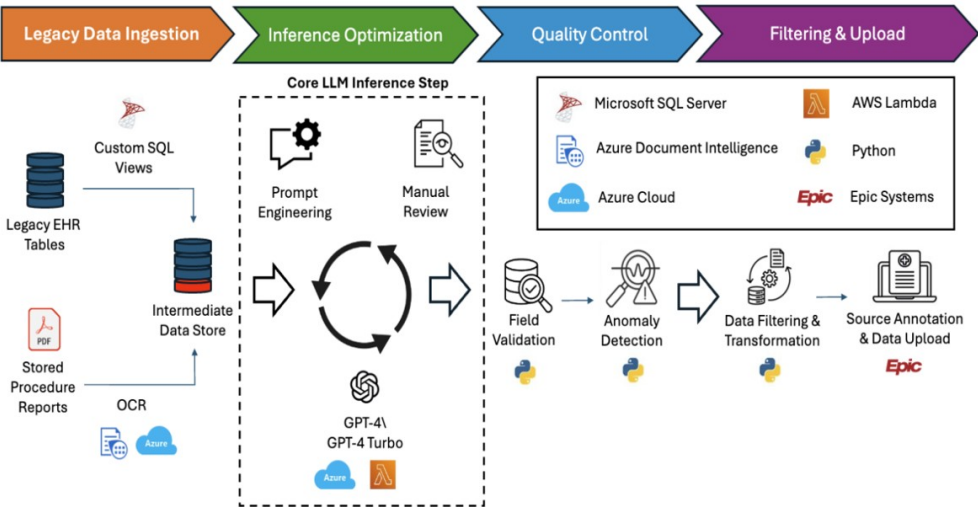


PURPOSE / OBJECTIVES

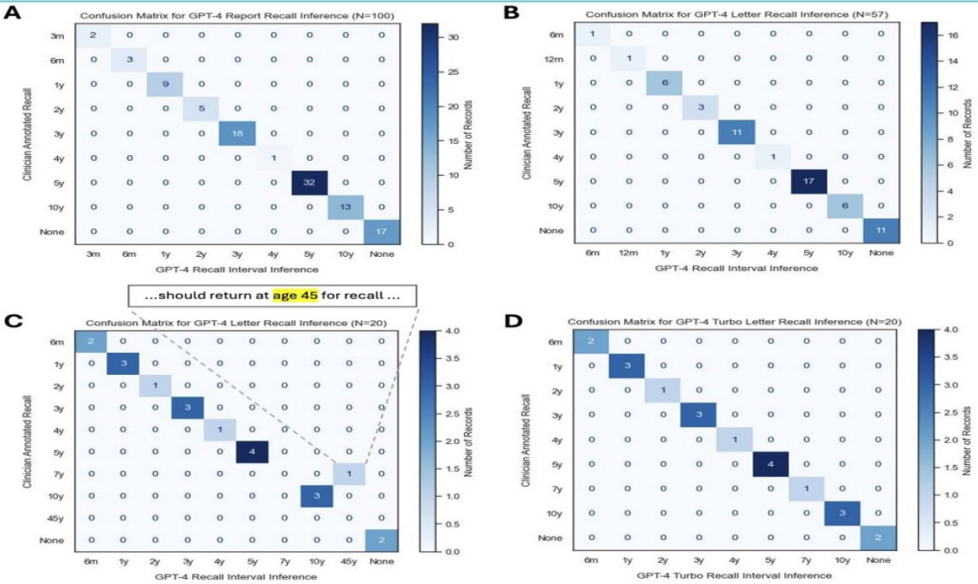
- EHR transitions frequently lead to the loss of structured colonoscopy recall data, increasing the risk of inappropriate surveillance intervals and missed cancers.
- Large Language Models (LLMs), like GPT-4 Turbo, offer an opportunity to automate recall inference from unstructured clinical notes at scale.
- This study aimed to develop and clinically validate an AI-driven recall extraction pipeline to preserve individualized colonoscopy recommendations during a large health system's EHR transition.

MATERIAL & METHODS



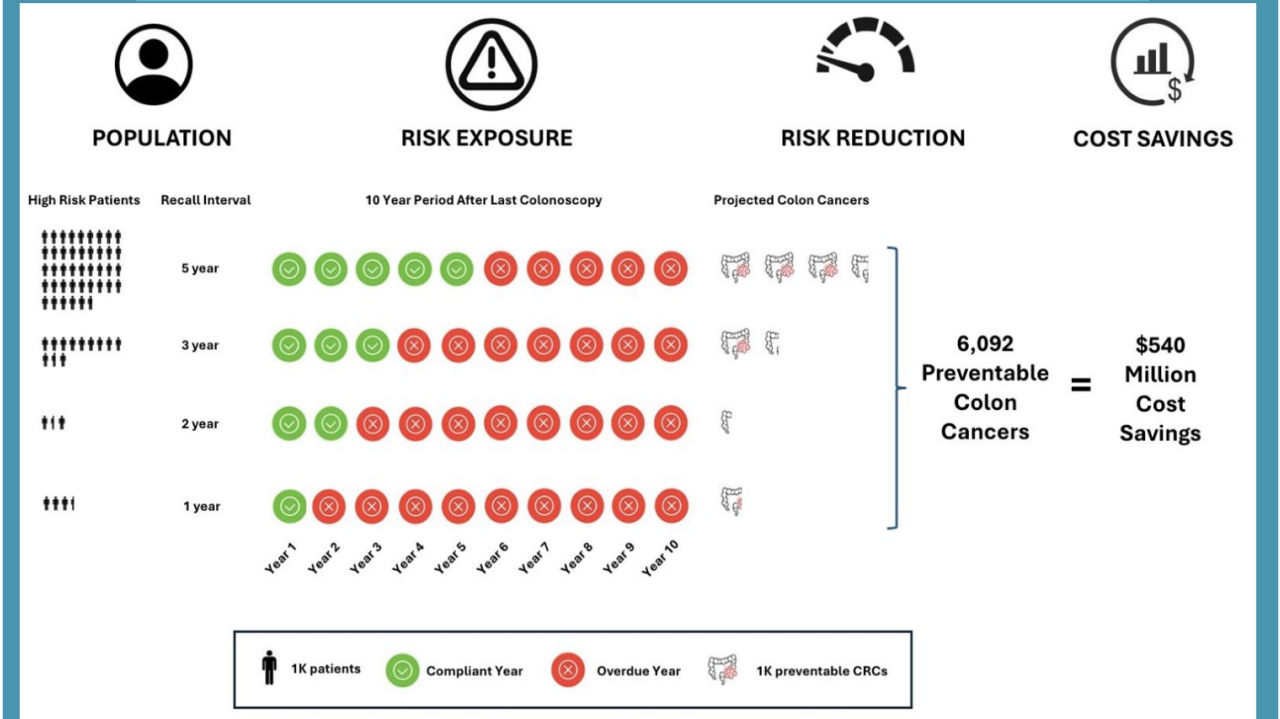
RESULTS

Figure 1: Confusion matrices for LLM GPT-4/GPT-4 Turbo inference performance compared to clinician review.



Our AI-powered recall workflow structured 118,000+ records, preserved individualized colonoscopy recommendations, and could prevent over 6,000 cancers—highlighting a clinically actionable use case for LLMs in health system transitions.

Figure 3: Projected Clinical and Financial Impact of AI-Derived Recall Intervals



RESULTS

Figure 2: Exploratory Analysis of AI-Inferred Colonoscopy Recall Patterns.

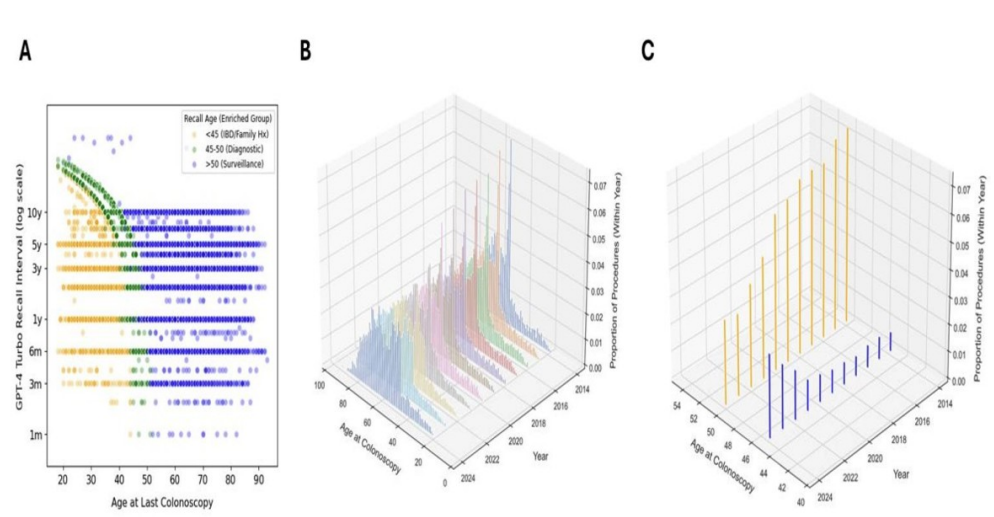


Figure 2: Exploratory Analysis of AI-Inferred Colonoscopy Recall Patterns.

A) Relationship between age at last colonoscopy and GPT-4 Turbo-inferred recall interval across >100,000 patients.
• **Yellow:** Projected recalls before age 45 (e.g., patients with IBD or family history of CRC)
• **Green:** Recalls projected between ages 45–50 (e.g., diagnostic colonoscopies transitioning to screening)
• **Blue:** Standard risk-based screening and surveillance (age >50)
B) Distribution of colonoscopy age over time in our institutional cohort (2014–2024), showing population trends in screening behavior.
C) A notable rise in screening at age 45 emerges post-2021, aligning with the USPSTF guideline change that lowered the recommended screening age from 50 to 4

SUMMARY / CONCLUSION

CGPT-4 Turbo enabled accurate, large-scale inference of colonoscopy recall data with strong clinical fidelity. Our results suggest that individualized recall retention during EHR transition can reduce cancer burden, improve surveillance equity, and provide substantial cost savings—demonstrating a high-value, real-world clinical application for LLMs.