Mentoring in IBD XXVI
Meeting of the Minds
Friday, November 14, 2025
AI & IBD – Opportunities & Directions

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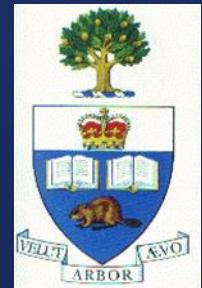
Declaration of conflict

No perceived conflict with presented material.

Leadership role in negotiations with Microsoft, Epic and Nuance with respect to products and services for the University Health Network and Ontario Epic Collaborative.

Epic Lumens Braintrust

Clinical Advisory Board - A.I. VALI Inc.

Shareholder - ASML, AMD, MSFT, NVDA, TSM, US equity ETFs

LLMs helped me research and prepare content for this presentation.

Session objectives:

Participants will be able to:

- Have a common understanding of what defines AI

- Consider AI benefits and risks in healthcare

- Appreciate impact of a rapidly evolving global industry

- Discuss uses and potential applications for AI in IBD

- Plan, prepare and expand use of AI technology in clinical practice

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What is AI?

Artificial Intelligence

> **Machine Learning**
>
>> **Deep Learning**
>>
>>> **Generative AI**

Artificial Intelligence
1956 — the field of computer science that seeks to create intelligent machines that can replicate or exceed human intelligence

Machine Learning
1997 — subset of AI that enables machines to learn from existing data and improve upon that data to make decisions or predictions

Deep Learning
2017 — a machine learning technique in which layers of neural networks are used to process data and make decisions
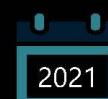
Generative AI
2021 — Create new written, visual, and auditory content given prompts or existing data.

Brand (Generic)	Indication (CD / UC)	Route	Manufacturer	Patient Support Program (Canada)
Humira (adalimumab)	CD ✓ / UC ✓	SC Injection	AbbVie	AbbVie Care: injection training, reimbursement, delivery 12
Remicade / Omvyence (infliximab)	CD ✓ / UC ✓	IV Infusion	Janssen	Janssen BioAdvance: reimbursement, clinic coordination 13
Avsola / Inflectra / Renflexis / Remsima (infliximab biosimilars)	CD ✓ / UC ✓	IV Infusion	Amgen, Pfizer, Organon, Celltrion	Generally covered under Janssen BioAdvance replacement or other biosimilar PSPs—e.g., Remsima SC uses Celltrion Connect 14
Simponi (golimumab)	UC ✓ only	SC Injection	Janssen	Janssen BioAdvance 13
Skyrizi (risankizumab)	CD ✓ only	SC Injection	AbbVie	AbbVie Patient Access Support 15
Stelara (ustekinumab)	CD ✓ / UC ✓	IV Induction, SC Maintenance	Janssen	Janssen CarePath (now J&J withMe) injection support, reimbursement 167
Entyvio (vedolizumab)	CD ✓ / UC ✓	IV Infusion	Takeda	EntyvioConnect & YOURVANTAGE: co-pay, nurse support, infusion clinics, reimbursement navigation 8910
Omvoh (mirikizumab)	UC ✓ only	SC Injection	Eli Lilly	(Patient support program not identified in search results)

Create a table of biologic therapies approved in Canada - include crohns vs uc, route of administration, manufacturer and patient support program

OpenAI. (2025). GPT-5

Copilot

The information is out there…

Could this be used in your clinical workflow?

PG Rossos & GPT-5, 2025
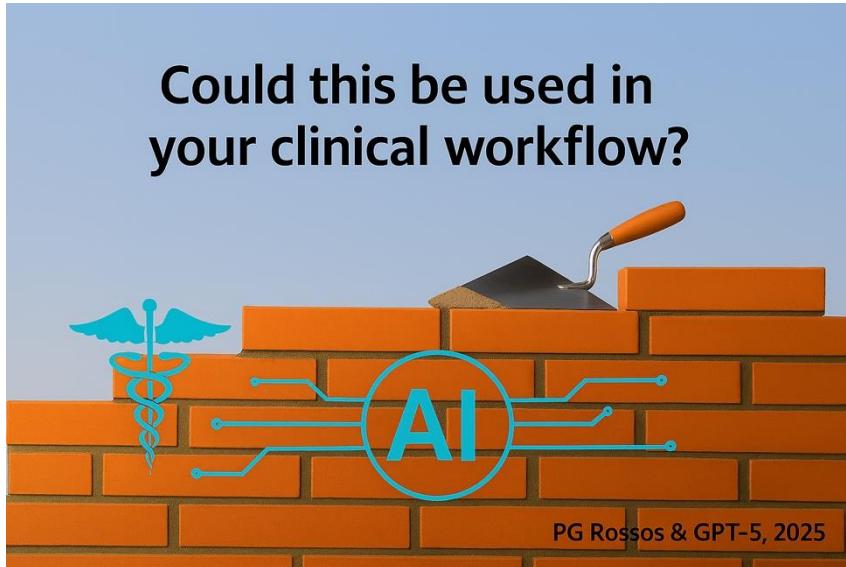
- Locally available biologics and support programs.
- Clinical decision support to select the best option?
- Preparation of application documents.
- Patient oriented resources.

Why is this important?

How can technology help us?

5th Aim – advancing health equity

Outcomes
- Effective interventions
- Less preventable illness
- Decreased disparities

Patient Experience
- Satisfaction
- Quality
- Trust

Quadruple aim

Costs
- Lower per-capita costs
- Appropriate spending & utilization

Provider Experience
- Professionalism
- Joy at Work
- Recruitment & Retention

Equity
- Societal opportunity
- Decision making
- Structural Fairness

© 2015 Rishi Manchanda/ HealthBegins IHI resources

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Nundy S, Cooper LA, Mate KS. *JAMA.* 2022

AI & IBD - Current & Future

- AI scribes
- Clinical decision support
- Workflow optimization
- Coding & billing
- Endoscopy, diagnostic imaging and histology reporting and image analysis
- Genomics
- Biomarker and drug discovery
- Remote patient monitoring
- Patient engagement

Artificial Intelligence and IBD: Where are We Now and Where Will We Be in the Future?

Mehwish Ahmed[1] · Molly L. Stone[1] · Ryan W. Stidham[1,2,3]

- Replicate expert judgement - address disagreement, subjectivity, and bias

- New detailed measures of IBD, enhanced analysis of images, fully automate care?

- Implement and fairly use AI in practice.

Emerging endoscopic AI technologies

- Quality assessment of endoscopy (cecal intubation rate; bowel preparation scores; percentage of mucosa visualized in endoscopy)

- Computer vision, white light, virtual chromoendoscopy, magnification
  - Standardization and automation of disease severity scoring
  - Task specific optical diagnostics - dysplasia screening & polyp detection/interpretation

- Heat maps, vascular assessments, endocytoscopes
  - Correlation with histology, clinical outcomes

- Ongoing recording of metrics and auto-generated report cards

- Ambient listening technologies and NLP/data aggregation for reports

- "Smart" endoscopy suites – workflow optimized

- Multimodal data for predictive modeling – clinical, endoscopy, imaging, histology, biomarkers, RPM, etc.

Comparison of Frontier Open-Source and Proprietary Large Language Models for Complex Diagnoses

Thomas A. Buckley, BS[1]; Byron Crowe, MD[2]; Raja-Elie E. Abdulnour, MD[3] ; et al

≫ Author Affiliations | Article Information

≡ RELATED ARTICLES   ▨ FIGURES   ↓ SUPPLEMENTAL CONTENT

Cite   Permissions   Metrics   Comments

Open-source LLM (Llama 3.1, 405B parameters) can match proprietary GPT-4 in diagnosing complex medical cases - records of the Massachusetts General Hospital in NEJM

Although many methodological limitations and concerns, this raises the possibility for **local deployment** of frontier open-source rather than proprietary LLMs, reducing cost and potentially addressing privacy and transparency concerns.

Considerations: individual HCO?, clinic?, laptop?

It is getting much easier and less costly to introduce AI technologies into clinical workflows.

Workshop 3.2
From Pixels to Patients: Optimizing AI in the Management of IBD

Michael Byrne & Peter Rossos

- Describe current applications of AI in IBD, focusing on diagnostic imaging (endoscopy, intestinal ultrasound) and disease monitoring
- Analyze how AI can optimize treatment decisions and clinical trial efficiency in IBD
- Critically discuss limitations, ethical considerations, and strategies for integrating AI into routine clinical practice

For a deeper dive, also consider:

ASGE Weekend Endoscopy: AI in IBD | August 2025 ❤️

Release Date: August 2025
Viewing Time: 1 hour

| On-Demand | No Credit | Expires on 10/13/2027 |

★★★★★

CLINICAL EVALUATION OF ARTIFICIAL INTELLIGENCE AND AUTOMATION TECHNOLOGY TO REDUCE ADMINISTRATIVE BURDEN IN PRIMARY CARE

Commissioned by and presented to: OntarioMD

OntarioMD
Empowered Practices. Enhanced Care.

Centre for Digital Health Evaluation, Women's College Hospital Institute for Health System Solutions and Virtual Care

DATED: July 31, 2024 – Version 1.0

https://www.ontariomd.ca/pages/ai-scribe-overview.aspx

> 70% of PCPs report feelings of burnout due to an increase in administrative work.

PCPs in Ontario average 19h a week, or 40% of their time, on administrative tasks.

AI scribes:
69.5% reduction in time/clinical encounter
Saving 3h/week

Canada Health Infoway

AI Scribe Program
Less Paperwork. More Time.

10,000 fully funded, one-year licenses for AI-powered documentation tools to eligible primary care clinicians across Canada.

The early results are in, and they're promising.

93% feel more present with patients during visits.

89% report reduced administrative workload.

85% report lower cognitive burden.

https://www.infoway-inforoute.ca/en/featured-initiatives/ai-scribe-program

Integration with electronic health records

Could this be used in your clinical workflow?

AI

PG Rossos & GPT-5, 2025
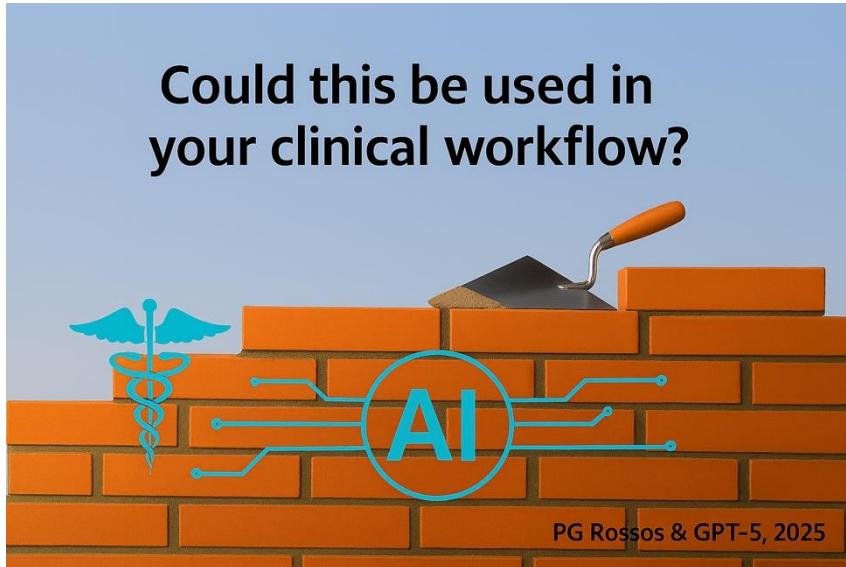
- In-person, virtual, and asynchronous care.
- Scheduling, communication, reminders, team-based support.
- Eligibility for clinical trials and new therapies.
- Personalized rx and information exchange.
- PROMs and wearables.
- Quality and research analysis.

Ochsner Health

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Online NEWSROOM From Ochsner Health   News Releases   Photos ▾

Ochsner Health to integrate generative AI into patient messaging

Ochsner, an innovator in digital healthcare, is testing generative AI to draft message responses from healthcare workers to patients.

RELEASE DATE: SEPTEMBER 18, 2023

- Personalized responses
- Improved experience
- Favorable preliminary results:
  - Patients
  - Provider pools

Perspectives on Artificial Intelligence–Generated Responses to Patient Messages

Jiyeong Kim [1], Michael L Chen [1], Shawheen J Rezaei [1], April S Liang [2], Susan M Seav [3], Sonia Onyeka [1], Julie J Lee [4], Shivam C Vedak [2], David Mui [5], Rayhan A Lal [3,6], Michael A Pfeffer [7,8,9], Christopher Sharp [4,8,9], Natalie M Pageler [10,11], Steven M Asch [1,4], Eleni Linos [1,✉]

Stanford
- Patient preference for AI versus human generated responses
- Clinician responses were much shorter ~ 250 vs. 1470 characters
- Clinician response length was associated with overall satisfaction whereas AI response was not, suggesting brevity of response could be an important factor in patient's satisfaction
- Study limitations included satisfaction assessed by survey participants rather than the patients that submitted the original questions
- The authors highlighted the importance of incorporating patients as key stakeholders in future studies

Physiological Data Collected From Wearable Devices Identify and Predict Inflammatory Bowel Disease Flares

Robert P. Hirten, Matteo Danieletto, Milagros Sanchez-Mayor, Jessica K. Whang, Kyung Won Lee, Kyle Landell, Micol Zweig, Drew Helmus, Thomas J. Fuchs, Zahi A. Fayad, Girish N. Nadkarni, Laurie Keefer, Mayte Suarez-Farinas and Bruce E. Sands

Physiological Data Collected From Wearable Devices Identify and Predict Inflammatory Bowel Disease Flares
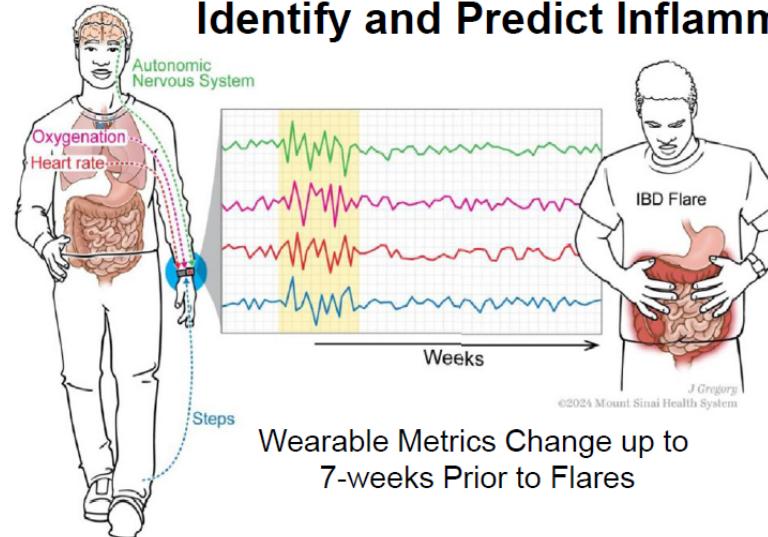
- 309 participants across 36 states
- Circadian patterns of heart rate variability identify inflammatory and symptom flares
- Heart rate and resting heart rate are higher during inflammatory and symptom flares
- Lower daily steps during inflammatory flares
- Wearable metrics identify subclinical inflammation and whether inflammation is present during symptom flares

Wearable Metrics Change up to 7-weeks Prior to Flares

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What about the people?
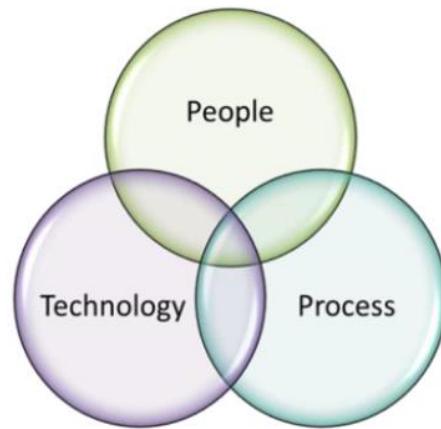
Figure 1. Intersections between people, process and technology in the classic Venn diagram for change.

Hype, harmony and human factors: applying user-centered design to achieve sustainable telehealth program adoption and growth. Rossos PG, St-Cyr O, Purdy B, Toenjes C, Masino C, Chmelnitsky D. Stud Health Technol Inform. 2015;209:121-7. PMID: 25980714

Nvidia CEO: You won't lose your job to AI—you'll 'lose your job to somebody who uses AI'

Ashton Jackson

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Founder and CEO at Nvidia Jensen Huang is interviewed by Chairman of the Milken Institute Michael Milken (not pictured) during the Milken Institute Global Conference 2025 in Beverly Hills, California, U.S., May 5, 2025. Mike Blake | Reuters

CrossMark

The future of employment: How susceptible are jobs to computerisation?☆

Carl Benedikt Frey [a],[*], Michael A. Osborne [b]

[a] Oxford Martin School, University of Oxford, Oxford OX1 1PT, United Kingdom
[b] Department of Engineering Science, University of Oxford, Oxford OX1 3PJ, United Kingdom

ARTICLE INFO

ABSTRACT

We examine how susceptible jobs are to computerisation. To assess this, we begin by implementing a novel methodology to estimate the probability of computerisation for 702 detailed occupations, using a Gaussian process classifier. Based on these estimates, we examine expected impacts of future computerisation on US labour market outcomes, with the primary objective of analysing the number of jobs at risk and the relationship between an occupations probability of computerisation, wages and educational attainment.
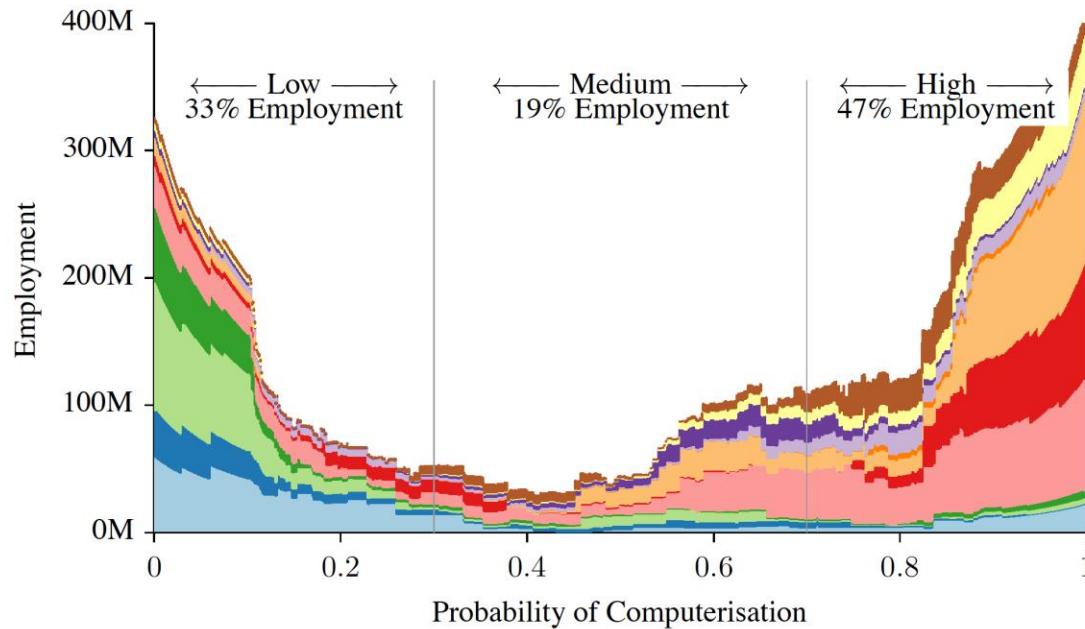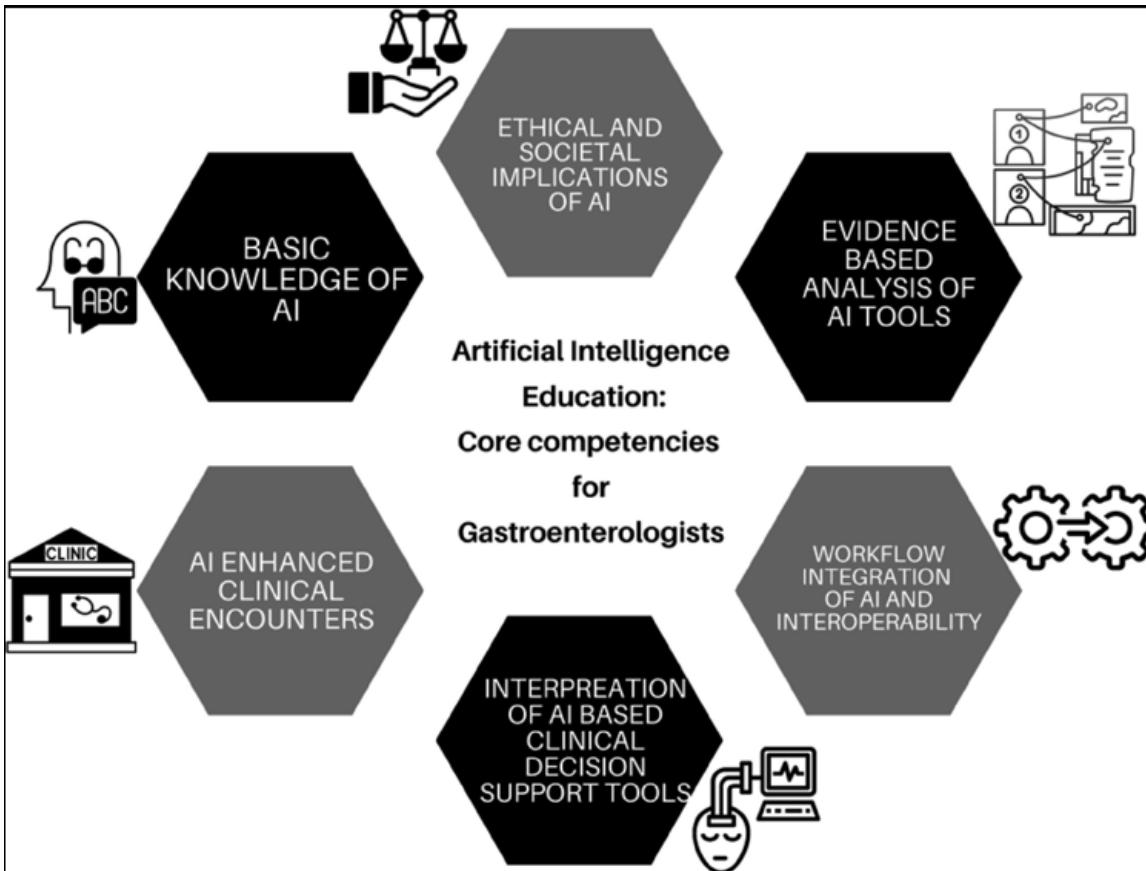
Although clinicians do not need to completely understand the inner workings of AI and machine learning, they need to have a basic understanding of the principles behind machine learning, interpret such studies, and be able to explain their informed rationale for subsequent recommendations to the patient.

Getting ready: individual providers

Be an effective human:

- Communication
- Collaboration
- Context
- Compassion
- Commitment
- Change – resilience
- Anticipate and support needs of staff and colleagues

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"Godfather of AI" Geoffrey Hinton warns AI could take control from humans: "People haven't understood what's coming"

By Analisa Novak, Brook Silva-Braga

Updated on: April 26, 2025 / 3:17 PM EDT / CBS News

The 'godfather of AI' Geoffrey Hinton on AI sentience and the threat of it taking over the world

TAYLOR OWEN
PUBLISHED OCTOBER 7, 2025

💬 4 COMMENTS   ⬆ SHARE   🔖 SAVE FOR LATER

🎧 LISTEN TO THIS PODCAST   ⌄

Machines Like Us | EP31
Geoffrey Hinton vs. The End of the World

▶   00:00 ──────────── 01:09:11

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- AI is getting smarter than humans
- LLMs communicate digitally, humans are analog
- Need for regulation, safety and public awareness
- Build human survival as a training trait

Other concerns

WILL WE LOSE SKILLS AND KNOWLEDGE?

ARE WE COMPROMISING TRAINING EXPERIENCE?

ARE WE USING BIASED MODELS?

HALLUCINATIONS

DRIFT

WILL AI SIMPLY DRIVE MORE VOLUMES?

ENVIRONMENTAL CONCERNS

VIEWPOINT

AI-Generated Clinical Summaries Require More Than Accuracy

- Unique risks that are not clearly covered by existing FDA regulatory safeguards

- LLMs performing sophisticated summarization tasks would not clearly qualify as devices because they provide general language-based outputs rather than specific predictions or numeric estimates of disease

- Variations in summary length, organization, and tone could all nudge clinician interpretations and subsequent decisions either intentionally or unintentionally.

Summary of Key Studies and Findings

AI-related deskilling in medicine

SOURCE	SPECIALTY	KEY FINDING	RECOMMENDATION
Artificial Intelligence Review (2025)	Multi-specialty	AI may erode core skills (exam, diagnosis, judgment)	Develop frameworks to preserve expertise
Time (2025)	Gastroenterology	ADR dropped from ~28% to ~22% after AI use	Train clinicians to maintain vigilance
Forbes (2025)	Gastroenterology	Over-reliance on AI reduced detection performance	Balance AI use with manual practice
STAT News (2025)	Gastroenterology	First real-world evidence of deskilling	Implement oversight protocols
MDLinx (2025)	Multi-specialty	Risks extend to radiology, dermatology, pathology	AMA urges physician leadership in AI use

Copilot

When Doctors With A.I. Are Outperformed by A.I. Alone

Interpreting Some Surprising Results

ERIC TOPOL AND PRANAV RAJPURKAR

FEB 02, 2025

Radiologists undervalued the A.I. input compared to their own judgment which led them to make less accurate diagnoses.

Several studies show AI systems, when operating independently, can out-perform MDs

- Carefully consider which tasks are better suited for A.I., which for humans, and which truly benefit from collaboration.
- The path forward isn't about replacing physicians with A.I., but rather about finding the optimal partnership model.
- This might mean allowing A.I. to handle initial screening while having physicians focus on complex cases where contextual understanding is crucial.

The medico-legal lens on AI use by Canadian physicians
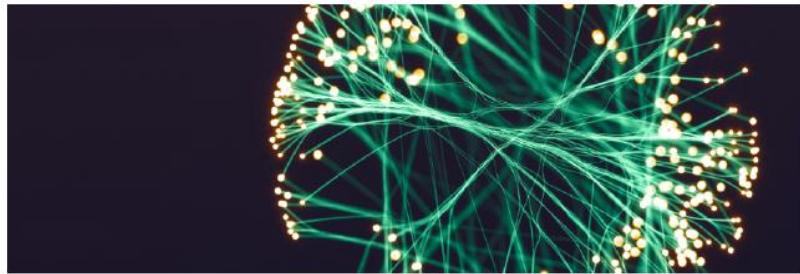
Published: September 2024

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PROTECTIVE ASSOCIATION

Highly recommended reading.

Physicians face the responsibility of understanding the risks, benefits, and implications for their practice.

However, the burden of accountability must continue to be shared with other stakeholders.

https://www.cmpa-acpm.ca/en/advice-publications/key-issues/ai-in-medical-practice

	Lower autonomy	Higher autonomy
Higher patient impact	**MODERATE RISK** - Automated emergency department triage - Automated patient monitoring - Sorting test results in those that need clinical review	**HIGHER RISK** - Automated analysis of medical images - Automated mental health chatbots - Robot assisted surgery
Lower patient impact	**LOWER RISK** - Clinical communication and workflow including patient registration, scheduling visits, voice calling, video calling - Autogenerated patient education materials - Patient / consumer general wellness apps - Knowledge management / Medical literature discovery - Autogenerated clinical documentation, including scribing	**MODERATE RISK** - Providing recommendations to healthcare professionals - AI-enhanced EMRs, including summarization and search

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Healthcare providers & AI

- Replacing tasks vs. jobs
- Train and use AI as and assistant
- Always double-check the work performed
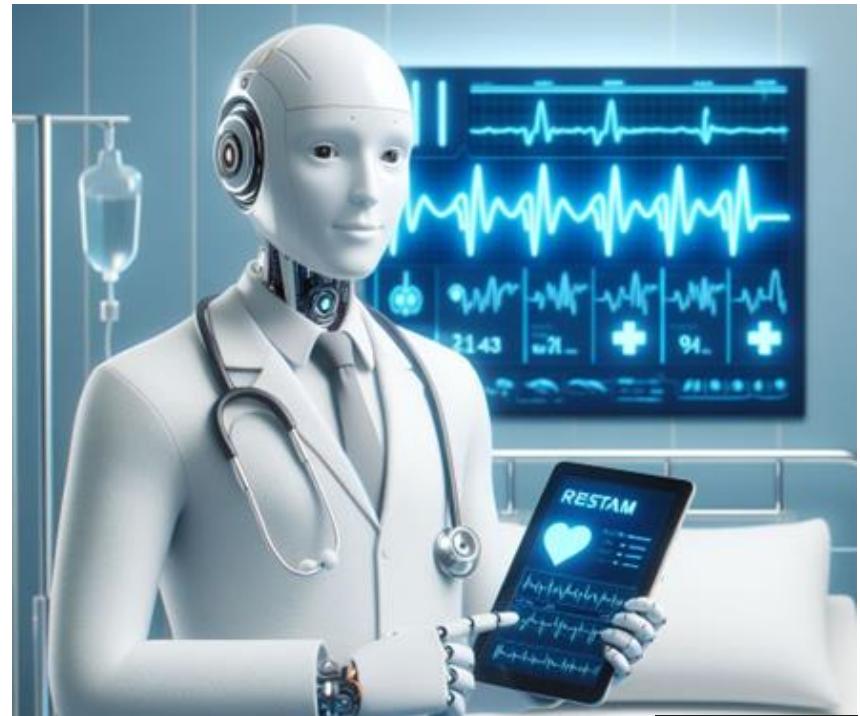
Summary

IBD is complex and data intensive

AI can improve care, access, and time available for patients and care teams to focus on what is most important

Patients and providers must work together to ensure technologies that are safe, effective, and ethical

Build your personal knowledge and confidence using AI tools in your everyday life, medical practice, and invest time in ongoing knowledge and skill development

A Healthier
World

UHN Canada's Hospital