



Discussion 2

Clinician Knowledge



Recap of Case Study

- Your AI model has been deployed in the local hospital's emergency department
- Model automates the ordering of tests (this speeds up – and standardizes) how we deliver care
- Model was validated with a **92% accuracy**
- *Each group has a different model architecture, with different development and validation processes*

Discussion 2 – Questions

- What technical knowledge would physicians who use AI need?
- Is the same knowledge needed to develop the four different models?
- Do all physicians need the same level of knowledge? Why?
- What role can physician play in ensuring model performance?



TIME TO SHARE WITH THE LARGE GROUP



Share both overall thoughts – as well as those specific to your model's architecture and validation process

LARGE GROUP DISCUSSION

Consider your model type in communicating your thoughts to the group

»» **Model A**

Non-Generative Model

»» **Model B**

Non-generative, Image-based Model

»» **Model C**

Multimodal Model

»» **Model D**

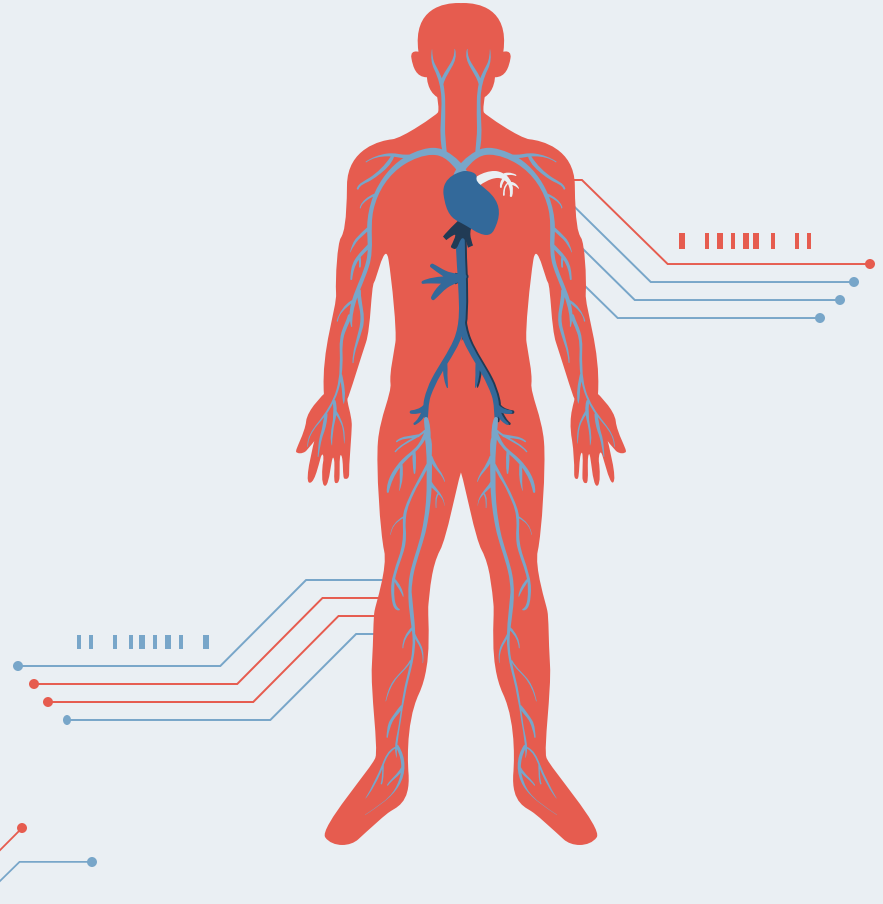
Generative Model





EVIDENCE & RESOURCES

In the following slides, we recommend relevant evidence and resources related to this discussion



Augmented Intelligence

An alternative conceptualization that focuses on AI's **assistive role**, emphasizing the fact that its design enhances human intelligence rather than replaces it

AMA CLRPD, A Primer on Artificial and Augmented Intelligence, 2019

Augmented Intelligence



Better – only if the physician is trained to use AI properly

Freidman. A "fundamental theorem" of biomedical informatics. *J Am Med Inform Assoc.* 2009 Mar-Apr; 16(2): 169-70

Goh E, Gallo R, Hom J, et al. Large Language Model Influence on Diagnostic Reasoning: A Randomized Clinical Trial. *JAMA Netw Open.* 2024;7(10):e2440969. doi:10.1001/jamanetworkopen.2024.40969

Few physicians have had training in AI

AAMC SCOPE data (collected up to February 2024)

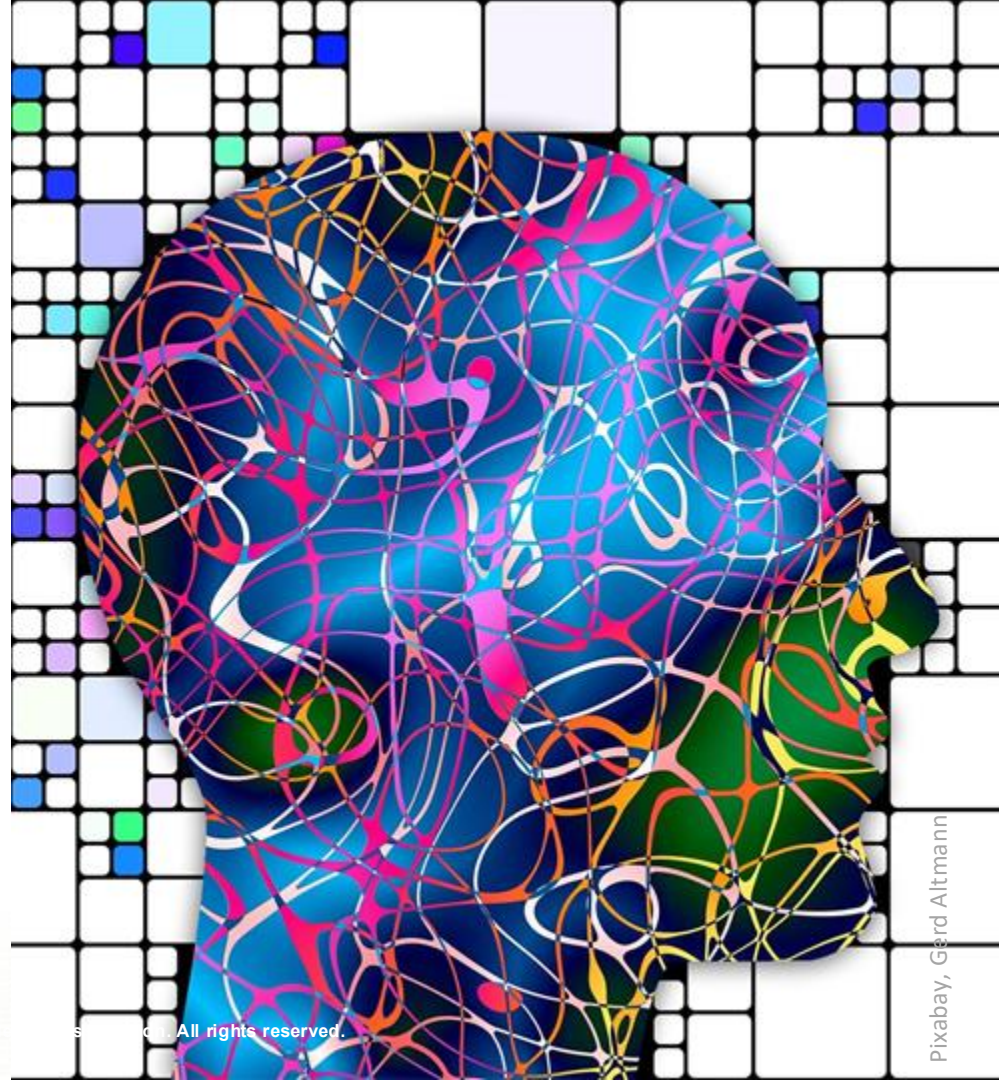
Of 167 MD and DO granting medical schools in the United States and Canada...

- **33%** (55) reported covering artificial intelligence in the required curriculum
- **38%** (63) reported covering artificial intelligence in the elective or optional curriculum

(not mutually exclusive)

Proposed AI competencies for health professionals

- Basics of AI
- AI-enhanced clinical encounters
- Social & ethical issues
- Evidence-based evaluation of AI
- Workflow considerations
- Practice-based learning & improvement in use of AI



Strategies for upskilling

Institutional efforts

- Multi-disciplinary leadership
- Transparent policies and monitoring structure
- Enterprise instances of LLMs for enhanced security
- AI playgrounds, prompt-a-thons, red-teaming
- Include learners & trainees in licenses and co-production
- Study impacts of AI

**AI will enable
enhanced
alignment and
integration of
learning & work**



Image created with DALL-E

Top Use Cases of Generative AI in Healthcare in the US (specialty-agnostic)

(as informally reported in 2025 by 16 representatives of specialty societies in an AMA collaborative, and summarized by ChatGPT from an original list of approximately 100 items)

Administrative

Documentation Assistance Tools

Automated note-taking, digital scribing, and ambient documentation, transcription

Workflow Optimization

Task automation in clinical workflows, especially for radiology

Patient Communication & Education

Patient instructions, Q&A, chatbot interactions, simplified report explanations

Medical Writing & Correspondence

Drafting letters, insurance appeals, consent forms

Consent, Forms & Questionnaires

Dynamic generation of patient forms and digital questionnaire flows

Claim & Revenue Cycle Management

Billing code generation, revenue optimization

Marketing & Outreach

Patient-facing campaign content, educational handouts

Clinical

Summarization & Review

EHR summaries, literature reviews, report generation

AI-Assisted Diagnosis

Automated or AI-supported diagnostic suggestions

Clinical Decision Support

Diagnostic assistance, guideline application, contextual knowledge use

Multimodal Data Integration

Combine text, image, and structured data into coherent outputs

Personalized Treatment Planning

Tailored care plans based on patient data and preferences

Research

Research & Hypothesis Testing

Hypothesis validation, scientific writing, idea exploration

Clinical Trials & Data Structuring

EMR text conversion, unstructured-to-structured data for trials

Drug Discovery & Development

Novel molecule generation, therapeutic R&D

Top specialty-specific applications of AI

Radiology & Imaging

Image analysis, enhancement, report generation, dataset augmentation

Reproductive & Prenatal Care

Monitoring (e.g., fetal heart rate), embryo analysis, fertility chatbots

Mental Health Support

AI-integrated mental health apps, digital phenotyping

Pathology & Genomics

Automated pathology/genomics reporting, rare disease support

Surgery

Surgical robots, extended reality surgical overlays and simulation

Additional Resources



Relevant Readings

1. Sendak, M. P., et al. (2020). *“The human body is a black box”: supporting clinical decision-making with machine learning*. Journal of the American Medical Informatics Association, 27(10), 1530–1536.
2. Abràmoff, M. D., et al. (2020). *From periphery to center: integrating AI into the clinic*. npj Digital Medicine, 3(1), 1–3.
3. Topol, E. (2019). *High-performance medicine: the convergence of human and artificial intelligence*. Nature Medicine, 25(1), 44–56.



THANK YOU FOR PARTICIPATING

Time for another discussion!

