

## Help Us!

We're offering this module free of charge to help clinicians get familiar with AI in clinical care. We'd love your feedback—please consider completing this short, optional survey. It's part of an educational research project, and no personal information is collected. Thanks for considering! ([https://yalesurvey.ca1.qualtrics.com/jfe/form/SV\\_a9JH1v642zjeL42](https://yalesurvey.ca1.qualtrics.com/jfe/form/SV_a9JH1v642zjeL42))



# Artificial Intelligence in Clinical Care

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*"The real problem is not whether machines think but whether men do."*

—B.F. Skinner

## Learning Objectives

1. Develop a working vocabulary for discussing artificial intelligence (AI) in clinical care
2. Critically evaluate major clinical use cases for AI, including ambient documentation, inbox support, clinical decision support, and summarization
3. Consider uses of AI that preserve diagnostic reasoning, communication skills, and professional accountability rather than promoting cognitive offloading and deskilling
4. Apply practical safeguards for clinical and educational AI use, including verification, calibration, cognitive forcing, privacy review, and local governance
5. Discuss the climate implications of AI in health care

## Primary Reference

1. Maddox TM, Embí P, Gerhart J, Goldsack J, Parikh RB, Sarich TC. Generative AI in medicine - evaluating progress and challenges. *N Engl J Med.* 2025;392(24): 2479-2483. (<https://www.nejm.org/doi/abs/10.1056/NEJMs2503956>)

Authors' note: Artificial intelligence was used in the creation of this module for ideation (GPT-4o, Claude Sonnet 4.5), literature search (OpenEvidence), and revising language. GPT-4o and Sonnet 4.5 were accessed using a generative AI tool housed within Yale University's secure infrastructure in which inputs are not added to the external training data set.

## Case One

Your health system is using ambient AI scribes to help clinicians with their chart notes. You're reviewing a note that the tool just created for your last patient. "This history is outlined really nicely," you think, but when you mentioned "hydroxyzine," the system registered "hydralazine," and your discussion about housing instability is omitted from the assessment and plan.

- 1. What types of artificial intelligence are commonly used in medical tools? Why is basic knowledge of AI and related terminology important for all clinicians?**
- 2. What are ambient scribes, what do they seem to do well, and what are their current limits?**
- 3. What is “cognitive deskilling” and how might the use of ambient scribes contribute to it? What strategies might help prevent it?**

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## **Case Two**

You are preparing to see your next patient, a healthy 20-year-old college athlete coming in for a sports physical. Your electronic health record has a built-in clinical decision support tool to help review and analyze chart data. When you open the chart, an alert pops up: “The patient had an EKG performed during an emergency room visit one year ago. Automated analysis has detected a prolonged QT interval. Consider a follow-up EKG for further evaluation.”

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- 4. What is clinical decision support, and how should clinicians interpret the outputs of these systems?**
- 5. What are other emerging uses of AI within electronic health records?**

**6. As unemotional tools, why can AI systems magnify bias and disparities?**

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**Case Continued**

A student in your office is impressed by the decision support offered by your electronic health record. She shares that she is collecting EKGs to eventually build a chatbot to help her and her classmates get better at EKG interpretation.

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**7. What privacy, professionalism, and governance considerations are at play here?**

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**Case Continued**

Hearing this, another student in the office declares “please just use the EKG textbook. We’re killing the planet with all this AI use!”

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**8. When it comes to environmental stewardship, what is the “AI paradox” in health care?**

**9. Optional conversation prompts for further discussion.**

**Additional References**

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## Resources

1. Educational resources on AI for clinicians from AAFP. (<https://www.aafp.org/family-physician/practice-and-career/managing-your-practice/artificial-intelligence.html>)
2. Information on AI in pediatrics care from AAP. ([https://www.aap.org/en/practice-management/health-information-technology/artificial-intelligence-in-pediatric-health-care/?srsltid=AfmBOop153mGzvZ-IrI2qu9NOWPz\\_oz70f6Ntk7nFc178zyQG85b0CTN](https://www.aap.org/en/practice-management/health-information-technology/artificial-intelligence-in-pediatric-health-care/?srsltid=AfmBOop153mGzvZ-IrI2qu9NOWPz_oz70f6Ntk7nFc178zyQG85b0CTN))
3. ACP artificial intelligence resource hub for clinicians. (<https://www.acponline.org/clinical-information/clinical-resources-products/artificial-intelligence-ai-resource-hub>)
4. Digital health resources from AMA. (<https://www.ama-assn.org/practice-management/digital-health>)