AI for Clinicians

Companion Handout - Family Medicine Grand Rounds

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1 · Key Terms at a Glance

Artificial Intelligence (AI)	Computer systems performing tasks we associate with human intelligence: logic, analysis, decision-making.
Machine Learning (ML)	AI that learns from training data without being explicitly programmed; makes predictions and finds patterns.
Generative AI (Gen AI)	ML that produces new content, including text, images, audio, video, from learned patterns.
Large Language Models (LLMs)	Gen AI trained on massive text data, focused on language tasks like summarizing and editing (e.g., DAX, Copilot).
Foundation / Frontier models	Large, general-purpose models adaptable to many tasks; "frontier" = the most advanced available (GPT-5, Claude, Gemini).
Agents / Agentic AI	AI that can act on your behalf; not just reply.
Prompt / Prompting	The instruction and context you give an AI. Clearer, more specific prompts produce better, more reliable output.

2 · Safety First - HIPAA & Guardrails

Never share Protected Health Information (PHI) with any LLM.

PHI includes names, date of birth, MRN, address, dates of service, phone numbers, and a diagnosis in context. Anything that could identify a patient.

A BAA (Business Associate Agreement) is the legal contract governing how a vendor handles PHI and who is liable in a breach.

"HIPAA-compliant" does NOT mean we have a BAA or that PHI may be used.

BAA in place ✓ - PHI permitted, but still minimize	No BAA ✗ - de-identify first; treat as public
Microsoft Copilot · Nuance DAX · Doximity · UpToDate	OpenEvidence · ChatGPT · Claude · everything else

Watch for hallucinations. LLMs predict the next word from patterns, they don't know what's true. Reduce the risk: (1) ask it to pose clarifying questions; (2) give full context up front; (3) ask it to cite sources or admit uncertainty; (4) always verify critical information independently.

Garbage in, garbage out. Output is only as good as the context you give. Instead of "Write a letter for A1c 7.4," say "A1c improved from 13 to 7.4 over six months. Write a congratulatory letter." Do the cognitive work up front: context, trajectory, and what you're actually worried about.

3 · Tools You Can Use Today

Full list of UMMH-approved tools is available on the just launched AI Hub:
umassmemorialhub.org/departments/artificial-intelligence-ai

Tool	What it does
Microsoft Copilot	Summarizes long email threads, drafts replies, schedules meetings, builds Excel formulas.
DAX / Dragon Copilot	Ambient notes: talk naturally with the patient and AI drafts the visit note. Also edits, summarizes, or queries the note; answers clinical questions (CDC, FDA, soon UpToDate); suggests coding, letters, and AVS.
Linus Health	ML-based cognitive assessment, including future risk.
Brook Health	Remote monitoring for hypertension, diabetes, heart failure, and obesity, with an AI coaching chatbot between visits.
Aidoc	Reads CT, MRI, and X-ray to flag urgent findings (stroke, bleed, PE) so teams act faster.
KATE AI	Helps assign the Emergency Severity Index (ESI) at ED triage.
CodaMetrix	Generates coding suggestions for radiology and pathology from the documentation.
Invoca	Transcribes and analyzes inbound patient calls to surface access and scheduling issues.

Epic AI. Epic adds predictive models (deterioration, sepsis, AKI, surgical-site infection, falls, readmission and ED-visit risk, and more), flags potentially urgent MyChart messages, and reformats text on demand. Coming soon: chart-summary insights, custom prompts inside Epic, ambient orders, and "Ask Art" natural-language chart search.

4 · Choosing a Clinical Q&A Tool

Tool	Data source	General web access	HIPAA / BAA (UMMH)
OpenEvidence	Medical literature + partner content (NEJM, JAMA, NCCN, Cochrane)	None. Literature only	HIPAA-compliant; no BAA ✗
UpToDate Expert AI	UpToDate's own expert-authored, peer-reviewed content	None. UpToDate only	HIPAA-compliant; BAA ✓
Doximity Ask	Medical literature + drug monographs; physician-reviewed (PeerCheck)	None. Literature & medical sites	HIPAA-compliant; BAA ✓
ChatGPT / Claude / Gemini	Foundational LLM; no healthcare-specific specialization	Entire public internet	Not HIPAA-compliant; no BAA ✗

New (Oermann et al., Nature Medicine 2026): frontier LLMs (GPT-5.2, Gemini 3.1, Claude Opus 4.6) outperformed OpenEvidence and UpToDate Expert AI on medical knowledge, clinician alignment, and real-world clinical queries.

5 · Real-World Uses

- **Point-of-care reasoning:** quick differentials for phone complaints (nausea, lightheadedness), cross-check the med and problem lists (is vertigo already listed? orthostasis from antihypertensives?), and work up results e.g., "Labs show hyperkalemia, help me figure out why."
- **Teaching & patient education:** photograph a teaching whiteboard for an instant summary and takeaway graphic; generate clean educational visuals for complex processes.
- **Custom GPTs to "prescribe":** Alex, the health coach (diet, exercise, lifestyle); Plants Are Your Friends (Dr. Greger–based lifestyle change); a CV-risk / lipid calculator built on the 2026 ACC/AHA dyslipidemia guideline. No BAA, definitely keep PHI out.
- **Copilot agents:** Mock RADV Auditor critiques a note for missing MEAT and suggests fixes; Deduplicator cleans up a problem list. BAA in place.
- **Your patients already use AI:** they self-diagnose and read wearable data (rings, CGMs, sleep). Don't dismiss it, instead offer the better-informed conversation and help them interpret the numbers.

6 · AI & the Future of Practice

Every job carries uncertainty as AI and robotics arrive across sectors at once, but the clinician who uses AI is far more likely to keep their edge than the one who refuses it. AI doesn't have to be perfect, just better, and the outcome comes down to human choices (Wachter, *A Giant Leap*, 2025). On standardized comparisons AI has already matched or beaten most clinicians and was rated more empathetic (Goh, JAMA Netw Open 2024; Microsoft MAI-DxO, 2025; Ayers, JAMA Intern Med 2023).

Relief, not replacement. AI is best at offloading the work that drives burnout:

Ambient notes: AI drafts the visit note; no more pajama-time charting.	**Coding & care gaps:** HCC capture, E/M codes, overdue-screening lists.
Prior auth & appeals: justification pulled, letter drafted in a minute.	**Chart biopsy:** the whole record summarized before the visit.
Forms & paperwork: FMLA, disability, DME, school physicals.	**Inbox triage:** drafts replies, sorts by urgency, handles refills.
Point-of-care answers: guidelines, differentials, doses in seconds.	**Between visits:** RPM bot handles check-ins, flags the abnormal.

Artisanal medicine

A machine computes the odds, but a decision belongs to a person.

Witness: sitting with someone inside uncertainty.
Translator: turning data into meaning.
Counselor: weighing values, not just odds.
Moral companion: present when there's no clean answer.

7 · Your Next Steps & Resources

1. **Copilot licensing & Responsible Use Training:** rolling out now through September.
2. **Coursera & the AI Ninja Program:** earn the UMass Memorial AI certification badge; 1,500+ courses from 350+ organizations.
3. **Stay current:** NEJM AI (ai.nejm.org) and JAMA AI (jamanetwork.com/channels/ai).

First AI group meeting: Thursday, July 9, 2026 · 6:00 PM · Wormtown Brewery

Healthcare is changing; strap in.