



Brigham and Women's Hospital

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AI for Clinician Experience

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- Clinical focus: Primary care, transitions clinic
- Operational focus: Clinical informatics



DISCLOSURES

I have no disclosures.



OBJECTIVES

- Describe major use cases of generative AI for clinician experience.



Caveats



AI sampler, by no means comprehensive



Ongoing, rapidly evolving space

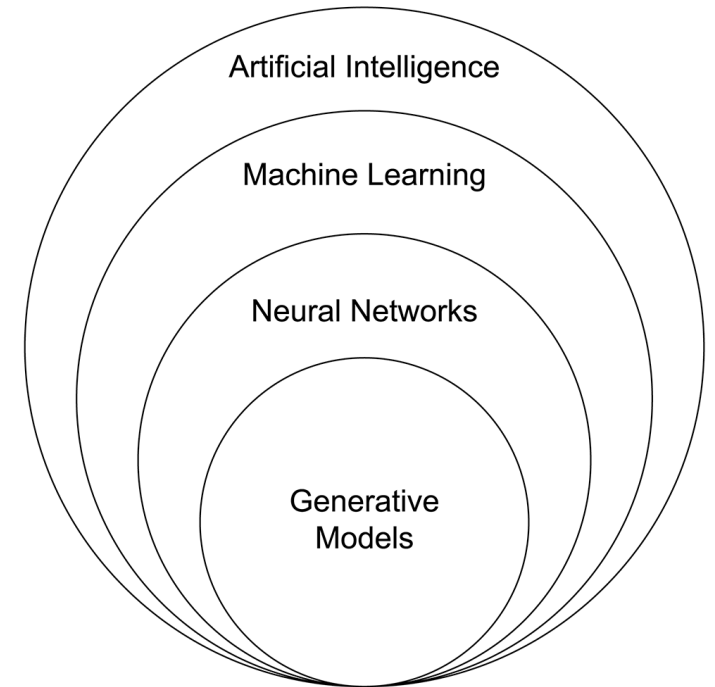
Generative Artificial Intelligence in Healthcare



Generative AI: deep learning models with input of large amounts of data, outputs text/images based on statistical likelihood (think very sophisticated auto-complete)



Potential impact in healthcare – broad across patient care, research, education



Source:
https://commons.wikimedia.org/wiki/File:AI_relation_to_Generative_Models_subset_venn_diagram.png



Why is Generative AI a Different Beast in Healthcare?

Data volume

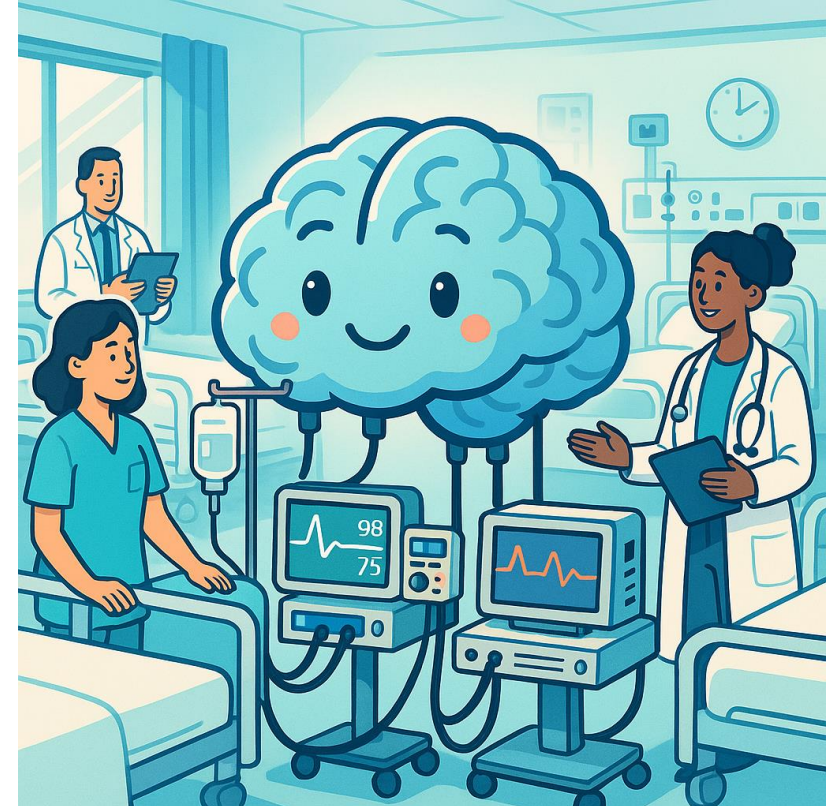
High stakes – patient safety, data, privacy, ethics, medicolegal

Less deterministic

Shift to rapid tech evolution

Clearer application in administrative tasks

Ongoing multidisciplinary evaluation



Opportunity for Clinicians

- Challenging time in healthcare with high levels of burnout
- Healthcare systems recognizing that generative AI is a new tool in toolkit to address challenges in healthcare
- As clinicians - not the time to take a backseat on this technology
- Ask questions, get involved
- Learn more about gen AI:
 - Introduction to AI post 2022, Isaac Kohane (HMS, Department of Biomedical Informatics):
<https://www.zaklab.org/blog/resources-for-introduction-to-ai-post-2022/>
 - Generative AI for Healthcare, Yao and Videk (Stanford):
https://youtu.be/eLAq8yzvu8Q?si=i_yFoF-C04tZ-4u



AI in Healthcare: Real World Applications



Patient Education



Billing / Coding and
Prior Authorization



Medical Education
(Teaching Diagnostic
Reasoning, Practicing
Patient Education)



Patient Portal
Messages (AI-
generated Draft
Replies)



Emergency Room
Triage (AI-Based
Triage Support)

AI for the Clinician Experience

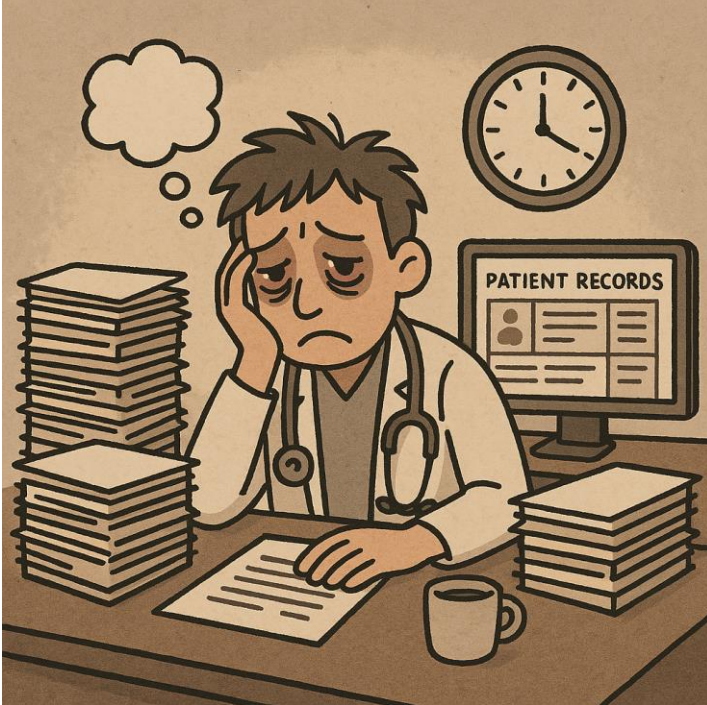
- Ambient Documentation
- AI Assistants
- Chart Summarization (includes discharge summaries, etc.)



Ambient Documentation



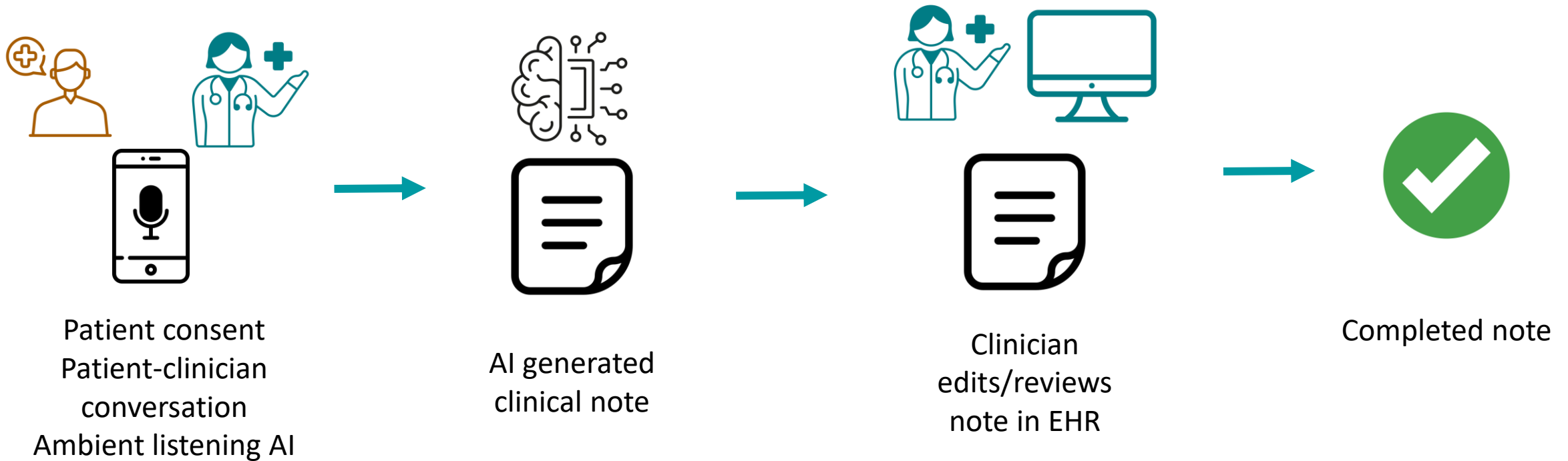
Electronic Health Record and Downstream Effects of Burnout



- Model simulation study suggests burnout costs \$4.6 billion/year, \$7600/physician (Han et al 2019 Annals)
- Burnout associated with suicidal ideation and self-reported medical errors (Menon et al 2020 JAMA Netw Open)
- Aspects of electronic health record have been found to correlate with burnout measures (Budd et al 2023 Journal of Primary Care & Community Health):
 - Usability
 - Documentation time
 - Patient portal messages/inbox volume
 - Cognitive burden (e.g. due to alerts)
- For every 1 hour of clinical care, US physicians spend 2 hours on EHR time/desk work in the clinic, 1-2 hrs of extra work after hours (Sinsky et al 2016 Ann Int Med)

Ambient Documentation Workflow

- Autonomous documentation (sans scribe review) is rapidly improving due to advanced machine learning, including new generative AI/large language models.
- Ambient clinical documentation platforms can record patient visits and summarize into a draft note within minutes and reduce clinician time completing notes.



Recent Studies on Ambient Documentation

University of Michigan Health West (Owens et al Family Practice 2023)

- 110 PCPs, 19 PCPs with high usage of 1 ambient documentation vendor had 28.8% reduction in documentation time per encounter
- High ambient documentation vendor use correlated with reduction in a burnout subscore as measured by Oldenburg Burnout Inventory (OLBI) disengagement (MD [Mean Difference] -2.1; 95% confidence interval [CI] -3.8 to -0.4), but not the total burnout score

Permanente Medical Group (Tierney et al NEJM Catalyst 2024)

- 3.4K physicians, ~1000 using for ≥ 100 patient encounters
- Not integrated with health record system
- High note quality
- Decreased documentation time and time in health record system



Recent Studies on Ambient Documentation

Stanford (Shah et al *JAMIA* 2024, Ma et al *JAMIA* 2024)

- 3 month, single vendor pilot, ambulatory
- Survey results (n=38) showing reductions in burnout, taskload, and usability scores
- Median time per note reduced significantly by 0.57 minutes
- Median daily documentation, after hours, and total EHR time also decreased significantly by 6.89, 5.17, and 19.95 minutes/day

Atrium Health (Liu et al *NEJM AI* 2024)

- Single vendor pilot, primary care
- 112 intervention clinicians, 103 control
- No statistical difference in time savings or RVUs



Recent Studies on Ambient Documentation

Hassan et al, Clinical Implementation of Artificial Intelligence Scribes in Healthcare: A Systematic Review, *Applied Clinical Informatics*, 2025

- 11 studies (2021-Dec 2024), 7/11 (64%) using Nuance DAX, 9/10 studies with improvements in 1+ efficiency metric, 7/10 studies with positive effects on clinician wellness and burnout, 3 studies with positive effects on patient experience
- Limitations: Most studies single site, single vendor, limited # of clinicians, heterogeneous metrics
- Gaps identified: lack of non-ambulatory use, no pediatric-specific considerations, no studies on nursing/trainees, equity considerations

Domains
Use/engagement
Scribe performance
Clinician efficiency
Clinician wellness and burnout
Clinician experience
Patient/family experience
Business efficiency
Equity considerations



AI Assistants



AI Assistants

General Purpose:

- Large language model vendors (e.g. OpenAI's ChatGPT, Google's Gemini, Meta's Meta AI, Claude AI)

Specific Purpose:

- Work productivity AI tools (e.g. Microsoft Copilot)
- Research AI tools (e.g. ResearchRabbit)
- Medical point-of-care information tools (e.g. OpenEvidence)

** Only use your healthcare system's approved AI tools for business/patient care, even if an external system is labeled as HIPAA-compliant.



Cognitive Impact

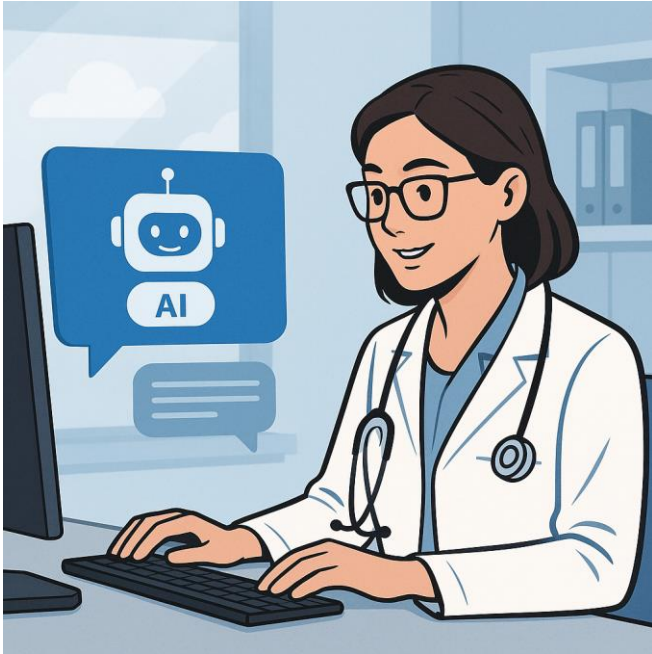
- Lee et al, 2025, The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects from a Survey of Knowledge Workers
- Survey of 319 knowledge workers using generative AI for work (industries ranging from computing/office to business, arts and education) - suggests correlation between high confidence in generative AI and decreased critical thinking, high self-confidence and more critical thinking
- Takeaway: opportunities to address design of these tools, need to study cognitive impact of tools, understand specific impact in healthcare



Chart Summarization



AI Chart Summarization



Summary of prior visits for outpatient chart review

Draft discharge summary

Chat format to query questions from the EHR

Conclusion



MOC REFLECTIVE STATEMENT (BRIEF TAKE HOME NOTES FOR REFERENCE)

Clinician Experience AI Tools:

- Ambient Documentation
- AI Assistants
- Chart Summarization

Ambient documentation most promising in terms of burnout and clinician experience



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